Section 1: 10-K (10-K)

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K

(Mark One)

☒ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the fiscal year ended December 31, 2017

or

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the transition period from to

Commission file number: 001-37870

TiVo Corporation

(Exact name of registrant as specified in its charter)

Delaware	**61-1793262**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)

2160 Gold Street, San Jose, CA 95002

(Address of principal executive offices, including zip code)

(408) 519-9100

(Registrant's telephone number, including area code)

Securities registered pursuant to Section 12(b) of the Act:

Title of Each Class	**Name of Exchange on Which Registered**
Common Stock, $0.001 Par Value	The NASDAQ Global Select Market

Securities registered pursuant to Section 12(g) of the Act: None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☑ No ☐

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Securities Act. Yes ☐ No ☑

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☑ No ☐

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes ☑ No ☐

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of the registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company or an emerging growth company. See definitions of “large accelerated filer,” “accelerated filer,” “smaller reporting company,” and "emerging growth company" in Rule 12b-2 of the Exchange Act:

Large accelerated filer ☑	Accelerated filer ☐	Non-accelerated filer ☐
Smaller reporting company ☐	Emerging growth company ☐	(Do not check if a smaller reporting company)

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ☐ No ☑

The aggregate market value of voting and non-voting common equity held by non-affiliates of the Registrant was approximately $2,197.2 million as of June 30, 2017, based on the closing price on the NASDAQ Global Select Market reported for such date. This calculation does not reflect a determination that certain persons are affiliates of the Registrant for any other purpose. The number of shares of the Registrant's Common Stock outstanding on February 23, 2018 was 122.8 million shares.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant’s definitive Proxy Statement related to the 2018 Annual Meeting of Stockholders, to be filed with the Securities and Exchange

Commission within 120 days after December 31, 2017, are incorporated by reference into Part III of this Annual Report on Form 10-K.

TIVO CORPORATION AND SUBSIDIARIES
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Forward-Looking Statements

This Annual Report on Form 10-K for TiVo Corporation (the "Company," "we" or "us") contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, Section 21E of the Securities and Exchange Act of 1934, as amended, and the Private Securities Litigation Reform Act of 1995, including the discussion contained in Item 7., "Management's Discussion and Analysis of Financial Condition and Results of Operations." We have based these forward-looking statements on our current expectations and projections about future events or future financial performance, which include implementing our business strategy, successfully integrating Rovi Corporation ("Rovi") and TiVo Inc. *(renamed TiVo Solutions Inc. ("TiVo Solutions") following our acquisition of TiVo Solutions on September 7, 2016) (the "TiVo Acquisition"), realizing planned synergies and cost-savings associated with the TiVo Acquisition, developing and introducing new technologies, obtaining, maintaining and expanding market acceptance of the technologies we offer, successfully renewing intellectual property licenses with the major North American pay TV service providers and competition in our markets.*

In some cases, these forward-looking statements can be identified by terminology such as "may," "will," "should," "expect," "plan," "anticipate," "believe," "estimate," "future," "predict," "potential," "intend," or "continue," and similar expressions. These statements are based on the beliefs and assumptions of our management and on information currently available to our management. Our actual results, performance and achievements may differ materially from the results, performance and achievements expressed or implied in such forward-looking statements. For a discussion of some of the factors that might cause such a difference, see the "Risk Factors" contained in Part I, Item 1A. of this Annual Report on Form 10-K. Except as required by law, we specifically disclaim any obligation to update such forward-looking statements.

PART I.

ITEM 1. BUSINESS

Overview

TiVo Corporation ("TiVo") is a global leader in media and entertainment products that power consumer entertainment experiences and enable its customers to deepen and further monetize their audience relationships. We provide a broad set of cloud-based services, embedded software solutions and intellectual property that enable people to find and enjoy online video, television programming, movies and music entertainment. Our solutions include content discovery through device embedded and cloud-based user experience ("UX"), including interactive program guides ("IPGs"), digital video recorders ("DVRs"), natural language voice and text search, cloud-based recommendations services and our extensive entertainment metadata (i.e., descriptive information, promotional images or other content that describes or relates to television shows, videos, movies, sports, music, books, games or other entertainment content).

We offer our portfolio of products as both discrete component technologies for our customers to integrate into their internally developed solutions or as part of completely integrated modular solutions. Our integrated portfolio of software and cloud-based services provide an all-in-one approach for navigating a fragmented universe of content by seamlessly combining live, recorded, video-on-demand ("VOD") and over-the-top ("OTT") (e.g., Netflix, Amazon Video, Hulu, VUDU and YouTube, among others) content into one intuitive user interface with simple universal search, discovery, viewing and recording, to create a unified viewing experience.

We also offer advanced media and advertising solutions, including viewership data, audience insights and advertising and programing promotion optimization, which enable advanced audience targeting in linear television advertising.

Our solutions are sold globally to cable, satellite and telecommunications pay TV service providers, virtual service providers, consumer electronics ("CE") manufacturers, content and new media companies and advertisers. In the United States, we also sell a suite of DVR and whole home media products and services directly to retail consumers.

Our products and innovations are protected by broad portfolios of licensable technology patents. These portfolios cover many aspects of content discovery, DVR, VOD and OTT experiences, multi-screen viewing, mobile device video experiences, entertainment personalization, interactive applications, data analytics solutions and advertising. We license our patent portfolios for use with linear broadcast television and, as the industry extends into new video services through internet technologies, for use with internet connected televisions, personal computers, video game consoles, media streaming and mobile devices. We believe that an ongoing marketplace transition toward mobile viewing and device proliferation present further opportunity to extend our patent licensing programs for new use cases and additional customer verticals.

We are industry pioneers having invented the IPG and the DVR. Today, we continue our strong focus on innovation with new advanced solutions for unified viewing of internet video and pay TV, cutting edge natural language voice enabled technologies, entertainment personalization, audience management and viewership prediction solutions. Through our innovations, we have established broad industry relationships with the companies leading the next generation of digital entertainment. As industry transforms to deliver more content over the internet, we are developing complementary products, services and intellectual property to address our customers' needs.

For financial reporting purposes, our business is organized in two segments: Intellectual Property Licensing and Product. See Note 14 and Note 15 to the Consolidated Financial Statements included in Part IV of this Annual Report on Form 10-K, which is incorporated by reference herein, for additional information related to our segments and geographies, respectively.

Industry Background

Fragmentation. The entertainment marketplace is transforming as content moves from traditional broadcast distribution methods to distribution and delivery over the internet. The consumer entertainment experience is increasingly distributed across multiple screens such as televisions, tablets, smartphones and personal computers, via virtual service providers and content and new media companies. The continued expansion of network bandwidth, the influx of connected devices and the increased availability of digital content, along with increased accessibility through mobile devices such as tablets and smartphones are accelerating this overall industry shift and leading to changes in consumer behavior. Consumers are demanding higher quality personalized, interactive content experiences, where they can easily discover and access entertainment content.

Home Media Complexity. Video content, such as movies and TV shows, continues to capture the majority of consumers' entertainment spending and viewing time. While many consumers have purchased large high definition televisions to maximize video enjoyment in the home, new devices and services now make video content available to consumers both inside and outside of the home. These new devices and services must help identify what is available across linear broadcast television, DVR, and VOD, as well as OTT services. For consumers, setting up the ideal home media environment is complex and requires integrating numerous devices, subscribing to multiple services (pay TV and internet) and often a deep understanding of media format compatibility. Simplifying the consumer experience in the home media ecosystem is critical to the successful evolution of the industry.

Pay TV Is Moving To The Internet. These new devices, services and capabilities are impacting the full entertainment value chain, fueling new business models and increasing competition among existing market participants while introducing new entrants. Distributors such as pay TV and virtual service providers, content and new media companies, retailers and others are seeking ways to strengthen their respective competitive advantages and increase their speed of innovation. Pay TV providers are engaged in a broad effort to enable subscribers to enjoy content where and when they want, on whatever device they choose, which we refer to as "TV Everywhere" ("TVE"). TVE is driving significant investment as service providers move from legacy distribution technologies to internet-based infrastructure for delivering pay TV services.

Content and Business Models. Content producers are also exploring new forms of distribution and business models to protect and advance their position in the distribution value chain. Many content owners are trying direct-to-consumer business models, exploring new forms of content licensing and additional hybrid business models which combine both traditional pay TV with direct-to-consumer distribution. Content distributors are looking to better understand consumer engagement, improve their services and expand their ability to market their content and services. Many distributors are also investing in original entertainment content to establish a more competitive position, retain subscribers and protect their business from future subscriber losses. Combined, these changes are resulting in an overall increase in industry competition between distributors as well as increasing the number of companies distributing premium video content directly to consumers.

Consumer Electronics Devices. Global economic trends and increased competition have challenged much of the traditional CE marketplace, driving margins lower in the face of increased consumer feature requirements. In addition to traditional TV features, consumers are demanding media and OTT services. This increased functionality requires extensive software development, cloud infrastructure and ongoing maintenance and support for these devices throughout their usable life, leading to higher costs for a CE manufacturer years after the initial sale. These new requirements may not be a core competency for CE manufacturers, adding to the challenge of meeting consumer expectations. Competing devices, such as tablets, smartphones, video game consoles and media streaming devices are also competing for consumer spending as consumers become more comfortable managing multiple consumption endpoints. CE manufacturers are also seeking an ongoing revenue relationship with their customers, one that expands beyond selling the consumer a new device every few

years. This leads to a demand for add-on services and advertising that allow the CE manufacturer to monetize and profit from the ongoing distribution or maintenance of entertainment content over the life of a device.

Audiences and Engagement. As traditional media changes, the opportunities for advertisers are evolving as well. As television viewership has become more fragmented, advertisers are looking for new ways to reach audiences by managing consumer engagement across the many devices and applications consumers use. Additionally, the growth of internet advertising has fundamentally changed the criteria advertisers use to evaluate advertising campaigns, adding metrics such as completion and guaranteed views. Consumption data, audience measurement and other analytics data and services that bridge a consumer's engagement across many devices and entertainment services are emerging as key capabilities required to enable advertising value across both pay TV and internet advertising. Virtually every major U.S. broadcast network has a significant program in place to enable data and audience driven advertising models.

Data Driven Economy. To enable this evolving advertising and media ecosystem, it is critical that advertisers, advertising agencies, broadcast networks and content distributors have broad access to granular census-level viewership data, anonymously matched with other information such as behavioral, demographic and purchase data. While much of the third-party data is available as a result of the relative maturity of the digital advertising ecosystem, this level of pay TV viewership data is still relatively scarce. Viewership data is a critical component required to identify, locate and market to specific audiences as well as to enable effective cross-platform measurement and attribution.

Strategy

Television is rapidly evolving with proliferating content choices including traditional linear programming, VOD, TVE and OTT solutions. Further, consumers are accessing and subscribing to video content in new ways such as "skinny bundles" (which include smaller groups of channels) from incumbent pay TV service providers or through OTT services on tablets, smart televisions, and streaming devices. This is leading to pressure on the content and distribution models and we believe we have created a best in class suite of products, advanced technologies and intellectual property that addresses the needs of consumers, pay TV service providers, virtual service providers, CE manufacturers, content and new media companies, and the evolving advertising ecosystem.

Entertainment Discovery, Access and Recording. Finding content to watch or record and watch later remains the foundation of the entertainment experience. We believe new discovery experiences integrating advanced personalization, live, recorded and online video on multiple screens with social engagement and new forms of interaction such as voice commands, will continue to be an area of opportunity. We also believe that metadata, which contains detailed information about programming, data on consumer’s entertainment interests and media engagement history, along with predictive analytics to interpret and utilize the data will be important in enabling highly personalized content experiences both in pay TV and new emerging internet video services from virtual service providers, CE manufacturers and content and new media companies.

Audience Monetization and Insights. Shifts in the value chain are creating new ways for consumers to gain access to content and new business models are emerging to capture consumers’ entertainment engagement and resulting spend. Monetizing audiences through content and media experiences across television and OTT services accessed through different devices such as connected TVs, tablets, smartphones, personal computers, media streaming devices and video game consoles, has become a critical challenge for the industry. We are focused on delivering solutions that utilize consumer media engagement data and advanced predictive analytics to help service providers, content companies and advertisers better understand consumer behavior and better target and measure audiences.

Build on Key Customer Relationships. We intend to grow our business by expanding on the technologies that we provide existing customers and creating new customer product and licensing relationships as more companies look to add media entertainment to their digital lifestyle solutions. We continue to accelerate our customers' efforts to address the industry's expanding needs for entertainment discovery, access, recording and audience management. We will continue to expand relationships with customers in various industry and market segments, including:

- **Pay TV Service Providers:** Cable, telecommunications and satellite television providers that aggregate and distribute content over their own networks.
- **Virtual Service Providers:** Content distributors that aggregate and stream content, including linear television, over broadband networks.
- **CE Manufacturers:** Global digital televisions vendors, Blu-ray and DVD players, DVRs, video game consoles, mobile devices, streaming media devices, digital set-top boxes and other connected media devices.
- **Content and New Media Companies:** Creators and owners of video content for OTT content, media distribution, search, social network and online retail companies.
- **Advertisers:** Marketers, brand advertisers, agencies and advertising technology providers.

Introduce New Products, Services and Technologies. We are developing additional technologies and solutions to meet the evolving needs of both traditional pay TV and internet distribution of entertainment from content owners and other aggregators. We have committed significant resources to expand our technology base, to enhance our existing products and introduce additional products. Key areas of development include enabling our customer to transition to internet or streamed video delivery, powering natural language voice interactions, enabling personalized content discovery, monetizing audiences through sponsored promotions and delivering media engagement data to enable targeted advertising solutions. In addition to improving technologies in our current fields of operation, we intend to pursue emerging opportunities where we are positioned to drive growth in the business.

Expand and Protect our Intellectual Property Position. We have adopted a proactive patent and trademark strategy designed to protect and extend our technology and intellectual property. We have built, and will continue to add to, a large intellectual property patent portfolio. The licensing of our intellectual property patent portfolio is a significant part of our business. We believe that our future success partly depends on our ability to continue to introduce proprietary solutions for the evolving media consumption marketplace. We have patented functionality for many aspects of these solutions in the areas of content discovery, DVR, VOD, TVE, OTT, multi-screen, personalization, contextual search and recommendation and other interactive applications, data analytics and advertising. Our portfolio of internally developed innovation is also enhanced by patents acquired from other industry participants. While we historically have licensed our portfolio for use with linear broadcast television, the industry transition to internet platform technologies is enabling new video services for television inside and outside the home on a broad array of media consumption devices. We believe this transition presents new opportunities for us to expand the industries we serve and to license additional patent rights, which are essential and/or useful as enablers of advanced media devices and services.

Pursue Strategic Transactions. We plan to expand our technology portfolio, improve our capabilities and extend or grow our businesses by pursuing licensing arrangements, joint ventures, and strategic acquisitions of companies whose business, technologies or proprietary rights complement and advance our operational and strategic goals.

Product Segment

Our Product segment includes a suite of component technologies that can be integrated into any of our customer segments' internally developed platforms or deployed as an integrated TiVo solution for pay TV service providers. Our Product segment generated 51%, 46% and 46% of our Total Revenues, net for the years ended December 31, 2017, 2016 and 2015, respectively.

Platform Solutions

We currently offer our Platform Solutions products in North America, Europe, Latin America, Asia Pacific and most recently Africa. Globally, our Platform Solutions customers include America Movil S.A.B. DE C.V., Charter Communications, Inc. ("Charter"), Cogeco Inc. ("Cogeco"), Com Hem Holding AB, Cox Communications Inc. ("Cox"), Mediacom LLC, ONO (now part of Vodafone Group plc), Shaw Communications Inc., Virgin Media plc and many others. As of December 31, 2017, 22 million pay TV and consumer households worldwide, including 9 million outside North America, are estimated to utilize our Platform Solutions. As of December 31, 2017, 7 million households were using the TiVo service. The number of worldwide pay TV and consumer households utilizing our Platform Solutions does not include households using Cubiware's middleware solutions.

TiVo Service Platform. The TiVo Service Platform is our most advanced fully-integrated cloud-based service that powers the TiVo Service client software that operates on set-top boxes in consumer homes, as well as applications that operate on third party software platforms, such as iOS and Android, that power consumer tablets and mobile devices. The solution supports multiple services and applications, such as linear TV programming, broadband OTT video content, digital music, photos and other media experiences. The cloud-based service manages interaction with the TiVo Service infrastructure, automatically connecting TiVo-enabled devices to provide program guide data, content recommendations, media promotion, advertising, broadband content and client software upgrades. We have enabled the TiVo Service client software to operate on third-party set-top boxes, such as those from ARRIS International plc ("ARRIS") and Technicolor SA, for deployment in multichannel video programming distributor (“MVPD”) networks. We also offer a direct-to-consumer retail TiVo Service in the United States, to consumers who purchase TiVo DVRs and companion TiVo Mini whole-home devices. The latest TiVo VOX™ integrates our full portfolio of products, including natural language voice search, personalized recommendations, rich metadata and our latest TiVo Experience 4 user interface for discovery and navigation across linear, OTA and OTT programing. MVPD’s typically pay engineering fees for deployment and customization plus a monthly per subscriber license fee or a one-time term license fee for our TiVo Service Platform. For our direct-to-consumer retail TiVo Service in the United States, consumers either

pay us recurring service fees, or in some cases pay a one-time upfront fee for access to the TiVo service for the life of the purchased TiVo DVR.

User Experience Solutions. Our UX Solutions allow service providers to customize certain elements of the IPGs for their customers and to upgrade the programming features and services they offer. Our UX provides viewers with current and future program information and are compatible with service providers' subscription management, pay-per-view ("PPV") and VOD services. We also offer operational support, professional services and content metadata. Our UX also has the ability to include advertising, and when advertising is provided in the UX, we typically share a portion of the advertising revenue with the service provider. We currently offer UX solutions marketed to service providers under the TiVo, i-Guide and Passport brands in the U.S., Canada and Latin America. Service providers generally pay us a monthly per subscriber fee to license our UX solutions.

We also offer UX Solutions to the CE industry under the G-GUIDE brand in Japan. We receive license fees for these solutions based on the number of units produced or shipped that incorporate our technology or utilize our patents. Our agreements with the major CE manufacturers generally allow them to ship an unlimited number of units incorporating our technology, provided they pay us a fixed fee. In addition, our joint venture with Dentsu Inc. and Tokyo News Service Limited, Interactive Program Guide Inc. ("IPG JV"), acts as the exclusive provider of program listings and advertising for our UX program guides in Japan, marketed under the G-Guide brand. We own 46% of the IPG JV, and have certain contractual management rights. We retain the right to license and collect fees for other products, technology and intellectual property in Japan, regardless of whether the customer is an active customer of IPG JV.

CubiTV and TiVo Lite Middleware. We provide flexible middleware solutions targeted towards pay TV service providers - cable, satellite, terrestrial and telecommunications operators - in developing and emerging markets who want to introduce advanced TV services to their networks. CubiTV and CubiGo give emerging market pay TV service providers the ability to cost-effectively deliver a wide range of interactive services along with a superior user experience to their subscribers. We also plan to provide a more advanced middleware, called TiVo Lite, that offers the TiVo user interface integrated with our Personalized Content Discovery solution and the Cubiware cloud-based infrastructure. Our middleware runs on basic HD set-top boxes and supports DVR functionality in hard-disk enabled boxes. Our CubiTV and TiVo Lite solutions enable multiscreen technology for pay TV service providers to cost-effectively deliver video-oriented services through CE devices, such as tablets, personal computers and smartphones. CubiTV and TiVo Lite middleware customers typically pay engineering integration fees plus a per device license fee.

Software and Services

Metadata. Our metadata products are a critical component of delivering an interactive entertainment experience. We offer comprehensive metadata covering television, sports, movies, digital-first, music, celebrities, books and video games. Our content library includes unique data on more than 16.7 million video programs, including theatrical, digital-first, DVD and Blu-ray releases, as well as thousands of celebrities. Our database also has information on 3.9 million music albums, 34.0 million songs, 12.1 million books, 122,000 video games, 132,000 active athletes and 123,000 sporting events. We develop our metadata through a technology platform that combines machine learning techniques and platform-mediated work with our proprietary and patented knowledge graph technology. This technology platform delivers content faster and at higher quality than traditional editorial models can offer. There are three levels within the metadata portfolio: basic metadata (such as artist or album), navigational metadata (such as relationships between actors and movies or television series) and editorial metadata (such as actor biographies, television, movie or music reviews) and enhanced metadata (such as weighted keywords and connections across all entities in our library) and real-time metadata such as sports play-by-play and excitement scores. Our focus on quality, robustness and consistent international depth has made us a recognized leader in entertainment metadata services worldwide. Looking forward, we continue to expand our portfolio, recently launching new products that support new media efforts from content studios, TV broadcasters and automotive entertainment providers.

Our television and movie metadata covers 75 countries including the United States, countries in Latin America including Brazil, countries in Europe including Russia, Turkey and Poland, and countries in Asia including Hong Kong, India and Taiwan. We license several metadata and service offerings, including, but not limited to, schedules, listings and web content linking services. Customers typically pay us a monthly or quarterly fee for the rights to use the metadata, receive regular updates and integrate it into their own service. Our metadata can be sold stand-alone or as a complement to another TiVo product such as a UX solution or search and recommendation solution. We deliver metadata using real-time APIs and as bulk data files depending on our customer's requirements. Globally our metadata customers include leading companies such as Google Inc. (now part of Alphabet Inc.), Microsoft Corporation ("Microsoft"), Panasonic Avionics Corporation and Samsung Electronics Co. LTD ("Samsung").

Personalized Content Discovery and Natural Language Voice. Personalized Content Discovery with conversation services provides service providers, device manufacturers and application/service developers a way to enable their customers to quickly find, discover, and access content across linear broadcast television, VOD, DVR and OTT sources. We process anonymous viewing information uploaded from set-top boxes, digital media devices and consumer input for use in recommendations and personalization. The advanced algorithms of our technology understand the nature and relationship of content information and the context surrounding a user's behavior to deliver an advanced personalized content discovery experience. Results can be generated through traditional text entry, voice interaction or our content recommendations. Our natural language voice solution, when combined with our advanced search and recommendations technology, enables a conversational interaction between a viewer and their content experience. We have brought together advanced semantic and contextual technologies to enable powerful media centric voice interactivity. Combined with the expertise of our content editors and our comprehensive entertainment metadata, we deliver a powerful discovery solution. These technologies can be applied to pay TV and next generation internet-based TV and video services from virtual service providers, content owners and CE manufacturers. Customers typically pay us a per subscriber or per device fee. Our search and recommendation solutions are widely deployed with many Tier 1 pay TV service providers including CSC Holdings, LLC ("Cablevision", now part of Altice N.V. ("Altice")), Charter and DISH Network L.L.C. ("DISH"), as well as CE manufacturers and content providers.

Advanced Media and Advertising. Our Advanced Media and Advertising solutions enable pay TV and virtual service providers, content and new media companies, and advertisers and their agencies to better understand and monetize consumer media engagement, including, UX Advertising, TV Viewership Data, Audience Segments and Audience Insights solutions.

We provide advertisers with nationwide or regionally targeted advertising on our UX solutions. Advertisers place ads in a variety of display formats, seamlessly incorporated into the user interface. Advertisements can trigger a variety of actions when selected via a remote control, including video advertisement playback, DVR recordings and direct response. Media and conventional advertisers are interested in the value proposition of utilizing display advertising in television interfaces to reach consumers with an interactive experience or guide them to related media content. Utilizing our Personalized Content Discovery platform, we also target content promotions as ‘paid search’ by directly including the sponsored content in user interface’s recommended content carousel. We work with service providers bundling their non-TiVo UX advertising inventory with our native inventory giving us a more significant national footprint.

Our TV Viewership Data platform is built on modern big data technologies and processes millions of households of TV viewership data, program airings data, advertisement log data and other 1st and 3rd party household attributes data. Our platform enables us to partner with service providers to unlock the value of their return-path data, transforming raw return-path data into meaningful viewership information to inform advertising, promotion, and marketing initiatives. Utilizing our TV Viewership Data and Segments products MVPDs, broadcasters, content owners, agencies and advertisers can activate subscriber’s TV viewership alone or combined third party data sources using industry-leading data safe havens to target directly, or through third party viewer segments, promotions and advertising to monetize their subscriber customer base.

Our software-as-a-service Audience Works solutions optimize television advertising and promotion inventory using household-level viewership data from millions of homes combined with innovative analytics to predict TV audience insights and maximize campaign effectiveness. Audience Works analyzes past viewing behaviors to identify and predict future viewing audiences, increasing the value and performance of advertising inventory and more effectively targeting media promotions. TV networks can increase advertising revenue, maximize inventory effectiveness, target on-air promotions and measure results against campaign goals for reach, frequency, budget and target audiences. Audience Works manages the full campaign planning life-cycle including target definition, multi-placement media planning, optimization, scheduling, execution and measurement into one platform. It leverages both first- and third-party demographic data to create custom, predicted viewing audiences to maximize value for TV inventory owners.

We also offer a software-as-a-service Audience Insights solution used by service providers to analyze the habits and preferences of TV subscribers, providing critical insights utilized to increase operational efficiency, improve customer engagement, support carriage and bundling decisions, help mitigate churn and maximize average revenue per user. Integrated with our Personalized Content Discovery solutions, Audience Insights processes millions of households of TV viewership data, programming data, billing and customer attributes data, as well as third-party sources providing service providers deep analysis of their subscriber’s second-by-second engagement and consumption of content.

Other

Analog Content Protection ("ACP"). Our legacy technology of analog video content security, commercially known as ACP, has been used to protect billions of videocassettes since 1985 and billions of DVDs since 1997. We license ACP directly to CE manufacturers and content production studios, as well as semiconductor companies that supply the CE

manufacturers. ACP can be licensed as a fixed annual fee, per unit royalty or, in some cases, as a one-time fee for a perpetual license.

Intellectual Property Licensing Segment

Our Intellectual Property Licensing segment generated 49%, 54% and 54% of our Total Revenues, net for the years ended December 31, 2017, 2016 and 2015, respectively.

Patent Portfolios. The foundation for our Intellectual Property Licensing segment is two expansive portfolios from Rovi and TiVo Solutions, which encompass approximately 5,500 issued and pending patents, including approximately 3,300 internationally. We have filed patent applications relating to thousands of inventions resulting from our research and development, including many critical aspects of the design, functionality and operation of TiVo products and services as well as technology that we may incorporate into future products and services. We continue to grow our patent portfolios in size and relevance through ongoing investment, targeted acquisitions and strategic management of the portfolios. We generate a substantial portion of our Intellectual Property Licensing revenue from our discovery patents, which represents 92% of our total patents. Over the last 10 years, our portfolio of U.S. discovery patents has more than doubled in total size; however, the number of issued patents in our patent portfolio has more than quadrupled. The scope and relevance of our discovery patent portfolios have also grown over this period, reflective of the increase in entertainment UX, DVR and mobile device media functionality. We believe that interactive video guidance technology is a necessary tool for television viewers facing an increasing amount of available content and an increasing number of digital television channels, VOD services, and OTT services. The entertainment UX is evolving from a solution for linear television content to a UX for all the content consumers have access to across all of the devices they use. Our discovery patent portfolio includes important intellectual property coverage and protection for key features and functionality across guidance, search and recommendation, DVR, VOD, OTT, second screen offerings, mobile device media utilization and various interactive television applications. Our discovery portfolio's patents have expiration dates as late as 2037. We have extensive, ongoing innovation efforts in place to ensure the longevity of our patent portfolios so they continue to provide long-term protection across the key areas of our business and the media experience.

Protecting our Investment. From time-to-time, we engage in intellectual property litigation to protect our technology from infringement. We are currently involved in litigation against Comcast Corporation ("Comcast"), where we have alleged that Comcast is infringing our intellectual property. While litigation is never our preference and we prefer to reach a mutually agreeable commercial licensing arrangement, it is a necessary tool to effectively protect our technology investment.

Multiple Licensing Segments. Traditional pay TV service providers typically pay us a monthly per subscriber fee and have historically licensed our discovery patent portfolio for the television use case. We have extended our pay TV licensing program to cover virtual service providers, who deliver pay TV services over the internet at comparable rates to traditional pay TV. As mobile TV initiatives have also become more prevalent with service providers, we have established secondary licensing agreements to provide coverage and rights for the mobile TV use case. Online and OTT video service providers typically have paid us a flat fee to license our patents for a specified period of time. Our CE licensees typically pay us license fees based on the number of units produced or shipped that utilize our patents, for specified products, in defined territories. Our agreements with the major CE manufacturers generally allow them to ship an unlimited number of units utilizing our discovery patents, provided they pay us a fixed annual fee.

Major Licensees. Our major pay TV service provider and video distribution intellectual property licensees include Altice USA (including Cablevision), AT&T, Charter, Cox, DISH, Foxtel, Netflix, Inc., Sky Italia, Sky plc, VUDU, Inc. and others. We also have license agreements with third party IPG providers. Our CE intellectual property licensees include leading CE companies such as Panasonic and Samsung. As of December 31, 2017, 154 million pay TV subscribers worldwide are estimated to be receiving a licensed UX or IPG solution, including 83 million internationally.

Innovation and Development

Research and Development. Our internal research and development efforts are focused on developing new innovative products, enhancing our existing products and extending these technologies into new or evolving applications. We have acquired other companies and technologies to supplement our research and development expenditures in the past, and may continue to do so in the future. Our Research and development expenses were $194.4 million, $125.2 million and $99.9 million for the years ended December 31, 2017, 2016 and 2015, respectively.

TiVo Service Platform & Client Software. Over the past two years, the TiVo Service Platform and Client Software have undergone a significant refactoring. In addition to developing a new look and feel, our next generation TiVo Service

Platform integrates all of our most advanced technologies and solutions, including advanced cross-platform conversational voice search, personalized recommendations, predictions and insights, extensive video metadata, robust data collection and new back office capabilities. The new TiVo Service Platform began rolling out to our pay TV and retail customers in 2017.

TiVo-Enabled Hardware Design. We continue to advance the TiVo-enabled hardware designs, including our latest TiVo BOLT VOX™ DVRs and TiVo Mini VOX™ non-DVR set-top boxes, and specifications developed by TiVo for set-top boxes and other devices. We provide this design to our contract manufacturer that produces TiVo-branded hardware. The TiVo-enabled hardware design includes a modular front-end that allows the basic platform to be used for digital and analog broadcast, cable, OTT and VOD. In addition, the TiVo-enabled hardware design allows the cloud-based TiVo Service Platform and the internet to connect with third party consumer devices and services to enable existing and future functionality.

Personalization, Prediction and Voice. The ongoing investment in our Personalized Content Discovery platform enables us to provide some of the most advanced capabilities in media personalization, prediction and voice search. Built on a robust cloud architecture and widely deployed with Tier 1 pay TV and other providers, our solution is a leading technology in the market. We continue to expand this solution with innovations focused on new verticals such as, content promotion, internet video services and advertising.

Advanced Media and Advertising. We are leading the industry to use advanced technologies focused on television data, consumer data and cutting edge predictive analytics to create efficiencies and value multipliers in the evolving television advertising ecosystem. This technology stack includes a predictive analytics engine, audience management platform and a data warehouse, which collectively processes the raw TV viewership data events from millions of set-top boxes which are anonymously matched against billing, customer and a range of other third party data. These capabilities can be used across a variety of advertising use cases in both traditional linear television and digital advertising for internet delivered content.

Supporting Operations

Operations and Technical Support. We have technical support and certification operations to support our products:

- We provide training, technical support and integration services to pay TV service providers who license our products.
- We operate the internet-based services required for our service offerings including data delivery, search, recommendation, advertising, device management and media recognition.
- We provide broadcast delivery of television line-up data and advertising to UXs on TVs and set-top boxes in major European markets and in Japan. In North America, we deliver similar line-up and advertising data via the internet.
- We support our customers with porting and engineering services to ensure our IPGs and DVRs operate properly.
- We provide customer care for UX and DVR customers to resolve data, advertising and consumer functional issues.

TiVo Service. We provide customer support through outsourced service providers as well as our internal customer service personnel for our direct-to-consumer retail TiVo Service in the United States. When our product is distributed through a pay TV service provider, the pay TV service provider is primarily responsible for customer support. We offer training, network operating center services and other assistance to these pay TV service providers. Our retail TiVo Service subscribers have access to an internet-based repository for technical information and troubleshooting techniques. They also can obtain support through other means such as the TiVo website, web forums, email and telephone support.

Consumer Warranty and Support. We offer a standard manufacturer's warranty period to consumers for TiVo-enabled DVRs of 90 days for parts and labor from the date of purchase and from 91 days-365 days for parts only. We offer a Continual Care warranty to TiVo-Owned customers which extends the one-year warranty for parts only for customers with current monthly service plans who also use our latest BOLT and Roamio DVRs for as long as such customers remain active. We contract with third parties to perform warranty repairs. Warranties provided to pay TV service providers who distribute TiVo hardware vary in length depending on the agreement.

Manufacturing and Supply Chain. We outsource the manufacturing of our products to third-party manufacturers. This outsourcing extends from prototyping to volume manufacturing and includes activities such as material procurement, final assembly, test, quality control and shipment to distribution centers. The majority of our products are assembled in Mexico, with the majority of our components delivered from manufacturers overseas. Our primary distribution center is operated on an outsourced basis in Texas.

The components that make up our products are purchased from various vendors, including key suppliers such as Broadcom Corporation, which supplies system controllers. Some of our components, including system controllers, chassis, remote controls, and certain discrete components are currently supplied by sole source suppliers. Our dependence on these sole source suppliers could expose us to the risk of supply shortages and unexpected price increases.

We often require substantial lead time to purchase components and manufacture anticipated quantities of devices that enable the TiVo service. This long lead time requires us to make component purchasing and inventory decisions in advance of our peak selling periods. We offer a 30-day money back guarantee to individual retail end-users who purchase from TiVo.com. We typically do not offer a right of return or significant extended payment terms to our retailer customers.

Seasonality. Sales of our TiVo devices and subscriptions to the TiVo service sold directly to retail consumers are affected by seasonality. We generate a significant number of our annual device sales and new retail consumer subscriptions during and immediately after the Christmas holiday shopping season. We also incur significant increases in expenses in the second half of the year related to hardware costs, marketing development funds and other payments to channel partners, and sales and marketing costs in advance of the Christmas holiday shopping season.

Competition

There are a number of companies that produce and market advanced media solutions such as UXs, IPGs, DVRs, search, recommendation, natural language voice, metadata, and advanced data and analytics in the various formats which compete, or we believe will compete, with our products and services over time. Principal competitive factors include brand recognition and awareness, product and service functionality, innovation, ease of use, personalization, content access and availability, mobility and pricing. While we are competitive across this range of factors, we believe our primary competitive differentiation comes from our ability to integrate all of our products to create unique value to our customers.

Platform Solutions: Our Platform Solutions face competition from companies such as Cisco (including NDS), Ericsson (including Mediaroom), Kudelski, SA, MobiTV, and Espial and from MSO internally developed solutions such as Comcast X1 and Liberty Global's Horizon Media, which have created competing products that provide user interface software for use on STBs and CE and mobile devices. Such companies may offer more economically attractive agreements to service providers and CE manufacturers by bundling multiple products together. Another common competitor we encounter is a customer who chooses to build its own IPG and DVR solution, under license with our intellectual property. We believe that we provide a strong alternative to “do-it-yourself,” as we have innovative, high-quality products ready to be implemented, with local and network DVR, integrated data distribution infrastructure and content, as well as third party services (such as VOD services). We differentiate our products by continuing to integrate our broad portfolio of products into a suite of solutions and services for our customers. We believe our solutions can speed our customers' time to market, be deployed at a lower cost than internally built products, and can be superior to “do-it-yourself” products. For those that choose to do it themselves, we have component products such as advanced search, recommendation, conversation and insights, Cubiware middleware products and our extensive metadata offerings providing them a full suite of services to power their next generation in-house built media experience.

Consumer Retail DVRs. Our retail products compete in the U.S. against solutions sold directly by pay TV service providers. These solutions often have similar feature sets, such as DVR capabilities, search and discovery, multi-room viewing, and TVE access for mobile devices. Some of these solutions are offered at lower prices, but in many cases, are bundled with other services provided by the operator and the price for the DVR and DVR service may not be apparent to the consumer. In addition, the DVRs are usually professionally installed and may appeal to consumers who do not wish to pro-actively select a DVR service. Our retail products also compete against products with on-demand OTT streaming capabilities offered by CE manufacturers. Though these devices do not offer the breadth of the TiVo service, they do offer alternative ways to access TVE and OTT content. For example, many CE manufacturers have television or DVD products that are internet enabled and others have built dedicated devices for accessing video over the internet such as Apple TV, Amazon Fire TV, Google Chromecast and Roku. Similarly, companies such as DISH (Sling TV), AT&T (DirecTV NOW), Microsoft and Sony have now enabled the digital delivery of video programming over the internet to video game consoles and other consumer devices.

Metadata. In metadata, we compete with other providers of entertainment-related content metadata such as Gracenote (a subsidiary of Nielsen Company) and Ericsson Broadcast and Media Services (formerly Red Bee Media and FYI Television, Inc.). While we do not believe that our competitors' metadata sets offer the same comprehensive breadth of focus on media exploration, discovery and management in as many regions of the world as we do, they present competition to our metadata business for each of their areas of focus.

Data Analytics. We collect and analyze audience research data in an area where companies such as comScore, Inc. and Nielsen and other online data analytics companies compete for research spend from advertisers, advertising agencies and television networks. Other large companies are also focusing resources in this area including Comcast, Facebook, Inc. and Google. Many of our existing customers are investing in significant platforms to enable their businesses with these capabilities. We believe that there is a significant opportunity for us as an independent data and technology provider, with proprietary access to critical data assets associated with consumers' engagement with entertainment media.

Intellectual Property Rights, including Patents, Copyrights, Trademarks and Tradenames

We operate in an industry in which innovation, investment in new ideas and protection of our IP rights are critical for success. We protect our innovations and inventions through a variety of means, including but not limited to applying for patent protection domestically and internationally.

As of December 31, 2017, we held approximately 1,500 U.S. patents and had approximately 700 U.S. patent applications pending. As of December 31, 2017, we also had approximately 2,500 foreign patents and approximately 800 foreign patent applications pending. Each of our issued patents expire at a different time based on the particular filing date of that respective patent, with expiration dates as late as 2037.

We own or have rights to various copyrights, trademarks and trade names used in our business. These include, but are not limited to, TiVo, Rovi, Passport, Rovi Guides, G-GUIDE, iGuide and Cubiware. We have secured numerous foreign and domestic trademark registrations for our distinctive marks, including but not limited to registrations, for the marks “TiVo,” the TiVo logo, “Season Pass” and certain sound marks.

Many of our competitors and other companies and individuals have obtained, and may be expected to obtain in the future, patents that may directly or indirectly affect the products or services offered or under development by us. We are currently developing a variety of enhancements to our Platform Solutions and other products and services. We offer no assurance that any enhancements developed by us would not be found to infringe patents that are currently held or may be issued to others. There can be no assurance that we are or will be aware of all patents that may pose a risk of infringement by our products and services. In addition, patent applications are generally confidential for a period of 18 months from the filing date, or until a patent is issued in some cases, so we cannot evaluate the extent to which certain products and services may be covered or asserted to be covered by claims contained in pending patent applications prior to their publication. In general, if one or more of our products or services were to infringe patents held by others, we may be required to stop developing or marketing the products or services, to obtain licenses to develop and market the products or services from the patent holders or to redesign the products or services in such a way as to avoid infringing the patent. This could affect our ability to compete in a particular market.

Legislative and Regulatory Actions

A number of government and legislative initiatives have been enacted to encourage development and implementation of technologies that protect the rights and intellectual property of the content owners. For example, the U.S. and other countries have adopted certain laws, including the Digital Millennium Copyright Act of 1998 ("DMCA"), and the European Copyright Directive, which are aimed at the prevention of piracy of content and the manufacture and sale of products that circumvent copy protection technologies, such as those covered by our patents.

Compatibility Between Cable Systems and CE Equipment

The Federal Communications Commission ("FCC") has been working for over a decade to implement a congressional mandate to create a competitive market for cable television set-top boxes and other devices to access video programming on cable systems (“navigation devices”) and give consumers a choice in the devices used to access such programming, while still allowing the cable systems to have control over the secured access to their systems.

To meet its statutory obligation without compromising the security of video services, the FCC required cable systems to make available a security element (now known as a CableCARD) separate from the basic navigation device needed to access video program channels. In 2003, the FCC adopted regulations implementing an agreement between cable television system operators and CE manufacturers to facilitate the retail availability of so-called “plug and play” devices that utilize unidirectional CableCARDs, including digital televisions and other digital devices that enable subscribers to access cable television programming without the need for a set-top box (but without the ability for consumers to use interactive content). In 2013, the United States Court of Appeals for the District of Columbia Circuit struck down the FCC rules in a way that could have an impact on cable operators’ continued provision of CableCARDs to customers for use with third-party navigation

devices. In December 2014, Congress passed the Satellite Television Extension and Localism Act Reauthorization ("STELAR"), which repealed an FCC requirement that cable operators employ separable security (i.e., CableCARDs) in the set-top boxes they lease to their subscribers effective December 4, 2015. STELAR also directed the FCC to create a working group to find a successor standard to replace the CableCARD. The cable industry has continued to provide, and committed to Congress to provide, CableCARDs for third-party devices like those supplied by TiVo to requesting customers. We cannot predict the ultimate impact of any new technical equipment regulations on our business and operations. Although current FCC regulations no longer prohibit multi-channel video service providers from deploying navigation devices with combined security and non-security functions, further developments with respect to these issues could impact the availability and/or demand for “plug and play” devices, particularly bi-directional devices, and set-top boxes, all of which could affect demand for UXs incorporated in set-top boxes or CE devices.

General Government Regulation

We are subject to a number of foreign and domestic laws and regulations that affect companies that import or export software and technology, including encryption technology, such as the U.S. export control regulations as administered by the U.S. Department of Commerce.

We are also subject to a number of foreign and domestic laws that affect companies conducting business on the internet. In addition, because of the increasing popularity of the internet and the growth of online services, laws relating to user privacy, freedom of expression, content, advertising, accessibility, network neutrality, information security and IP rights are being debated and considered for adoption by many countries throughout the world. Each jurisdiction may enact different standards, which could impact our ability to deliver data, services or other solutions through the internet.

We may be further subject to international laws associated with data protection, privacy and other aspects of our business in Europe and elsewhere, and the interpretation and application of data protection laws remains uncertain. In addition, because our services are accessible worldwide, foreign jurisdictions may claim that we are required to comply with their laws. Further, the application of existing laws regulating or requiring licenses for certain businesses of our advertisers can be unclear. The resulting regulation, if any, may alter our ability to target advertising or provide data about the end-users and/or customers and their behavior.

In the U.S., service providers have been subject to claims of defamation, libel, invasion of privacy and other data protection claims, torts, unlawful activity, copyright or trademark infringement, or other theories based on the nature and content of the materials searched and the ads posted or the content generated by users. In addition, several other federal laws could have an impact on our business. For example, the Digital Millennium Copyright Act ("DMCA") has provisions that limit, but do not eliminate, our liability for hosting or linking to third-party websites that include materials that infringe copyrights or other rights, so long as we comply with the statutory requirements of this act. The Children's Online Privacy Protection Act restricts the ability of service providers to collect information from minors, and the Protection of Children from Sexual Predators Act of 1998 requires service providers to report evidence of violations of federal child pornography laws under certain circumstances.

Employees

As of December 31, 2017, we had approximately 1,700 full-time employees, of which approximately 600 were based outside the U.S. None of our employees are covered by a collective bargaining agreement or are represented by a labor union. We have not experienced any organized work stoppages. We believe that our future success will depend in part on the continued service of our key employees and on our continued ability to hire and retain qualified personnel. We may not be able to retain our key employees and may not be successful in attracting and retaining sufficient numbers of qualified personnel to conduct our business in the future.

Information About Our Executive Officers

The names of our executive officers, their ages and positions as of December 31, 2017 are shown below. Biographical summaries of each of our executive officers are included below.

Name	Age	Positions
Enrique Rodriguez	55	President and Chief Executive Officer
Dustin Finer	48	Chief Administrative and Internal Operations Officer
Peter Halt	57	Chief Financial Officer
Pamela Sergeeff	45	Executive Vice President, General Counsel and Chief Compliance Officer

Enrique Rodriguez. Mr. Rodriguez has served as the President and Chief Executive Officer and a member of the Board of Directors of TiVo since November 2017. Prior to becoming CEO, Mr. Rodriguez was Executive Vice President and Chief Technical Officer of AT&T, a telecommunications company, from August 2015 to November 2017. From January 2013 to July 2015, he served as Executive Vice President, Operations and Products of Sirius XM and was Group Vice President of Sirius XM Radio, a broadcasting company, from October 2012 to January 2013. Prior to his employment at Sirius XM Radio, Mr. Rodriguez was the Senior Vice President and General Manager of Cisco Systems' Service Provider Video Technology Group. Mr. Rodriguez also held various executive positions at Microsoft from 2003 to 2010, including Corporate Vice President for the TV Division and as Vice President of Xbox Partnerships. Prior to joining Microsoft, Mr. Rodriguez spent over 20 years at Thomson/RCA in a variety of engineering and executive roles where he was awarded over 25 U.S. patents and international derivatives. Mr. Rodriguez holds a B.S. in electrical engineering from Mexico's Instituto Tecnológico de Monterrey.

Dustin Finer. Mr. Finer has served as our Chief Administrative and Internal Operations Officer since June 2016. Mr. Finer joined the Company (then Rovi) in May 2012 as Executive Vice President of Human Resources. Prior to Rovi, he served in various leadership roles at MySpace, a social networking company, including Chief of Operations and Executive Vice President from July 2010 to September 2011, and Chief People Officer from July 2009 to July 2010. Previously, Mr. Finer served as Senior Vice President of Human Resources at Fox Interactive Media from August 2008 to June 2009, and as Senior Vice President of Human Resources at Gemstar from May 2006 to May 2008. Mr. Finer holds a B.A. in Political Science from the University of California, San Diego and a J.D. from the University of the Pacific.

Peter Halt. Mr. Halt has served as our Chief Financial Officer since May 2012. Mr. Halt joined the Company (then Rovi) in May 2008 in connection with the acquisition of Gemstar, and served as the Company's Senior Vice President and Chief Accounting Officer from 2008 to 2012. Mr. Halt previously served as Senior Vice President, Finance and Chief Accounting Officer at Gemstar from March 2004 to May 2008. Mr. Halt holds a B.S. in Business from the University of Southern California.

Pamela Sergeeff. Ms. Sergeeff has served as our Executive Vice President, General Counsel since December 2013. Ms. Sergeeff joined the Company (then Macrovision) in 2003. She has held various positions in the legal group from 2003 to 2013, including serving as Senior Vice President and Associate General Counsel from March 2011 to December 2013 and as Vice President and Associate General Counsel from July 2007 to March 2011. Ms. Sergeeff also serves as the Company's Chief Compliance Officer and Corporate Secretary. Ms. Sergeeff holds a B.A. in Economics from the University of California, Los Angeles and a J.D. from the University of California, Berkeley. Ms. Sergeeff is a member of the California State bar.

Available Information

Our website is located at http://www.tivo.com. We make available free of charge on our website our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a) or 15 (d) of the Exchange Act, as soon as reasonably practicable after we electronically file such material with, or otherwise furnish it to, the Securities and Exchange Commission (the "SEC"). Copies will be provided to any stockholder on request to TiVo Corporation, Attention: Corporate Secretary, 2160 Gold Street, San Jose, California 95002. The reference to our website does not constitute incorporation by reference of the information contained on or hyperlinked from our website and should not be considered part of this document.

The public may also read and copy any materials we file with the SEC at the SEC's Public Reference Room at 450 Fifth Street, N.W., Washington, D.C. 20549. The public may obtain information on the operation of the Public Reference Rooms by calling the SEC at 1-800-SEC-0330. The SEC also maintains a website that contains reports, proxy and information

statements and other information regarding issuers that file electronically with the SEC. The SEC's website is located at http://www.sec.gov.

ITEM 1A. RISK FACTORS

Investing in our common stock involves a high degree of risk. You should carefully consider the risk factors set forth below. You should consider these risk factors together with other information contained or incorporated by reference in our filings with the Securities and Exchange Commission before investing in our securities. If any of the following risks are realized, our business, operating results, financial condition, and prospects could be materially and adversely affected, which in turn could adversely affect our ability to repay our outstanding convertible senior notes or other indebtedness. In those events, the price of our common stock could decline, and you could lose part or all of your investment. The risks and uncertainties described below are not the only ones we face. Additional risks and uncertainties not presently known to us or that we currently believe to be immaterial may also adversely affect our business.

Risks Related to Our Financial Position and Capital Needs

We have incurred and expect to continue to incur significant restructuring and integration-related costs following the acquisition of TiVo Solutions by Rovi Corporation and may not realize our anticipated cost savings with respect to our integration and restructuring initiatives.

Following completion of the TiVo Acquisition, we have incurred material transaction, restructuring, transition and integration-related costs in connection with integrating TiVo Solutions' operations with the operations of Rovi. This integration may not be achieved in a timely and efficient manner, and we may not fully realize the anticipated cost savings for a variety of reasons. Some of the risks related to this integration include failure to obtain expected cost savings due to cost overruns and failure to consolidate our disparate administrative and engineering operations. In addition, these restructuring, integration and cost reduction plans are designed to reduce our fixed costs and our operating expenses, which include the future consolidation of existing office locations, elimination of redundant information systems, product integration and consolidation efforts, and employee-related costs. These restructuring and integration activities are likely to result in significant restructuring charges that will adversely affect, our results of operations for the periods in which such charges occur. Additionally, actual costs related to such restructuring plans have in the past, and may in the future, exceed the amounts that we previously estimated, leading to additional charges as actual costs are incurred. And further, if the expected cost savings and synergy benefits are not realized, our business will be harmed.

The recently passed comprehensive tax reform bill could adversely affect our business and financial condition.

On December 22, 2017, President Trump signed into law new legislation that significantly revises the Internal Revenue Code of 1986, as amended. The newly enacted federal income tax law, among other things, contains significant changes to corporate taxation, including reduction of the corporate tax rate from a top marginal rate of 35% to a flat rate of 21%, limitation of the tax deduction for interest expense to 30% of adjusted earnings, limitation of the deduction for newly generated net operating losses to 80% of post-2017 annual taxable income and elimination of net operating loss carrybacks, one time taxation of offshore earnings at reduced rates regardless of whether they are repatriated, future taxation of certain classes of offshore earnings regardless of whether they are repatriated, immediate deductions for certain new investments instead of deductions for depreciation expense over time, and modifying or repealing many business deductions and credits. Notwithstanding the reduction in the corporate income tax rate, the overall impact of the new federal tax law is uncertain and our business and financial condition could be adversely affected. In addition, it is uncertain if and to what extent various states will conform to the newly enacted federal tax law or other tax laws they may enact.

See Note 13 to the Consolidated Financial Statements in Part IV of this Annual Report on Form 10-K, which is incorporated by reference herein.

Our effective tax rate may fluctuate, and we may incur obligations in tax jurisdictions in excess of accrued amounts.

We are subject to taxation in the U.S., in numerous U.S. states, and in international taxing jurisdictions. As a result, our effective tax rate is derived from a combination of applicable tax rates in the various places that we operate. In preparing our financial statements, we estimate the amount of tax to accrue in each tax jurisdiction. Nevertheless, our effective tax rate may be different than experienced in the past due to numerous factors, including passage of the newly enacted federal income tax law, changes in the mix of our profitability from state to state and from country to country, the results of examinations and audits of our tax filings, our inability to secure or sustain acceptable agreements with tax authorities, changes in accounting for income taxes and changes in tax laws. Any of these factors could cause us to experience an effective tax rate significantly

different from previous periods or our current expectations and may result in tax obligations in excess of amounts accrued in our financial statements.

Our ability to use net operating losses to offset future taxable income may be subject to limitations.

As of December 31, 2017, we had U.S. federal and state NOLs of $1.0 billion and $1.2 billion, respectively. The federal and state net operating loss carryforwards will begin to expire, if not utilized, beginning in 2019. These net operating loss carryforwards could expire unused and be unavailable to offset future income tax liabilities. Under the newly enacted federal income tax law, federal net operating losses incurred in 2018 and in future years may be carried forward indefinitely, but the deductibility of such federal net operating losses is limited. It is uncertain if and to what extent various states will conform to the newly enacted federal tax law. In addition, under Section 382 of the Internal Revenue Code of 1986, as amended, and corresponding provisions of state law, if a corporation undergoes an “ownership change,” which is generally defined as a greater than 50% change, by value, in its equity ownership over a three-year period, the corporation’s ability to use its pre-change net operating loss carryforwards and other pre-change tax attributes to offset its post-change income or taxes may be limited. We may experience ownership changes in the future as a result of subsequent shifts in our stock ownership, some of which may be outside of our control. If an ownership change occurs and our ability to use our net operating loss carryforwards is materially limited, it would harm our future operating results by effectively increasing our future tax obligations.

Stock transfer restrictions in our certificate of incorporation may act as an anti-takeover device.

On September 7, 2016, upon the effective time of the merger with TiVo Solutions, our certificate of incorporation was amended and restated to include certain transfer restrictions intended to preserve our tax benefits pursuant to Section 382 of the Internal Revenue Code that apply to transfers made by 5% stockholders, transferees related to a 5% stockholder, transferees acting in coordination with a 5% stockholder, or transfers that would result in a stockholder becoming a 5% stockholder. Such transfer restrictions will expire on the earlier of (i) the repeal of Section 382 or any successor statute if our board of directors determines that such restrictions are no longer necessary or desirable for the preservation of certain tax benefits, (ii) the beginning of a taxable year to which our board of directors determines that no tax benefits may be carried forward (iii) the third anniversary of the merger with TiVo Solutions, or (iv) such other date as our board of directors shall fix in accordance with the certificate of incorporation.

The transfer restrictions described above could make it more difficult for a third party to acquire, or could discourage a third party from acquiring, a large block of our common stock. This may adversely affect the marketability of our common stock by discouraging existing or potential investors from acquiring our stock or additional shares of our stock. It is also possible that the transfer restrictions could delay or frustrate the removal of incumbent directors and could make more difficult a merger, tender offer or proxy contest involving us, or impede an attempt to acquire a significant or controlling interest in us, even if such events might be beneficial to us and our stockholders.

We have indebtedness which could adversely affect our financial position.

As of December 31, 2017, we had total debt with a par value of $1.0 billion, which included $675.5 million under our Term Loan Facility B and $345.0 million under our 2020 Convertible Notes. Our Term Loan Facility B is guaranteed by us and certain of our domestic and foreign subsidiaries and is secured by substantially all of our, the subsidiary guarantors and the co-borrowers’ assets. Our indebtedness may:

- limit our ability to borrow additional funds for working capital, capital expenditures, acquisitions or other general business purposes;
- limit our ability to use our cash flow or obtain additional financing for future working capital, capital expenditures, acquisitions or other general business purposes;
- require us to use a substantial portion of our cash flow from operations to make debt service payments;
- limit our flexibility to plan for, or react to, changes in our business and industry;
- place us at a competitive disadvantage compared to our less leveraged competitors; and
- increase our vulnerability to the impact of adverse economic and industry conditions.

Our ability to meet our debt service obligations will depend on our future performance, which will be subject to financial, business, and other factors affecting its operations, many of which are beyond our control.

Covenants in our debt agreements restrict our business in many ways and if we do not effectively manage our covenants, our financial condition and results of operations could be adversely affected.

Our Term Loan Facility B contains various covenants that limit our ability and/or our restricted subsidiaries' ability to, among other things:

- incur or assume liens or additional debt or provide guarantees in respect of obligations of other persons;
- issue redeemable preferred stock;
- pay dividends or distributions or redeem or repurchase capital stock;
- prepay, redeem or repurchase certain debt;
- make loans, investments and capital expenditures;
- enter into agreements that restrict distributions from our subsidiaries;
- sell assets and capital stock of our subsidiaries;
- enter into certain transactions with affiliates; and
- consolidate or merge with or into, or sell substantially all of our assets to, another person.

A breach of any of these covenants could result in a default under our Term Loan Facility B and/or our other indebtedness, which could in turn result in a substantial portion of our indebtedness becoming due prior to its scheduled maturity date. In such event, we may be unable to repay all of the amounts that would become due under our indebtedness. If we were unable to repay those amounts, the lenders under our Term Loan Facility B could proceed against the collateral granted to them to secure that indebtedness. In any case, if a significant portion of our debt was accelerated, we might be forced to seek bankruptcy protection.

We may not be able to generate sufficient cash to service our debt obligations.

Our ability to make payments on and to refinance our indebtedness will depend on our financial and operating performance, which is subject to prevailing economic and competitive conditions and to certain financial, business and other factors beyond our control. We may be unable to maintain a level of cash flows from operating activities sufficient to permit us to pay the principal and interest on our indebtedness.

If our cash flows and capital resources are insufficient to fund our debt service obligations, we may be forced to reduce or delay investments and capital expenditures, or to sell assets, seek additional capital or restructure or refinance our indebtedness. These alternative measures may not be successful and may not permit us to meet our scheduled debt service obligations. In the absence of such operating results and resources, we could face substantial liquidity problems and might be required to dispose of material assets or operations to meet our debt service and other obligations. Our Term Loan Facility B restricts our ability to dispose of assets, use the proceeds from any disposition of assets and refinance our indebtedness. We may not be able to consummate those dispositions or to maximize the proceeds that we could realize from them and these proceeds may not be adequate to meet any debt service obligations then due.

In addition, borrowings under our Term Loan Facility B are, and are expected to continue to be, at variable rates of interest and expose us to interest rate risk. If interest rates increase, our debt service obligations on the variable rate indebtedness would increase even though the amount borrowed remained the same, and our net income would decrease.

Repayment of debt is dependent on cash flow generated by our subsidiaries and their respective subsidiaries.

Our subsidiaries, including Rovi Guides Inc., Rovi Solutions Corporation and TiVo Solutions Inc., own a significant portion of our assets and conduct substantially all of our operations. Each subsidiary is a distinct legal entity and, under certain circumstances, legal and contractual restrictions may limit our ability to obtain cash from our subsidiaries. In the event Rovi Corporation does not receive distributions from its subsidiaries, it may be unable to make required principal and interest payments on its debt obligations, including the 2020 Convertible Notes. Accordingly, repayment of Rovi Corporation's indebtedness depends, to a significant extent, on the generation of cash flow by its subsidiaries, including Rovi Guides, Inc. and Rovi Solutions Corporation, the senior secured position of their bank debt, and their ability to make cash available to Rovi Corporation, by dividend, debt repayment or otherwise. Because they are not guarantors or a co-issuer of the 2020 Convertible Notes, Rovi Corporation's subsidiaries do not have any obligation to pay amounts due on those notes or to make funds available for that purpose. Conversely, the ability of Rovi Solutions Corporation and Rovi Guides, Inc. to repay their indebtedness under our Term Loan Facility B depends, in part, on the generation of cash flow by their respective subsidiaries. Our subsidiaries may not be able to, or may not be permitted to, make distributions to enable us to make payments in respect of our indebtedness. Additionally, distributions from our non-U.S. subsidiaries may be subject to foreign withholding taxes and would be subject to U.S. federal and state income tax which could reduce the net cash available for principal and interest payments.

Our capital requirements and our business strategy could increase our expenses, cause us to change our growth and development plans, reduce or suspend our capital allocation activities, and cause us to incur more indebtedness.

If economic conditions or other risks and uncertainties in our future business cause a significant reduction in our cash flows from operations, we may reduce or suspend capital expenditures, growth and acquisition activity, implementation of our business strategy, dividend declarations or share repurchases. We and our subsidiaries may choose to incur additional indebtedness in the future to pay for these activities, although our access to capital markets is not assured and we may not be able to incur additional indebtedness at a cost that is consistent with current borrowing rates. The terms of our debt do not prohibit us or our subsidiaries from incurring additional indebtedness, although such debt terms impose restrictions on our ability to do so. If we incur any additional indebtedness that ranks equally with existing indebtedness, the holders of that indebtedness will be entitled to share ratably with the holders of our existing debt obligations in any proceeds distributed in connection with any insolvency, liquidation, reorganization, dissolution or other winding-up of us. If new indebtedness is added to our current debt levels, the related risks that we and our subsidiaries now face could intensify.

The nature of our business requires the application of complex revenue recognition rules. Significant changes in U.S. generally accepted accounting principles ("GAAP") from the adoption of recently issued accounting standards could materially affect our financial position and results of operations.

The accounting rules and regulations we comply with regarding revenue recognition are complex. From time to time the Financial Accounting Standards Board (the "FASB") modifies the accounting standards applicable to our financial statements. In May 2014, the FASB issued an amended accounting standard for revenue recognition, Accounting Standards Update No. 2014-09, *Revenue from Contracts with Customers* ("Topic 606"). Further, in April 2016, the FASB amended Topic 606 to provide additional guidance on revenue recognition as it pertains to licenses of intellectual property. Topic 606 and its related amendments are effective for us in the first quarter of 2018. On January 1, 2018 we adopted Topic 606 using the modified retrospective approach.

While the adoption of Topic 606 does not change the cash flows expected to be received from our contracts with customers, the adoption of Topic 606 could have a material effect on our financial position or results of operations as a result of the cumulative effect of adoption and as the pattern of revenue recognition may change.

See Note 1 to the Consolidated Financial Statements in Part IV of this Annual Report on Form 10-K, which is incorporated by reference herein.

We utilize non-GAAP reporting in our quarterly earnings press releases.

As part of our quarterly earnings press releases, we publish measures compiled in accordance with GAAP as well as non-GAAP financial measures along with a reconciliation between the GAAP and non-GAAP financial measures. The reconciling items adjust amounts reported in accordance with GAAP for certain items which are described in detail in each such quarterly earnings press release. We believe that our non-GAAP presentation may be meaningful to investors in analyzing our results of operations as this is how our business is managed. The market price of our stock may fluctuate based on future non-GAAP results if investors base their investment decisions on such non-GAAP financial measures. If we decide to alter or curtail the use of non-GAAP financial measures in our quarterly earnings press releases, the market price of our stock could be adversely affected if investors analyze our performance in a different manner.

Our investment portfolio is subject to risks which may cause losses and affect the liquidity of our investment portfolio.

Our investment portfolio includes various money market funds and marketable debt securities, such as corporate debt securities, U.S. Treasury and agency securities and foreign government obligations. Weakened financial markets have at times adversely impacted the general credit, liquidity, market prices and interest rates for these and other types of debt securities. Additionally, changes in monetary policy by the Federal Open Market Committee may cause a decrease in the purchasing power of the U.S. dollar and adversely affect our investment portfolio. Furthermore, if there is a default on or downgrade of the securities in our investment portfolio, our investment portfolio may be adversely impacted, requiring impairment charges that could adversely affect our financial position, results of operations or cash flows. The financial market and monetary risks associated with our investment portfolio may have a material adverse effect on our financial condition, liquidity, results of operations, or cash flows.

Risks Related to Our Business and Industry

If we fail to develop and timely deliver innovative technologies and services in response to changes in the technology and entertainment industries, our business could decline.

The markets for our products, services and technologies are characterized by rapid change and technological evolution. We will need to continue to expend considerable resources on research and development in the future in order to continue to design and deliver enduring, innovative entertainment products, services and technologies. Despite our efforts, we may not be able to develop timely and effectively market new products, technologies and services that adequately or competitively address the needs of the changing marketplace. In addition, we may not correctly identify new or changing market trends at an early enough stage to capitalize on market opportunities. At times, such changes can be dramatic, as were the shift from VHS videocassettes to DVDs for consumer playback of movies in homes and elsewhere and the transition from packaged media to internet distribution. Our future success depends to a great extent on our ability to develop and timely deliver innovative technologies that are widely adopted in response to changes in the technology and entertainment industries and that are compatible with the technologies, services or products introduced by other entertainment industry participants.

Despite our efforts and investments in developing new products, services and technologies:

- we may not receive significant revenue from our current research and development efforts for several years, if at all;
- we cannot assure you that the level of funding and significant resources we are committing for investments in new products, services and technologies will be sufficient or result in successful new products, services or technologies;
- we cannot assure you that our newly developed products, services or technologies can be successfully protected as proprietary intellectual property ("IP") rights or will not infringe the intellectual property rights of others;
- we cannot assure you that any new products or services that we develop will achieve market acceptance;
- our products, services and technologies may become obsolete due to rapid advancements in technology and changes in consumer preferences;
- we cannot assure you that revenue from new products, services or technologies will offset any decline in revenue from our products, services and technologies which may become obsolete; and
- our competitors and/or potential customers may develop products, services or technologies similar to those developed by us, resulting in a reduction in the potential demand for our newly developed products, services or technologies.

Our failure to successfully develop new and improved products, services and technologies, including as a result of any of the risks described above, may reduce our future growth and profitability and may adversely affect our business, results and financial condition.

Our business may be adversely affected by fluctuations in the number of cable television, telecommunications television, and digital broadcast satellite subscribers if the availability of OTT content services causes consumers to cancel their pay TV subscriptions.

For some of our technologies, we are paid a royalty based on the number of subscribers or set top-boxes our pay TV customers have. The ability to enjoy digital entertainment content downloaded or streamed over the internet has caused some consumers to elect to cancel their pay TV subscriptions. If our pay TV customers are unable to maintain their subscriber bases, the royalties they owe us may decline.

We are exposed to risks associated with our changing technology base through strategic acquisitions, investments, divestitures and discontinued businesses.

We have expanded our technology base in the past through strategic acquisitions of companies with complementary technologies or IP and intend to do so in the future. Acquisitions hold special challenges in terms of successful integration of technologies, products, services and employees. We may not realize the anticipated benefits of these acquisitions or the benefits of any other acquisitions we have completed or may complete in the future, and we may not be able to incorporate any acquired services, products or technologies with our existing operations, or integrate personnel from the acquired businesses, in which case our business could be harmed.

Acquisitions, divestitures, discontinued businesses, and other strategic decisions involve numerous risks, including:

- problems integrating and divesting the operations, technologies, personnel, services or products over geographically disparate locations;
- unanticipated costs, taxes, litigation and other contingent liabilities;
- continued liability for discontinued businesses and pre-closing activities of divested businesses or certain post-closing liabilities which we may agree to assume as part of the transaction in which a particular business is divested;
- adverse effects on existing business relationships with suppliers and customers;
- cannibalization of revenue as customers may seek multi-product discounts;
- risks associated with entering into markets in which we have no, or limited, prior experience;
- incurrence of significant restructuring charges if acquired products or technologies are unsuccessful;
- significant diversion of management's attention from our core business and diversion of key employees' time and resources;
- licensing, indemnity or other conflicts between existing businesses and acquired businesses;
- inability to retain key customers, distributors, suppliers, vendors and other business relations of the acquired business; and
- potential loss of our key employees or the key employees of an acquired organization or as a result of discontinued businesses.

Financing for future acquisitions may not be available on favorable terms, or at all. If we identify an appropriate acquisition candidate for any of our businesses, we may not be able to negotiate the terms of the acquisition successfully, finance the acquisition or integrate the acquired business, products, service offerings, technologies or employees into our existing business and operations. Future acquisitions and divestitures may not be well-received by the investment community, which may cause the value of our stock to fall. We cannot ensure that we will be able to identify or complete any acquisition, divestiture or discontinued business in the future. Further, the terms of our indebtedness constrains our ability to make and finance additional acquisitions or divestitures.

If we acquire businesses, new products, service offerings or technologies in the future, we may incur significant acquisition-related costs. In addition, we may be required to amortize significant amounts of finite-lived intangible assets and we may record significant amounts of goodwill or indefinite-lived intangible assets that would be subject to testing for impairment. We have in the past and may in the future be required to write off all or part of the intangible assets or goodwill associated with these investments that could harm our operating results. If we consummate one or more significant future acquisitions in which the consideration consists of stock or other securities, our existing stockholders' ownership could be significantly diluted. If we were to proceed with one or more significant future acquisitions in which the consideration included cash, we could be required to use a substantial portion of our cash and investments. Acquisitions could also cause operating margins to fall depending on the businesses acquired.

Our strategic investments may involve joint development, joint marketing, or entry into new business ventures, or new technology licensing. Any joint development efforts may not result in the successful introduction of any new products or services by us or a third party, and any joint marketing efforts may not result in increased demand for our products or services. Further, any current or future strategic acquisitions and investments by us may not allow us to enter and compete effectively in new markets or enhance our business in our existing markets and we may have to impair the carrying amount of our investments.

Our success is heavily dependent on our proprietary technologies.

We believe that our future success will depend on our ability to continue to introduce proprietary solutions for digital content and technologies. We rely on a combination of patent, trademark, copyright and trade secret laws, nondisclosure and other contractual provisions, and technical measures to protect our IP rights. Our patents, trademarks and copyrights may be challenged and invalidated or circumvented. Our patents may not be of sufficient scope or strength or be issued in all countries where products or services incorporating our technologies can be sold. We have filed applications to expand our patent claims and for improvement patents to extend the current periods of patent coverage. However, expiration of some of our patents may harm our business. If we are not successful in protecting our IP, our business would be harmed.

Others may develop technologies that are similar or superior to our technologies, duplicate our technologies or design around our patents. Effective IP protection may be unavailable or limited in some foreign countries. Despite efforts to protect our proprietary rights, unauthorized parties may attempt to copy or otherwise use aspects of processes and devices that we regard as proprietary. Policing unauthorized use of our proprietary information is difficult, and the steps we have taken may not prevent misappropriation of our technologies. Such competitive threats could harm our business.

Our ability to maintain and enforce our trademark rights has a large impact on our ability to prevent third party infringement of our brand and technologies and if we are unable to maintain and strengthen our brands, our business could be harmed.

Maintaining and strengthening our brands is important to maintaining and expanding our business, as well as to our ability to enter into new markets for our technologies, products and services. If we fail to promote and maintain these brands successfully, our ability to sustain and expand our business and enter into new markets may suffer. Much of the promotion of our brand depends, among other things, on hardware device manufacturing companies and service providers displaying our trademarks on their products. If these companies choose for any reason not to display our trademarks on their products, or if these companies use our trademarks incorrectly or in an unauthorized manner, the strength of our brand may be diluted or our ability to maintain or increase our brand awareness may be harmed. We generally rely on enforcing our trademark rights to prevent unauthorized use of our brand and technologies. Our ability to prevent unauthorized uses of our brand and technologies would be negatively impacted if our trademark registrations were overturned in the jurisdictions where we do business. We also have trademark applications pending in a number of jurisdictions that may not ultimately be granted, or if granted, may be challenged or invalidated, in which case we would be unable to prevent unauthorized use of our brand and logo in such jurisdiction. We have not filed trademark registrations in all jurisdictions where our brand and logo are used.

We may not be able to join standards bodies, license technologies or integrate with platforms that are necessary or helpful to our product or services businesses because of the encumbrances that the proposed associated agreements place on our patents.

Standards bodies often require, as a condition of joining such bodies, that potential members license, agree to license, disclose or place other burdens on their patents. Similarly, technology licensors and platform operators often require that licensees cross license, or agree not to assert, their patents. In order to develop, provide or distribute certain products or services, we may find it necessary or helpful to join these standard bodies, license these technologies or contract with these platform operators. However, in order to do so, we might have to sign agreements under which we would have to license or agree not to assert patents without being able to collect royalties or for fees that we believe are less than those that we could otherwise collect. Similarly, these agreements could require us to disclose invention-related information that we would otherwise prefer to keep confidential. If we choose not to be part of standards bodies, to license certain technologies, or to contract with certain platform operators, our business could be harmed.

For our business to succeed, we need to attract and retain qualified employees and manage our employee base effectively.

Our success depends on our ability to hire and retain qualified employees and to manage our employee base effectively. Because of the specialized nature of our business, our future success will depend on our continuing ability to identify, attract, train and retain highly skilled managerial, technical, sales and marketing personnel, particularly as we enter new markets. Competition for people with the skills that we require is intense, particularly in the San Francisco Bay Area, where our headquarters are located, and in Southern California where we have significant operations, and the high cost of living in these areas makes our recruiting and compensation costs higher. Moreover, changes in our management or executive leadership team could lead to disruption of our business or distraction of our employees as the organization adapts to such management changes. If we are unable to hire and retain qualified employees, our business and operating results could be adversely affected.

Qualifying, certifying and supporting our technologies, products and services is time consuming and expensive.

We devote significant time and resources to qualify and support our software products on various personal computer, CE and mobile platforms, including operating systems from Apple, Google and Microsoft. In addition, we maintain high-quality standards for products that incorporate our technologies and products through a quality control certification process. To the extent that any previously qualified, certified and/or supported platform or product is modified or upgraded, or we need to qualify, certify or support a new platform or product, we could be required to expend additional engineering time and resources, which could add significantly to our development expenses and adversely affect our operating results.

The success of certain of our solutions depends on the interoperability of our technologies with consumer hardware devices.

To be successful, we design certain of our solutions to interoperate effectively with a variety of consumer hardware devices, including personal computers, DVD players and recorders, Blu-ray players, digital still cameras, digital camcorders,

portable media players, digital TVs, home media centers, set-top boxes, video game consoles, MP3 devices, multi-media storage devices, mobile tablets and smartphones. We depend on significant cooperation with manufacturers of these devices and the components integrated into these devices, as well as software providers that create the operating systems for such devices, to incorporate certain of our technologies into their product offerings and ensure consistent playback of encoded files. Currently, a limited number of devices are designed to support certain of our technologies. If we are unsuccessful in causing component manufacturers, device manufacturers and software providers to integrate certain of our technologies into their product offerings, those technologies may become less accessible to consumers, which would adversely affect our revenue potential.

We have made and expect to make significant investments in infrastructure which, if ineffective, may adversely affect our business results.

We have made and expect to make significant investments in infrastructure, tools, systems, technologies and content, including initiatives relating to digital asset and rights management, cloud-based systems and technologies and data warehouses, aimed to create, assist in the development or operation of, or enhance our ability to deliver innovative products and services across multiple media, digital and emerging platforms. These investments may ultimately cost more than is anticipated, their implementation may take longer than expected and they may not meaningfully contribute to or result in successful new or enhanced products, services or technologies.

Our products and services could be susceptible to errors, defects, or unintended performance problems that could result in lost revenues, liability or delayed or limited market acceptance.

We develop and offer complex solutions, which we license and otherwise provide to customers. The performance of these solutions typically involves working with sophisticated software, computing and communications systems. Due to the complexity of these products and services, and despite our quality assurance testing, the products may contain undetected defects or errors that may affect the proper use or application of such products or services by the customer. Because certain of our products and services are embedded in digital content and other software, or rely on stable transmissions, our solutions' performance could unintentionally jeopardize our customers' product performance. Because customers rely on our products and services as used in their software and applications, defects or errors in our products or services may discourage customers from purchasing our products or services. These defects or errors could also result in product liability, service level agreement claims or warranty claims. Although we attempt to reduce the risk of losses resulting from these claims through warranty disclaimers and limitation of liability clauses in our agreements, these contractual provisions may not be enforceable in every instance. Any such defects, errors, or unintended performance problems in existing or new products or services, and any inability to meet customer expectations in a timely manner, could result in loss of revenue or market share, failure to achieve market acceptance, diversion of development resources, injury to our reputation, increased insurance costs and increased service costs, any of which could materially harm our business.

Business interruptions could adversely affect our future operating results.

The provision of certain of our products and services depends on the continuing operation of communications and transmission systems and mechanisms, including satellite, cable, wire, internet, over the air broadcast communications and transmission systems and mechanisms. These communication and transmission systems and mechanisms are subject to significant risks and any damage to or failure of these systems and mechanisms could result in an interruption of the provision of our products and services.

Several of our major business operations are subject to interruption by earthquake, fire, power shortages, terrorist attacks and other hostile acts, and other events beyond our control. The majority of our research and development activities, our corporate headquarters, our principal information technology systems, and other critical business operations are located near major seismic faults. Our operating results and financial condition could be materially harmed in the event of a major earthquake or other natural or man-made disaster that disrupts our business. The communications and transmission systems and mechanisms that we depend on are not fully redundant, and our disaster recovery planning cannot account for all eventualities.

If we fail to maintain proper and effective internal controls, our ability to produce accurate financial statements could be impaired, which could increase our operating costs and affect our ability to operate our business.

We have a complex business that is international in scope. Ensuring that we have adequate internal controls and procedures in place to help ensure that we can produce accurate financial statements on a timely basis is a costly and time-consuming effort that needs to be re-evaluated frequently. We are continually in the process of documenting, reviewing and, if appropriate, improving our internal controls and procedures in connection with Section 404 of the Sarbanes-Oxley Act of 2002,

which requires annual management assessments of the effectiveness of our internal control over financial reporting and a report by our independent registered public accountants on the effectiveness of our internal controls over financial reporting. If we or our independent registered public accountants identify areas for further attention or improvement, implementing any appropriate changes to our internal controls may require specific compliance training of our directors, officers and employees, entail substantial costs in order to modify our existing accounting systems, and take a significant period of time to complete. We have in the past identified, and may in the future identify, significant deficiencies in the design and operation of our internal controls, which have been or will in the future need to be remediated. Furthermore, our independent registered public accountants may interpret the Section 404 requirements and the related rules and regulations differently from how we interpret them, or our independent registered public accountants may not be satisfied with our internal control over financial reporting or with the level at which these controls are documented, operated or reviewed in the future. Finally, in the event we make a significant acquisition, or a series of smaller acquisitions, we may face significant challenges in implementing the required processes and procedures in the acquired operations. As a result, our independent registered public accountants may decline or be unable to report on the effectiveness of our internal controls over financial reporting or may issue a qualified report in the future. This could result in an adverse reaction in the financial markets due to investors' perceptions that our internal controls are inadequate or that we are unable to produce accurate financial statements.

We will incur costs and demands on management as a result of complying with the laws and regulations affecting public companies, which could affect our operating results.

We have incurred, and expect to continue to incur, significant legal, accounting and other expenses associated with corporate governance and public company reporting requirements, including complying with the requirements of the Sarbanes-Oxley Act of 2002, as well as rules implemented by the SEC and NASDAQ. As long as the SEC requires the current level of compliance or more for public companies of our size, we expect these rules and regulations to require significant legal and accounting compliance costs and to make some activities time-consuming and costly. These rules and regulations may make it more expensive for us to obtain director and officer liability insurance, and we may be required to accept reduced policy limits and coverage or incur substantially higher costs to obtain the same or similar coverage than was previously available. As a result, it may be more difficult for us to attract and retain qualified individuals to serve on our board of directors or as our executive officers.

If we fail to comply with the laws and regulations relating to the collection of sales tax and payment of income taxes in the various states and foreign jurisdictions in which we do business, we could be exposed to unexpected costs, expenses, penalties, and fees as a result of our noncompliance in which case our business could be harmed.

As our business grows and expands, we have started to do business in an increasing number of states nationally and foreign jurisdictions. By engaging in business activities in these states and foreign jurisdictions, we become subject to their various laws and regulations, including possible requirements to collect sales tax from our sales within those states and foreign jurisdictions and the payment of income taxes on revenue generated from activities in those states and foreign jurisdictions. The laws and regulations governing the collection of sales tax and payment of income taxes are numerous, complex, and vary among states and foreign jurisdictions. If we fail to comply with these laws and regulations requiring the collection of sales tax and payment of income taxes in one or more states and foreign jurisdictions where we do business, we could be subject to significant costs, expenses, penalties, and fees in which case our business would be harmed.

Because many of our technologies, products and services are designed to comply with industry standards, to the extent we cannot distinguish our technologies, products and services from those sold by our competitors, our current distributors and customers may choose alternate technologies, products and services or choose to purchase them from multiple vendors.

We cannot provide any assurance that the industry standards for which we develop new technologies, products and services will allow us to compete effectively with companies possessing greater financial and technological resources than we have to market, promote and exploit sales opportunities as they arise in the future. Technologies, products and services that are designed to comply with standards may also be viewed as interchangeable commodities by certain customers. We may be unable to compete effectively if we cannot produce technologies, products and services more quickly or at lower cost than our competitors. Further, any new technologies, products and services developed may not be introduced in a timely manner or in advance of our competitors' comparable offerings and may not achieve the broad market acceptance necessary to generate significant revenues.

Our competitors may be able to respond more quickly to new or emerging technologies and changes in customer requirements than we do, which could reduce demand for our products or services or render them obsolete and if competition increases or if we are unable to effectively compete with existing or new competitors, the result could be price reductions, fewer customers and loss of market share, any of which could result in less revenue and harm our business.

The advanced video solutions market is rapidly evolving, and our Platform Solutions face significant competition in the product and service offerings sold to service providers and to retail consumers. Moreover, the market for in-home entertainment is intensely competitive and subject to rapid technological change such as the growth and availability of content streamed over the internet. Our advanced video solutions compete with other CE products and home entertainment services (such as Roku, AppleTV, and Amazon FireTV) as well as products and service offerings built by other service providers or their suppliers for consumer spending. Many of these products and services have broad user bases, substantially greater brand recognition, market presence, distribution channels, advertising and marketing budgets and promotional activities as well as more strategic partners. We in turn rely on our service provider customers and retailers to help market and promote our advanced video solutions. As a result of this intense competition, we could incur increased research and development expenses and increased marketing and promotions costs that could adversely affect our business, including rendering certain of our advanced video solutions obsolete, in the future.

Our Platform Solutions also face competition from companies that produce and market program guides as well as television schedule information in a variety of formats, including passive and interactive on-screen electronic guide services, online listings, over the top applications, printed television guides in newspapers and weekly publications, and local cable television guides. Our Platform Solutions also compete against customers and potential customers who choose to build their own IPG, including both those who do and those who do not elect to license our patents.

The markets for the consumer hardware and software products sold by our customers are competitive and price sensitive. Licensing fees for our technologies, products and services, particularly in the physical media, CE and personal computer areas, may decline due to competitive pricing pressures and changing consumer demands. In addition, we may experience pricing pressures in other parts of our business. These trends could make it more difficult for us to increase or maintain our revenue and could adversely affect our operating results. To increase per unit royalties, we must continue to introduce new, highly functional versions of our technologies, products and services for which we can charge higher amounts. Any inability to introduce such technologies, products and services in the future or other declines in the amounts we can charge would also adversely affect our revenues.

Some of our current or future competitors may have significantly greater financial, technical, marketing and other resources than we do, may enjoy greater brand recognition than we do, or may have more experience or advantages than we have in the markets in which they compete. Further, many of the consumer hardware and software products that include our technologies also include technologies developed by our competitors. As a result, we must continue to invest significant resources in product development in order to enhance our technologies and our existing products and services and introduce new high-quality technologies, products and services to meet the wide variety of such competitive pressures. Our ability to generate revenues from our business will suffer if we fail to do so successfully.

We face competitive risks in the provision of an entertainment offering involving the distribution of digital content provide by third party application providers through broadband.

We have previously launched access in certain of our products and services to the entertainment offerings of Amazon Video, Netflix, Hulu Plus, VUDU, Pandora and others for the distribution of digital content directly to broadband-connected TiVo devices. Our offerings with Amazon Video, Netflix, Hulu Plus, Pandora and others typically involve no significant long-term commitments. We face competitive, technological, and business risks in our ongoing provision of an entertainment offering involving the distribution of digital content through broadband to consumer televisions with Amazon, Netflix and others, including the availability of premium and high-definition content, as well as the speed and quality of the delivery of such content to TiVo devices. For instance, we face increased competition from a growing number of broadband-enabled devices from providers such as Roku, AppleTV, Amazon, and Google that provide broadband delivered digital content directly to a consumer's television connected to such a device. Additionally, we face competition from online content providers and other PC software providers who deliver digital content directly to a consumer's personal computer, which in some cases may then be viewed on a consumer's television. If we are unable to provide a competitive entertainment offering with Amazon Video, Netflix, Hulu Plus, Pandora, and our other partners, on our own, or an equivalent offering with other third-parties, the attractiveness of the TiVo service to new subscribers would be harmed as consumers increasingly look for new ways to receive and view digital content and our ability to retain and attract subscribers would be harmed.

Establishing and maintaining licensing relationships with companies are important to build and support a worldwide entertainment technology licensing ecosystem and to expand our business, and failure to do so could harm our business and prospects.

Our future success depends on our ability to establish and maintain licensing relationships with companies in related business fields, including:

- pay TV service providers;
- operators of entertainment content distributors, including PPV and VOD networks;
- CE, digital PPV/VOD set-top hardware manufacturers, DVD hardware manufacturers and personal computer manufacturers;
- semiconductor and equipment manufacturers;
- content rights holders;
- retailers and advertisers;
- DRM suppliers; and
- internet portals and other digital distribution companies.

Substantially all of our license agreements are non-exclusive, and therefore our licensees are free to enter into similar agreements with third parties, including our competitors. Our licensees may develop or pursue alternative technologies either on their own or in collaboration with others, including our competitors.

Some of our third-party license arrangements require that we license others' technologies and/or integrate our solutions with others. In addition, we rely on third parties to report usage and volume information to us. Delays, errors or omissions in this information could harm our business. If these third parties choose not to support integration efforts or delay the integration of our solutions, our business could be harmed.

If we fail to maintain and expand our relationships with a broad range of participants throughout the entertainment industry, including motion picture studios, broadcasters, pay TV service providers and CE manufacturers, our business and prospects could be materially harmed. Relationships have historically played an important role in the entertainment industries that we serve. If we fail to maintain and strengthen these relationships, these industry participants may not purchase and use our technologies, which could materially harm our business and prospects. In addition to directly providing a substantial portion of our revenue, these relationships are also critical to our ability to have our technologies adopted. Moreover, if we fail to maintain our relationships, or if we are not able to develop relationships in new markets in which we intend to compete in the future, including markets for new technologies and expanding geographic markets, our business, operating results and prospects could be materially and adversely affected. In addition, if major industry participants form strategic relationships that exclude us, our business and prospects could be materially adversely affected.

We generate a significant portion of our revenue from patent license agreements with a small number of major pay TV service providers which would lead to substantial revenue loss and possible litigation if not renewed.

We generate a significant amount of revenue from our contracts with AT&T and Charter. In September 2017, our contract with AT&T was extended to December 2025. In June 2016, we amended our license agreement with Charter Communications to cover Time Warner Cable. Our contract with Comcast expired in March 2016 and we filed litigation against Comcast for patent infringement in April 2016. The expiration of our license with Comcast, as well as litigation initiated against Comcast, has resulted in a reduction of current revenue and an increase in litigation costs. The length of time that Comcast is out of license prior to executing a license or reaching a resolution is uncertain. In addition, the amount of revenue recognized in the reporting period a license is executed or resolution is reached is uncertain and will depend on a variety of factors including terms such as duration, pricing, licensed products and fields of use, and the duration of the out-of-license period. In addition, while litigation costs may increase, whether the litigation initiated against Comcast will cause total expenses to increase or decrease longer-term will be a function of several factors, including the length of time Comcast is out of license. Furthermore, we cannot assure you that these license agreements with major pay TV service providers will not be terminated under certain circumstances. If that occurs and we are unable to replace the revenue associated with these agreements through similar or other business arrangements, our revenues and profit margins would decline and our business would be harmed as a result.

Some software we provide may be subject to "open source" licenses, which may restrict how we use or distribute our software or require that we release the source code of certain products subject to those licenses.

Some of the products we support and some of our proprietary technologies incorporate open source software such as open source codecs that may be subject to the Lesser Gnu Public License or other open source licenses. The Lesser Gnu Public License and other open source licenses may require that source code subject to the license be released or made available to the

public. Such open source licenses may mandate that software developed based on source code that is subject to the open source license, or combined in specific ways with such open source software, become subject to the open source license. We take steps to ensure that proprietary software we do not wish to disclose is not combined with, or does not incorporate, open source software in ways that would require such proprietary software to be subject to an open source license. However, few courts have interpreted the Lesser Gnu Public License or other open source licenses, and the manner in which these licenses may be interpreted and enforced is therefore subject to some uncertainty. We often take steps to disclose source code for which disclosure is required under an open source license, but it is possible that we have or will make mistakes in doing so, which could negatively impact our brand or our adoption in the community, or could expose us to additional liability. In addition, we rely on multiple software programmers to design our proprietary products and technologies. Although we take steps to ensure that our programmers (both internal and outsourced) do not include open source software in products and technologies we intend to keep proprietary, we cannot be certain that open source software is not incorporated into products and technologies we intend to keep proprietary. In the event that portions of our proprietary technology are determined to be subject to an open source license, or are intentionally released under an open source license, we could be required to publicly release the relevant portions of our source code, which could reduce or eliminate our ability to commercialize our products and technologies. Also, in relying on multiple software programmers to design products and technologies that we intend, or ultimately end up releasing in the open source community, we may discover that one or multiple such programmers have included code or language that would be embarrassing to us, which could negatively impact our brand or our adoption in the community, or could expose us to additional liability. Such additional liability could include claims that result in litigation, require us to seek licenses from third-parties in order to keep offering our software, require us to re-engineer our software, require us to release proprietary source code, require us to provide indemnification or otherwise subject us to liability to a customer or supplier, or require us to discontinue the sale of a product in the event re-engineering cannot be accomplished in a timely manner, any of which could adversely affect our business.

Limitations on control of our IPG Inc. joint venture may adversely impact our operations in Japan.

We hold a 46% interest in IPG Inc., as a joint venture with non-affiliated third parties, which hold the remaining interest. As a result of such arrangement, we may be unable to control the operations, strategies and financial decisions of IPG Inc., which could in turn result in limitations on our ability to implement strategies that we may favor, or to cause dividends or distributions to be paid. In addition, our ability to transfer our interests in IPG Inc. may be limited under the joint venture arrangement.

Dependence on the cooperation of pay TV service providers, television broadcasters, hardware manufacturers, data providers and delivery mechanisms could adversely affect our revenues.

We rely on third party providers to deliver our metadata to some of the CE devices that include our UXs and IPGs. Further, our national data network provides customized and localized listings for pay TV and licensees of our data used in third party IPGs for pay TV. In addition, we purchase certain metadata from commercial vendors that we redistribute. The quality, accuracy and timeliness of that metadata may not continue to meet our standards or be acceptable to consumers. There can be no assurance that commercial vendors will distribute data to us without error or that the agreements that govern some of these relationships can be maintained on favorable economic terms. Technological changes may also impede the ability to distribute metadata. Our inability to renew these existing arrangements on terms that are favorable to us, or enter into alternative arrangements that allow us to effectively transmit our metadata to CE devices could have a material adverse effect on our CE IPG business.

We are dependent on third parties for Metadata, third party images and content.

We distribute, as a revenue generating activity, Metadata. In the future, we may not be able to obtain this content, or may not be able to obtain it on the same terms. Such a failure to obtain the content, or obtain it on the same terms, could damage the attractiveness of our Metadata offerings to our customers, or could increase the costs associated with providing our Metadata offerings, and could thus cause revenues or margins to decrease.

We depend on a limited number of third-parties to manufacture, distribute, and supply critical components, technologies, assemblies, and services for the products that enable the TiVo service. We may be unable to operate our business if these parties do not perform their obligations or we are unable to incorporate such critical components or technologies into our products.

The TiVo service is enabled through the use of products, including DVR and non-DVR products, manufactured for us by a third-party contract manufacturer. In addition, we rely on sole suppliers for a number of key components and technologies for these DVRs and other devices we manufacture. We also rely on third-parties with whom we outsource supply-chain

activities related to inventory warehousing, order fulfillment, distribution, and other direct sales logistics. We cannot be sure that these parties will perform their obligations as expected or that any revenue, cost savings, or other benefits will be derived from the efforts of these parties. If any of these parties breaches or terminates its agreement with us or otherwise fails to perform its obligations in a timely manner or we are unable to purchase or license such third-party components or technologies, we may be delayed or prevented from commercializing our products and services. Because our relationships with these parties are non-exclusive, they may also support products and services that compete directly with us, or offer similar or greater support to our competitors. Any of these events could require us to undertake unforeseen additional responsibilities or devote additional resources to commercialize our products and services or require us to remove certain features or functionalities from our products which may decrease the commercial appeal of our products for our customers. Any of these outcomes would harm our ability to compete effectively and achieve increased market acceptance and brand recognition.

In addition, we face the following risks in relying on these third-parties:

Unsuccessful or lost manufacturing relationships. If our manufacturing relationships are not successful, we may be unable to satisfy demand for our products and services. We manufacture DVRs and non-DVRs that enable the TiVo service through a third-party contract manufacturer. Delays, product shortages, and other problems could impair our distribution and brand image and make it difficult for us to attract subscriptions and service our pay TV customers. In addition, as we are dependent on our sole third-party contract manufacturer, the loss of this manufacturer would require us to identify and contract with alternative sources of manufacturing, which we may be unable to do or which could prove time-consuming and expensive.

Dependence on sole suppliers and third-party components and technologies. We are dependent on sole suppliers for key components, technologies and services. If these suppliers fail to perform their obligations or we are unable to purchase or license such third-party components, technologies or services, we may be unable to find alternative suppliers or deliver our products and services to our customers on time or with the features and functionality they expect. We currently rely on sole suppliers for a number of the key components used in the TiVo-enabled DVRs and the TiVo service, of which we may not have written supply agreements with certain sole suppliers for key components or services for our products. For example, Broadcom Corporation ("Broadcom") is the sole supplier of the system controller for our DVR. We do not currently have a long-term written supply agreement with Broadcom although we do have limited rights to continue to purchase from Broadcom in the event Broadcom notifies us a product is being discontinued. Therefore, Broadcom is not contractually obligated to supply us with these key components on a long-term basis or at all. In addition, because we are dependent on sole suppliers for key components and services, our ability to manufacture our DVRs and other devices is subject to increased risks of supply shortages (without immediately available alternatives), exposure to unexpected cost increases in such sole supplied components, as well as other risks to our business if we were to fail to comply with conflict mineral requirements due to our reliance on these suppliers. Additionally, certain features and functionalities of our TiVo service and DVRs are dependent on third party components and technologies. If we are unable to purchase or license such third-party components or technologies, we would be unable to offer certain related features and functionalities to our customers. In such a case, the desirability of our products to our customers could be reduced, thus harming our business.

If our arrangements with Broadcom or with our third-party contract manufacturer or other suppliers of critical third party components or technologies were to terminate or expire without a replacement arrangement in place, or if we or our manufacturers were unable to obtain sufficient quantities of these components, technologies, or required program guide data from our suppliers, our search for alternate suppliers could result in significant delays, added expense or disruption in product or service availability.

We depend upon third-parties to provide supply chain services related to inventory management, order fulfillment, and direct sales logistics. We rely on third-party vendors to provide cost-effective and efficient supply chain services. Among other activities, these outsourced services relate to direct sales logistics, including order fulfillment, inventory management and warehousing, and distribution of inventory to third-party retailers. If one or several of our third-party supply chain partners were to discontinue services for us, our ability to fulfill direct sales orders and distribute inventory timely, cost effectively, or at all, would be hindered which could in turn harm our business.

We are dependent on our major retail partners for distribution of our hardware products to consumers. We currently rely on our relationships with major retail distributors including Best Buy, Amazon, and others for distribution of TiVo-enabled DVRs and non-DVR products. We do not typically enter into long-term volume commitments with our major retail distributors. If one or several of our major retail partners were to discontinue selling our products, the volume of TiVo-enabled DVRs and non-DVR products sold to consumers could decrease which could in turn harm our business.

If cable operators were to cease supporting and providing CableCARDs to consumers or cable operators were to transmit television programs using technology that prevents our retail products from receiving and displaying television programs, the functionality of our current retail products would be severely limited, in which case our business would be harmed.

The FCC's rules currently require the cable industry in the United States to provide access to digital high definition television signals to retail products by supplying separable security functionality to decrypt encrypted signals. Traditionally, cable operators have satisfied this separable security requirement by supplying CableCARD conditional access security cards. We rely on cable operators to supply CableCARDs for certain types of our DVRs to receive encrypted digital television signals without a cable operator supplied set-top box. With the limited exception of high definition over the air broadcast channels, our DVRs presently are limited to using CableCARDs to access digital cable, high definition, and premium cable channels (such as HBO) that are delivered in a linear fashion where all programs are broadcast to all subscribers all the time. Our retail cable products are unable to access the encrypted digital television signals of satellite providers such as DIRECTV and DISH as well as alternative television service providers such as AT&T U-verse and Google Fiber. And without CableCARDs, there presently is no alternative way for us to sell a retail cable product that works across cable systems nationwide. Furthermore, to the extent more pay TV customers obtain television service from satellite television providers and alternative television providers such as AT&T U-verse and Google Fiber, the desirability of our retail products and service will be harmed.

In December 2014, Congress passed the Satellite Television Extension and Localism Act Reauthorization ("STELAR"). Among other things, STELAR repealed an FCC requirement that cable operators employ separable security (i.e., CableCARDs) in the set-top boxes they lease to their subscribers effective December 4, 2015. STELAR did not address the FCC's requirement that cable operators provide separable security to retail devices and the cable industry has represented to Congress that it would continue to provide and support retail CableCARD devices in compliance with the separable security requirement. However, if operator-leased devices do not continue to rely on CableCARDs, the prices charged by operators to consumers whose devices continue to rely on CableCARDs could increase and support for retail CableCARD devices could deteriorate.

If cable operators were to cease supporting and providing CableCARDs to consumers without providing TiVo with a commercially viable alternative method of accessing digital cable, high definition, and premium cable channels that works across cable systems nationwide, we would be unable to sell most of our current retail products, may be unable to create future retail products that receive pay TV programming, and our business would be harmed as the market for devices which only receive over the air broadcast television signals is significantly smaller than the current pay TV market. We cannot predict the impact of any new technical equipment regulations on our business and operations.

Certain cable operators are deploying switched digital video technologies to transmit television programs in an on-demand fashion (switched digital) only to subscribers who request to watch a particular program. Although cable operators are deploying a solution to enable our retail products to receive channels delivered with switched technologies (known as the "Tuning Adapter"), if this technology is not successful or is not accepted by our customers (due to cost, complexity, functionality, or other reasons), then the increased use of switched technologies and the continued inability of our products to receive switched cable programming without a Tuning Adapter may reduce the desirability and competitiveness of our products and services and adversely affect sales of our retail TiVo service subscriptions in which case our business would be harmed.

Similarly, if cable operators implement new technologies in the future to transmit television programming that do not allow programs to be received and displayed on our retail products, the desirability and competitiveness of our products and services will be adversely affected and impact the sales of our retail TiVo service products and services, in which case our business would be harmed.

We have limited control over existing and potential customers' and licensees' decisions to include our technology in their product and service offerings.

In general, we are dependent on our customers and licensees to incorporate our technology into their products and services. Although we have license agreements with many of these companies, many of these license agreements do not require any minimum purchase commitments, or are on a non-exclusive basis, or do not require incorporation of our technology in their products and services. If our customers were to determine that the benefits of our technology do not justify the cost of licensing the technology, then demand for our technology would decline. Furthermore, while we may be successful in having one or more industry standards-setting organizations require that our technology be used in order for a product to be compliant with the standards promulgated by such organizations, there is no guarantee that products associated with these standards will be successful in the market. Our licensees and other manufacturers might not utilize our technology in the future. If this were to occur, our business would be harmed.

If we fail to adequately manage our increasingly complex distribution agreements, including licensing, development, and engineering services, we could be subjected to unexpected delays in the deployment of TiVo's advanced television solutions, increased costs, possible penalties and adverse accounting and contractual consequences, including termination of such distribution arrangements. In any such event, our business would be harmed.

In connection with our deployment arrangements for TiVo, we engage in complex licensing, development, and engineering services arrangements with our marketing partners and distributors. These deployment agreements with television service providers usually provide for some or all of the following deliverables: software engineering services, solution integration services, hosting of the TiVo service, maintenance, and support. In general, these contracts are long-term and complex and often rely on the timely performance of such television service provider's third-party vendors that are outside TiVo's control. The engineering services and technology we agree to provide and/or develop may be essential to the functionality of the licensed software and delivered product or such software may involve significant customization and modification for each customer. We have experienced or may experience delays in delivery with television service providers including, for example, Com Hem and Virgin, as well as significant increases in expected costs of development and performance in certain instances in the past. Additional delays could lead to additional costs and adverse accounting treatments forcing us to recognize costs earlier than expected. If we are unable to deliver the contracted for technology, including specified customizations and modifications, and services in a timely manner or at all, then we could face penalties in the form of unreimbursed engineering development work, loss of subscriber or minimum financial commitments on the part of our partners or in extreme cases the early termination of such distribution agreements. In any such case our business would be harmed.

In addition, when we enter into such deployment agreements with television service providers, we are typically required to make cost estimates based on historical experience and various other assumptions. These estimates are assessed continually during the term of the contract and revisions are reflected when the conditions become known. Using different cost estimates related to engineering services may produce materially different operating results, in addition to differences in timing and income statement classification of related expenses and revenues. An unfavorable change in estimates could result in a reduction of profit due to higher cost or the recording of a loss once such a loss becomes known to us that would be borne solely by us. We also recognize revenues for software engineering services that are essential to the functionality of the software or involve significant customization or modification using the percentage-of-completion method. We recognize revenue by measuring progress toward completion based on the ratio of costs incurred, principally labor, to total estimated costs of the project, an input method. If we are unable to properly measure and estimate our progress toward completion in such circumstances, we could incur unexpected additional costs, be required to recognize certain costs earlier than expected, or otherwise be required to delay recognition of revenues unexpectedly. A material inability to properly manage, estimate, and perform these development and engineering services for our television service provider customers could cause us to incur unexpected losses and reduce or even eliminate any profit from these arrangements, and in such a case our business would be harmed.

The nature of some of our business relationships may restrict our ability to operate freely in the future and could be interpreted in a manner that adversely affects revenues, including from licensing, under those agreements.

From time to time, we have engaged and may engage in the future in discussions with other parties concerning business relationships, which have included and may in the future include exclusivity provisions (such as geographic or product specific limitations), most favored customer limitations, and patent licensing arrangements. While we believe that such business relationships have historically enhanced our ability to finance and develop our business model or otherwise were justified by the terms of the particular relationship, the terms and conditions of such business relationships may place some restrictions on the operation of our business, including where we operate, who we work with, and what kinds of activities we may engage in, in the future. Additionally, some of our license agreements contain most "favored nation" clauses. These clauses typically provide that if we enter into an agreement with another licensee on more favorable terms, we must offer some of those terms to our existing licensees. We have entered into a number of license agreements with terms that differ in some respects from those contained in other agreements. These agreements may obligate us to provide different, more favorable, terms to licensees, which could, if applied, result in lower revenues or otherwise adversely affect our business, financial condition, results of operations. While we believe that we have appropriately complied with the most favored nation terms included in our license agreements, these contracts are complex and other parties could reach a different conclusion that, if correct, could have an adverse effect on our financial condition or results of operations.

We face significant risks in overseeing our outsourcing of manufacturing processes as well as in the management of our inventory, and failure to properly oversee our manufacturing processes or to effectively manage our inventory levels may result in product recalls or supply imbalances that could harm our business.

We have contracted for the manufacture of certain TiVo-enabled DVRs and non-DVR products with a contract manufacturer. We sell these units to retailers and distributors, as well as through our own online sales channels. Product manufacturing is outside our core business and we face significant risks if our contract manufacturer does not perform as expected. If we fail to effectively oversee the manufacturing process, including the work performed by our contract manufacturer, we could suffer from product recalls, poorly performing product, and higher than anticipated warranty costs.

In connection with our manufacturing operations, we maintain a finished goods inventory of the DVR and non-DVR units we produce throughout the year. Due to the seasonality in our business and our long-lead time product development and manufacturing cycles, we need to make forecasts of demand and commit significant resources towards manufacturing of our DVR and non-DVR units well in advance of our peak selling periods. We also have risks with respect to changing hardware forecasts with our television service provider partners who may revise their purchase forecasts lower or higher after we have committed manufacturing resources to meeting such forecasts due to long-lead times and prior to the time in which such television service provider forecasts become contractually binding. As such, we are subject to significant risks in managing the inventory needs of our business during the year, including estimates of the appropriate mix of demand across our older and newer DVR and non-DVR models. If we were to overestimate demand for our products, we may end up with inventories that exceed currently forecasted demand which would require us to record additional write-downs. If we were to underestimate demand for our products, we may end up with inventory shortages causing us to fail to meet actual customer demand. Should actual market conditions differ from our estimates, our future results of operations could be materially affected. In the future, we may be required to record write-downs of finished products and materials on-hand and/or additional charges for excess purchase commitments as a result of future changes in our sales forecasts.

We face significant risks to our business when we engage in the outsourcing of engineering work, including outsourcing of software work overseas, which, if not properly managed, could result in the loss of valuable intellectual property, increased costs due to inefficient and poor work product, and subject us to export control restrictions which could impede or prevent us from working with partners internationally, which could harm our business, including our financial results, reputation, and brand.

We have from time-to-time outsourced engineering work related to the design and development of the software in our products, typically to save money and gain access to additional engineering resources. We have worked, and expect to in the future work, with companies located in jurisdictions outside of the United States, including, but not limited to, Romania, India, Ukraine, and the United Kingdom. We have limited experience in the outsourcing of engineering and software development to third-parties located internationally that operate under different laws and regulations than those in the United States. If we are unable to properly manage and oversee the outsourcing of this engineering and other work related to our products, we could suffer the loss of valuable intellectual property, or the loss of the ability to claim such intellectual property, including patents, trademarks, trade secrets, and copyrights. We could also be subjected to increased regulatory and other scrutiny related to export control restrictions which could impede or prevent us from working with international partners. Additionally, instead of saving money, we could in fact incur significant additional costs as a result of inefficient or delayed engineering services or poor work product. As a result, our business would be harmed, including our financial results, reputation, and brand.

The markets for our targeted audience delivery and advertising platforms may not develop and we may fail in our ability to fully exploit these opportunities if these markets do not develop as we anticipate.

The market for targeted audience delivery platform for the provision of data-driven, audience-based advertising analytics for advertisers, networks and agencies and interactive television advertising are at an early stage of development and we cannot assure you that we will succeed in our efforts to develop our targeted audience delivery and interactive advertising platforms as products widely accepted by our customers. In addition, with respect to our interactive advertising platform, pay TV service providers who have a patent license from us are not required to provide advertising or utilize our technology, although some have. Therefore, our ability to derive advertising revenues from our patent licensees also depends on the implementation of compatible interactive advertising technologies by such licensees.

Consolidation of the telecommunications, cable and satellite broadcasting industry could adversely affect existing agreements.

We have entered into agreements with a large number of pay TV service providers for the licensing or distribution of our technology, products and services. If consolidation of the telecommunications, cable and satellite broadcasting industry continues, some of these agreements may be affected by mergers, acquisitions or system swaps which could result in an adverse effect on the amount of revenue we receive under these types of agreements.

A significant portion of our revenue is derived from international sales. Economic, political, regulatory and other risks associated with our international business or failure to manage our global operations effectively could have an adverse effect on our operating results.

As of December 31, 2017, we had three major locations (defined as a location with more than 50 employees) and employed approximately 600 employees outside the U.S. We face challenges inherent in efficiently managing employees over large geographic distances and across multiple office locations, including the need to implement appropriate systems, controls, policies, benefits and compliance programs. Our inability to successfully manage our global organization could have a material adverse effect on our business and results of operations.

We expect that international and export sales will continue to represent a substantial portion of our revenues for the foreseeable future. Our future growth will depend to a large extent on worldwide acceptance and deployment of our solutions.

To the extent that foreign governments impose restrictions on importation of programming, technology or components from the U.S., the demand for our solutions in these markets could diminish. In addition, the laws of some foreign countries may not protect our IP rights to the same extent as do the laws of the U.S., which increases the risk of unauthorized use of our technologies. Such laws also may not be conducive to copyright protection of digital content, which may make our content protection technology less effective and reduce the demand for it.

Because we sell our products and services worldwide, our business is subject to the risks associated with conducting business internationally, including:

- foreign government regulation;
- changes in diplomatic and trade relationships;
- changes in, or imposition of, foreign laws and regulatory requirements and the costs of complying with such laws (including consumer and data protection laws);
- changes in, or weakening of copyright and IP (patent) laws;
- difficulty of effective enforcement of contractual provisions in local jurisdictions or difficulty in obtaining export licenses for certain technology;
- import and export restrictions and duties, including tariffs, quotas or taxes and other trade barriers and restrictions;
- fluctuations in our effective income tax rate driven by changes in the pre-tax profits that we derive from international sources, as well as changes in tax laws in jurisdictions in which we have a presence;
- changes in a specific country's or region's political or economic condition, including changes resulting from the threat of terrorism;
- difficulty in staffing and managing foreign operations, including compliance with laws governing labor and employment; and
- fluctuations in foreign currency exchange rates.

Our business could be materially adversely affected if foreign markets do not continue to develop, if we do not receive additional orders to supply our technologies, products or services for use by international pay TV service providers, CE and STB manufacturers, PPV/VOD providers and others or if regulations governing our international businesses change. Any changes to the statutes or the regulations with respect to export of encryption technologies could require us to redesign our products or technologies or prevent us from selling our products and licensing our technologies internationally.

We face risks with respect to conducting business in China due to China's historically limited recognition and enforcement of intellectual property and contractual rights and because of certain political, economic and social uncertainties relating to China.

We have direct license relationships with many consumer hardware device manufacturers located in China and a number of the electronics companies that license our technologies utilize captive or third-party manufacturing facilities located in China. We expect consumer hardware device manufacturing in China to continue to increase due to its lower manufacturing cost structure as compared to other industrialized countries. As a result, we face additional risks in China, in large part due to

China's historically limited recognition and enforcement of contractual and IP rights. In particular, we have experienced, and expect to continue to experience, problems with China-based consumer hardware device manufacturers underreporting or failing to report shipments of their products that incorporate our technologies, or incorporating our technologies or trademarks into their products without our authorization or without paying us licensing fees. We may also experience difficulty enforcing our IP rights in China, where IP rights are not as respected as they are in the U.S., Japan and Europe. Unauthorized use of our technologies and IP rights by China-based consumer hardware device manufacturers may dilute or undermine the strength of our brands. If we cannot adequately monitor the use of our technologies by China-based consumer hardware device manufacturers, or enforce our IP rights in China, our revenue could be adversely affected.

Our systems and networks are subject to cybersecurity and stability risks that could harm our business and reputation and expose us to litigation or liability.

Online business activities depend on the ability to store and transmit confidential information and licensed IP securely on our systems, third party systems and over private, hybrid and public networks. Any compromise of our ability to store or transmit such information and data securely or reliably, and any costs associated with preventing or eliminating such problems, could harm our business. Storage and online transmissions are subject to a number of security and stability risks, including:

- our own or licensed encryption and authentication technology, or access or security procedures, may be compromised, breached or otherwise be insufficient to ensure the security of customer information or IP;
- we could experience unauthorized access, computer viruses, system interference or destruction, “denial of service” attacks and other disruptive problems, whether intentional or accidental, that may inhibit or prevent access to our websites or use of our products and services, or cause customer information or other sensitive information to be disclosed to a perpetrator, others or the general public;
- someone could circumvent our security measures and misappropriate our, our business relations or customers' proprietary information or content or interrupt operations, or jeopardize our licensing arrangements, many of which are contingent on our sustaining appropriate security protections;
- our computer systems could fail and lead to service interruptions or downtime for television or other guidance systems, or websites, which may include e-commerce websites;
- we could inadvertently disclose customer information; or
- we may need to grow, reconfigure or relocate our data centers in response to changing business needs, which may be costly and lead to unplanned disruptions of service.

The occurrence of any of these or similar events could damage our business, hurt our ability to distribute products and services and collect revenue, threaten the proprietary or confidential nature of our technology, harm our reputation, increase the costs of our ongoing cybersecurity protections and enhancements, and expose us to litigation and other liabilities. Because some of our technologies and businesses are intended to inhibit use of or restrict access to our customers' IP, we may become the target of hackers or other persons whose use of or access to our customers' IP is affected by our technologies. Also, hackers may, for financial gain or other motives, seek to infiltrate or damage our systems, or obtain sensitive business information or customer information. We also may be exposed to customer claims, or other liability, in connection with any security breach or inadvertent disclosure. We may be required to expend significant capital or other resources to protect against the threat of security breaches, hacker attacks or system malfunctions or to alleviate problems caused by such breaches, attacks or failures.

Our product and service offerings rely on a variety of systems, networks and databases, many of which are maintained by us at our data centers or third-party data centers (e.g., cloud services). We do not have complete redundancy for all of our systems, and we do not maintain real-time back-up of our data, so in the event of significant system disruption, particularly during peak periods, we could experience loss of data processing capabilities, which could prevent us from providing our products and services to our customers for an uncertain amount of time, cause us to lose customers as a result of such breaches, and could harm our operating results through loss of revenue and increased costs to remediate such cybersecurity incidents. Notwithstanding our efforts to protect against “down time” for products and services, we do occasionally experience unplanned outages or technical difficulties. In order to provide products and services, we must protect the security of our systems, networks, databases and software.

We need to safeguard the security and privacy of our customers’ confidential data and remain in compliance with laws that govern such data, and any inability to do so may harm our reputation and brand and expose us to legal action.

Our products and services and back-end information technology systems can collect and allow us to store individual viewer and account preferences and other data our customers may consider confidential. To provide better consumer experiences and to operate effectively, and for our analytics business and other businesses, we collect certain information from users. Collection and use of such information may be subject to U.S. federal and state privacy and data collection laws and regulations, standards used by credit card companies applicable to merchants processing credit card details, and foreign laws

such as the European Union's Data Protection Directive (which may be added to or amended by the proposed General Data Protection Regulation or other regulations in the future). We may also be subject to third party privacy policies and permissions and obligations we owe to third parties, including, for example, those of pay TV service providers. We post our privacy policies concerning the collection, use and disclosure of user data, including that involved in interactions between client and server. Privacy concerns, however, could create uncertainty in the marketplace for digital video recording and for our products and services more generally. Any failure by us to comply with privacy policies or contractual obligations, any failure to comply with standards set by credit card companies relating to privacy or data collection, any failure to conform the privacy policy to changing aspects of our business or applicable law, or any existing or new legislation regarding privacy issues could impact our data collection efforts and subject us to fines, litigation or other liability.

In addition, the Children's Online Privacy Protection Act imposes civil and criminal penalties on persons collecting personal information from children under the age of 13. We do not knowingly distribute harmful materials to minors, direct our websites or services to children under the age of 13, or collect personal information from children under the age of 13. However, we are not able to control the ways in which consumers use our technology, and our technology may be used for purposes that violate this or other similar laws. The manner in which such laws may be interpreted and enforced cannot be fully determined, and future legislation could subject us to liability if we were deemed to be non-compliant.

Further, if our technological security measures are compromised, our customers may curtail or stop use of our products and services. Our products and services such as DVRs may contain the private information of our customers, and security breaches could expose us to a risk of loss of this information, which could result in potential liability and litigation. Like all services that connect with the internet, our service, including our website, is vulnerable to break-ins, attacks, attempts to overload our servers with denial-of-service or other attacks and similar disruptions from unauthorized use of our computer systems, any of which could lead to interruptions, delays, or shutdowns of our service, causing loss of critical data or the unauthorized disclosure or use of personally identifiable or other confidential information. If we experience compromises to our security that result in service and website performance or availability problems, the complete shutdown of our service or website, or the loss or unauthorized disclosure of confidential information, our customers may lose trust and confidence in us, and decrease or discontinue their use of our service. Further, outside parties may attempt to fraudulently induce employees to disclose sensitive information in order to gain access to our information or our customers' information. It is also possible that one of our employees could gain access to our information or our customer's information and use it in violation of our internal policies and procedures. Because the techniques used to obtain unauthorized access, disable or degrade service, or sabotage systems change frequently and often are not recognized until launched against a target, we may be unable to proactively address these techniques or to implement adequate preventative measures from either external or internal threats. We may be required to make significant expenditures to protect against security breaches or to remedy problems caused by any breaches. Additionally, the laws governing such data are constantly changing and evolving and we must comply with these laws or our business, including our reputation, brand and financial results will be harmed. Failure to protect our information and our customer's information from external or internal threats could negatively impact our ability to attract new customers, cause existing customers to cancel their subscriptions, cause commercial partners to cease doing business with us, subject us to third-party lawsuits, regulatory fines or other actions or liabilities, thereby harming our business and operating results.

We and the third-party vendors we work with will need to remain compliant with the Payment Card Industry requirements for security and protection of customer credit card information and an inability to do so by us or our third-party vendors will adversely affect our business.

As a merchant who processes credit card payments from its customers, we are required to comply with the payment card industry requirements imposed on us for the protection and security of our customers' credit card information. If we are unable to successfully remain compliant with the payment card industry requirements imposed on us as a credit card merchant, our business would be harmed because we could be prevented in the future from transacting customer subscription payments by means of a credit card.

Risks Related to the Ownership of Our Common Stock

Our revenue levels or rate of revenue growth on a quarterly or annual basis may fluctuate, which may cause us to not be able to sustain our operating results, which may cause our common stock price to decline.

Our revenues, expenses and operating results could vary significantly in the future and period-to-period comparisons should not be relied on as indications of future performance. We may not be able to sustain our revenue levels, or our rate of revenue growth, on a quarterly or annual basis. In addition, we may be required to delay or extend recognition of revenue on more complex licensing arrangements as required under generally accepted accounting principles in the U.S. Fluctuations in our operating results have in the past caused, and may in the future cause, the price of our common stock to decline.

Other factors that could affect our operating results include:

- the acceptance of our technologies by pay TV service providers and CE manufacturers and other customers;
- the timing and introduction of new services and features;
- expenses related to, and the financial impact of, possible acquisitions of other businesses and the integration of such businesses;
- expenses related to, and the financial impact of, the dispositions of businesses, including post-closing indemnification obligations;
- the timing and ability of signing high-value licensing agreements during a specific period;
- the extent to which new content technologies or formats replace technologies to which our solutions are targeted;
- the pace at which our analog and older products sales decline compared to the pace at which our digital and new product revenues grow; and
- adverse changes in the level of economic activity in the U.S. or other major economies in which we do business as a result of the threat of terrorism, military actions taken by the U.S. or its allies, or generally weak and uncertain economic and industry conditions.

Our operating results may also fluctuate depending on when we receive royalty reports from certain licensees. Prior to the adoption of Topic 606, we recognize a portion of our license revenue only after we receive royalty reports from our licensees regarding the manufacture of their products that incorporate our technologies. As a result, the timing of our revenue is dependent on the timing of our receipt of those reports, some of which are not delivered until late in the reporting period or after the end of the reporting period. In addition, it is not uncommon for royalty reports to include corrective or retroactive royalties that cover extended periods of time. Furthermore, there have been times in the past when we have deferred an unusually large amount of licensing revenue from a licensee in a given reporting period because not all of the revenue recognition criteria were met. The subsequent satisfaction of the revenue recognition criteria can result in a large amount of licensing revenue from a licensee being recorded in a given reporting period that is not necessarily indicative of the amounts of licensing revenue to be received from that licensee in future reporting periods, thus causing fluctuations in our operating results.

On adoption, Topic 606 requires us to recognize revenue from per-unit royalty licenses with certain CE manufacturers and third party IPG providers during the period in which the licensee's sales are estimated to have occurred, which results in an adjustment to revenue when actual amounts are subsequently reported by our licensees, thus causing fluctuations in our operating results.

Seasonal trends may cause our quarterly operating results to fluctuate and our inability to forecast these trends may adversely affect the market price of our common stock.

CE product sales have traditionally been much higher during the holiday shopping season than during other times of the year. Although predicting consumer demand for our products is very difficult, we have experienced that sales of DVRs and other retail products and new subscriptions to the TiVo service have been higher during the holiday shopping season when compared to other times of the year. If we are unable to accurately forecast and respond to consumer demand for our products, our reputation and brand will suffer and the market price of our common stock would likely fall.

The price of our common stock may be volatile.

The market price of our common stock has been, and in the future could be, significantly affected by factors such as:

- actual or anticipated fluctuations in operating results;
- announcements of renewal or termination of major contracts;
- announcements of technical innovations;
- new products, services or contracts;
- announcements by competitors or their customers;
- announcements by our customers;
- governmental regulatory and copyright action;
- developments with respect to patents or proprietary rights;
- announcements regarding acquisitions or divestitures;
- announcements regarding court cases, litigation or regulatory matters;
- changes in financial estimates or coverage by securities analysts;
- changes in interest rates which affect the value of our investment portfolio;
- changes in tax law or the interpretation of tax laws; and
- general market conditions.

Announcements by satellite television operators, cable television operators, major content providers or others regarding CE business or pay TV service provider combinations, evolving industry standards, consumer rights activists' “wins” in government regulations or the courts, motion picture production or distribution or other developments could cause the market price of our common stock to fluctuate.

There can be no assurance that our historic trading prices, or those of technology companies in general, will be sustained. In the past, following periods of volatility in the market price of a company's securities, some companies have been named in class action suits.

Further, economic uncertainty may adversely affect the global financial markets, which could cause the market price of our common stock to fluctuate.

Our Certificate of Incorporation, Bylaws and Delaware law could discourage a third-party from acquiring us and consequently decrease the market value of our common stock.

In the future, we could become the subject of an unsolicited attempted takeover of our Company. Although an unsolicited takeover could be in the best interests of our stockholders, certain provisions of Delaware law and our organizational documents could be impediments to such a takeover. We are subject to the provisions of Section 203 of the Delaware General Corporation Law, an anti-takeover law. In general, the statute prohibits a publicly held Delaware corporation from engaging in a business combination with an interested stockholder for a period of three years after the date of the transaction in which the person became an interested stockholder, unless the business combination is approved in a prescribed manner. As discussed above, our certificate of incorporation was amended and restated to include stock transfer restrictions applicable to 5% or greater stockholders. Our amended and restated certificate of incorporation and amended and restated bylaws also require that any action required or permitted to be taken by our stockholders must be affected at a duly called annual or special meeting of the stockholders and may not be affected by a consent in writing. In addition, special meetings of our stockholders may be called only by a majority of the total number of authorized directors, the chairman of the board, our president or the holders of 20% or more of our common stock. These provisions of Delaware law, our Amended and Restated Certificate of Incorporation and Amended and Restated Bylaws could make it more difficult for us to be acquired by another company, even if our acquisition is in the best interests of our stockholders. Any delay or prevention of a change of control or change in management could cause the market price of our common stock to decline.

Legal and Regulatory Risks

Changes in, or interpretations of, tax rules and regulations, may adversely affect our effective tax rates.

We are subject to U.S. federal and state income taxes, as well as foreign income taxes. Our future effective tax rates could be unfavorably affected by changes in tax rates, tax laws or the interpretation of tax laws, by changes in the amount of pre-tax income derived from countries with high statutory income tax rates, or by changes in our deferred tax assets and liabilities, including changes in our ability to realize our deferred tax assets. Our effective income tax rate could be unfavorably affected by changes in the amount of sales to customers in countries with high withholding tax rates.

In addition, U.S. federal, U.S. state, and foreign tax jurisdictions may examine our income tax returns, including income tax returns of acquired companies and acquired tax attributes included therein. We regularly assess the likelihood of outcomes resulting from these examinations to determine the adequacy of our provision for income taxes. In making such assessments, we exercise judgment in estimating our provision for income taxes. While we believe our estimates are reasonable, we cannot assure you that the final determination from these examinations will not be materially different from that reflected in our historical income tax provisions and accruals. Any adverse outcome from these examinations may have a material adverse effect on our business and operating results.

We may need to use litigation to protect our intellectual property, which could be costly to our business.

We are currently engaged in litigation, and litigation may be necessary in the future, to enforce our patents and other IP rights, to protect our trade secrets or to determine the validity and scope of the proprietary rights of others. For example, we have initiated patent infringement litigation against Comcast and expect to incur significant expenses in connection with this patent infringement case. If we are unable to reach favorable license terms with Comcast or otherwise experience an adverse outcome in patent infringement lawsuits, our revenues could be adversely impacted and our ability to license our intellectual property on favorable terms to other third parties in the future, each of which would harm our business.

We, and many of our current and potential competitors, dedicate substantial resources to protection and enforcement of IP rights. We believe that companies will continue to take steps to protect their technologies, including, but not limited to, seeking patent protection. Companies in the technology and content-related industries have frequently resorted to litigation regarding IP rights. Disputes regarding the ownership of technologies and their associated rights are likely to arise in the future and we may be forced to litigate to determine the validity and scope of other parties' proprietary rights. Any such litigation is inherently risky, the outcome is uncertain, could be costly, could distract our management from focusing on operating our business, could delay recognition of revenue until a settlement or decision is ultimately reached, could result in the invalidation or adverse claims construction of patents, and might ultimately be unsuccessful. The existence and/or outcome of such litigation could harm our business.

In 2014, the Supreme Court of the United States decided the Alice Corp v. CSL Bank International ("Alice") case. The Alice case generally addresses patentable subject matter, and specifically an exception to patentable subject matter for "abstract ideas." In the Alice case, the court provides some general interpretive guidance to be considered when determining whether patent claims are directed to patent-ineligible abstract ideas, along with a two-step test for determining patentable subject matter eligibility going-forward. Practically, the effects of the Alice decision are still being assessed by patent holders, attorneys, the United States Patent & Trademark Office and various courts, all of which are attempting to determine the appropriate analysis and boundaries of the Alice decision on other patents. In any event, the Alice decision will provide potential licensees and accused infringers of certain patents - including our patents - new arguments to challenge the validity of such patents, which could cause some delays or risk in pending or future patent negotiations or litigation.

Additionally, the relationships with our customers, suppliers and technology collaborators may be disrupted or terminated as a result of patent assertions that we may make against them, which could harm our business.

Finally, adverse legal rulings could result in the invalidation of our patents, the narrowing of the claims of our patents, or fostering of the perception by licensees or potential licensees that a judicial finding of their infringement is unlikely. Such results or perceptions could decrease the likelihood that licensees or potential licensees may be interested in licensing our patents, or could decrease the amounts of license fees that they are willing to pay, which could harm our business.

We may be subject to IP infringement claims or other litigation, which are costly to defend and could limit our ability to use certain technologies, result in the loss of significant rights, require us to alter our current product and business strategy and force us to cease operating our business, in which case our business would be harmed.

From time to time we receive claims and inquiries from third parties alleging that our internally developed technology, technology we have acquired or technology we license from third parties may infringe other third parties' proprietary rights (especially patents). Third parties have also asserted and most likely will continue to assert claims against us alleging infringement of copyrights, trademark rights or other proprietary rights relating to video or music content, or alleging unfair competition or violations of privacy rights. We have faced such claims in the past, we currently face such claims, and we expect to face similar claims in the future. Regardless of the merits of such claims, any disputes with third parties over IP rights could materially and adversely impact our business, including by resulting in the diversion of management time and attention from our core business, the significant cost to defend ourselves against such claims or reducing the willingness of licensees to incorporate our technologies into their products or services. For example, many patents covering interactive television technologies have been granted but have not been commercialized. A number of companies in the advanced-television industry earn substantial profits from technology licensing, and the introduction of new technologies by us is likely to provoke lawsuits from such companies. A successful claim of infringement against us, our inability to obtain an acceptable license from the holder of the patent or other right, or our inability to design around an asserted patent or other right could cause our manufacturers to cease manufacturing products that incorporate our technologies, including devices that enable the TiVo service, our retailers to stop selling our products or us to cease providing our service, or all of the above, which would eliminate our ability to generate revenues.

Additionally, we have been asked by content owners to stop the display or hosting of copyrighted materials by our users or ourselves through our service offerings, including notices provided to us pursuant to the DMCA. We have and will promptly respond to legitimate takedown notices or complaints, including but not limited to those submitted pursuant to the DMCA, notifying us that we are providing unauthorized access to copyrighted content by removing such content and/or any links to such content from our services or products. Nevertheless, we cannot guarantee that our prompt removal of content, including removal pursuant to the provisions of the DMCA, will prevent disputes with content owners, that infringing content will not exist on our services, or that we will be able to resolve any disputes that may arise with content providers or users regarding such infringing content.

If any of these claims were to prevail, we could be forced to pay damages, comply with injunctions, or stop distributing our products or providing our services while we re-engineer them or seek licenses to necessary technology, which might not be available on reasonable terms or at all. We could also be subject to indemnification claims resulting from open source software violations or from infringement claims made against our customers, other companies with whom we have relationships or the current owners of businesses that we divested. Such indemnification claims could increase our defense costs and potential damages, in addition to forcing the Company to incur material additional expenses. For example, we have received notices and lawsuits from certain customers requesting indemnification in patent-related lawsuits. We evaluate the requests and assess whether we believe we are obligated to provide such indemnification to such customers on a case-by-case basis. Customers or other companies making such requests could become unwilling or hesitant to do business with us if we decline such requests. An adverse determination with respect to such requests or in any of these events described above could require us to change our business practices and have a material impact on our business and results of operations. Furthermore, these types of disputes can be asserted by our licensees or prospective licensees or by other third parties as part of negotiations with us or in private actions seeking monetary damages or injunctive relief. Any disputes with our licensees or potential licensees or other third parties could harm our reputation and expose us to additional costs and other liabilities.

Litigation could harm our business and result in:

- Substantial expenditures for legal fees and costs to defend the Company and/or our customers;
- substantial settlement, damage awards or related costs, including indemnification of customers and our required payment of royalties and/or licensing fees;
- diversion of management and technical attention and resources to help defend the Company, including as part of pre-trial discovery;
- either our customers discontinuing to use or ourselves discontinuing to sell infringing products or services;
- our expending significant resources to develop and implement non-infringing technology;
- our obtaining, or being required to obtain, licenses to infringed technology, which could be costly or unavailable;
- an injunction forcing us to limit the functionality of our products and services, stop importing our products and services into certain markets, or cease operating our business altogether; and
- delays in product delivery and new service introduction.

We are involved in the business of powering the discovery and enjoyment of digital entertainment, including over the internet. There has been, and we believe that there will continue to be, an increasing level of litigation to determine the applicability of current laws to, and impact of new technologies on, the use and distribution of content over the internet and through new devices. As we develop products and services that protect, provide or enable the provision of content in such ways, the risk of litigation against us may increase.

We may be subject to legal liability for the provision of third-party products, services, content or advertising.

We periodically enter into arrangements to offer third-party products, services, content or advertising under our brands or in connection with our various products or service offerings. For example, we license or incorporate certain entertainment Metadata into our data offerings. Certain of these arrangements involve enabling the distribution of digital content owned by third parties, which may subject us to third party claims related to such products, services, content or advertising, including defamation, violation of privacy laws, misappropriation of publicity rights and infringement of IP rights. We require users of our services to agree to terms of use that prohibit, among other things, the posting of content that violates third party intellectual property rights, or that is obscene, hateful or defamatory. We have implemented procedures to enforce such terms of use on certain of our services, including taking down content that violates our terms of use for which we have received notification, or that we are aware of, and/or blocking access by, or terminating the accounts of, users determined to be repeat violators of our terms of use. Despite these measures, we cannot guarantee that such unauthorized content will not exist on our services, that these procedures will reduce our liability with respect to such unauthorized third-party conduct or content, or that we will be able to resolve any disputes that may arise with content providers or users regarding such conduct or content. Our agreements with these parties may not adequately protect us from these potential liabilities. It is also possible that, if any information provided directly by us contains errors or is otherwise negligently provided to users, third parties could make claims against us, including, for example, claims for IP infringement, publicity rights violations or defamation. Investigating and defending any of these types of claims is expensive, even if the claims do not result in liability. If any of these claims results in liability, we could be required to pay damages or other penalties, which could harm our business and our operating results.

Entertainment companies and other content owners may claim that some of the features of our TiVo DVRs or other products, such as our advertising products and features, and services violate copyright or trademark laws, which could force us to incur significant costs in defending such actions and affect our ability to market the TiVo service and the products that enable the TiVo service.

Although we have not been the subject of such actions to date, a past competitor's DVRs were the subject of several copyright infringement lawsuits by a number of major entertainment companies, including major television networks. These lawsuits alleged that the competitor's DVRs violate copyright laws by allowing users to skip commercials, delete recordings only when instructed and use the internet to send recorded materials to other users. TiVo-enabled DVRs have some similar features, including the ability to fast-forward as well as skip (in certain newer models) through commercials, the ability to speed up the play back of recordings (in certain newer models), the ability to delete recordings only when instructed and the ability to transfer recordings from a TiVo-enabled DVR to a personal computer and/or portable media devices. Based on market or consumer pressures, we may decide in the future to add additional features that may be objectionable to entertainment companies. If similar actions are filed against us based on current or future features of our DVRs and non-DVR products, entertainment companies may seek injunctions to prevent us from including these features and/or damages. Such litigation can be costly, even if we prevail in the litigation, and may divert the efforts of our management. Furthermore, if we were ordered to remove features from our DVRs or other products and services, we may experience increased difficulty in marketing the TiVo service and related TiVo products and services and may suffer reduced revenues as a result.

New governmental regulations or new interpretation of existing laws, including legislative initiatives seeking to, or judicial or regulatory decisions that, weaken patent protection or copyright law, could cause legal uncertainties and result in harm to our business.

The standards that courts use to interpret patents are not always applied predictably or uniformly and may evolve, particularly as new technologies develop. For example, the Supreme Court of the United States has modified some legal standards applied by the U.S. Patent and Trademark Office in examination of U.S. patent applications, which may decrease the likelihood that we will be able to obtain patents and may increase the likelihood of challenges to patents we obtain or license. Additionally, the Leahy-Smith America Invents Act (the "Leahy-Smith Act") includes a number of significant changes to the U.S. patent laws, such as, among other things, changing from a "first to invent" to a "first inventor to file" system, establishing new procedures for challenging patents and establishing different methods for invalidating patents. The U.S. Patent and Trademark Office is still in the process of implementing regulations relating to these changes, and the courts have yet to address many of the new provisions of the Leahy-Smith Act. Some of these changes or potential changes may not be advantageous to the Company, and it may become more difficult to obtain adequate patent protection or to enforce the Company's patents against third parties. While the Company cannot predict the impact of the Leahy-Smith Act at this time, these changes or potential changes could increase the costs and uncertainties surrounding the prosecution of the Company's patent applications and adversely affect the Company's ability to protect its IP.

Consumer rights advocates and other constituencies also continuously challenge copyright law, notably the DMCA, through both legislative and judicial actions. Legal uncertainties surrounding the application of the DMCA may adversely affect our business. If copyright law is compromised, or devices that can circumvent our technology are permitted by law and become prevalent, this could result in reduced demand for our technologies, and our business would be harmed.

Many laws and regulations are pending and may be adopted in the U.S., individual states and local jurisdictions and other countries with respect to the internet. These laws may relate to many areas that impact our business, including IP rights, digital rights management, copyright, property ownership, privacy, taxation, and the CE and television industry. These types of regulations are likely to differ between countries and other political and geographic divisions. Other countries and political organizations are likely to impose or favor more and different regulation than that which has been proposed in the U.S., thus furthering the complexity of regulations. In addition, state and local governments may impose regulations in addition to, inconsistent with, or stricter than federal regulations. Changes to or the interpretation of these laws could increase our costs, expose us to increased litigation risk, substantial defense costs and other liabilities or require us or our customers to change business practices. It is not possible to predict whether or when such legislation may be adopted, and the adoption of such laws or regulations and uncertainties associated with their validity, interpretation, applicability and enforcement, could materially and adversely affect our business. For example, legislation regarding customer privacy or copyright could be enacted or expanded in ways that apply to the TiVo service, which could adversely affect our business. Laws or regulations could be interpreted to prevent or limit access to some or all television signals by certain CE devices, or impose limits on the number of copies, the ability to transfer or move copies, or the length of time a consumer may retain copies of some or all types of television programming. New or existing copyright laws could be applied to restrict the capture of television programming, which would adversely affect our business. It is unknown whether existing laws and regulations will apply to the digital video recorder market.

In addition, the satellite transmission, cable and telecommunications industries are subject to pervasive federal regulation, including FCC licensing and other requirements, as well as extensive regulation by local and state authorities. The FCC could promulgate new regulations or interpret existing regulations in a manner that would cause us to incur significant compliance costs or force us to alter or eliminate certain features or functionality of our products or services, which may adversely affect our business. For example, the FCC could determine that certain of our products fail to comply with regulations concerning matters such as electrical interference, copy protection, digital tuners, or display of television programming based on rating systems. The FCC could also impose limits on the number of copies, the ability to transfer or move copies, the length of time a consumer may retain copies, or the ability to access some or all types of television programming. Furthermore, FCC regulations may affect cable television providers and other multi-channel video programming distributors ("MVPDs"), which are the primary customers for certain of our products and services. Although federal law no longer prohibits MVPDs (except DBS providers) from deploying navigation devices (e.g., set-top boxes) with combined security and non-security functions (the “integration ban”), further developments with respect to these issues or other related FCC action could impact the availability and/or demand for “plug and play” devices, including set-top boxes, all of which could affect demand for UXs incorporated in set-top boxes or CE devices and correspondingly affect our license fees; moreover, new regulations, or new interpretations of existing regulations, could reduce the desirability of our products and services, require us to make changes to our products or services, or increase our compliance costs.

We have also requested, and received, a waiver from the FCC that defers our requirement to incorporate an industry standard, interactive and recordable home network interface in the devices that we provide to cable operators. Our waiver currently expires on December 31, 2018.

It is difficult to anticipate the impact of current or future laws and regulations on our business. We may have significant expenses associated with staying appraised of and in compliance with local, state, federal, and international legislation and regulation of our business and in presenting the Company’s positions on proposed laws and regulations.

We advertise, market, and sell our services directly to consumers; many of these activities are highly regulated by constantly evolving state and federal laws and regulations and violations of these laws and regulations could harm our business.

We engage in various advertising, marketing, and other promotional activities. For instance, in the past, we have offered gift subscriptions and mail-in-rebates to consumers, which are subject to state and federal laws and regulations. A constantly evolving network of state and federal laws is increasingly regulating these promotional activities. Additionally, we enter into subscription service contracts directly with consumers which govern both our provision of and the consumers' payment for the TiVo service. For example, consumers who activate new monthly subscriptions to the TiVo service may be required to commit to pay for the TiVo service for a minimum of one year or be subject to an early termination fee if they terminate prior to the expiration of their commitment period. If the terms of our subscription service contracts with consumers, such as our imposition of an early termination fee, or our previously offered rebate or gift subscription programs were to violate state or federal laws or regulations, we could be subject to suit, penalties, and/or negative publicity in which case our business would be harmed.

Legislation, laws or regulations relating to environmental issues, including conflict minerals, may adversely impact our business in the future.

It is possible that future proposed environmental regulations on CE devices, such as DVRs and STBs, may regulate and increase the production, manufacture, use, and disposal costs incurred by us and our customers. For example, the Energy Independence and Security Act of 2007 directs the Department of Energy to prescribe labeling or other disclosure requirements for the energy use of standalone digital video recorder boxes. This and future energy regulations could potentially make it more costly for us to design, manufacture, and sell certain products to our customers thus harming the growth of our business.

Additionally, under the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, or the “Dodd-Frank Act,” the SEC adopted new requirements for companies that use certain minerals and metals, known as conflict minerals, in their products, whether or not these products are manufactured by third-parties. These requirements mandate that companies perform due diligence, disclose and report whether or not such minerals originate from the Democratic Republic of Congo and adjoining countries. These new requirements could adversely affect the sourcing, availability, and pricing of minerals used in the manufacture of certain of our products and the numerous components that go into certain of our products. For instance, a number of our key components in certain of our products are supplied from a single source, and finding alternatives components that would be conflict mineral free in some cases could be expensive and cause delays in our ability to manufacture those products and meet customer demand. In addition, we have and will incur additional costs to comply with the disclosure

requirements, including costs related to determining the source of any of the relevant minerals and metals used in our products. Since our supply chain is complex, we may not be able to sufficiently verify the origins for these minerals and metals used in our products through our due diligence procedures, which may harm our reputation. In such event, we may also face difficulties in satisfying customers who require that all of the components of our products are certified as conflict mineral free. Therefore, regulations related to “conflict minerals” may force us to incur additional expenses, may make our supply chain more complex and may result in damage to our reputation with customers, which would harm our business.

Privacy concerns and laws, evolving regulation of television viewing behavior and cloud computing, cross-border data transfer restrictions and other domestic or foreign regulations may limit the use and adoption of our services and adversely affect our business.

Regulation related to the provision of services similar to those we provide through the internet is increasing, as federal, state and foreign governments continue to adopt new laws and regulations addressing data privacy and the collection, processing, storage and use of personal information, including television viewing data. In some cases, foreign data privacy laws and regulations, such as the European Union’s Data Protection Directive, and the country-specific laws and regulations that implement that directive, also govern the processing of personal information. Further, laws are increasingly aimed at the use of personal information for marketing purposes, such as the European Union’s e-Privacy Directive, and the country-specific regulations that implement that directive and the new General Data Privacy Regulations which is due to come into force in 2018. Such laws and regulations are subject to new and differing interpretations and may be inconsistent among jurisdictions. These and other requirements could reduce demand for our services or restrict our ability to store and process data or, in some cases, impact our ability to offer our services in certain locations or our customers' ability to deploy our solutions globally and/or transfer data outside certain jurisdictions. The costs of compliance with and other burdens imposed by laws, regulations and standards may limit the use and adoption of our services, reduce overall demand for our services, lead to significant fines, penalties or liabilities for noncompliance, or slow the pace at which we sign new operator customers outside the U.S., any of which could harm our business.

We are subject to the Foreign Corrupt Practices Act (“FCPA”) and similar anti-corruption and anti-bribery laws in the U.S. and other jurisdictions, and our failure to comply with such laws and regulations thereunder could result in penalties which could harm our reputation, business, and financial condition.

We are subject to the FCPA, which generally prohibits companies and their intermediaries from making improper payments to foreign officials for the purpose of obtaining or keeping business. The FCPA also requires companies to maintain adequate record-keeping and internal accounting practices to accurately reflect the transactions of the company. Under the FCPA, U.S. companies may be held liable for actions taken by their strategic or local partners or representatives. The FCPA and similar laws in other countries can impose civil and criminal penalties for violations.

If we do not properly implement practices and controls with respect to compliance with the FCPA and similar anti-corruption and anti-bribery laws in the U.S. and other jurisdictions, or if we fail to enforce those practices and controls properly, we may be subject to regulatory sanctions, including administrative costs related to governmental and internal investigations, civil and criminal penalties, injunctions and restrictions on our business activities, all of which could harm our reputation, business and financial condition.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 2. PROPERTIES

The following table lists our principal locations as of December 31, 2017:

Location	Square Footage	Lease Expiration	Primary Use by Segment
San Jose, California	164,000	January 2027	Corporate; Intellectual Property; Product
Bangalore, India	45,000	May 2018	Product
Burbank, California	45,000	June 2019	Corporate; Intellectual Property; Product
Wayne, Pennsylvania	39,000	October 2025	Product
Tulsa, Oklahoma	29,000	August 2021	Corporate
Boston, Massachusetts	20,000	November 2021	Product
Golden, Colorado	15,000	July 2020	Product

We believe that our existing facilities are adequate to meet current requirements and that additional or substitute space will be available as needed to accommodate any expansion of operations.

ITEM 3. LEGAL PROCEEDINGS

Information with respect to this item is contained in Note 10 to the Consolidated Financial Statements included in Part IV of this Annual Report on Form 10-K, which is incorporated by reference herein.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

PART II.

ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

Market Information and Holders

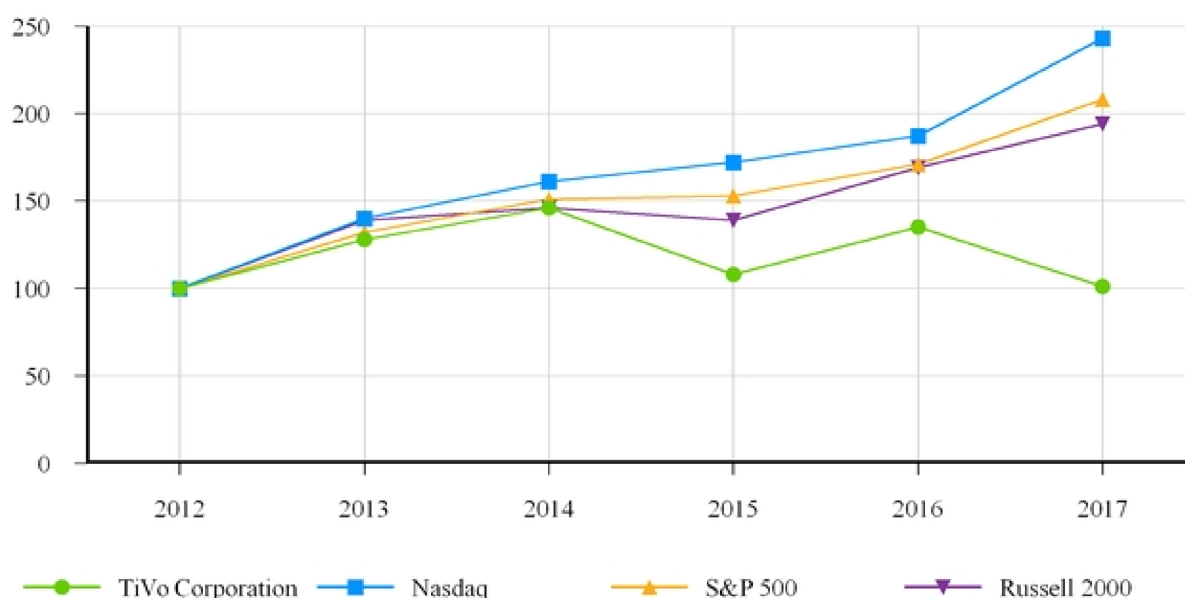
The common stock of TiVo Corporation is listed on the NASDAQ Global Select Market under the symbol "TIVO". Prior to September 7, 2016, (the "TiVo Acquisition Date"), Rovi's common stock was listed on the NASDAQ Global Select Market under the symbol "ROVI". The following table sets forth, for the periods indicated, the reported high and low intraday sales prices for the common stock of TiVo Corporation (and Rovi Corporation prior to the TiVo Acquisition Date):

	High	Low
2017		
First Quarter	$ 21.75	$ 17.43
Second Quarter	$ 19.93	$ 15.15
Third Quarter	$ 20.05	$ 17.60
Fourth Quarter	$ 20.18	$ 13.75
2016		
First Quarter	$ 23.70	$ 16.25
Second Quarter	$ 19.61	$ 15.06
Third Quarter	$ 23.40	$ 15.41
Fourth Quarter	$ 22.05	$ 18.80

As of December 31, 2017, the closing price of our common stock as reported on the NASDAQ Global Select Market was $15.60 per share. As of February 23, 2018, there were 837 holders of record of our common stock based on information furnished by American Stock Transfer & Trust Company, the transfer agent for our securities. The number of beneficial stockholders is substantially greater than the number of holders of record as a large portion of our common stock is held through brokerage firms.

Stock Performance Graph*

The following graph and table show a comparison of the cumulative total stockholder return of TiVo Corporation's common stock (and Rovi Corporation's common stock prior to the TiVo Acquisition Date) with the cumulative total return of the NASDAQ Composite Index (the “Nasdaq”), the S&P 500 Composite Index (the “S&P 500”) and the Russell 2000 Index (“Russell 2000”) from December 31, 2012 through December 31, 2017. The graph and table assume an initial investment of $100 in TiVo Corporation common stock and in each of the market indices on December 31, 2012, and further assumes the reinvestment of all dividends. The comparisons in the graph below are based on historical data and are not indicative of, or intended to forecast, future performance of TiVo Corporation's common stock.



	December 31,					
	2012	2013	2014	2015	2016	2017
TiVo Corporation	100	128	146	108	135	101
Nasdaq	100	140	161	172	187	243
S&P 500	100	132	151	153	171	208
Russell 2000	100	139	146	139	169	194

* The material in this section is not “soliciting material,” is not deemed filed with the SEC and is not to be incorporated by reference in any filing of TiVo Corporation under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended, whether made before or after the date hereof and irrespective of any general incorporation language in such filing.

Dividend Policy

We have a disciplined capital allocation process that considers a range of alternatives for the use of our free cash flow, including dividends. In 2017, we initiated a dividend, declaring and paying $0.18 per share each quarter. Our dividend program and the payment of future dividends are subject to continued capital availability and our Board of Directors' continuing determination that the declaration of dividends is in the best interests of our stockholders.

Our Senior Secured Credit Facility contains customary affirmative and negative covenants applicable to the Company and its subsidiaries, including, among other things, restrictions on dividends and other distributions. See Note 9 to the Consolidated Financial Statements in Part IV of this Annual Report on Form 10-K, which is incorporated by reference herein.

Recent Sales of Unregistered Securities

During the three months ended December 31, 2017 there were no sales of unregistered securities.

Issuer Purchases of Equity Securities

TiVo Corporation may choose to repurchase shares under its ongoing repurchase program when sufficient liquidity exists, the shares are trading at a discount relative to estimated intrinsic value and there are no alternative investment opportunities expected to generate a higher risk-adjusted return on investment.

The following table provides information about the Company's purchases of its common stock during the three months ended December 31, 2017 (in thousands, except per share amounts):

Period	Total Number of Shares Purchased (1)	Average Price Paid Per Share (1)	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs (1)	Approximate Dollar Value of Shares that May Yet Be Purchased Under the Plans or Programs (2)
October 2017	—	$ —	—	$ 150,000.0
November 2017	—	$ —	—	$ 150,000.0
December 2017	—	$ —	—	$ 150,000.0
Total	—	$ —	—	

(1) Excludes shares withheld to satisfy minimum statutory tax withholding requirements in connection with the net share settlement of restricted stock units. During the three months ended December 31, 2017, the Company withheld 0.1 million shares of common stock to satisfy $2.3 million of required withholding taxes.

(2) On February 14, 2017, TiVo Corporation's Board of Directors approved an increase to its common stock repurchase program authorization to $150.0 million. The February 2017 authorization includes amounts which were outstanding under previously authorized share repurchase programs.

ITEM 6. SELECTED FINANCIAL DATA

The tables below set forth selected financial data (in thousands, except per share amounts). The information is not necessarily indicative of results of future operations. The selected financial data is derived from, and should be read in conjunction with, Item 7., "Management's Discussion and Analysis of Financial Condition and Results of Operations," included in Part II, and the Consolidated Financial Statements and notes thereto included in Part IV, of this Annual Report on Form 10-K, which are incorporated by reference herein.

	Year Ended December 31,				
	2017	2016 (1)	2015	2014	2013
Consolidated Statements of Operations Data:					
Total Revenues, net	$ 826,456	$ 649,093	$ 526,271	$ 542,311	$ 537,390
Restructuring and asset impairment charges	19,048	27,316	2,160	10,939	7,638
Operating income	4,790	21,441	71,756	83,710	83,333
(Loss) income from continuing operations, net of tax	(37,956)	37,249	(4,292)	(13,522)	21,335
Loss from discontinued operations, net of tax	—	(4,588)	—	(56,222)	(193,425)
Net (loss) income	(37,956)	32,661	(4,292)	(69,744)	(172,090)
Basic (loss) earnings per share:					
Continuing operations	$ (0.32)	$ 0.40	$ (0.05)	$ (0.15)	$ 0.22
Discontinued operations	—	(0.05)	—	(0.61)	(1.97)
Basic (loss) earnings per share	$ (0.32)	$ 0.35	$ (0.05)	$ (0.76)	$ (1.75)
Diluted (loss) earnings per share:					
Continuing operations	$ (0.32)	$ 0.40	$ (0.05)	$ (0.15)	$ 0.22
Discontinued operations	—	(0.05)	—	(0.61)	(1.96)
Diluted (loss) earnings per share	$ (0.32)	$ 0.35	$ (0.05)	$ (0.76)	$ (1.74)
Dividends declared per share	$ 0.72	$ —	$ —	$ —	$ —

	December 31,				
	2017	2016 (1)	2015	2014	2013
Consolidated Balance Sheet Data:					
Cash, cash equivalents and marketable securities	$ 352,542	$ 438,640	$ 324,269	$ 469,020	$ 641,121
Total assets	3,163,678	3,320,843	2,199,296	2,421,152	2,687,178
Long-term liabilities	1,112,417	1,128,611	1,075,512	910,906	1,264,041
Total stockholders’ equity	1,853,016	1,909,636	1,030,565	1,106,264	1,313,216

(1) On September 7, 2016, Rovi completed its acquisition of TiVo Solutions for $1.1 billion. The Consolidated Statements of Operations for the year ended December 31, 2016 reflect an $86.1 million benefit from a reduction in our deferred tax asset valuation allowance in connection with the TiVo Acquisition, which was partially offset by including TiVo Solutions' results for the period subsequent to the TiVo Acquisition Date, $40.0 million of Transaction, transition and integration costs associated with the TiVo Acquisition and $27.3 million in Restructuring and asset impairment charges. For further details about the TiVo Acquisition, refer to Note 2 of the Consolidated Financial Statements included in Part IV of this Annual Report on Form 10-K, which is incorporated by reference herein.

ITEM 7. MANAGEMENT’S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following commentary should be read in conjunction with the Consolidated Financial Statements and related notes thereto contained in Part IV of this Annual Report on Form 10-K. This discussion contains forward-looking statements based on current expectations that involve risks and uncertainties. Our actual results may differ materially from those anticipated in these forward-looking statements as a result of various factors, including those set forth under Item 1A., "Risk Factors," included in Part I of this Annual Report on Form 10-K.

Executive Overview of Results

On September 7, 2016 (the "TiVo Acquisition Date"), Rovi Corporation ("Rovi") completed its acquisition of TiVo Inc. (renamed TiVo Solutions Inc. ("TiVo Solutions")), a global leader in next-generation video technology and innovative cloud-based software-as-a-service solutions, for $1.1 billion (the "TiVo Acquisition"). The TiVo Acquisition created a new company, TiVo Corporation ("TiVo" or the "Company"), which is a global leader in entertainment technology and audience insights. From the interactive program guide ("IPG") to the digital video recorder ("DVR"), we provide innovative products and licensable technologies that enable the world’s leading media and entertainment companies to deliver the ultimate entertainment experience and improve how people find content across a changing media landscape. For further details on the TiVo Acquisition, see Note 2 of the Consolidated Financial Statements included in Part IV of this Annual Report on Form 10-K, which is incorporated by reference herein.

Our operations are organized into two reportable segments for financial reporting purposes: Product and Intellectual Property Licensing. The Product segment consists primarily of the licensing of Company-developed user experience ("UX") products and services to multi-channel video service providers and CE manufacturers, in-guide advertising revenue, analytics revenue and revenue from licensing the TiVo service, licensing metadata and selling TiVo-enabled devices. We group our Product revenues into three verticals based on the products delivered to our customer: Platform Solutions; Software and Services; and Other. Platform Solutions includes revenue from licensing Company-developed UX products, the TiVo service and selling TiVo-enabled devices. Software and Services includes revenue from licensing our metadata, advanced search and recommendation and data analytics products, as well as in-guide advertising revenue. Other revenue includes sales of legacy Analog Content Protection ("ACP"), VCR Plus+ and media recognition products.

The Intellectual Property Licensing segment consists primarily of licensing our patent portfolio to U.S. and international pay-television providers (directly and through their suppliers), mobile device manufacturers, consumer electronics ("CE") manufacturers and over-the-top ("OTT") video providers. Our broad portfolio of licensable technology patents covers many aspects of content discovery, DVR, video-on-demand (“VOD”), OTT experiences, multi-screen functionality and personalization, as well as interactive applications and advertising. We group our Intellectual Property Licensing revenues into three verticals based primarily on the business of our customer: US Pay TV Providers; Consumer Electronics Manufacturers; and New Media, International Pay TV Providers and Other. Revenue from US Pay TV Providers includes direct and indirect licensing of traditional US Pay TV Providers regardless of the particular distribution technology (e.g., cable, satellite or the internet). Consumer Electronics Manufacturers revenue includes the licensing of our patents to traditional CE manufacturers. New Media, International Pay TV Providers and Other revenue includes licensing international pay TV providers, virtual service providers, mobile device manufacturers and content and new media companies.

Total Revenues, net for the year ended December 31, 2017 increased by 27% compared to the prior year primarily as a result of the TiVo Acquisition, as including TiVo Solutions' results for the full period increased revenue by $218.4 million. The benefit from higher TiVo Solutions revenue was partially offset by lower revenue from the remainder of Product and Intellectual Property Licensing. For additional details on the changes in Total Revenues, net, see the discussion of our segment results below.

Our Intellectual Property Licensing agreement with Comcast Corporation ("Comcast") expired on March 31, 2016. Our Product relationship with Comcast, primarily a metadata license, expired on September 30, 2017. The expiration of our intellectual property license with Comcast, as well as litigation initiated against Comcast, has resulted in a reduction of revenue and an increase in litigation costs. While the Company anticipates Comcast will eventually execute a new intellectual property license, the length of time that Comcast is out of license prior to executing a new license is uncertain. The amount of revenue recognized in the reporting period in which a new license is executed is uncertain and depends on a variety of factors, including license terms such as duration, pricing, covered products and fields of use, and the duration of the out-of-license period. In

addition, while litigation costs have increased, whether the litigation initiated against Comcast will cause total expenses to increase or decrease longer-term will be a function of several factors, including the length of time Comcast is out of license and the length of time we remain in litigation with Comcast.

For the year ended December 31, 2017, our Net loss from continuing operations was $38.0 million, or $0.32 per diluted share, compared to Net income from continuing operations of $37.2 million, or $0.40 per diluted share, in the prior year. The change was primarily due to the year ended December 31, 2016 including an income tax benefit of $86.1 million due to a change in the deferred tax asset valuation allowance resulting from the TiVo Acquisition, a $41.1 million decrease in Product and Intellectual Property Licensing revenue from other than TiVo Solutions and a $14.0 million loss from the settlement of litigation associated with the TiVo Acquisition in 2017, which were partially offset by a $26.6 million benefit from the Tax Cuts and Jobs Act ("Tax Act of 2017") enacted on December 22, 2017, including TiVo Solutions' results for the full period which increased operating income by $15.1 million and benefits from cost saving initiatives.

Comparison of Year Ended December 31, 2017 and 2016

The consolidated results of operations for the year ended December 31, 2017 compared to the prior year were as follows (dollars in thousands):

	Year Ended December 31,			
	2017	2016	Change $	Change %
Revenues, net:				
Licensing, services and software	$ 784,087	$ 629,474	$ 154,613	25 %
Hardware	42,369	19,619	22,750	116 %
Total Revenues, net	826,456	649,093	177,363	27 %
Costs and expenses:				
Cost of licensing, services and software revenues, excluding depreciation and amortization of intangible assets	167,712	139,666	28,046	20 %
Cost of hardware revenues, excluding depreciation and amortization of intangible assets	46,699	19,056	27,643	145 %
Research and development	194,382	125,172	69,210	55 %
Selling, general and administrative	205,024	192,755	12,269	6 %
Depreciation	22,144	18,698	3,446	18 %
Amortization of intangible assets	166,657	104,989	61,668	59 %
Restructuring and asset impairment charges	19,048	27,316	(8,268)	(30)%
Total costs and expenses	821,666	627,652	194,014	31 %
Operating income	4,790	21,441	(16,651)	(78)%
Interest expense	(42,756)	(43,681)	925	(2)%
Interest income and other, net	2,915	1,688	1,227	73 %
Income (loss) on interest rate swaps	1,859	(3,884)	5,743	(148)%
TiVo Acquisition litigation	(14,006)	—	(14,006)	N/a
Loss on debt extinguishment	(108)	—	(108)	N/a
Loss on debt modification	(929)	—	(929)	N/a
Loss from continuing operations before income taxes	(48,235)	(24,436)	(23,799)	97 %
Income tax (benefit) expense	(10,279)	(61,685)	51,406	(83)%
(Loss) income from continuing operations, net of tax	(37,956)	37,249	(75,205)	(202)%
Loss from discontinued operations, net of tax	—	(4,588)	4,588	(100)%
Net (loss) income	$ (37,956)	$ 32,661	$ (70,617)	(216)%

Total Revenues, net

For the year ended December 31, 2017, Total Revenues, net increased 27% compared to the prior year as Product and Intellectual Property Licensing revenues increased $121.8 million and $55.5 million, respectively. These increases were

primarily a result of the TiVo Acquisition. Product generated 51.2% and 46.5% of Total Revenues, net for the years ended December 31, 2017 and 2016, respectively.

For additional details on the changes in Total Revenues, net, see the discussion of our segment results below.

Cost of licensing, services and software revenues, excluding depreciation and amortization of intangible assets

Cost of licensing, services and software revenues, excluding depreciation and amortization of intangible assets, consists primarily of employee-related costs, patent prosecution, maintenance and litigation costs and an allocation of overhead and facilities costs, as well as service center and other expenses related to providing the TiVo service.

For the year ended December 31, 2017, Cost of licensing, services and software revenues, excluding depreciation and amortization of intangible assets increased 20% compared to the prior year primarily as a result of the TiVo Acquisition, as including TiVo Solutions' results for the full period increased costs by $34.7 million. Other than the effects of including TiVo Solutions in the results for the full period, Cost of licensing, services and software revenues, excluding depreciation and amortization of intangible assets decreased $6.7 million from the prior period due to a $9.8 million decrease in Transaction, transition and integration costs associated with the TiVo Acquisition and a $2.4 million decrease in compensation costs which were partially offset by a $5.4 million increase in patent litigation and maintenance costs which primarily relate to the ongoing Comcast litigation. We expect to continue to incur material expenses related to the Comcast litigation.

Cost of hardware revenues, excluding depreciation and amortization of intangible assets

Cost of hardware revenues, excluding depreciation and amortization of intangible assets includes all product-related costs associated with TiVo-enabled devices, including manufacturing costs, employee-related costs, warranty costs and order fulfillment costs, as well as certain licensing costs and an allocation of overhead and facilities costs. Hardware is sold primarily as a means to grow our Licensing, services and software revenues and, as a result, generating positive gross margins from hardware sales is not the primary goal of the hardware operations.

For the year ended December 31, 2017, the increase in Cost of hardware revenues, excluding depreciation and amortization of intangible assets was attributable to including TiVo Solutions' results for the full period which increased costs by $25.7 million and an increase in Transaction, transition and integration costs associated with the TiVo Acquisition of $1.0 million.

Research and development

Research and development expenses are comprised primarily of employee-related costs, consulting costs and an allocation of overhead and facilities costs.

For the year ended December 31, 2017, Research and development expenses increased 55% compared to the prior year primarily as a result of the TiVo Acquisition, as including TiVo Solutions' results for the full period increased costs by $73.5 million. Other than the effects of including TiVo Solutions in the results for the full period, Research and development costs decreased $4.3 million primarily due to a $3.3 million decrease in compensation costs and benefits from cost saving initiatives, partially offset by a $0.7 million increase in Transaction, transition and integration costs associated with the TiVo Acquisition.

Selling, general and administrative

Selling expenses are comprised primarily of employee-related costs, including travel costs, advertising costs and an allocation of overhead and facilities costs. General and administrative expenses are comprised primarily of employee-related costs, including travel costs, corporate accounting, consulting, legal and tax fees and an allocation of overhead and facilities costs.

The 6% increase in Selling, general and administrative expenses during the year ended December 31, 2017 was primarily due to the TiVo Acquisition as including TiVo Solutions' results for the full period increased costs by $16.0 million. Other than the effects of including TiVo Solutions in the results for the full period, Selling, general and administrative costs decreased $3.8 million primarily as a result of an $11.5 million decrease in Transaction, transition and integration costs associated with the TiVo Acquisition and benefits from cost saving initiatives, partially offset by costs associated with the transition to our new chief executive officer.

We anticipate incurring transition and integration-related costs, primarily consisting of employee-related costs and information systems investments in connection with integrating the operations of TiVo Solutions with the operations of Rovi through the first half of 2018.

Depreciation and Amortization of intangible assets

For the year ended December 31, 2017, Depreciation and Amortization of intangible assets increased from the prior year due to the TiVo Acquisition as the inclusion of TiVo Solutions increased Depreciation by $7.1 million and increased Amortization of intangible assets by $63.4 million. Other than the effects of the TiVo Acquisition, Depreciation decreased by $3.7 million and Amortization of intangible assets decreased by $1.7 million.

Restructuring and asset impairment charges

TiVo Integration Restructuring Plan

Following completion of the TiVo Acquisition, integration plans were implemented which are intended to realize operational synergies between Rovi and TiVo Solutions (the "TiVo Integration Restructuring Plan"). We expect to eliminate duplicative positions resulting in severance costs and the termination of certain leases and other contracts as part of the integration plans. We expect to generate over $110 million in annualized cost synergies from the TiVo Acquisition and have taken actions to produce more than $90 million of run-rate synergies as of December 31, 2017. We expect to achieve the remaining cost synergies in the first half of 2018. As a result of these actions, Restructuring and asset impairment charges of $18.4 million were recognized in connection with the TiVo Integration Restructuring Plan for the year ended December 31, 2017 primarily related to termination and transition agreements executed with former TiVo Solutions' employees and an impairment charge of $6.7 million from vacating a leased facility. Restructuring and asset impairment charges of $24.9 million were recognized for the TiVo Integration Restructuring Plan for the year ended December 31, 2016 primarily related to termination and transition agreements executed with former TiVo Solutions' employees.

We expect to incur restructuring costs in connection with the TiVo Integration Restructuring Plan through the first half of 2018.

Legacy Rovi Restructuring Plans

In the three months ended March 31, 2016, Rovi initiated certain facility rationalization activities (the "Legacy Rovi Restructuring Plans"), including relocating its corporate headquarters from Santa Clara, California to San Carlos, California and consolidating its Silicon Valley operations into the corporate headquarters, and eliminating a number of positions associated with a reorganization of the sales force structure, downsizing the global services workforce and eliminating certain general and administrative positions. As a result of changes in estimates related to sublease rental rates expected to be obtained for vacated facilities, Restructuring and asset impairment charges of $0.8 million and $2.4 million were recognized for the years ended December 31, 2017 and 2016, respectively, related to the Legacy Rovi Restructuring Plans.

Interest income and other, net

The $1.2 million increase in Interest income and other, net during the year ended December 31, 2017 was primarily due to a $3.1 million gain from the sale of strategic investments and a $0.7 million increase in interest income due to higher average investment balances and an increase in interest rates, partially offset by a $1.5 million increase in foreign currency losses and a $1.2 million other-than-temporary impairment loss on a strategic investment.

Income (loss) on interest rate swaps

We have not designated any of our interest rate swaps as hedges for accounting purposes. Therefore, changes in the fair value of our interest rate swaps are not offset by changes in the fair value of the related hedged item in our Consolidated Statements of Operations (see Note 9 to the Consolidated Financial Statements included in Part IV of this Annual Report on Form 10-K, which is incorporated by reference herein). We generally utilize interest rate swaps to convert the interest rate on a portion of our loans with a floating interest rate to a fixed interest rate. Under the terms of our interest rate swaps, we generally receive a floating rate of interest and pay a fixed rate of interest. When there is an increase in expected future London Interbank Offering Rate ("LIBOR"), we generally have gains when adjusting our interest rate swaps to fair value. When there is a decrease in expected future LIBOR, we generally have losses when adjusting our interest rate swaps to fair value.

TiVo Acquisition litigation

On November 15, 2016, holders of 9.1 million shares of TiVo Solutions common stock outstanding at the TiVo Acquisition Date who did not vote to approve the TiVo Acquisition filed a petition for appraisal ("Dissenting Holders", and the shares held by such Dissenting Holders, the "Dissenting Shares") in the Delaware Court of Chancery.

On March 27, 2017, TiVo Corporation agreed to settle the claims of the Dissenting Holders for $117.0 million, which was paid in cash in April 2017. In connection with the settlement, in March 2017, the exchange agent in the TiVo Acquisition returned $25.1 million in cash related to the Dissenting Holders to TiVo Corporation. As the amount paid to Dissenting Holders resulted from a settlement other than a judgment from the Delaware Court of Chancery, a TiVo Acquisition litigation loss of $12.9 million was recognized in the Consolidated Statements of Operations for the year ended December 31, 2017. The TiVo Acquisition litigation loss represents the settlement amount in excess of the amount due to the Dissenting Holders as merger consideration.

In the year ended December 31, 2017, a $1.1 million loss was recognized related to a separate TiVo Acquisition litigation matter.

Loss on debt extinguishment and Loss on debt modification

On January 26, 2017, TiVo Corporation, as parent guarantor, two of its wholly-owned subsidiaries, Rovi Solutions Corporation and Rovi Guides, Inc., as borrowers, and certain of TiVo Corporation’s other subsidiaries, as subsidiary guarantors, entered into Refinancing Agreement No. 1 with respect to Term Loan Facility B. The $682.5 million in proceeds from Refinancing Agreement No. 1 was used to repay existing loans under Term Loan Facility B in full. Creditors in Term Loan Facility B that elected not to participate in Refinancing Agreement No. 1 were extinguished, resulting in a Loss on debt extinguishment of $0.1 million for the year ended December 31, 2017. Creditors in Term Loan Facility B that elected to participate in Refinancing Agreement No. 1 and for which the present value of future cash flows was not substantially different were accounted for as a debt modification, resulting in a Loss on debt modification of $0.9 million for the year ended December 31, 2017.

Income tax benefit

Due to our significant net operating loss carryforwards and a valuation allowance applied against a significant portion of our deferred tax assets, foreign withholding taxes are the primary driver of our Income tax (benefit) expense.

We recorded Income tax benefit for the year ended December 31, 2017 of $10.3 million, which primarily consists of a $26.6 million benefit from the Tax Act of 2017. The Tax Act of 2017 was signed into law on December 22, 2017 and enacted comprehensive tax reform that made broad and complex changes to the U.S. federal income tax code as described in Note 13 of the Consolidated Financial Statements included in Part IV of this Annual Report on Form 10-K, which is incorporated by reference herein. The benefit from the Tax Act of 2017 is primarily related to a revaluation of deferred tax liabilities on indefinite-lived intangible assets which were remeasured from 35% to the new enacted U.S. federal income tax rate of 21%. As these deferred tax liabilities are indefinite-lived, the timing of their realization is not known, and they may not be used as a source of income to reduce our deferred tax asset valuation allowance. Benefits from the Tax Act of 2017 were partially offset by $13.8 million of foreign withholding taxes and $1.9 million of foreign income taxes.

We recorded Income tax benefit for the year ended December 31, 2016 of $61.7 million primarily due to an income tax benefit of $86.1 million due to a change in our deferred tax asset valuation allowance resulting from the TiVo Acquisition. In connection with the TiVo Acquisition, a deferred tax liability was recorded for finite-lived intangible assets as described in Note 2 of the Consolidated Financial Statements included in Part IV of this Annual Report on Form 10-K, which is incorporated by reference herein. These deferred tax liabilities are considered a source of future taxable income which allowed TiVo Corporation to reduce its pre-acquisition deferred tax asset valuation allowance. The change in the pre-acquisition deferred tax asset valuation allowance is a transaction recognized separate from the business combination and reduces income tax expense in the period of the business combination. Benefits from the deferred tax asset valuation allowance release were partially offset by $20.6 million of foreign withholding taxes.

The year-over-year decrease in foreign withholding taxes was due to a smaller portion of license fees received in 2017 coming from licensees in countries subject to foreign withholding taxes.

Segment Results

We report segment information in the same way management internally organizes the business for assessing performance and making decisions regarding the allocation of resources to the business units. The terms Adjusted Operating Expenses and Adjusted EBITDA in the following discussion use the definitions provided in Note 14 of the Consolidated Financial Statements included in Part IV of this Annual Report on Form 10-K, which is incorporated by reference herein.

During the fourth quarter of 2017, the Company reorganized the presentation of revenue within its Intellectual Property Licensing segment to US Pay TV Providers, Consumer Electronics Manufacturers and New Media, International Pay TV Providers and Other to better portray its growth strategy. Revenue within the Intellectual Property Licensing segment for prior periods has been reclassified to conform to the current presentation.

Product

The Product segment's results of operations for the year ended December 31, 2017 compared to the prior year were as follows (dollars in thousands):

	Year Ended December 31,			
	2017	2016	Change $	Change %
Platform Solutions	$ 334,004	$ 205,395	$ 128,609	63 %
Software and Services	84,964	83,811	1,153	1 %
Other	4,548	12,470	(7,922)	(64)%
Product Revenues	423,516	301,676	121,840	40 %
Adjusted Operating Expenses	377,107	251,529	125,578	50 %
Adjusted EBITDA	$ 46,409	$ 50,147	$ (3,738)	(7)%
Adjusted EBITDA Margin	11.0%	16.6%		

For the year ended December 31, 2017, Product revenue increased 40% compared to the prior year as Platform Solutions and Software and Services revenues increased 63% and 1%, respectively, while Other revenues decreased 64%. These increases were primarily attributable to the TiVo Acquisition as including TiVo Solutions' results for the full period contributed $135.2 million and $8.8 million of the increase in Platform Solutions and Software and Services revenues, respectively. TiVo Solutions Product revenue includes $38.8 million of hardware sales for the year ended December 31, 2017. Hardware revenue is expected to continue to decline in the future as multiple system operator partners continue to shift to deploying the TiVo service on third-party hardware resulting in a decrease in the number of TiVo set-top boxes sold to multiple system operator partners. Other than the effects of including TiVo Solutions in the results for the full period, Platform Solutions revenue decreased $6.6 million primarily as a result of the renewal of an iGuide service provider contract at a lower rate. Other than the effects of including TiVo Solutions in the results for the full period, Software and Services revenue decreased $7.7 million as a result of a $6.3 million decline in metadata revenues which was primarily due to expiration of our metadata license with Comcast on September 30, 2017 resulting in a $3.0 million decline in revenue and the loss of $1.4 million in revenue from TiVo Solutions prior to the TiVo Acquisition Date. The $7.9 million decline in Other revenue was the result of a continued decline in ACP revenue. ACP revenue is expected to continue to decline in the future.

Product Adjusted Operating Expenses increased 50% for the year ended December 31, 2017 compared to the prior year primarily as a result of the TiVo Acquisition as including TiVo Solutions' results for the full period increased costs by $127.0 million, partially offset by lower compensation costs and benefits from cost saving initiatives.

The decrease in Adjusted EBITDA Margin for the year ended December 31, 2017 relates to a change in Product business mix following the TiVo Acquisition toward lower margin hardware products.

Intellectual Property Licensing

The Intellectual Property Licensing segment's results of operations for the year ended December 31, 2017 compared to the prior year were as follows (dollars in thousands):

	Year Ended December 31,			
	2017	**2016**	**Change $**	**Change %**
US Pay TV Providers	$ 278,973	$ 222,346	$ 56,627	25 %
Consumer Electronics Manufacturers	51,219	46,145	5,074	11 %
New Media, International Pay TV Providers and Other	72,748	78,926	(6,178)	(8)%
Intellectual Property Licensing Revenues	402,940	347,417	55,523	16 %
Adjusted Operating Expenses	97,059	79,820	17,239	22 %
Adjusted EBITDA	$ 305,881	$ 267,597	$ 38,284	14 %
Adjusted EBITDA Margin	75.9%	77.0%		

For the year ended December 31, 2017, Intellectual Property Licensing revenue increased 16% compared to the prior year due to a 25% increase in US Pay TV Providers revenue, an 11% increase in revenue from Consumer Electronics Manufacturers and an 8% decrease in New Media, International Pay TV Providers and Other revenue. Revenue from US Pay TV Providers increased primarily due to the TiVo Acquisition as including TiVo Solutions' results for the full period increased revenue by $69.3 million. US Pay TV Providers revenue from TiVo Solutions includes $23.6 million and $23.3 million in revenue from catch-up payments intended to make us whole for the pre-license period of use for the years ended December 31, 2017 and 2016, respectively. Partially offsetting the benefit of the TiVo Acquisition on US Pay TV Providers revenue was the loss of $7.3 million of revenue from TiVo Solutions prior to the TiVo Acquisition Date and the expiration of the Comcast license on March 31, 2016. The increase in Consumer Electronics Manufacturers revenue was primarily attributable to the TiVo Acquisition as including TiVo Solutions' results for the full period increased revenue by $7.5 million.

Consumer Electronics Manufacturers revenue from TiVo Solutions reflects an increase of $5.8 million in revenue from catch-up payments intended to make us whole for the pre-license period of use for the year ended December 31, 2017. Other than the effects of the TiVo Acquisition, Consumer Electronics Manufacturers revenue decreased primarily due to a decrease in our licensees' market share, combined with continuing pressures on our licensees' business models, which has caused revenue from Consumer Electronics Manufacturers to decline. Such declines could continue unless we are able to successfully license new entrants to this market. New Media, International Pay TV Providers and Other revenue decreased due to the expiration of certain customer licenses, a $1.0 million decrease in revenue from patent sales and a $0.9 million decrease in revenue from catch-up payments intended to make us whole for the pre-license period of use. These catch-up payments totaled $17.3 million and $18.2 million in revenue for the years ended December 31, 2017 and 2016, respectively.

As noted above, Intellectual Property Licensing revenue for the years ended December 31, 2017 and 2016 benefited from catch-up payments intended to make us whole for the pre-license period of use. While we regularly have catch-up revenues when we license new intellectual property customers, the years ended December 31, 2017 and 2016 also benefited from catch-up revenues associated with renewals of existing customers as we expanded our licensing relationship to include the legacy TiVo intellectual property. We do not anticipate this level of catch-up revenues going forward.

Prior to the TiVo Acquisition Date, TiVo Solutions entered into agreements with AT&T, DirecTV, EchoStar and Verizon Communications, Inc. that expire by July 2018. Revenue from US Pay TV Providers includes $97.1 million and $29.6 million for the years ended December 31, 2017 and 2016, respectively, from these agreements. After adoption of the new revenue recognition guidance on January 1, 2018, we expect to recognize $20.0 million revenue from these agreements in 2018. The effects of the new revenue recognition standard are more fully described in Note 1 of the Consolidated Financial Statements included in Part IV of this Annual Report on Form 10-K, which is incorporated by reference herein

Consistent with our expectations, to date, renewals of the prior TiVo Solutions intellectual property licenses described above have not been executed on terms consistent with TiVo Solutions' historical pricing, and we do not anticipate that the remaining agreements will be renewed on terms similar to their historical pricing. We do, however, anticipate generating meaningful future revenues from licensing the TiVo Solutions patent portfolio to other parties (such as the Samsung license agreement executed in the fourth quarter of 2016 and the Altice license agreement executed in the fourth quarter of 2017).

Intellectual Property Licensing Adjusted Operating Expenses increased 22% during the year ended December 31, 2017 primarily as a result of the TiVo Acquisition, an increase of $5.4 million for patent litigation and maintenance costs which primarily relate to the ongoing Comcast litigation, a $3.0 million increase in compensation costs and a $2.0 million increase in licensing costs.

The decrease in Adjusted EBITDA Margin for the year ended December 31, 2017 is primarily the result of the increase in patent litigation and maintenance costs, partially offset by an increase in Intellectual Property Licensing revenue.

Corporate

Corporate costs primarily include general and administrative costs such as corporate management, finance, legal and human resources.

Corporate costs for the year ended December 31, 2017 compared to the prior year were as follows (dollars in thousands):

	Year Ended December 31,			
	2017	2016	Change $	Change %
Adjusted Operating Expenses	$ 62,148	$ 56,673	$ 5,475	10%

For the year ended December 31, 2017, the increase in Corporate Adjusted Operating Expenses primarily reflects the effect of the TiVo Acquisition.

Comparison of Year Ended December 31, 2016 and 2015

The consolidated results of operations for the year ended December 31, 2016 compared to the prior year were as follows (dollars in thousands):

	Year Ended December 31,			
	2016	2015	Change $	Change %
Revenues, net:				
Licensing, services and software	$ 629,474	$ 525,482	$ 103,992	20 %
Hardware	19,619	789	18,830	2,387 %
Total Revenues, net	649,093	526,271	$ 122,822	23 %
Costs and expenses:				
Cost of licensing, services and software revenues, excluding depreciation and amortization of intangible assets	139,666	102,466	37,200	36 %
Cost of hardware revenues, excluding depreciation and amortization of intangible assets	19,056	504	18,552	3,681 %
Research and development	125,172	99,902	25,270	25 %
Selling, general and administrative	192,755	155,173	37,582	24 %
Depreciation	18,698	17,410	1,288	7 %
Amortization of intangible assets	104,989	76,982	28,007	36 %
Restructuring and asset impairment charges	27,316	2,160	25,156	1,165 %
Gain on sale of patents	—	(82)	82	(100)%
Total costs and expenses	627,652	454,515	173,137	38 %
Operating income from continuing operations	21,441	71,756	(50,315)	(70)%
Interest expense	(43,681)	(46,826)	3,145	(7)%
Interest income and other, net	1,688	716	972	136 %
Loss on interest rate swaps	(3,884)	(13,368)	9,484	(71)%
Loss on debt extinguishment	—	(2,815)	2,815	(100)%
(Loss) income from continuing operations before income taxes	(24,436)	9,463	(33,899)	(358)%
Income tax (benefit) expense	(61,685)	13,755	(75,440)	(548)%
Income (loss) from continuing operations, net of tax	37,249	(4,292)	41,541	(968)%
Loss from discontinued operations, net of tax	(4,588)	—	(4,588)	N/a
Net income (loss)	$ 32,661	$ (4,292)	$ 36,953	(861)%

Total Revenues, net

For the year ended December 31, 2016, Total Revenues, net increased 23% compared to the prior year primarily as a result of the TiVo Acquisition, as including TiVo Solutions' results for the period increased revenue by $147.4 million, which includes revenue from a license agreement executed in the fourth quarter of 2016 with Samsung that included significant catch-up payments intended to make us whole for the pre-license period of use. Total Revenues, net also benefited from a new license agreement with DISH that included significant catch-up payments intended to make us whole for the pre-license period of use, partially offset by an IPG patent license agreement executed in the fourth quarter of 2015 that included significant catch-up payments intended to make us whole for the pre-license period of use, Comcast being out of license during much of 2016 and a continued decline in ACP revenue.

At the segment level, Product and Intellectual Property Licensing revenues increased $57.2 million and $65.6 million, respectively, for the year ended December 31, 2016. Product generated 46.5% and 46.4% of Total Revenues, net for the years ended December 31, 2016 and 2015, respectively.

For additional details on the changes in Total Revenues, net, see the discussion of our segment results below.

Cost of licensing, services and software revenues, excluding depreciation and amortization of intangible assets

Cost of licensing, services and software revenues, excluding depreciation and amortization of intangible assets, consists primarily of employee-related costs, patent prosecution, maintenance and litigation costs and an allocation of overhead and facilities costs, as well as service center and other expenses related to providing the TiVo service.

For the year ended December 31, 2016, Cost of licensing, services and software revenues, excluding depreciation and amortization of intangible assets increased 36% compared to the prior year primarily as a result of the TiVo Acquisition, as including TiVo Solutions' results for the period increased costs by $27.8 million. Other than the effects of including TiVo Solutions in the results for the period, Cost of licensing, services and software revenues, excluding depreciation and amortization of intangible assets increased $9.4 million from the prior period due to a $12.4 million increase in patent litigation and maintenance costs which primarily resulted from the ongoing Comcast litigation and $10.4 million of Transaction, transition and integration costs associated with the TiVo Acquisition, which were partially offset by a decrease in compensation costs and cost saving initiatives resulting in lower facilities and infrastructure costs. Included in Transaction, transition and integration costs in 2016 is $10.0 million in expenses for additional guaranteed license payments related to the Company’s over-the-top licensing partnership with Intellectual Ventures. These payments were expensed in the fourth quarter of 2016 as the payments were triggered by the execution of a patent license agreement during the quarter and are not expected to be recoverable from the net direct revenue resulting from the patent license agreement and the related TiVo product partnership. This expense was included in Transaction, transition and integration costs as the patent license agreement was entered into as part of continuing, and broadening, the product relationship with TiVo.

Cost of hardware revenues, excluding depreciation and amortization of intangible assets

Cost of hardware revenues, excluding depreciation and amortization of intangible assets includes all product-related costs associated with TiVo-enabled DVRs and non-DVRs, including manufacturing costs, employee-related costs, warranty costs and order fulfillment costs, as well as certain licensing costs and an allocation of overhead and facilities costs. Hardware is sold primarily as a means to grow our Licensing, services and software revenues and, as a result, generating positive gross margins from hardware sales is not the primary goal of the hardware business. For the year ended December 31, 2016, the increase in Cost of hardware revenues, excluding depreciation and amortization of intangible assets was attributable to including TiVo Solutions results for the period.

Research and development

Research and development expenses are comprised primarily of employee-related costs, consulting costs and an allocation of overhead and facilities costs.

For the year ended December 31, 2016, Research and development expenses increased 25% compared to the prior year primarily as a result of the TiVo Acquisition, as including TiVo Solutions' results for the period increased costs by $30.4 million. Other than the effects of including TiVo Solutions in the results for the period, Research and development costs decreased $5.1 million as a result of a $5.4 million reduction in compensation costs and a $2.1 million reduction in consulting costs related to our metadata operations and legacy guide products due to prior cost saving initiatives, offset in part by Transaction, transition and integration costs associated with the TiVo Acquisition of $3.8 million.

Selling, general and administrative

Selling expenses are comprised primarily of employee-related costs, including travel costs, advertising costs and an allocation of overhead and facilities costs. General and administrative expenses are comprised primarily of employee-related costs, including travel costs, corporate accounting, consulting, legal and tax fees and an allocation of overhead and facilities costs.

The 24% increase in Selling, general and administrative expenses during the year ended December 31, 2016 was primarily due to the TiVo Acquisition as including TiVo Solutions' results for the period increased costs by $23.3 million. Other than the effects of including TiVo Solutions in the results for the period, Selling, general and administrative costs increased $14.3 million as a result of Transaction, transition and integration costs associated with the TiVo Acquisition of $25.8 million. The increase in Transaction, transition and integration costs was partially offset by the prior year including $4.3 million of expenses related to a contested proxy election, a decrease in consulting costs related to planning for license renewals with AT&T, Charter, Comcast and DISH in the prior year and a $2.5 million decrease in marketing spend in the current year. In addition, Selling, general and administrative expenses were reduced during the years ended December 31, 2016 and 2015 by $1.6 million from changes in the estimated Cubiware Contingent Consideration liability and by $0.9 million from changes in the estimated Veveo Contingent Consideration liability, respectively. Selling, general and administrative expenses during the year ended December 31, 2016 also include a $1.2 million final Veveo earn-out settlement.

Depreciation and Amortization of intangible assets

For the year ended December 31, 2016, Depreciation and Amortization of intangible assets increased from the prior year primarily due to the TiVo Acquisition. For the year ended December 31, 2016, the inclusion of TiVo Solutions increased Depreciation by $2.0 million and increased Amortization of intangible assets by $28.9 million. Other than the effects of the TiVo Acquisition, Depreciation decreased by $0.7 million and Amortization of intangible assets decreased by $0.9 million.

Restructuring and asset impairment charges

TiVo Integration Restructuring Plan

Following completion of the TiVo Acquisition, integration plans were implemented which are intended to realize operational synergies between Rovi and TiVo Solutions (the "TiVo Integration Restructuring Plan"). For the year ended December 31, 2016, costs incurred in connection with the TiVo Integration Restructuring Plan primarily related to termination and transition agreements with former TiVo Solutions' senior executives and Rovi's former Chief Operating Officer. As a result of these actions, Restructuring and asset impairment charges of $24.9 million were recognized for the TiVo Integration Restructuring Plan in the year ended December 31, 2016.

Legacy Rovi *Plans*

In the three months ended March 31, 2016, Rovi initiated certain facility rationalization activities, including relocating its corporate headquarters from Santa Clara, California to San Carlos, California and consolidating its Silicon Valley operations into a new corporate headquarters, and eliminating a number of positions associated with a reorganization of the sales force structure, downsizing the global services workforce and eliminating certain general and administrative positions. As a result of these actions, Restructuring and asset impairment charges of $2.4 million were recognized in the year ended December 31, 2016.

In conjunction with the disposition of the Rovi Entertainment Store, DivX and MainConcept businesses and the Company's narrowed business focus on discovery, in 2014 we conducted a review of our remaining product development, sales, data operations and general and administrative functions to identify potential cost efficiencies. As a result of this analysis, we took cost reduction actions that resulted in Restructuring and asset impairment charges of $2.2 million in the year ended December 31, 2015. Amounts recognized in the year ended December 31, 2015 represent adjustments to the amounts originally recorded in connection with restructuring plans initiated in 2014.

Interest expense

For the year ended December 31, 2016, Interest expense decreased compared to the prior year primarily due to a decrease in average debt outstanding and a lower effective interest rate on the 2020 Convertible Notes compared to the 2040 Convertible Notes.

Interest income and other, net

For the year ended December 31, 2016, the increase in Interest income and other, net was primarily due to an increase in interest rates and higher average cash, cash equivalents and marketable securities.

Income (loss) on interest rate swaps

We have not designated any of our interest rate swaps as hedges for accounting purposes and therefore changes in the fair value of our interest rate swaps are not offset by changes in the fair value of the related hedged item in our Consolidated Statements of Operations (see Note 9 to the Consolidated Financial Statements included in Item IV of this Annual Report on Form 10-K, which is incorporated by reference herein). We generally utilize interest rate swaps to convert the interest rate on a portion of our loans with a floating interest rate to a fixed interest rate. Under the terms of our interest rate swaps, we generally receive a floating rate of interest and pay a fixed rate of interest. When there is an increase in expected future London Interbank Offering Rate ("LIBOR"), we generally have gains when adjusting our interest rate swaps to fair value. When there is a decrease in expected future LIBOR, we generally have losses when adjusting our interest rate swaps to fair value.

Loss on debt extinguishment

During the year ended December 31, 2015, we made voluntary principal prepayments that extinguished Term Loan Facility A and elected to terminate our Revolving Facility. As a result of these actions, we recognized a Loss on debt extinguishment of $2.8 million.

Income tax (benefit) expense

Due to our significant net operating loss carryforwards and a valuation allowance applied against a significant portion of our deferred tax assets, foreign withholding taxes are the primary driver of our Income tax (benefit) expense.

We recorded Income tax benefit for the year ended December 31, 2016 of $61.7 million primarily due to an income tax benefit of $86.1 million due to a change in our deferred tax asset valuation allowance resulting from the TiVo Acquisition. In connection with the TiVo Acquisition, a deferred tax liability was recorded for finite-lived intangible assets as described in Note 2 of the Consolidated Financial Statements included in Part IV of this Annual Report on Form 10-K, which is incorporated by reference herein. These deferred tax liabilities are considered a source of future taxable income which allowed TiVo Corporation to reduce its pre-acquisition deferred tax asset valuation allowance. The change in the pre-acquisition deferred tax asset valuation allowance is a transaction recognized separate from the business combination and reduces income tax expense in the period of the business combination. Benefits from the deferred tax asset valuation allowance release were partially offset by $20.6 million of foreign withholding taxes.

Income tax expense for the year ended December 31, 2015 primarily consists of $14.3 million of foreign withholding taxes, a $2.1 million increase in net deferred tax liabilities, $1.2 million of foreign income taxes and $0.7 million of state income taxes, which reflects the settlement of Rovi's 2008 California tax return, which were partially offset by a $4.5 million reduction in reserves for unrecognized tax benefits. On December 18, 2015, the Protecting Americans from Tax Hikes Act of 2015 was signed into law which, among other provisions, retroactively extended the U.S. federal research and development tax credit for the year ended December 31, 2015, resulting in the generation of a research and development tax credit of $1.3 million which was recognized in the fourth quarter of 2015. The research and development tax credit created a tax attribute to which we applied a full valuation allowance.

The year-over-year increase in foreign withholding taxes was due to an increase in license fees received in 2016 coming from licensees in countries subject to foreign withholding taxes.

Loss from discontinued operations, net of tax

The Loss from discontinued operations, net of tax for the year ended December 31, 2016 is due to a settlement with Dolby Laboratories, Inc. related to unpaid royalties from Rovi's Roxio, DivX and MainConcept businesses which were divested in prior periods. For additional information, see Note 10 of the Consolidated Financial Statements included in Part IV of this Annual Report on Form 10-K, which is incorporated by reference herein.

Segment Results

We report segment information in the same way management internally organizes the business for assessing performance and making decisions regarding the allocation of resources to the business units. The terms Adjusted Operating Expenses and Adjusted EBITDA in the following discussion use the definitions provided in Note 14 of the Consolidated Financial Statements included in Part IV of this Annual Report on Form 10-K, which is incorporated by reference herein.

Product

The Product segment's results of operations for the year ended December 31, 2016 compared to the prior year were as follows (dollars in thousands):

	Year Ended December 31,			
	2016	2015	Change $	Change %
Platform Solutions	$ 205,395	$ 137,814	$ 67,581	49 %
Software and Services	83,811	84,956	(1,145)	(1)%
Other	12,470	21,679	(9,209)	(42)%
Product Revenues	301,676	244,449	57,227	23 %
Adjusted Operating Expenses	251,529	195,364	56,165	29 %
Adjusted EBITDA	$ 50,147	$ 49,085	$ 1,062	2 %
Adjusted EBITDA Margin	16.6%	20.1%		

For the year ended December 31, 2016, Product revenue increased 23% compared to the prior year as Platform Solutions revenues increased 49%, while Software and Services and Other revenue declined 1% and 42%, respectively. TiVo Solutions contributed $66.9 million and $6.4 million to Platform Solutions and Software and Services revenues, respectively. TiVo Solutions Product revenue includes $17.5 million of hardware sales for the year ended December 31, 2016. Hardware revenue is expected to decrease in the future as multiple system operator partners shift to deploying the TiVo service on third-party hardware resulting in a decrease in the number of TiVo set-top boxes sold to multiple system operator partners.

Other than the effects of including TiVo Solutions in the results for the period, Product revenues decreased $16.1 million. Excluding revenue from TiVo Solutions, Platform Solutions revenue increased $0.7 million. Excluding revenue from TiVo Solutions, Software and Services revenue decreased $7.5 million primarily due to expiration of the Comcast license during the period which provided for a share of the in-guide advertising revenue, which was partially offset by growth in metadata and analytics. The decrease in Other revenue of $9.2 million was the result of a continued decline in ACP revenue, as well as the year ended December 31, 2015 including a significant perpetual license fee from a manufacturer of set-top boxes. ACP revenue is expected to continue to decline in the future.

Product Adjusted Operating Expenses increased 29% for the year ended December 31, 2016 compared to the prior year primarily as a result of including TiVo Solutions' results for the period. These cost increases were partially offset by a decrease in spending on our metadata operations and legacy guide products due to cost saving initiatives.

The decrease in Adjusted EBITDA Margin for the year ended December 31, 2016 relates to a change in Product business mix following the TiVo Acquisition toward lower margin hardware products.

Intellectual Property Licensing

The Intellectual Property Licensing segment's results of operations for the year ended December 31, 2016 compared to the prior year were as follows (dollars in thousands):

	Year Ended December 31,			
	2016	2015	Change $	Change %
US Pay TV Providers	$ 222,346	$ 174,397	$ 47,949	27 %
Consumer Electronics Manufacturers	46,145	51,871	(5,726)	(11)%
New Media, International Pay TV Providers and Other	78,926	55,554	23,372	42 %
Intellectual Property Licensing Revenues	347,417	281,822	65,595	23 %
Adjusted Operating Expenses	79,820	60,926	18,894	31 %
Adjusted EBITDA	$ 267,597	$ 220,896	$ 46,701	21 %
Adjusted EBITDA Margin	77.0%	78.4%		

For the year ended December 31, 2016, Intellectual Property Licensing revenue increased 23% compared to the prior year due to a 27% increase in US Pay TV Providers revenue, an 11% decrease in revenue from Consumer Electronics Manufacturers and a 42% increase in New Media, International Pay TV Providers and Other revenue. US Pay TV Providers revenue increased primarily due to the inclusion of $52.9 million of TiVo Solutions revenue, which includes revenue from a

license agreement executed in the fourth quarter of 2016 with Samsung that included significant catch-up payments intended to make us whole for the pre-license period of use. US Pay TV Providers revenue also benefited from a license agreement executed in the third quarter of 2016 with DISH that included significant catch-up payments intended to make us whole for the pre-license period of use. These increases in US Pay TV Providers revenue were partially offset by an IPG patent license agreement executed in the fourth quarter of 2015 that included significant catch-up payments intended to make us whole for the pre-license period of use and the expiration of the Comcast license during the current period.

During 2016, we expanded our business strategy of monetizing our intellectual property to include the sale of select patent assets. As patent sales executed under this strategy represent a component of our ongoing major or central operations and activities of monetizing intellectual property, we began recording patent sales as revenue in 2016. US Pay TV Providers Intellectual Property Licensing revenue for the year ended December 31, 2016 includes $1.0 million related to patent sales.

The decrease in revenue from Consumer Electronics Manufacturers was primarily due to a decrease in our licensees' market share, combined with continuing pressures on our licensees' business models, which has caused revenue from CE manufacturers to decline. The increase in New Media, International Pay TV Providers and Other revenue was primarily due to the inclusion of $21.2 million of TiVo Solutions revenue, which includes revenue from a license agreement executed in the fourth quarter of 2016 with Samsung which included catch-up payments intended to make us whole for the pre-license period of use.

Intellectual Property Licensing Adjusted Operating Expenses increased 31% during the year ended December 31, 2016 primarily due to the effect of including TiVo Solutions' results for the period and a $12.4 million increase in patent litigation and maintenance costs which primarily resulted from the ongoing Comcast litigation. These cost increases were partially offset by cost saving initiatives and a decrease in consulting costs incurred in 2015 related to planning for license renewals with AT&T, Charter, Comcast and DISH.

The decrease in Adjusted EBITDA Margin for the year ended December 31, 2016 is primarily the result of the increase in Intellectual Property Licensing revenue, partially offset by the increase in patent litigation and maintenance costs discussed above.

Corporate

Corporate costs primarily include general and administrative costs such as corporate management, finance, legal and human resources.

Corporate costs for the year ended December 31, 2016 compared to the prior year were as follows (dollars in thousands):

	Year Ended December 31,			
	2016	2015	Change $	Change %
Adjusted Operating Expenses	$ 56,673	$ 54,681	$ 1,992	4%

For the year ended December 31, 2016, Corporate Adjusted Operating Expenses reflect the effects of including TiVo Solutions in results for the period, partially offset by the benefit of lower marketing costs.

Liquidity and Capital Resources

We finance our business primarily from operating cash flow. We believe our cash position remains strong and our cash, cash equivalents and marketable securities and anticipated operating cash flow, supplemented with access to capital markets as necessary, are generally sufficient to support our operating businesses, capital expenditures, restructuring activities, maturing debt, interest payments and income tax payments, in addition to investments in future growth opportunities and payments for dividends and share repurchases for at least the next twelve months. Our access to capital markets may be constrained and our cost of borrowing may increase under certain business, market and economic conditions; however, our use of a variety of funding sources to meet our liquidity needs is designed to facilitate continued access to sufficient capital resources under such conditions.

As of December 31, 2017, we had $129.0 million in Cash and cash equivalents, $140.9 million in Short-term marketable securities and $82.7 million in Long-term marketable securities. Our cash, cash equivalents and marketable securities are held in numerous locations around the world, with $230.4 million held by our foreign subsidiaries as of

December 31, 2017. Due to our net operating loss carryforwards and the effects of the Tax Act of 2017, we could repatriate amounts to the U.S. with minimal income tax effects.

Sources and Uses of Cash

Cash flows for the year ended December 31, 2017 compared to the prior year were as follows (in thousands):

	Year Ended December 31,			
	2017	**2016**	**Change $**	**Change %**
Net cash provided by operating activities of continuing operations	$ 132,084	$ 138,521	$ (6,437)	(5)%
Net cash (used in) provided by investing activities	(107,499)	185,672	(293,171)	(158)%
Net cash used in financing activities	(90,319)	(228,071)	137,752	(60)%
Net cash used in discontinued operations	—	(5,000)	5,000	(100)%
Effect of exchange rate changes on cash and cash equivalents	2,072	(170)	2,242	(1,319)%
Net (decrease) increase in cash and cash equivalents	$ (63,662)	$ 90,952	$ (154,614)	(170)%

Net cash provided by operating activities of continuing operations for the year ended December 31, 2017 decreased $6.4 million. The decrease was primarily due to payments made to DISH in connection with the 2016 agreement described below, the timing of collections on Accounts receivable, net, higher cash bonus payments in 2017 and payments made in connection with the TiVo Integration Restructuring Plan, partially offset by benefits from the TiVo Acquisition and certain cash collections in advance of revenue being recognized. We expect to make material cash payments for restructuring actions in connection with the TiVo Integration Restructuring Plan through the first half of 2018. The availability of cash generated by our operations in the future could be adversely affected by business risks including, but not limited to, the Risk Factors described in Part I, Item 1A. of this Annual Report on Form 10-K, which are incorporated by reference herein.

In August 2016, Rovi entered into a 10-year patent license agreement with DISH Network Corporation ("DISH"). As part of the agreement, DISH agreed to provide TiVo Solutions with a release for all past products and a going-forward covenant not-to-sue under DISH's existing patents during the 10-year license term in exchange for TiVo Inc. providing DISH certain TiVo Inc. products during the license term and cash payments by TiVo Inc. to DISH of $60.3 million, of which $30.3 million was paid in the third quarter of 2017, $15.0 million was paid in the second quarter of 2017 and $15.0 million was paid in the fourth quarter of 2016. The agreement with DISH is described in more detail in Note 10 to the Consolidated Financial Statements included in Part IV of this Annual Report on Form 10-K, which is incorporated by reference herein.

Net cash (used in) provided by investing activities for the year ended December 31, 2017 decreased $293.2 million. On November 15, 2016, holders of 9.1 million shares of TiVo Solutions common stock outstanding at the TiVo Acquisition Date who did not vote to approve the TiVo Acquisition filed a petition for appraisal in the Delaware Court of Chancery. On March 27, 2017, TiVo Corporation agreed to settle the claims of the Dissenting Holders for $117.0 million, which was paid in cash in April 2017. In connection with the settlement, in March 2017, the exchange agent in the TiVo Acquisition returned $25.1 million in cash related to the Dissenting Holders to TiVo Corporation. For additional details regarding the settlement with the Dissenting Holders, see Note 2 and Note 10 to the Consolidated Financial Statements included in Part IV of this Annual Report on Form 10-K, which are incorporated by reference herein. Investing activities for the year ended December 31, 2016 included net cash acquired in the TiVo Acquisition in excess of the cash portion of the merger consideration by $166.3 million. Net proceeds from marketable security investment transactions decreased by $17.6 million compared to the prior year. The increase in capital expenditures for the year ended December 31, 2017 was primarily associated with infrastructure projects designed to integrate the TiVo Acquisition. We expect capital expenditures to support the anticipated growth in our business and strengthen our operations infrastructure of between $30 million and $40 million in 2018.

Net cash used in financing activities for the year ended December 31, 2017 includes $15.1 million in tax withholding payments from the net share settlement of restricted awards and a $2.7 million contingent consideration payment in connection with the TiVo Solutions acquisition of Cubiware in 2015, partially offset by the receipt of $22.5 million from the exercise of employee stock options and sales of stock through our employee stock purchase plan. Net cash used in financing activities for the year ended December 31, 2017 also includes the effect of refinancing Term Loan Facility B and $7.0 million in principal payments on Term Loan Facility B.

For the year ended December 31, 2017, we declared and paid aggregate dividends of $0.72 per share for an aggregate cash payment of $87.1 million. No dividend payments were made in the year ended December 31, 2016.

On February 14, 2017, TiVo Corporation's Board of Directors approved an increase to the stock repurchase program authorization to $150.0 million. The February 2017 authorization includes amounts which were outstanding under previously authorized share repurchase programs.

Net cash used in financing activities for the year ended December 31, 2016 includes $14.1 million in tax withholding payments from the net share settlement of restricted awards and $237.0 million in principal payments on the 2021 Convertible Notes and Term Loan Facility B, partially offset by the receipt of $17.4 million from sales of stock through our employee stock purchase plan and the exercise of employee stock options.

Cash flows for the year ended December 31, 2016 compared to the prior year were as follows (in thousands):

	Year Ended December 31,			
	2016	**2015**	**Change $**	**Change %**
Net cash provided by operating activities of continuing operations	$ 138,521	$ 143,020	$ (4,499)	(3)%
Net cash provided by investing activities	185,672	77,559	108,113	139 %
Net cash used in financing activities	(228,071)	(272,852)	44,781	(16)%
Net cash used in discontinued operations	(5,000)	(194)	(4,806)	2,477 %
Effect of exchange rate changes on cash and cash equivalents	(170)	(426)	256	(60)%
Net increase (decrease) in cash and cash equivalents	$ 90,952	$ (52,893)	$ 143,845	(272)%

Net cash provided by operating activities of continuing operations for the year ended December 31, 2016 decreased $4.5 million as a $37.0 million increase in net income was more than offset by a $45.1 million decrease non-cash adjustments to net income, primarily related to an $86.1 million benefit from a reduction in our deferred tax asset valuation allowance recognized in connection with the TiVo Acquisition, offset by increases in amortization of intangible assets and restructuring expense. Changes in working capital, net of amounts acquired in the TiVo Acquisition, resulted in a net source of cash of $3.6 million due to an increase in deferred revenue, partially offset by an increase in Accounts receivable, net resulting from the DISH agreement executed in the third quarter of 2016, which is described below, prepaying a third party for an intellectual property license in 2016 and an increase in severance payments resulting from the TiVo Integration Restructuring Plan. The availability of cash generated by our operations in the future could be adversely affected by business risks including, but not limited to, the Risk Factors described in Part I, Item 1A of this Annual Report on Form 10-K, which are incorporated by reference herein.

In August 2016, Rovi entered into a 10-year patent license agreement with DISH. As part of the agreement, DISH agreed to provide TiVo Inc. with a release for all past products and a going-forward covenant not-to-sue under DISH’s existing patents during the 10-year license term in exchange for TiVo Inc. providing DISH certain TiVo Inc. products during the license term and cash payments by TiVo Inc. to DISH of $60.3 million, of which $15.0 million was paid in the fourth quarter of 2016 with the remainder due by the end of the third quarter of 2017. The agreement with DISH is described in more detail in Note 10 to the Consolidated Financial Statements included in Part IV of this Annual Report on Form 10-K, which is incorporated by reference herein.

Net cash provided by investing activities for the year ended December 31, 2016 increased $108.1 million due to cash acquired in the TiVo Acquisition exceeding the cash portion of the merger consideration by $166.3 million, partially offset by a $46.6 million decrease in net proceeds from marketable security investment activities and higher spending on capital expenditures primarily associated with relocating our corporate headquarters to San Carlos, California and certain investments in infrastructure projects designed to integrate the TiVo Acquisition. The year ended December 31, 2016 also includes a $2.5 million payment to acquire a patent portfolio.

Net cash used in financing activities for the year ended December 31, 2016 included $237.0 million in principal payments on the 2021 Convertible Notes and Term Loan Facility B, the receipt of $17.4 million from the exercise of employee stock options and sales of stock through our employee stock purchase plan and $14.1 million in tax withholding payments from the net share settlement of restricted stock units. Net cash provided by financing activities for the year ended December 31,

2016 included the receipt of $6.3 million, net from the settlement of TiVo Solutions' convertible note hedge and warrant transactions.

Net cash used in financing activities for the year ended December 31, 2015 included $291.0 million in principal payments on our 2040 Convertible Notes and the issuance of $345.0 million in principal of our 2020 Convertible Notes. Using proceeds from the 2020 Convertible Notes, we repaid $100.0 million which had been borrowed against our Revolving Facility in February 2015, in part, to extinguish a portion of the 2040 Convertible Notes. In connection with issuing the 2020 Convertible Notes, we purchased a call option to manage the potential dilution to earnings per share from conversion of the 2020 Convertible Notes and sold a warrant for a net cash payment of $33.5 million. The year ended December 31, 2015 also includes the payment of $6.2 million in contingent consideration related to previous acquisitions. In addition, during the year ended December 31, 2015, we used $154.5 million to repurchase shares of our common stock and received $8.8 million from the exercise of employee stock options and sales of stock through our employee stock purchase plan.

Holders of $9.9 million shares of TiVo Solutions common stock outstanding at the TiVo Acquisition Date did not vote to approve the TiVo Acquisition and asserted their appraisal rights under Delaware law with respect to such shares ("Dissenting Holders", and the shares held by such Dissenting Holders, the "Dissenting Shares"). In November 2016, Dissenting Holders of $0.8 million shares of TiVo Solutions common stock withdrew their demand for appraisal rights and accepted the merger consideration. Dissenting Holders of 9.1 million shares of TiVo Solutions common stock filed a petition for appraisal in the Delaware Court of Chancery. The $79.0 million accrual for merger consideration as of December 31, 2016 was based on 9.1 million Dissenting Shares assuming a right to receive $0.3853 shares of TiVo Corporation common stock, or 3.5 million shares of TiVo Corporation common stock. In addition, on the TiVo Acquisition Date, TiVo Corporation paid the cash portion of the merger consideration, which was $2.75 per share, related to the Dissenting Shares to an account held by the exchange agent in the TiVo Acquisition. As of December 31, 2016, the exchange agent was holding $25.3 million in cash related to the Dissenting Holders.

Capital Resources

The outstanding principal and carrying amount of debt we issued were as follows (in thousands):

	December 31, 2017		December 31, 2016	
	Outstanding Principal	**Carrying Amount**	**Outstanding Principal**	**Carrying Amount**
2020 Convertible Notes	$ 345,000	$ 311,766	$ 345,000	$ 297,646
2021 Convertible Notes	48	48	48	48
Term Loan Facility B	675,500	671,281	682,500	677,038
Total	$ 1,020,548	$ 983,095	$ 1,027,548	$ 974,732

During the next twelve months, $7.0 million of outstanding principal is scheduled to be repaid. For more information on our borrowings, see Note 9 to the Consolidated Financial Statements included in Part IV of this Annual Report on Form 10-K, which is incorporated by reference herein.

2020 Convertible Notes

Rovi issued $345.0 million in aggregate principal of 0.500% Convertible Notes that mature on March 1, 2020 at par pursuant to an Indenture dated March 4, 2015 (the "2015 Indenture").

The 2020 Convertible Notes were convertible at an initial conversion rate of 34.5968 shares of TiVo Corporation common stock per $1,000 of principal of notes, which was equivalent to an initial conversion price of $28.9044 per share of TiVo Corporation common stock. The conversion rate and conversion price are subject to adjustment pursuant to the 2015 Indenture, including as a result of dividends paid by TiVo Corporation. As of December 31, 2017, the 2020 Convertible Notes are convertible at a conversion rate of 36.0271 shares of TiVo Corporation common stock per $1,000 principal of notes, which is equivalent to a conversion price of $27.7569 per share of TiVo Corporation common stock.

Holders may convert the 2020 Convertible Notes prior to the close of business on the business day immediately preceding December 1, 2019, in multiples of $1,000 of principal under the following circumstances:

- during any calendar quarter commencing after the calendar quarter ending on June 30, 2015 (and only during such calendar quarter), if the last reported sale price of our common stock for at least 20 trading days (whether or not consecutive) during the period of 30 consecutive trading days ending on the last trading day of the

immediately preceding calendar quarter is greater than or equal to 130% of the conversion price on each applicable trading day;

- during the five business day period after any ten consecutive trading day period in which the trading price per $1,000 of principal of 2020 Convertible Notes for each trading day was less than 98% of the product of the last reported sale price of our common stock and the conversion rate on each such trading day; or
- on the occurrence of specified corporate events.

On or after December 1, 2019 until the close of business on the second scheduled trading day immediately preceding the maturity date, holders may convert the 2020 Convertible Notes, in multiples of $1,000 of principal, at any time.

In addition, during the 35-day trading period following a Merger Event, as defined in the 2015 Indenture, holders may convert the 2020 Convertible Notes, in multiples of $1,000 of principal.

On conversion, a holder will receive the conversion value of the 2020 Convertible Notes converted based on the conversion rate multiplied by the volume-weighted average price of our common stock over a specified observation period. On conversion, Rovi will pay cash up to the aggregate principal of the 2020 Convertible Notes converted and deliver shares of our common stock in respect of the remainder, if any, of the conversion obligation in excess of the aggregate principal of the 2020 Convertible Notes being converted.

The conversion rate is subject to adjustment in certain events, including certain events that constitute a "Make-Whole Fundamental Change" (as defined in the 2015 Indenture). In addition, if we undergo a "Fundamental Change" (as defined in the 2015 Indenture) prior to March 1, 2020, holders may require Rovi to repurchase for cash all or a portion of the 2020 Convertible Notes at a repurchase price equal to 100% of the principal of the repurchased 2020 Convertible Notes, plus accrued and unpaid interest. The conversion rate is also subject to customary anti-dilution adjustments.

The 2020 Convertible Notes are not redeemable prior to maturity by Rovi and no sinking fund is provided. The 2020 Convertible Notes are unsecured and do not contain financial covenants or restrictions on the payment of dividends, the incurrence of indebtedness or the repurchase of other securities by Rovi. The 2015 Indenture includes customary terms and covenants, including certain events of default after which the 2020 Convertible Notes may be due and payable immediately.

2021 Convertible Notes

TiVo Solutions issued $230.0 million in aggregate principal of 2.0% Convertible Senior Notes that mature October 1, 2021 (the "2021 Convertible Notes") at par pursuant to an Indenture dated September 22, 2014 ("the 2014 Indenture"). On October 12, 2016, TiVo Solutions repaid $229.95 million of the par value of the 2021 Convertible Notes.

The 2021 Convertible Notes were convertible at an initial conversion rate of 56.1073 shares of TiVo Solutions common stock per $1,000 principal of notes, which was equivalent to an initial conversion price of $17.8230 per share of TiVo Solutions common stock. Following the TiVo Acquisition, the 2021 Convertible Notes were convertible at a conversion rate of 21.6181 shares of TiVo Corporation common stock per $1,000 principal of notes and $154.30 per $1,000 principal of notes, which was equivalent to a conversion price of $39.12 per share of TiVo Corporation common stock. The conversion rate and conversion price are subject to adjustment pursuant to the 2014 Indenture, including as a result of dividends paid by TiVo Corporation. As of December 31, 2017, the 2021 Convertible Notes are convertible at a conversion rate of 22.5000 shares of TiVo Corporation common stock per $1,000 principal of notes and $154.30 per $1,000 principal of notes, which is equivalent to a conversion price of $37.5867 per share of TiVo Corporation common stock.

TiVo Solutions can settle the 2021 Convertible Notes in cash, shares of common stock, or any combination thereof pursuant to the 2014 Indenture. Subject to certain exceptions, holders may require TiVo Solutions to repurchase, for cash, all or part of their 2021 Convertible Notes upon a “Fundamental Change” (as defined in the 2014 Indenture) at a price equal to 100% of the principal amount of the 2021 Convertible Notes being repurchased plus any accrued and unpaid interest up to, but excluding, the “Fundamental Change Repurchase Date” (as defined in the 2014 Indenture). In addition, on a “Make-Whole Fundamental Change” (as defined in the 2014 Indenture) prior to the maturity date of the 2021 Convertible Notes, TiVo Solutions will, in some cases, increase the conversion rate for a holder that elects to convert its 2021 Convertible Notes in connection with such Make-Whole Fundamental Change.

Senior Secured Credit Facility

On July 2, 2014, Rovi Corporation, as parent guarantor, and two of its wholly-owned subsidiaries, Rovi Solutions Corporation and Rovi Guides, Inc., as borrowers, and certain of its other subsidiaries, as subsidiary guarantors, entered into a Credit Agreement (the “Credit Agreement”). After the completion of the TiVo Acquisition, TiVo Corporation became a guarantor under the Credit Agreement. The Credit Agreement provided for a (i) five-year $125.0 million term loan A facility (the “Term Loan Facility A”), (ii) seven-year $700.0 million term loan B facility (the “Term Loan Facility B” and together with Term Loan Facility A, the “Term Loan Facility”) and (iii) five-year $175.0 million revolving credit facility (including a letter of credit sub-facility) (the "Revolving Facility” and together with the Term Loan Facility, the “Senior Secured Credit Facility”). In September 2015, Rovi made a voluntary principal prepayment to extinguish Term Loan Facility A and elected to terminate the Revolving Facility.

Prior to the refinancing described below, Term Loan Facility B was amortizing in equal quarterly installments in an aggregate annual amount equal to 1% of the original principal amount thereof, with any remaining balance payable on the final maturity date of Term Loan Facility B. Prior to the refinancing described below, loans under Term Loan Facility B bore interest, at our option, at a rate equal to either LIBOR, plus an applicable margin equal to 3.00% per annum (subject to a 0.75% LIBOR floor) or the prime lending rate, plus an applicable margin equal to 2.00% per annum.

On January 26, 2017, TiVo Corporation, as parent guarantor, two of its wholly-owned subsidiaries, Rovi Solutions Corporation and Rovi Guides, Inc., as borrowers, and certain of TiVo Corporation’s other subsidiaries, as subsidiary guarantors, entered into Refinancing Agreement No. 1 with respect to Term Loan Facility B. The $682.5 million in proceeds from Refinancing Agreement No. 1 was used to repay existing loans under Term Loan Facility B in full. The borrowing terms for Refinancing Agreement No. 1 are substantially similar to the borrowing terms of Term Loan Facility B. However, loans under Refinancing Agreement No. 1 bear interest, at the borrower's option, at a rate equal to either LIBOR, plus an applicable margin equal to 2.50% per annum (subject to a 0.75% LIBOR floor) or the prime lending rate, plus an applicable margin equal to 1.50% per annum. Refinancing Agreement No. 1 requires quarterly principal payments of $1.75 million through June 2021, with any remaining balance payable in July 2021. Refinancing Agreement No. 1 is part of the Senior Secured Credit Facility.

The Credit Agreement contains customary representations and warranties and customary affirmative and negative covenants applicable to us and our subsidiaries, including, among other things, restrictions on indebtedness, liens, investments, mergers, dispositions, prepayment of other indebtedness, dividends and other distributions. The Credit Agreement is secured by substantially all of the Company's assets. We may be required to make an additional payment on Refinancing Agreement No. 1 each February. This payment is calculated as a percentage of the prior year's "Excess Cash Flow" as defined in the Credit Agreement. No payment was required for the year ended December 31, 2017.

Critical Accounting Policies and Estimates

The preparation of our Consolidated Financial Statements in accordance with accounting principles generally accepted in the U.S. requires management to make estimates, assumptions and judgments that affect the amounts reported in the financial statements and accompanying notes. Our estimates, assumptions and judgments are based on historical experience and various other assumptions believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying amount of assets and liabilities that are not readily apparent from other sources. Making estimates, assumptions and judgments about future events is inherently unpredictable and is subject to significant uncertainties, some of which are beyond our control. Management believes the estimates, assumptions and judgments employed and resulting balances reported in the Consolidated Financial Statements are reasonable; however, actual results could differ materially.

A summary of our significant accounting policies, including a discussion about associated risks and uncertainties, is contained in Note 1 to the Consolidated Financial Statements included in Part IV of this Annual Report on Form 10-K, which is incorporated by reference herein. An accounting policy is deemed critical if it requires an accounting estimate to be made based on assumptions about matters that are highly uncertain at the time the estimate is made, if different estimates reasonably could have been used or if changes to the estimate that are reasonably possible could materially affect the financial statements. Of our significant accounting policies, the following are considered critical to understanding our Consolidated Financial Statements and evaluating our results as they are inherently uncertain, involve the most subjective or complex judgments, include areas where different estimates reasonably could have been used and the use of an alternative estimate that is reasonably possible could materially affect the financial statements.

Revenue and Cost Recognition

General

We recognize revenue when each of the following criteria have been satisfied: (i) persuasive evidence of an arrangement exists; (ii) delivery has occurred or the service has been rendered; (iii) the fee is fixed or determinable; and (iv) collection is reasonably assured. However, determining whether and when some of these criteria have been satisfied often involves assumptions and judgments that can have a significant impact on the timing and amount of revenue recognized. Where one or more of the criteria has not been satisfied, revenue recognition is deferred until the applicable criteria is satisfied.

Revenue arrangements with multiple deliverables are divided into separate units of accounting when the delivered item has value to the customer on a stand-alone basis. We allocate the transaction consideration to the various elements in the arrangement based on their relative selling price using vendor specific objective evidence ("VSOE") of selling price, if it exists. When VSOE of selling price does not exist, third-party evidence ("TPE") is used to allocate the transaction consideration to the various elements in the arrangement. If neither VSOE nor TPE exist, management uses its best estimate of selling price ("BESP") to allocate the transaction consideration to the various elements in the arrangement. The allocation of transaction consideration among deliverables in an arrangement may impact the amount and timing of revenue recognized in the Consolidated Statements of Operations during a given period.

We account for cash consideration (such as sales incentives) given to our customers or resellers as a reduction of revenue, rather than as an operating expense unless we receive a benefit that is separate from the customer's purchase from us and for which we can reasonably estimate the fair value of the benefit.

CE and Service Provider Licensing

We license our proprietary IPG and ACP technologies to CE manufacturers, integrated circuit makers, service providers and others. We generally recognize revenue on a per-unit shipped model for licenses with CE manufacturers and a per-subscriber model for licenses with service providers. The recognition of revenue from per-unit license fees is based on units reported shipped by the CE manufacturer, which are typically reported to us in the quarter immediately following that of actual shipment. Our significant experience and established relationships with certain CE manufacturers enables us to reasonably estimate current period unit shipments for purposes of recognizing revenue. Accordingly, revenue from these customers is recognized in the period the CE manufacturer is estimated to have shipped the units, and revenue adjustments are recorded when the CE manufacturer reports actual shipments to us. Revenues from per-subscriber license fees are recognized in the period the services are provided by a licensee, as reported to us by the licensee.

Revenues from annual or other license fees are recognized based on the specific terms of the license. For instance, certain CE IPG licensees have entered into agreements for which they have the right to ship an unlimited number of units over a specified term for a flat fee. We recognize revenue from these arrangements on a straight-line basis over the specified term.

At times, we enter into license agreements in which we release a licensee from past patent infringement claims and grant a license to ship an unlimited number of units over a future period for a fixed fee. In these arrangements, we generally use BESP to allocate the transaction consideration between the release for past patent infringement claims and the future license. In determining BESP of the release for past patent infringement claims and the future license, we consider such factors as the number of units shipped in the past and in what territories these units where shipped, the number of units expected to be shipped in the future and in what territories these units are expected to be shipped, as well as the licensing rate we generally receive for units shipped in these territories. As criteria for the recognition of a contingent gain from the release for past patent infringement claims is generally satisfied on execution of the agreement, the amount of transaction consideration allocated to the release for past patent infringement claims is generally recognized as revenue in the period the agreement is executed and the amount of transaction consideration allocated to the future license is recognized ratably over the future license term.

In addition, we have entered into agreements in which a licensee pays us a one-time fee for a perpetual license to our ACP technology. Provided that collectibility is reasonably assured, we record the one-time fee as revenue when the agreement is executed as we have no significant continuing obligations and the amounts are fixed or determinable.

Arrangements with Multiple System Operators ("MSOs")

Our arrangements with MSOs typically include customized software and implementation services, associated maintenance and support, limited training, TiVo-enabled digital video recorders ("DVRs"), non-DVR set-top boxes ("STBs"), and the TiVo service.

We have two types of arrangements with MSOs that include technology deployment and engineering services; hosted and not hosted. In instances where we host the TiVo service, non-refundable payments received for customization and set up services are deferred and recognized as revenue over the longer of the contractual term or customer relationship period as the deployment and engineering services do not have standalone value. The cost of deployment and engineering services is capitalized to the extent they are deemed recoverable and are subsequently amortized to cost of revenues over the same period as the related revenue. We have established VSOE of selling prices for training, DVRs, STBs and maintenance and support based on the price charged in standalone sales of the elements or stated renewal rates in the agreements. The BESP for the TiVo service is determined considering the size of the MSO and expected volume of deployment, market conditions, competitive landscape, internal costs and total gross margin objectives. Transaction consideration is allocated among individual elements on a relative basis.

In arrangements where we do not host the TiVo service, and that include engineering services that are essential to the functionality of the licensed technology or involve significant customization or modification of the software, we recognize revenue pursuant to the software revenue recognition guidance. Under the software revenue recognition guidance, such arrangements are accounted for using the percentage-of-completion method or the completed-contract method. The percentage-of-completion method is used if reasonably dependable estimates of the extent of progress toward completion can be made and the arrangement as a whole is reasonably expected to be profitable.

We measure progress toward completion using an input method based on the ratio of costs incurred to date to total estimated costs of the project (an input method). Project costs primarily include labor and overhead related to the specific activities required for the project. Costs related to general infrastructure or uncommitted platform development are not included in the project cost estimates. When reasonably assured that development costs are recoverable through future revenues, we defer recognition of the costs until the future revenues are recognized. The recoverability assessment depends on estimating engineering costs related to the project. For these projects, we are able to make reasonably dependable cost estimates based on historical experience and various other assumptions believed to be reasonable under the circumstances. These estimates include forecasting costs and schedules, tracking progress and costs incurred to date and projecting the remaining effort to complete the project. These estimates are reassessed throughout the term of the arrangement, and revisions to estimates are recognized on a cumulative catch-up basis when the changed conditions become known. Revisions to estimates during the years ended December 31, 2017 and 2016 were not material. Using different cost estimates, or different methods of measuring progress toward completion may produce materially different results, including, potentially, a conclusion that development costs may not be recoverable.

In some cases, it may not be possible to separate the various elements within the software arrangement due to a lack of VSOE of selling prices for undelivered elements, a lack of reasonably dependable estimates of total costs or development costs exceed development revenues but there is reasonable assurance that no loss will be incurred under the arrangement. Accordingly, TiVo applies the following:

- Where no VSOE exists for undelivered elements, revenue is recognized equal to the costs recognized up to the amount billable to the customer until VSOE for the undelivered elements is established or all of the elements have been delivered.
- Where there is a lack of reasonably dependable estimates, revenue is recognized equal to the costs recognized up to the amount billable to the customer until the estimation uncertainty is resolved, after which the percentage of completion method is applied.
- If we are not reasonably assured that an arrangement will be profitable, we account for the arrangement under the completed contract method, which results in a deferral of all revenue and costs until the project is complete. Provisions for losses are recorded when estimates indicate that it is probable a loss will be incurred on the arrangement.

In arrangements where we do not host the TiVo service, and that include engineering services that are essential to the functionality of the licensed technology or involve significant customization or modification of the software, provided that TiVo is reasonably assured that the arrangement will be profitable and development costs exceed billable development revenues, revenue is recognized equal to the costs recognized until the engineering services are complete. Development costs incurred in excess of revenues recognized are deferred up to the amount deemed recoverable. Thereafter, service revenue is recognized and an equal amount of deferred development costs are recognized until all deferred development costs are recovered. Once all deferred development costs are recovered, any remaining service revenue is recognized ratably over the remaining service period.

Metadata Licensing

We license metadata to service providers, CE manufacturers and online portals among others. We generally receive a monthly or quarterly fee from our licensees for the right to use the metadata, receive regular updates to the metadata and integrate the metadata into their own service. We recognize metadata revenue ratably over the license term.

Advertising Revenue

We generate advertising revenue through our UX and other platforms. Advertising revenue is recognized when the related advertisement is provided. Advertising revenue is recorded net of agency commissions and revenue shares with service providers and CE manufacturers.

TiVo-enabled DVRs and TiVo Service

We sell TiVo-enabled DVRs and the TiVo service directly to customers through bundled sales programs via the TiVo website. Under these bundled programs, the customer receives a DVR and commits to either a minimum subscription period of one year or for the lifetime of the DVR. After the initial minimum subscription period, customers have various pricing options at which they can renew their subscription. Customers have the right to cancel their subscription to the TiVo service within 30 days of subscription activation for a full refund. We establish allowances for expected subscription cancellations based on historical experience.

VSOE of selling price for the subscription services is established based on standalone sales of the service and varies by the length of the service period. We are not able to obtain VSOE for the DVR due to infrequent sales of standalone DVRs to customers. The BESP of the DVR is determined based on the price for which we would sell the DVR without any service commitment from the customer. Revenue allocated to the DVR is recognized on delivery, up to an amount not contingent on future service, and revenue allocated to the service is recognized ratably over the service period.

Subscription revenues from product lifetime subscriptions are recognized ratably over the estimated useful life of the DVR associated with the subscription. The estimated useful lives depend on assumptions with regard to future churn rates for product lifetime subscriptions. We monitor the estimated useful life of a DVR and the impact of differences between actual churn rates and forecasted churn rates. If actual results are not consistent with our current assumptions, we may revise the estimated useful life of the DVRs, which could result in the recognition of revenue over a longer or shorter period of time. We recognize product lifetime subscription revenues over an estimated product life of 66 months.

Hardware Revenues

Hardware revenues are derived from standalone hardware sales and amounts allocated to hardware elements in multiple element arrangements. Customers have the right to return their product within 30 days of the purchase. We establish allowances for expected product returns as a reduction of revenue. Certain payments to retailers and distributors, such as market development funds and revenue shares, are recorded as a reduction of hardware revenues rather than as a sales and marketing expense. For market development funds, revenue is reduced at the later of the date at which the related hardware revenue is recognized or the date at which the market development program is offered. For revenue share programs, revenue is reduced when a liability for the revenue share payments has been incurred and the amount of the liability is fixed or determinable.

Goodwill and Indefinite-Lived Intangible Assets

Goodwill represents the excess of cost over fair value of the net assets of an acquired business. Goodwill and indefinite-lived intangible assets are evaluated for potential impairment annually, as of the beginning of the fourth quarter, and whenever events or changes in circumstances indicate their carrying amount may not be recoverable. The recoverability of goodwill is assessed at the reporting unit level, which is either the operating segment or one level below.

Qualitative factors are first assessed to determine whether events or changes in circumstances indicate it is more-likely-than-not that the fair value of a reporting unit or indefinite-lived intangible asset is less than its carrying amount. Qualitative factors which could trigger an interim impairment review, include, but are not limited to a:

- significant deterioration in general economic, industry or market conditions;
- significant adverse development in cost factors;
- significant deterioration in actual or expected financial performance or operating results;

- significant adverse changes in legal factors or in the business climate, including adverse regulatory actions or assessments; and
- significant sustained decrease in share price.

Goodwill

If, based on the qualitative assessment, it is considered more-likely-than-not that the fair value of a reporting unit is less than its carrying amount, then a quantitative impairment test is performed. In the quantitative impairment test, the fair value of each reporting unit is compared to its carrying amount. The fair value of the Product reporting unit is estimated by weighting the fair values derived from an income approach and a market approach and the fair value of the Intellectual Property Licensing reporting unit is estimated using an income approach. Under the income approach, the fair value of a reporting unit is estimated based on the present value of estimated future cash flows and considers estimated revenue growth rates, future operating margins and risk-adjusted discount rates. Under the market approach, the fair value of a reporting unit is estimated based on market multiples of revenue or earnings derived from comparable publicly-traded companies. The carrying amount of a reporting unit is determined by assigning the assets and liabilities, including goodwill and intangible assets, to the reporting unit. If the fair value of a reporting unit exceeds its carrying amount, goodwill is not impaired. If the fair value of a reporting unit is less than its carrying amount, an impairment loss equal to the difference is recognized.

The process of evaluating goodwill for potential impairment is subjective and requires significant estimates, assumptions and judgments particularly related to the identification of reporting units, the assignment of assets and liabilities to reporting units and estimating the fair value of each reporting unit. Estimating the fair value of a reporting unit considers future revenue growth rates, operating margins, income tax rates and economic and market conditions, as well as risk-adjusted discount rates and the identification of appropriate market comparable data.

The quantitative goodwill impairment test performed during the year ended December 31, 2017 indicated that the fair value of the Product and Intellectual Property Licensing reporting units exceeded their carrying amounts by 21% and 4%, respectively. While the quantitative goodwill impairment test indicated that the fair value of the Intellectual Property Licensing reporting unit exceeded its carrying amount, if we fail to renew licenses, or renew licenses with materially different terms than those assumed, if there is an adverse outcome with respect to patent infringement claims we have asserted against Comcast, or if there is a significant decline in our stock price, an impairment of goodwill could result, the effect of which could be material.

We have not recorded a goodwill impairment charge as a result of an interim or annual impairment test during the years ended December 31, 2017, 2016 and 2015.

Indefinite-Lived Intangible Assets

If, based on the qualitative assessment, it is considered more-likely-than-not that the fair value of an indefinite-lived intangible asset is less than its carrying amount, then a quantitative impairment test is performed. In the quantitative impairment test for indefinite-lived intangible assets, fair value is compared to the carrying amount of the indefinite-lived intangible asset. The fair value of indefinite-lived intangible assets is estimated using an income approach. If the carrying amount of an indefinite-lived intangible asset exceeds its fair value, an impairment loss equal to the difference is recognized.

The process of evaluating indefinite-lived intangible assets for potential impairment is subjective and requires significant estimates, assumptions and judgments, particularly related to estimating the fair value of the asset. When we are required to estimate the fair value of an indefinite-lived asset, we use an income approach, such as a discounted cash flow technique. Significant estimates, assumptions and judgments inherent in the income approach include the amount and timing of the future cash flows associated with the asset, the expected long-term growth rate, assumed royalty rates, income tax rates and economic and market conditions, as well as risk-adjusted discount rates.

Finite-Lived Assets

Finite-lived assets, such as property and equipment and finite-lived intangible assets, are assessed for potential impairment whenever events or changes in circumstances (collectively, “triggering events”) indicate the carrying amount of an asset group may not be recoverable. An asset group is established by identifying the lowest level of cash flows generated by a group of assets that are largely independent of the cash flows of other assets and could include assets used across multiple businesses or segments. Once a triggering event has been identified, the impairment test employed is based on whether we intend to continue to use the asset group or to hold the asset group for sale. For assets held for use, recoverability is assessed based on the estimated undiscounted future cash flows expected to result from the use and eventual disposition of the asset group. If the undiscounted future cash flows are less than the carrying amount of the asset group, the asset group is impaired.

The amount of impairment, if any, is measured as the difference between the carrying amount of the asset group and its fair value. To the extent the carrying amount of each asset exceeds its fair value, the impairment is allocated to the finite-lived assets of the asset group on a pro rata basis using their relative carrying amounts.

For assets held for sale, to the extent the asset group's carrying amount is greater than its fair value less cost to sell, an impairment loss is recognized for the difference. Assets held for sale are separately presented in the Consolidated Balance Sheets at the lower of their carrying amount or fair value less cost to sell, and are no longer depreciated.

Determining whether a finite-lived asset group is impaired requires various estimates, assumptions and judgments, including whether a triggering event has occurred and the identification of appropriate asset groups. When required to estimate the fair value of a finite-lived asset group, we generally use an income approach, such as a discounted cash flow technique. Significant estimates, assumptions and judgments inherent in the income approach include the amount and timing of the future cash flows associated with the asset group, the expected long-term growth rate, income tax rates and economic and market conditions, as well as risk-adjusted discount rates. If we establish different asset groups or utilize different valuation methodologies or assumptions, the impairment test results could differ.

Equity-Based Compensation

We recognize the grant date fair value of equity-based awards as compensation on a straight-line basis over the requisite service period of the award.

Grants of restricted stock and restricted stock units subject to service or performance conditions are not eligible for dividend protection. Prior to and including February 14, 2017, the fair value of restricted awards subject to service or performance conditions was estimated as the price of our common stock at the close of trading on the date of grant. Subsequent to February 14, 2017, the fair value of restricted awards subject to service or performance conditions is estimated as the price of our common stock at the close of trading on the date of grant, less the present value of dividends expected to be paid during the vesting period.

A Monte Carlo simulation is used to estimate the fair value of restricted stock units subject to market conditions with expected volatility estimated using the historical volatility of our common stock.

We use the Black-Scholes-Merton option-pricing formula to estimate the fair value of stock options and employee stock purchase plan ("ESPP") shares. The Black-Scholes-Merton option-pricing formula uses complex and subjective inputs, such as the expected volatility of our common stock over the expected term of the award and projected employee exercise behavior. Expected volatility for stock options and ESPP shares is estimated using a combination of historical volatility and implied volatility derived from publicly-traded options on our common stock. The expected term of stock options and ESPP shares is estimated by calculating the average term from historical experience. The risk-free interest rate is the yield on U.S. Treasury zero-coupon bonds with remaining terms similar to the expected term of the stock options and ESPP shares at the grant date. For stock options and ESPP shares granted prior to and including February 14, 2017, we assumed an expected dividend yield of zero as we had not historically paid a dividend. For stock options and ESPP shares granted subsequent to February 14, 2017, we assume a constant dividend yield commensurate with the dividend yield on the grant date.

The number of awards expected to vest during the requisite service period is estimated at the time of grant. We use historical data to estimate pre-vesting forfeitures and record equity-based compensation only for those awards for which the requisite service is expected to be rendered. Forfeiture estimates are revised during the requisite service period and the effect of changes in the number of awards expected to be forfeited is recorded as a cumulative adjustment in the period estimates are revised.

The estimated fair value of our equity-based compensation awards is subject to significant estimates, assumptions and judgments. Changing the terms of our equity-based compensation awards, granting new forms of awards, changing the number of awards granted, changes in the price of our common stock or the historical or implied volatility derived from publicly-traded options on our common stock or adjusting our forfeiture assumptions, may cause us to realize material changes in equity-based compensation in the future.

Income Taxes

We are subject to income taxes in the U.S. and numerous foreign jurisdictions and are subject to the examination of our income tax returns by the relevant tax authorities which may assert assessments against us. Significant estimates, assumptions and judgments are required in determining our provision for income taxes and income tax assets and liabilities, including the effects of any valuation allowance or unrecognized tax benefits. Our estimates, assumptions and judgments take into account existing tax laws, our interpretation of existing tax laws and possible outcomes of current and future audits conducted by various tax authorities. Changes in tax law or our interpretation of existing tax laws and the resolution of current and future tax audits could significantly impact the provision for income taxes in our Consolidated Financial Statements.

We assess the likelihood that we will be able to recover the carrying amount of our deferred tax assets and reflect any changes to our estimate of the amount we are more likely than not to realize as a deferred tax asset valuation allowance, with a corresponding adjustment to earnings or other comprehensive income, as appropriate. The ultimate realization of a deferred tax asset depends on the generation of future taxable income during the periods in which those deferred tax assets will become deductible. In determining the need for a valuation allowance, we assess all available positive and negative evidence regarding the realizability of our deferred tax assets, including the future reversal of existing taxable temporary differences, taxable income in carryback periods, prudent and feasible tax planning strategies, estimated future taxable income (including the reversal of deferred tax liabilities) and whether we have a recent history of pre-tax losses. Significant judgment is required in assessing the need for, and extent of, any deferred tax asset valuation allowance. The deferred tax asset valuation allowance can be affected by changes in tax regulations, interpretations and rulings, changes to enacted statutory tax rates and changes to estimates of future taxable income.

Cumulative U.S. GAAP pre-tax losses incurred beginning in 2014, including those from discontinued operations, represent a significant source of negative evidence indicating the need for a valuation allowance with respect to a substantial portion of our deferred tax assets. We believe the size and frequency of losses, including those from discontinued operations, in recent years and the uncertainty associated with projecting future taxable income support the conclusion that a valuation allowance is required to reduce our deferred tax assets to the amount expected to be realized. If we achieve profitability in future periods, an evaluation would be performed of whether the recent history of profitability would constitute sufficient positive evidence to support the reversal of a portion, or all, of the valuation allowances. In connection with the TiVo Acquisition, a deferred tax liability was recorded for finite-lived intangible assets and these deferred tax liabilities are considered a source of future taxable income, which allowed Rovi to reduce its pre-acquisition deferred tax asset valuation allowance by $86.1 million during the year ended December 31, 2016. Without the benefit resulting from the TiVo Acquisition, we would have recorded an additional deferred tax asset valuation allowance primarily because of a determination that it was more-likely-than-not that the current year temporary differences expected to reverse in future years will not be realized as we do not expect to be able to carryback such amounts to prior years.

During the fourth quarter of 2017, we recorded a $26.6 million benefit from the Tax Act of 2017, as described in Note 13 of the Consolidated Financial Statements included in Part IV of this Annual Report on Form 10-K, which is incorporated by reference herein. The benefit from the Tax Act of 2017 is primarily related to a revaluation of deferred tax liabilities on indefinite-lived intangible assets which were remeasured from 35% to the new enacted U.S. federal income tax rate of 21%. As these deferred tax liabilities are of an indefinite life, the timing of their realization is not known and they may not be used as a source of income to reduce our deferred tax asset valuation allowance. This benefit is a provisional amount and is subject to adjustment during the measurement period of up to one year following the December 2017 enactment of the Tax Act of 2017.

From time to time, we engage in transactions for which the tax consequences may be uncertain. Accruals are established for unrecognized tax benefits, which represent the difference between a tax position taken or expected to be taken in a tax return and the benefit recognized for financial reporting purposes, when we believe it is not more-likely-than-not that the tax position will be sustained on examination by the taxing authority based on the technical merits of the position. We adjust our accruals for unrecognized tax benefits when facts and circumstances change, such as the closing of a tax audit, notice of an assessment by a taxing authority or the refinement of an estimate. The final outcome of a matter can differ from amounts recorded for a number of reasons, including the decision to settle rather than litigate a matter, relevant legal precedent related to similar matters and success in supporting our position with the tax authorities. Although we believe we have adequately accrued for our unrecognized tax benefits, if our estimate proves different than the ultimate outcome, such differences will affect the provision for income taxes in the period in which such a determination is made.

Contractual Obligations

Our contractual obligations as of December 31, 2017 were as follows (in thousands):

	Payments due by period				
Contractual Obligations (1)	**Total**	**2018**	**2019 - 2020**	**2021 - 2022**	**Thereafter**
Long-term debt (2)	$ 1,020,548	$ 7,000	$ 359,000	$ 654,548	$ —
Interest on long-term debt (2, 3)	99,990	29,644	56,823	13,523	—
Purchase obligations (4)	10,415	7,707	2,708	—	—
Operating lease commitments (5)	110,510	18,861	30,146	25,595	35,908
Total	$ 1,241,463	$ 63,212	$ 448,677	$ 693,666	$ 35,908

(1) The following items have been excluded from the table:
- Due to uncertainty about the periods in which tax examinations will be completed and limited information related to ongoing tax return audits, we are unable to reliably estimate the timing of cash payments and settlements associated with accruals for unrecognized tax benefits; therefore, amounts related to these obligations have been excluded from the table.
- During the fourth quarter of 2017, we recorded a provisional benefit of $26.6 million related to the enactment of the Tax Act of 2017. The provisional benefit includes $33.8 million for the Transition Tax on unrepatriated foreign earnings of the Company’s foreign subsidiaries, which is fully offset by net operating losses resulting in no estimated net Transition Tax expense. As discussed in Note 13, this amount is provisional and subject to adjustment during a measurement period of up to one year following the December 2017 enactment of the Tax Act of 2017. If it is ultimately determined that a Transition Tax is due, such amount is payable over eight years at the election of the taxpayer. Due to its provisional nature, amounts related to the Transition Tax have been excluded from the table.
- As a result of TiVo Solutions' acquisition of Cubiware, certain payments contingent on the occurrence of specified events may be payable. The contingent payments include guaranteed payments of $9.0 million provided certain key individuals remain employed through May 2018 and additional cash earn-outs (not to exceed $14.4 million in aggregate) payable through May 2018 contingent on the achievement of certain revenue and earnings before interest, depreciation, income taxes and amortization targets for each of the twelve month periods following the date of TiVo Solutions' acquisition of Cubiware. Due to uncertainty about the continued employment of former Cubiware employees and the probability of achieving the earn-outs, amounts related to these obligations have been excluded from the table.

(2) The 2020 Convertible Notes and related interest payments are presented based on the date they can be freely converted by holders, which is December 1, 2019. However, the 2020 Convertible Notes may be converted by holders prior to December 1, 2019 in certain circumstances. For additional information, see Note 9 to the Consolidated Financial Statements included in Part IV of this Annual Report on Form 10-K, which is incorporated by reference herein.

(3) Interest on Term Loan Facility B is presented based on the interest rate in effect as of December 31, 2017. For additional information, see Note 9 to the Consolidated Financial Statements included in Part IV of this Annual Report on Form 10-K, which is incorporated by reference herein.

(4) In the normal course of business, in order to manage manufacturing lead times and help ensure adequate component supply, the Company may enter into agreements with certain vendors that allow the vendor to procure inventory based on defined criteria or requirements. Amounts presented represent firm, non-cancelable and unconditional purchase commitments. If there are unexpected changes to anticipated demand for our products or the mix of products sold, some firm, non-cancelable and unconditional purchase commitments may commit us to purchase excess inventory.

(5) Operating leases are presented on a gross basis. We have agreements to receive payments of approximately $49.3 million under subleases through 2026.

Off-Balance Sheet Arrangements

We have not engaged in any material off-balance sheet arrangements, including the use of structured finance vehicles, special purpose entities or variable interest entities.

Recent Accounting Pronouncements

For a summary of applicable recent accounting pronouncements, see Note 1 to the Consolidated Financial Statements included in Part IV of this Annual Report on Form 10-K, which is incorporated by reference herein.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

In the normal course of business, we are exposed to market risks, including those related to changes in interest rates, foreign currency exchange rates and security prices that could impact our financial position, results of operations or cash flows. Our risk management strategy with respect to these market risks may include the use of derivative financial instruments to manage existing underlying exposures; however, we do not use derivative contracts for speculative purposes.

Future realized gains and losses may differ materially from the sensitivity analysis provided below based on changes in the timing and amount of interest rate, foreign currency exchange rate and security price movements and our actual exposures and derivatives in place at the time of the change. There have been no material changes to the nature of our market risk exposures, nor how those exposures are managed since December 31, 2016.

Investment Risk

Our marketable securities portfolio consists of money market mutual funds, U.S. Treasury and agency securities, corporate bonds and auction rate securities, which are classified as cash equivalents and short- and long-term marketable securities. The fair value of our marketable securities portfolio was $313.5 million and $387.7 million as of December 31, 2017 and 2016, respectively.

Our primary investment objective is to preserve principal, while at the same time maximizing yields without significantly increasing risk. We seek to limit our exposure to interest rate and credit risk by establishing and monitoring compliance with our investment policies and guidelines. Our marketable securities portfolio is subject to interest rate risk as an increase in interest rates could adversely affect its fair value, while a decrease in interest rates could adversely affect the amount of interest income we receive. We regularly monitor the credit risk of our marketable securities portfolio and manage credit and interest rate risk in accordance with our investment policies and guidelines. We do not use derivative financial instruments to manage or hedge our marketable securities portfolio. A hypothetical 50 basis point increase in the current yield of our marketable securities portfolio would result in a $0.8 million and $1.1 million decrease in the fair value of our investment portfolio as of December 31, 2017 and 2016, respectively.

While we cannot predict future market conditions or liquidity, we believe that our investment policies and guidelines provide an appropriate means to manage the risks of our marketable securities portfolio.

Interest Rate Risk

Term Loan Facility B. The $675.5 million of borrowings outstanding as of December 31, 2017 under our Term Loan Facility B is subject to a variable interest rate. If LIBOR or the prime interest rate were to increase, our debt service costs would increase even though the amount borrowed remained the same. We have entered into a number of interest rate swaps to hedge this interest rate risk. Under these interest rate swaps, we have generally agreed to pay interest at a fixed rate and receive interest at a floating rate from the counterparties. The terms of our Term Loan Facility B and interest rate swaps are more fully described in Note 9 to the Consolidated Financial Statements included in Part IV of this Annual Report on Form 10-K, which is incorporated by reference herein.

2020 Convertible Notes. In March 2015, we issued $345.0 million in principal of 2020 Convertible Notes that have a fixed interest rate of 0.500%. As the 2020 Convertible Notes have a fixed interest rate, there is no economic interest rate exposure. However, the fair value of the 2020 Convertible Notes is exposed to fluctuations in interest rates and the market price of our common stock. Generally, the fair value of the 2020 Convertible Notes will decrease as interest rates increase and the fair value of the 2020 Convertible Notes will increase as the price of our common stock increases.

In connection with offering the 2020 Convertible Notes, we purchased call options and sold warrants with respect to our common stock. The options are expected to offset the potential dilution from any conversion of the 2020 Convertible Notes into shares of our common stock. The warrants have a dilutive effect with respect to our common stock to the extent that the market price of our common stock exceeds the strike price of the warrants. However, we have the right to settle the warrants in cash or shares. As of December 31, 2017, the strike price of the warrants was $38.5512 per share. The number of shares of our common stock underlying the warrants is 12.2 million shares, subject to anti-dilution adjustments.

For further discussion regarding the 2020 Convertible Notes and the related call options and warrants, see Note 9 to the Consolidated Financial Statements included in Part IV of this Annual Report on Form 10-K, which is incorporated by reference herein.

Foreign Currency Exchange Rate Risk

Due to our operations outside the U.S., we are subject to the risks of fluctuations in foreign currency exchange rates, particularly related to the Euro and Japanese yen. As a substantial majority of our non-U.S. revenue and expense transactions are denominated in U.S. dollars, fluctuations in foreign currency exchange rates could cause our products and services to become relatively more expensive to customers in a particular country, leading to a reduction in sales or profitability in that country. Some of our subsidiaries operate in their local currency, which mitigates a portion of the exposure related to fluctuations in foreign currency exchange rates.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

The information required by this item is included in Part IV of this Annual Report on Form 10-K, which is incorporated by reference herein.

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

None.

ITEM 9A. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

Under the supervision and with the participation of our management, including our Chief Executive Officer and our Chief Financial Officer, we conducted an evaluation of our disclosure controls and procedures, as such term is defined under Exchange Act Rule 13a-15(e). Based on this evaluation, our Chief Executive Officer and our Chief Financial Officer concluded that our disclosure controls and procedures were effective as of the end of the period covered by this Annual Report on Form 10-K.

Management's Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining an adequate system of internal control over financial reporting. Our internal control over financial reporting includes those policies and procedures that:

- pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of our assets;
- provide reasonable assurance that transactions are recorded as necessary to permit preparation of our financial statements in accordance with generally accepted accounting principles in the United States, and that our receipts and expenditures are being made only in accordance with authorizations of our management and directors; and
- provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material effect on the financial statements.

Our management assessed the effectiveness of our system of internal control over financial reporting as of December 31, 2017. In making this assessment, we used the framework in *Internal Control—Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013) ("COSO"). Based on our assessment and the criteria set forth by COSO, we believe that TiVo Corporation maintained effective internal control over financial reporting as of December 31, 2017.

The effectiveness of our internal control over financial reporting as of December 31, 2017 has been audited by Ernst & Young LLP, an independent registered public accounting firm, as stated in their report which is included herein.

Inherent Limitations on Effectiveness of Controls

Our system of internal control over financial reporting was designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with accounting principles generally accepted in the United States.

All internal control systems, no matter how well designed and operated, can provide only reasonable assurance with respect to financial statement preparation and presentation. Our management does not expect that our disclosure controls and procedures will prevent all error and fraud. Further, the design of a control system must reflect the fact that there are resource constraints, and the benefits of controls must be considered relative to their costs. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues have been detected, even with respect to those systems of internal control that are determined to be effective. These inherent limitations include the realities that judgments in decision-making can be faulty, and that breakdown can occur because of simple error or mistake. The design of any system of controls also is based in part on certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions. Over time, controls may become inadequate because of changes in conditions, or the degree of compliance with the policies or procedures may deteriorate. Because of these inherent limitations in a cost-effective control system, misstatements due to error or fraud may occur and not be detected. Our internal control system contains self-monitoring mechanisms, and actions are taken to correct deficiencies as they are identified.

Audit Committee Oversight

The Audit Committee of the Board of Directors, which is comprised solely of independent directors, has oversight responsibility for our financial reporting process and the audits of our consolidated financial statements and internal control over financial reporting. The Audit Committee meets regularly with management and with our internal auditors and independent registered public accounting firm (collectively, the "accountants") to review matters related to the quality and

integrity of our financial reporting, internal control over financial reporting (including compliance matters related to our Code of Personal and Business Conduct and Ethics), and the nature, extent and results of internal and external audits. Our accountants have full and free access and report directly to the Audit Committee. The Audit Committee recommended, and the Board of Directors approved, that the audited consolidated financial statements be included in this Annual Report on Form 10-K.

Changes in Internal Control Over Financial Reporting

Other than certain controls implemented in connection with the Tax Act of 2017, we believe there have been no changes to our internal controls over financial reporting during the quarter ended December 31, 2017, that have materially affected, or are reasonably likely to materially affect, our internal controls over financial reporting.

ITEM 9B. OTHER INFORMATION

None.

Report of Independent Registered Public Accounting Firm

To the Stockholders and the Board of Directors of TiVo Corporation

Opinion on Internal Control over Financial Reporting

We have audited TiVo Corporation and subsidiaries' internal control over financial reporting as of December 31, 2017, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) (the COSO criteria). In our opinion, TiVo Corporation and subsidiaries (the Company) maintained, in all material respects, effective internal control over financial reporting as of December 31, 2017, based on the COSO criteria.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of the Company as of December 31, 2017 and 2016, the related consolidated statements of operations, comprehensive (loss) income, stockholders' equity, and cash flows, for each of the three years in the period ended December 31, 2017, and the related notes and our report dated February 27, 2018 expressed an unqualified opinion thereon.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting included in the accompanying Management's Report on Internal Control Over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects.

Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control Over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ Ernst & Young LLP

Los Angeles, California
February 27, 2018

PART III.

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

The information regarding directors, the Company's Audit Committee, Corporate Governance and Nominating Committee, stockholder nominations to our Board, and Section 16(a) beneficial ownership reporting compliance is incorporated by reference herein from our definitive proxy statement to be filed with the Securities and Exchange Commission within 120 days after the close of our year ended December 31, 2017. The information regarding executive officers appears under the heading "Information About Our Executive Officers" in Part I, Item 1 of this Annual Report on Form 10-K, which is incorporated by reference herein.

Code of Conduct. We adopted our Code of Personal and Business Conduct and Ethics (the "Code of Conduct") as required by applicable securities laws, rules of the SEC and the listing standards of the NASDAQ. The Code of Conduct applies to all of our directors and employees, including the principal executive officer, principal financial officer and principal accounting officer. A copy of our current Code of Conduct is available in the investor relations section of our website at www.tivo.com. If we make any substantive amendments to the Code of Conduct or grant any waiver, including implicit waiver, from a provision of the Code of Conduct to our principal executive officer, principal financial officer or principal accounting officer, we will disclose the nature of such amendment or waiver on our website at www.tivo.com or in a Current Report on Form 8-K filed with the SEC.

Corporate Governance Guidelines and Committee Charters. In November 2016, we adopted amended Corporate Governance Guidelines to assist the Board in following corporate practices that serve the best interest of the Company and its stockholders. The amended guidelines replaced the previous Rovi and TiVo Solutions guidelines that existed prior to the TiVo Acquisition. From time to time, we may amend such Guidelines as we believe appropriate and in the best interest of the Company and its stockholders. Our currently effective Corporate Governance Guidelines and the charters of each of our audit committee, compensation committee and corporate governance and nominating committee are available at our website at www.tivo.com.

ITEM 11. EXECUTIVE COMPENSATION

Information for this item is incorporated by reference herein from our definitive proxy statement to be filed with the SEC within 120 days after the close of our year ended December 31, 2017.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

Information for this item is incorporated by reference herein from our definitive proxy statement to be filed with the SEC within 120 days after the close of our year ended December 31, 2017.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

Information for this item is incorporated by reference herein from our definitive proxy statement to be filed with the SEC within 120 days after the close of our year ended December 31, 2017.

ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES

Information for this item is incorporated by reference herein from our definitive proxy statement to be filed with the SEC within 120 days after the close of our year ended December 31, 2017.

PART IV.

ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES

(a) The following financial statements are filed as part of this report under Item 8:

1. Financial Statements

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2. Financial Statement Schedules

All schedules are omitted as the required information is not applicable or is included in the Consolidated Financial Statements and notes thereto in Item 8 above.

3. Exhibits

		Incorporated by Reference			
Exhibit Number	Exhibit Description	Company Form+	Filing Date	Exhibit Number	Filed Herewith
2.01	Agreement and Plan of Merger, dated as of February 21, 2014, by and among Rovi Corporation, Victory Acquisition Corp., Veveo, Inc., and Paul Ferri, who will serve as the representative of the Veveo, Inc. Stockholders and optionholders*	Rovi Corp. 8-K	2/24/2014	2.1	
2.02	Agreement and Plan of Merger dated as of April 28, 2016 by and among Rovi Corporation, TiVo Inc., Titan Technologies Corporation, Nova Acquisition Sub, Inc. and Titan Acquisition Sub, Inc.*	Rovi Corp. 8-K	5/4/2016	2.1	
3.01	Amended and Restated Certificate of Incorporation of TiVo Corporation filed with the Secretary of State of the State of Delaware on September 7, 2016	TiVo Corp. 8-K	9/8/2016	3.1	
3.02	Amended and restated Bylaws of TiVo Corporation effective as of September 7, 2016	TiVo Corp. 8-K	9/8/2016	3.2	
4.01	Credit Agreement, dated as of July 2, 2014, among Rovi Guides, Inc. and Rovi Solutions Corporation, as borrowers, Rovi Corporation, as parent guarantor, the subsidiary guarantors, the lenders from time to time party thereto, Morgan Stanley Senior Funding, Inc., Merrill Lynch, Pierce, Fenner & Smith Incorporated, Fifth Third Bank and SunTrust Robinson Humphrey, Inc., as joint bookrunners and lead arrangers, and Morgan Stanley Senior Funding, Inc., as administrative agent and collateral agent	Rovi Corp. 8-K	7/3/2014	10.1	

4.02	Refinancing Amendment No. 1, dated as of January 26, 2017, among TiVo Corporation, as parent guarantor, Rovi Guides, Inc. and Rovi Solutions Corporation, as borrowers, the subsidiary guarantors, the lenders from time to time party thereto, and Morgan Stanley Senior Funding, Inc., as administrative agent and collateral agent	TiVo Corp. 8-K	1/26/2017	10.1
4.03	Indenture, dated as of March 4, 2015, by and between Rovi Corporation and U.S. Bank National Association, as trustee	Rovi Corp. 8-K	3/4/2015	4.1
4.04	First Supplemental Indenture, dated as of September 7, 2016, by and among Rovi Corporation, TiVo Corporation and U.S. Bank National Association, as trustee	TiVo Corp. 8-K	9/8/2016	4.1
4.05	Form of Note representing the Rovi Corporation 0.500% Convertible Senior Notes due 2020	Rovi Corp. 8-K	3/4/2015	4.2
4.06	Indenture, dated as of September 22, 2014 by and between TiVo Inc. and Wells Fargo Bank, National Association, as trustee	TiVo Solutions 8-K	9/23/2014	4.1
4.07	First Supplemental Indenture, dated as of September 7, 2016 by and among TiVo Solutions Inc., TiVo Corporation and Wells Fargo Bank, National Association, as trustee	TiVo Corp. 8-K	9/8/2016	4.2
4.08	Form of Note representing the TiVo Inc. 2% Convertible Senior Notes due 2021	TiVo Solutions 8-K	9/23/2014	4.2
4.09	Form of Common Stock Certificate	TiVo Corp. 10-Q	11/3/2016	4.08
10.01	Rovi Corporation 2008 Equity Incentive Plan, as amended April 27, 2016**	Rovi Corp. S-8	5/5/2016	99.1
10.02	Rovi Corporation 2008 Employee Stock Purchase Plan, as amended April 27, 2016**	Rovi Corp. S-8	5/5/2016	99.7
10.03	Rovi Corporation 2000 Equity Incentive Plan**	Macrovision Corp. DEF 14A	3/16/2006	Annex A
10.04	Form of Notice of Stock Option Grant/Nonstatutory Stock Option Agreement pursuant to Rovi 2008 Equity Incentive Plan**	Rovi Corp. 10-K	2/11/2016	10.04
10.05	Form of Notice of Restricted Stock Award/Restricted Stock Award Agreement pursuant to Rovi 2008 Equity Incentive Plan**	Rovi Corp. 10-K	2/11/2016	10.05
10.06	Form of Notice of Restricted Stock Award/Restricted Stock Award Agreement (Director grant form for one year vest) pursuant to Rovi 2008 Equity Incentive Plan**	Rovi Corp. 10-K	2/11/2016	10.06
10.07	Form of Notice of Restricted Stock Award/Restricted Stock Award Agreement (Director grant form for three year vest) pursuant to Rovi 2008 Equity Incentive Plan**	Rovi Corp. 10-K	2/11/2016	10.07
10.08	Form of Notice of Restricted Stock Unit/Restricted Stock Unit Agreement pursuant to Rovi 2008 Equity Incentive Plan**	Rovi Corp. 10-K	2/11/2016	10.08
10.09	TiVo Inc. Amended & Restated 1999 Equity Incentive Plan and related documents**	TiVo Solutions 10-Q	9/9/2005	10.7
10.10	TiVo Inc. Amended & Restated 2008 Equity Incentive Award Plan (now known as the "TiVo Corporation Titan Equity Incentive Award Plan")**	TiVo Corp. S-8	9/9/2016	4.7

10.11	Form of Stock Option Agreement for TiVo Inc. Amended & Restated 1999 Equity Incentive Plan (now referred to as the "TiVo Corporation Titan Equity Incentive Award Plan")**	TiVo Solutions 10-Q	9/9/2005	10.4	
10.12	Form of Stock Option Notice and Agreement for TiVo Inc. 2008 Equity Incentive Award Plan (now referred to as the "TiVo Corporation Titan Equity Incentive Award Plan")**	TiVo Solutions 10-Q	9/9/2008	10.2	
10.13	Form of Restricted Stock Bonus Notice and Agreement for TiVo Inc. 2008 Equity Incentive Award Plan (now referred to as the "TiVo Corporation Titan Equity Incentive Award Plan")**	TiVo Solutions 10-Q	11/27/2013	10.2	
10.14	Form of Restricted Stock Unit Notice and Agreement for TiVo Inc. 2008 Equity Incentive Award Plan (stock-settled) (now referred to as the "TiVo Corporation Titan Equity Incentive Award Plan")**	TiVo Solutions 10-Q	9/9/2008	10.4	
10.15	Form of Restricted Stock Unit Notice and Agreement for TiVo Inc. 2008 Equity Incentive Award Plan (cash-settled) (now referred to as the "TiVo Corporation Titan Equity Incentive Award Plan")**	TiVo Solutions 10-K	3/23/2012	10.15	
10.16	2017 Senior Executive Company Incentive Plan**	TiVo Corp. 8-K	3/1/2017	10.1	
10.17	Offer letter to Thomas Carson dated December 14, 2011**	Rovi Corp. 8-K	12/16/2011	10.1	
10.18	Amended and Restated Executive Severance and Arbitration Agreement with Thomas Carson dated December 14, 2011**	Rovi Corp. 8-K	12/16/2011	10.2	
10.19	Offer letter to Pete Thompson dated August 17, 2016**	Rovi Corp. 8-K	8/31/2016	10.1	
10.20	Executive Severance and Arbitration Agreement with Pete Thompson dated September 6, 2016**	Rovi Corp. 8-K	8/31/2016	10.2	
10.21	Form of Indemnification Agreement entered into by Rovi Corporation and each of its directors and executive officers**	Rovi Corp. 10-K	3/2/2009	10.15	
10.22	Form of Executive Severance and Arbitration Agreement**				X
10.23	Lease Agreement between TiVo Inc. and ECI Four Gold Street LLC, dated as of August 12, 2016	TiVo Solutions 8-K	8/23/2016	10.1	
10.24	Lease between GC Net Lease (San Carlos) Investors, LLC and Rovi Corporation, dated June 26, 2015	Rovi Corp. 10-Q	7/30/2015	10.01	
10.25	TiVo Corporation Executive Severance Plan**	TiVo Corp. 8-K	7/7/2017	10.1	
10.26	Form of Restricted Stock Unit Notice and Agreement for TiVo Corporation Titan Equity Incentive Award Plan (stock-settled) (Former TiVo Inc. Employee Form)**	TiVo Corp. 10-Q	11/2/2017	10.02	
10.27	Form of Restricted Stock Unit Notice and Agreement for TiVo Corporation Titan Equity Incentive Award Plan (stock-settled) (Non-Former TiVo Inc. Employee Form)**	TiVo Corp. 10-Q	11/2/2017	10.03	
10.28	Retirement Transition Agreement with Thomas Carson dated October 4, 2017**				X
10.29	Offer letter to Enrique Rodriguez dated November 5, 2017**	TiVo Corp. 8-K	11/13/2017	10.1	

10.30	Executive Severance and Arbitration Agreement with Enrique Rodriquez dated November 5, 2017**	TiVo Corp. 8-K	11/13/2017	10.2	
21.01	List of subsidiaries				X
23.01	Consent of Independent Registered Public Accounting Firm				X
24.01	Power of Attorney (contained on signature page)				X
31.01	Certification of Chief Executive Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002				X
31.02	Certification of Chief Financial Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002				X
32.01	Certification of Chief Executive Officer pursuant to Section 1350 of the Sarbanes-Oxley Act of 2002				***
32.02	Certification of Chief Financial Officer pursuant to Section 1350 of the Sarbanes-Oxley Act of 2002				***
101.INS	XBRL Instance Document				X
101.SCH	XBRL Taxonomy Extension Schema Document				X
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document				X
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document				X
101.LAB	XBRL Taxonomy Extension Label Linkbase Document				X
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document				X

+ Company Forms include filings by Rovi Corporation, TiVo Solutions Inc. (formerly known as TiVo Inc.) and TiVo Corporation.

* Certain schedules and exhibits to this agreement have been omitted in accordance with Item 601(b)(2) of Regulation S-K. A copy of any omitted schedule and/or exhibit will be furnished to the Securities and Exchange Commission on request.

** Management contract or compensatory plan or arrangement.

*** Furnished herewith.

ITEM 16. FORM 10-K SUMMARY

None.

Signatures

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant caused this report to be signed on its behalf by the undersigned thereunto duly authorized on this 27th day of February 2018.

TIVO CORPORATION

By: /s/ Enrique Rodriguez

Enrique Rodriguez

President and Chief Executive Officer

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints **ENRIQUE RODRIGUEZ** and **PETER C. HALT** and each or any one of them, his true and lawful attorney-in-fact and agent, with full power of substitution and resubstitution, for him and in his name, place and stead, in any and all capacities, to sign any and all amendments (including post-effective amendments) to this report on Form 10-K, and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in connection therewith, as fully to all intents and purposes as he might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents, or any of them, or their or his substitutes or substitute, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant, and in the capacities and on the date indicated.

Name	Title	Date
Principal Executive Officer:		
/s/ Enrique Rodriguez Enrique Rodriguez	President, Chief Executive Officer and Director	February 27, 2018
Principal Financial Officer:		
/s/ Peter C. Halt Peter C. Halt	Chief Financial Officer	February 27, 2018
Principal Accounting Officer:		
/s/ Wesley Gutierrez Wesley Gutierrez	Chief Accounting Officer and Treasurer	February 27, 2018
Additional Directors:		
/s/ James E. Meyer James E. Meyer	Chairman of the Board of Directors	February 27, 2018
/s/ Alan L. Earhart Alan L. Earhart	Director	February 27, 2018
/s/ Eddy W. Hartenstein Eddy W. Hartenstein	Director	February 27, 2018
/s/ Jeffrey T. Hinson Jeffrey T. Hinson	Director	February 27, 2018
/s/ Dan Moloney Dan Moloney	Director	February 27, 2018
/s/ Raghavendra Rau Raghavendra Rau	Director	February 27, 2018
/s/ Glenn W. Welling Glenn W. Welling	Director	February 27, 2018

TIVO CORPORATION

CONSOLIDATED FINANCIAL STATEMENTS

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Report of Independent Registered Public Accounting Firm

To the Stockholders and the Board of Directors of TiVo Corporation

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of TiVo Corporation and subsidiaries (the Company) as of December 31, 2017 and 2016, the related consolidated statements of operations, comprehensive (loss) income, stockholders' equity, and cash flows, for each of the three years in the period ended December 31, 2017, and the related notes (collectively referred to as the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2017 and 2016, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2017, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2017, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework), and our report dated February 27, 2018 expressed an unqualified opinion thereon.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ Ernst & Young LLP

We have served as the Company's auditor since 2008.

Los Angeles, California
February 27, 2018

TIVO CORPORATION AND SUBSIDIARIES
CONSOLIDATED BALANCE SHEETS
(In thousands, except per share amounts)

	December 31, 2017	December 31, 2016
ASSETS		
Current assets:		
Cash and cash equivalents	$ 128,965	$ 192,627
Short-term marketable securities	140,866	117,084
Accounts receivable, net	180,768	147,142
Inventory	11,581	13,186
Prepaid expenses and other current assets	40,719	37,400
Total current assets	502,899	507,439
Long-term marketable securities	82,711	128,929
Property and equipment, net	55,244	48,372
Intangible assets, net	643,924	806,838
Goodwill	1,813,227	1,812,118
Other long-term assets	65,673	17,147
Total assets	$ 3,163,678	$ 3,320,843
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable and accrued expenses	$ 135,852	$ 226,451
Deferred revenue	55,393	49,145
Current portion of long-term debt	7,000	7,000
Total current liabilities	198,245	282,596
Taxes payable, less current portion	3,947	4,893
Deferred revenue, less current portion	58,283	43,545
Long-term debt, less current portion	976,095	967,732
Deferred tax liabilities, net	50,356	77,454
Other long-term liabilities	23,736	34,987
Total liabilities	1,310,662	1,411,207
Commitments and contingencies (Note 10)		
Stockholders' equity:		
Preferred stock, $0.001 par value, 5,000 shares authorized; no shares issued or outstanding	—	—
Common stock, $0.001 par value, 250,000 shares authorized; 123,385 shares issued and 122,116 shares outstanding as of December 31, 2017; and 120,526 shares issued and 120,061 shares outstanding as of December 31, 2016	123	121
Treasury stock, 1,269 shares and 465 shares as of December 31, 2017 and December 31, 2016, respectively, at cost	(24,740)	(9,646)
Additional paid-in capital	3,273,022	3,280,905
Accumulated other comprehensive loss	(2,738)	(7,049)
Accumulated deficit	(1,392,651)	(1,354,695)
Total stockholders' equity	1,853,016	1,909,636
Total liabilities and stockholders' equity	$ 3,163,678	$ 3,320,843

The accompanying notes are an integral part of these Consolidated Financial Statements.

TIVO CORPORATION AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF OPERATIONS
(In thousands, except per share amounts)

	Year Ended December 31,		
	2017	**2016**	**2015**
Revenues, net:			
Licensing, services and software	$ 784,087	$ 629,474	$ 525,482
Hardware	42,369	19,619	789
Total Revenues, net	826,456	649,093	526,271
Costs and expenses:			
Cost of licensing, services and software revenues, excluding depreciation and amortization of intangible assets	167,712	139,666	102,466
Cost of hardware revenues, excluding depreciation and amortization of intangible assets	46,699	19,056	504
Research and development	194,382	125,172	99,902
Selling, general and administrative	205,024	192,755	155,173
Depreciation	22,144	18,698	17,410
Amortization of intangible assets	166,657	104,989	76,982
Restructuring and asset impairment charges	19,048	27,316	2,160
Gain on sale of patents	—	—	(82)
Total costs and expenses	821,666	627,652	454,515
Operating income	4,790	21,441	71,756
Interest expense	(42,756)	(43,681)	(46,826)
Interest income and other, net	2,915	1,688	716
Income (loss) on interest rate swaps	1,859	(3,884)	(13,368)
TiVo Acquisition litigation	(14,006)	—	—
Loss on debt extinguishment	(108)	—	(2,815)
Loss on debt modification	(929)	—	—
(Loss) income from continuing operations before income taxes	(48,235)	(24,436)	9,463
Income tax (benefit) expense	(10,279)	(61,685)	13,755
(Loss) income from continuing operations, net of tax	(37,956)	37,249	(4,292)
Loss from discontinued operations, net of tax	—	(4,588)	—
Net (loss) income	$ (37,956)	$ 32,661	$ (4,292)
Basic (loss) earnings per share:			
Continuing operations	$ (0.32)	$ 0.40	$ (0.05)
Discontinued operations	—	(0.05)	—
Basic (loss) earnings per share	$ (0.32)	$ 0.35	$ (0.05)
Weighted average shares used in computing basic per share amounts	120,355	93,064	84,133
Diluted (loss) earnings per share:			
Continuing operations	$ (0.32)	$ 0.40	$ (0.05)
Discontinued operations	—	(0.05)	—
Diluted (loss) earnings per share	$ (0.32)	$ 0.35	$ (0.05)
Weighted average shares used in computing diluted per share amounts	120,355	94,262	84,133
Dividends declared per share	$ 0.72	$ —	$ —

The accompanying notes are an integral part of these Consolidated Financial Statements.

TIVO CORPORATION AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF COMPREHENSIVE (LOSS) INCOME
(In thousands)

	Year Ended December 31,		
	2017	2016	2015
Net (loss) income	$ (37,956)	$ 32,661	$ (4,292)
Other comprehensive income (loss), net of tax:			
Foreign currency translation adjustment	4,462	(798)	(377)
Unrealized (losses) gains on marketable securities	(151)	252	(819)
Other comprehensive income (loss), net of tax	4,311	(546)	(1,196)
Comprehensive (loss) income	$ (33,645)	$ 32,115	$ (5,488)

The accompanying notes are an integral part of these Consolidated Financial Statements.

TIVO CORPORATION AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(In thousands)

	Common stock		Treasury stock		Additional paid-in capital	Accumulated other comprehensive loss	Accumulated deficit	Total stockholders' equity
	Shares	Amount	Shares	Amount				
Balance as of December 31, 2014	130,627	$ 131	(38,898)	$(1,013,218)	$ 2,339,817	$ (5,307)	$ (215,159)	$ 1,106,264
Net loss							(4,292)	(4,292)
Other comprehensive loss, net of tax						(1,196)		(1,196)
Issuance of common stock on exercise of options	87	—			1,497			1,497
Issuance of common stock under employee stock purchase plan	543	—			7,290			7,290
Cancellation of restricted stock, net	(205)	—			—			—
Equity-based compensation					42,647			42,647
Excess tax benefit associated with stock plans					52			52
Equity component related to issuance of 2020 Convertible Notes					63,854			63,854
Equity component related to 2020 Convertible Notes issuance costs					(1,737)			(1,737)
Issuance of warrants related to 2020 Convertible Notes					31,326			31,326
Purchase of call options related to 2020 Convertible Notes					(64,825)			(64,825)
Stock repurchases			(9,492)	(150,168)				(150,168)
Withholding taxes related to net share settlement of restricted stock units			(15)	(147)				(147)
Balance as of December 31, 2015	131,052	131	(48,405)	(1,163,533)	2,419,921	(6,503)	(219,451)	1,030,565
Net income							32,661	32,661
Other comprehensive loss, net of tax						(546)		(546)
Issuance of common stock on exercise of options	430	—			6,710			6,710
Issuance of common stock under employee stock purchase plan	1,160	3			10,694			10,697
Issuance of restricted stock, net	352	—			1			1
Equity-based compensation					62,860			62,860
Issuance of common stock in connection with TiVo Acquisition	36,138	36			780,719			780,755
Cancellation of treasury stock	(48,606)	(49)	48,606	1,167,954			(1,167,905)	—
Withholding taxes related to net share settlement of restricted stock units			(666)	(14,067)				(14,067)
Balance as of December 31, 2016	120,526	121	(465)	(9,646)	3,280,905	(7,049)	(1,354,695)	1,909,636
Net loss							(37,956)	(37,956)
Other comprehensive income, net of tax						4,311		4,311
Issuance of common stock on exercise of options	470	—			6,853			6,853
Issuance of common stock under employee stock purchase plan	1,449	1			15,623			15,624
Issuance of restricted stock, net	916	1			1			2
Equity-based compensation					56,463			56,463
Issuance of common stock in connection with TiVo Acquisition	24	—			536			536
Dividends					(87,359)			(87,359)
Withholding taxes related to net share settlement of restricted stock units			(804)	(15,094)				(15,094)
Balance as of December 31, 2017	123,385	$ 123	(1,269)	$ (24,740)	$ 3,273,022	$ (2,738)	$ (1,392,651)	$ 1,853,016

The accompanying notes are an integral part of these Consolidated Financial Statements.

TIVO CORPORATION AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS
(In thousands)

	Year Ended December 31,		
	2017	2016	2015
Cash flows from operating activities:			
Net (loss) income	$ (37,956)	$ 32,661	$ (4,292)
Adjustments to reconcile net (loss) income to net cash provided by operating activities:			
Loss from discontinued operations, net of tax	—	4,588	—
Depreciation	22,144	18,698	17,410
Amortization of intangible assets	166,657	104,989	76,982
Amortization of convertible note discount and note issuance costs	14,781	14,048	13,864
Restructuring and asset impairment charges	19,048	27,316	2,160
Equity-based compensation	52,561	47,670	42,647
Change in fair value of interest rate swaps	(10,216)	(5,800)	8,869
TiVo Acquisition litigation	14,006	—	—
Loss on debt extinguishment	108	—	2,815
Loss on debt modification	929	—	—
Deferred income taxes	(27,193)	(86,085)	4,409
Other operating, net	(3,033)	904	2,223
Changes in operating assets and liabilities:			
Accounts receivable	(31,900)	(11,643)	(4,214)
Inventory	1,605	2,273	(203)
Prepaid expenses and other current assets and other long-term assets	(52,122)	(18,201)	(120)
Accounts payable and accrued expenses and other long-term liabilities	(18,948)	3,222	(4,119)
Taxes payable	627	(3,785)	(2,810)
Deferred revenue	20,986	7,666	(12,601)
Net cash provided by operating activities of continuing operations	132,084	138,521	143,020
Net cash used in operating activities of discontinued operations	—	(5,000)	(194)
Net cash provided by operating activities	132,084	133,521	142,826
Cash flows from investing activities:			
Payments for purchase of short- and long-term marketable securities	(148,591)	(175,591)	(210,757)
Proceeds from sales or maturities of short- and long-term marketable securities	173,275	217,861	299,598
Cash acquired in Tivo Acquisition, net of cash paid	—	166,312	—
Return of cash paid for TiVo Acquisition	25,143	—	—
Payment to Dissenting Holders in TiVo Acquisition	(117,030)	—	—
Payments for purchase of property and equipment	(37,962)	(20,347)	(11,293)
Payments for purchase of patents	(2,000)	(2,500)	—
Other investing, net	(334)	(63)	11
Net cash (used in) provided by investing activities	(107,499)	185,672	77,559
Cash flows from financing activities:			
Proceeds from revolving credit facility	—	—	100,000
Payments on revolving credit facility	—	—	(100,000)
Proceeds from issuance of long-term debt, net of issuance costs	681,552	—	335,699
Principal payments on long-term debt	(689,500)	(236,952)	(422,990)
Payments for dividends	(87,108)	—	—
(Payments) proceeds from (purchase) sale of warrants	—	(5,827)	31,326
Proceeds (payments) for sale (purchase) of call options	—	12,118	(64,825)
Payments for contingent consideration and deferred holdback	(2,650)	(750)	(6,183)
Payments for purchase of treasury stock	—	—	(154,519)
Payments for withholding taxes related to net settlement of restricted awards	(15,094)	(14,067)	(147)
Proceeds from exercise of employee stock options and employee stock purchase plan	22,481	17,407	8,787
Net cash used in financing activities	(90,319)	(228,071)	(272,852)

Effect of exchange rate changes on cash and cash equivalents	2,072	(170)	(426)
Net (decrease) increase in cash and cash equivalents	(63,662)	90,952	(52,893)
Cash and cash equivalents at beginning of period	192,627	101,675	154,568
Cash and cash equivalents at end of period	$ 128,965	$ 192,627	$ 101,675

The accompanying notes are an integral part of these Consolidated Financial Statements.

TIVO CORPORATION AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

(1) Basis of Presentation and Summary of Significant Accounting Policies

Description of Business

On April 28, 2016, Rovi Corporation ("Rovi") and TiVo Inc. (renamed TiVo Solutions Inc. ("TiVo Solutions")) entered into an Agreement and Plan of Merger (the “Merger Agreement”) for Rovi to acquire TiVo Solutions in a cash and stock transaction (the "TiVo Acquisition"). Following consummation of the TiVo Acquisition on September 7, 2016 (the "TiVo Acquisition Date"), TiVo Corporation (the "Company"), a Delaware corporation founded in April 2016 as Titan Technologies Corporation and then a wholly-owned subsidiary of Rovi, owns both Rovi and TiVo Solutions. The common stocks of Rovi and TiVo Solutions were de-registered after completion of the TiVo Acquisition.

The Company is a global leader in media and entertainment products that power consumer entertainment experiences and enable its customers to deepen and further monetize their audience relationships. The Company provides a broad set of intellectual property, cloud-based services and set-top box solutions that enable people to find and enjoy online video, television, movies and music entertainment, including content discovery through device embedded and cloud-based user experience ("UX"), including interactive program guides (“IPGs”), digital video recorders ("DVRs"), natural language voice and text search, cloud-based recommendations services and our extensive entertainment metadata (i.e., descriptive information, promotional images or other content that describes or relates to television shows, videos, movies, sports, music, books, games or other entertainment content). The Company's integrated platform includes software and cloud-based services that provide an all-in-one approach for navigating a fragmented universe of content by seamlessly combining live, recorded, video-on-demand ("VOD") and over-the-top ("OTT") content into one intuitive user interface with simple universal search, discovery, viewing and recording, to create a unified viewing experience. The Company distributes its products through service provider relationships, integrated into third-party devices and directly to retail consumers. The Company also offers data analytics solutions, including advertising and programming promotion optimizers, which enable advanced audience targeting in linear television advertising. Solutions are sold globally to cable, satellite, consumer electronics ("CE"), entertainment, media and online distribution companies, and, in the United States, we sell a suite of DVR and whole home media products and services directly to retail consumers.

Basis of Presentation and Principles of Consolidation

Rovi is the predecessor registrant to TiVo Corporation and therefore, for periods prior to the TiVo Acquisition Date, the Consolidated Financial Statements reflect the financial position, results of operations and cash flows of Rovi. As used herein, the “Company” refers to Rovi when referring to periods prior to and including the TiVo Acquisition Date and to TiVo Corporation when referring to periods subsequent to the TiVo Acquisition Date. The Company’s results of operations include the operations of TiVo Solutions after the TiVo Acquisition Date. See Note 2 for additional information on the TiVo Acquisition.

The accompanying Consolidated Financial Statements include the accounts of TiVo Corporation and subsidiaries and affiliates in which the Company has a controlling financial interest after the elimination of intercompany accounts and transactions.

Certain prior year amounts have been reclassified to conform to the current year presentation.

Related Party Transaction

During the year ended December 31, 2015, the Company reimbursed $1.5 million of costs incurred by Engaged Capital, LLC (“Engaged”) in connection with a contested proxy election. These expenses are included in Selling, general and administrative expenses on the Consolidated Statements of Operations. Engaged is a related party as Glenn W. Welling is a member of the Company’s Board of Directors and is also a Principal and the Chief Investment Officer at Engaged.

Use of Estimates

The preparation of the Consolidated Financial Statements in conformity with generally accepted accounting principles in the United States ("U.S. GAAP") requires management to make estimates, assumptions and judgments that affect the reported amounts of assets and liabilities and related disclosures at the date of the financial statements and the results of operations for the reporting period. On an ongoing basis, management evaluates its estimates, including those related to revenue recognition, long-lived asset impairment, including goodwill and intangible assets, equity-based compensation and

income taxes. Actual results may differ from those estimates.

Business Combinations

The results of operations of acquired businesses are included in the Consolidated Statements of Operations prospectively from the date of acquisition. The fair value of purchase consideration is allocated to the assets acquired, liabilities assumed and non-controlling interests in the acquired entity generally based on their fair value at the acquisition date. The excess of the fair value of purchase consideration over the fair value of the assets acquired, liabilities assumed and non-controlling interests in the acquired entity is recorded as goodwill. The primary items that generate goodwill include synergies between the acquired business and the Company and the acquired assembled workforce, neither of which qualifies for recognition as an intangible asset.

When provisional amounts are recorded for a business combination, adjustments to the provisional amounts to reflect new information obtained about facts and circumstances that existed as of the acquisition date that would have affected the measurement of the amounts recognized at the acquisition date are recognized. Adjustments to the provisional amounts identified during the measurement period, which is a period not to exceed one year from the acquisition date, are reported in the period the adjustment is identified by means of an adjustment to goodwill, with the effect on earnings measured as if the provisional amounts had been completed at the acquisition date. Adjustments to amounts recognized in a business combination that occur after the end of the measurement period are recognized in current period operations.

Acquisition-related expenses and post-acquisition restructuring costs are recognized separately from the business combination.

Fair Value Measurements

Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. When available, fair value measurements are based on quoted market prices. If quoted market prices are not available, fair value is measured based on models that consider relevant transaction characteristics (such as maturity and nonperformance risk) and may use observable or unobservable inputs. Various methodologies and assumptions are used in the measurement of fair value. The use of different methodologies or assumptions could result in a different estimate of fair value at the measurement date.

Foreign Currency Translation

The Company predominately uses the U.S dollar as its functional currency. Certain non-U.S. subsidiaries designate a local currency as their functional currency. The translation of assets and liabilities into U.S. dollars for subsidiaries with a functional currency other than the U.S. dollar is performed using exchange rates in effect at the balance sheet date. The translation of revenues and expenses into U.S. dollars for subsidiaries with a functional currency other than the U.S. dollar is performed using the average exchange rate for the respective period. Losses from cumulative translation adjustments, net of tax, of $1.7 million and $6.2 million as of December 31, 2017 and 2016, respectively, are included as a component of Accumulated other comprehensive loss in the Consolidated Balance Sheets.

Concentrations of Risk

Customers representing 10% or more of Total Revenues, net were as follows:

	Year Ended December 31,		
	2017	**2016**	**2015**
AT&T Inc. ("AT&T")	14%	12%	16 %
Samsung Electronics Co. LTD ("Samsung")	(1)	10%	(1)%

(1) Customer represented less than 10% of Total Revenues, net.

Substantially all of the Company's revenue from AT&T is reported in the Intellectual Property Licensing segment, while revenue from Samsung is reported in the Product segment and the Intellectual Property Licensing segment.

Customers representing 10% or more of Accounts receivable, net were as follows.

	December 31, 2017	December 31, 2016
AT&T	28%	15%
Virgin Media Inc.	(1)	13%

(1) Customer represented less than 10% of Accounts receivable, net.

The TiVo service is enabled through the use of a DVR manufactured by a third-party contract manufacturer. The Company also relies on third parties with whom it outsources supply-chain activities related to inventory warehousing, order fulfillment, distribution and other direct sales logistics. The Company cannot be sure that these parties will perform their obligations as expected or that any revenue, cost savings or other benefits will be derived from the efforts of these parties. If any of these parties breaches or terminates their agreement with the Company or otherwise fails to perform their obligations in a timely manner, the Company may be delayed or prevented from commercializing its products and services.

In instances where a supply agreement does not exist and suppliers fail to perform their obligations, the Company may be unable to find alternative suppliers or deliver its products and services to its customers on time, if at all. The Company does not have a long-term written supply agreement with Broadcom Corporation, the sole supplier of the system controller for its DVR.

Cash, Cash Equivalents and Investments

Highly liquid investments with original maturities at the date of acquisition of three months or less are considered to be cash equivalents. The majority of payments due from banks for third-party credit card, debit card and electronic benefit transactions ("EBT") process within 24-72 hours, except for transactions occurring on a Friday, which are generally processed the following Monday. All credit card, debit card and EBT transactions that process in less than three days are classified as cash and cash equivalents. As of December 31, 2017 and 2016, Cash and cash equivalents includes payments due from banks for these transactions of $1.1 million and $1.1 million, respectively.

Marketable securities with original maturities at the date of acquisition of more than three months are classified as Short-term marketable securities or Long-term marketable securities based on the remaining contractual maturity of the security at the reporting date.

Marketable securities are considered available-for-sale and are reported at fair value in the Consolidated Balance Sheets. Realized gains and losses on marketable securities are calculated based on the specific identification method and are included in Interest income and other, net in the Consolidated Statements of Operations. Interest income from marketable securities is included in Interest income and other, net in the Consolidated Statements of Operations.

Unrealized gains and losses, net of applicable taxes, are reported in Accumulated other comprehensive loss in the Consolidated Balance Sheets. The Company monitors its marketable securities portfolio for potential impairment. When the carrying amount of an investment in debt securities exceeds its fair value and the decline in fair value is determined to be other-than-temporary (i.e., when the Company does not intend to sell the security and it is not more-likely-than-not that the Company will be required to sell the security prior to the anticipated recovery of its amortized cost basis), an impairment associated with the credit loss is recorded in Interest income and other, net in the Consolidated Statements of Operations and the remainder, if any, is recorded in Other comprehensive income (loss), net of tax in the Consolidated Statements of Comprehensive Income (Loss).

Investments in non-marketable equity securities are accounted for using either the equity method or the cost method. Investments in entities over which the Company has the ability to exercise significant influence, but does not hold a controlling interest, are accounted for using the equity method. Under the equity method of accounting, the Company records its proportionate share of income or loss in Interest income and other, net in the Consolidated Statements of Operations. Investments in entities over which the Company does not have the ability to exercise significant influence are accounted for using the cost method. The Company monitors its non-marketable securities portfolio for potential impairment. When the carrying amount of an investment in a non-marketable security exceeds its fair value and the decline in fair value is determined to be other-than-temporary, the loss is recorded in Interest income and other, net in the Consolidated Statements of Operations.

Allowance for Doubtful Accounts

The Company performs ongoing credit evaluations of its customers. The Company reviews its accounts receivable to identify potential collection issues. A specific allowance for doubtful accounts is recorded when warranted by specific customer circumstances, such as in the case of a bankruptcy filing, a deterioration in the customer's operating results or financial position or the past due status of a receivable based on its contractual payment terms. If there are subsequent changes in circumstances related to the specific customer, adjustments to recoverability estimates are recorded. For accounts receivable not specifically reserved, an allowance for doubtful accounts is recorded based on historical loss experience and other currently available evidence. Accounts receivable deemed uncollectible are charged off when collection efforts have been exhausted.

Inventory

Inventories consist primarily of finished DVRs and accessories and are stated at the lower of cost and net realizable value on an aggregate basis. Cost is computed using standard cost, which approximates actual cost on a first-in, first-out basis. Adjustments to reduce the cost of inventory to the lower of cost and net realizable value are made, if required, for estimated excess or obsolescence, which includes a review of, among other factors, demand requirements and market conditions.

Long-Lived Assets, including Property and Equipment and Finite-Lived Intangible Assets

Property and equipment are stated at cost, net of accumulated depreciation and amortization. Depreciation and amortization of property and equipment is recognized on a straight-line basis over the estimated useful lives of the respective assets. Computer equipment and software are depreciated over three years. Furniture and fixtures are depreciated over five years. Leasehold improvements are amortized over the shorter of the asset's useful life or the remaining lease term.

Intangible assets with finite lives are amortized on a straight-line basis over the estimated economic life of the asset, which generally ranges from two to 18 years at the date of acquisition.

Long-lived assets, including property and equipment and intangible assets with finite lives, are assessed for potential impairment whenever events or changes in circumstances indicate the carrying amount of an asset group may not be recoverable. Once a triggering event has been identified, the impairment test employed is based on whether we intend to continue to use the asset group or to hold the asset group for sale. For assets held for use, recoverability is assessed based on the estimated undiscounted future cash flows expected to result from the use and eventual disposition of the asset group. If the undiscounted future cash flows are less than the carrying amount of an asset group, the asset group is impaired. The amount of impairment, if any, is measured as the difference between the carrying amount of the asset group and its fair value, which is generally estimated using an income approach. To the extent the carrying amount of each asset exceeds its fair value, the impairment is allocated to the finite-lived assets of the asset group on a pro rata basis using their relative carrying amounts.

For assets held for sale, to the extent the asset group's carrying amount is greater than its fair value less cost to sell, an impairment loss is recognized for the difference. Assets held for sale are separately presented in the Consolidated Balance Sheets at the lower of their carrying amount or fair value less cost to sell, and are no longer depreciated.

Software Development Costs

Costs are capitalized to acquire or develop software subsequent to establishing technological feasibility for the software, which is generally on completion of a working prototype that has been certified as having no critical bugs and is a release candidate or when an alternative future use exists. Capitalized software development costs are amortized using the greater of the amortization on a straight-line basis or the ratio that current gross revenues for a product bear to the total current and anticipated future gross revenues for that product. The estimated useful life for capitalized software development costs is generally five years or less. To date, software development costs incurred between completion of a working prototype and general availability of the related product have not been material.

Goodwill and Indefinite-Lived Intangible Assets

Goodwill represents the excess of cost over fair value of the net assets of an acquired business. Goodwill and indefinite-lived intangible assets are evaluated for potential impairment annually, as of the beginning of the fourth quarter, and whenever events or changes in circumstances indicate their carrying amount may not be recoverable. The recoverability of goodwill is assessed at the reporting unit level, which is either the operating segment or one level below.

Qualitative factors are first assessed to determine whether events or changes in circumstances indicate it is more-likely-than-not that the fair value of a reporting unit or indefinite-lived intangible asset is less than its carrying amount. If, based on the qualitative assessment, it is considered more-likely-than-not that the fair value of a reporting unit is less than its carrying amount, then a quantitative impairment test is performed. In the quantitative impairment test for goodwill, the fair value of the reporting unit is compared to its carrying amount. The fair value of the Product reporting unit is estimated by weighting the fair values derived from an income approach and a market approach and the fair value of the Intellectual Property Licensing reporting unit is estimated using an income approach. Under the income approach, the fair value of a reporting unit is estimated based on the present value of estimated future cash flow and considers estimated revenue growth rates, future operating margins and risk-adjusted discount rates. Under the market approach, the fair value of a reporting unit is estimated based on market multiples of revenue or earnings derived from comparable publicly-traded companies. The carrying amount of a reporting unit is determined by assigning the assets and liabilities, including goodwill and intangible assets, to the reporting unit. If the fair value of a reporting unit exceeds its carrying amount, goodwill is not impaired. If the fair value of a reporting unit is less than its carrying amount, an impairment loss equal to the difference is recognized.

If, based on the qualitative assessment, it is considered more-likely-than-not that the fair value of an indefinite-lived intangible asset is less than its carrying amount, then a quantitative impairment test is performed. In the quantitative impairment test for indefinite-lived intangible assets, fair value is compared to the carrying amount of the indefinite-lived intangible asset. The fair value of indefinite-lived intangible assets is estimated using an income approach. If the carrying amount of an indefinite-lived intangible asset exceeds its fair value, an impairment loss equal to the difference is recognized.

Deferred Revenue

Deferred revenue represents amounts received from customers for which the revenue recognition criteria have not been satisfied.

Income Taxes

Income taxes are accounted for under the asset and liability method. Deferred tax assets and liabilities are recognized for the future tax consequences attributable to differences between the financial statement carrying amount of assets and liabilities and their respective tax bases and operating loss and tax carryforwards. Deferred tax assets and liabilities are measured using enacted tax rates applicable to the years in which those temporary differences are expected to reverse. A valuation allowance is recorded to reduce deferred tax assets to the amount that is more likely than not to be realized.

From time to time, the Company engages in transactions in which the tax consequences may be subject to uncertainty. Significant judgment is required in assessing and estimating the tax consequences of these transactions. Accruals for unrecognized tax benefit liabilities, which represent the difference between a tax position taken or expected to be taken in a tax return and the benefit recognized for financial reporting purposes, are recorded when the Company believes it is not more-likely-than-not that the tax position will be sustained on examination by the taxing authorities based on the technical merits of the position. Adjustments to unrecognized tax benefits are recognized when facts and circumstances change, such as the closing of a tax audit, notice of an assessment by a taxing authority or the refinement of an estimate. Income tax (benefit) expense includes the effects of adjustments to unrecognized tax benefits, as well as any related interest and penalties.

Revenue Recognition

The Company recognizes revenue when each of the following criteria have been satisfied: (i) persuasive evidence of an arrangement exists; (ii) delivery has occurred or the service has been rendered; (iii) the fee is fixed or determinable; and (iv) collection is reasonably assured. Where one or more of the criteria has not been satisfied, revenue recognition is deferred until the applicable criteria is satisfied.

Revenue arrangements with multiple deliverables are divided into separate units of accounting when the delivered item has value to the customer on a stand-alone basis. The Company allocates the transaction consideration to the various elements in the arrangement based on their relative selling price using vendor specific objective evidence ("VSOE") of selling price, if it exists. When VSOE of selling price does not exist, third-party evidence ("TPE") is used to allocate the transaction consideration to the various elements in the arrangement. If neither VSOE nor TPE exist, the Company uses its best estimate of selling price ("BESP") to allocate the transaction consideration to the various elements in the arrangement. The allocation of transaction consideration among deliverables in an arrangement may impact the amount and timing of revenue recognized in the Consolidated Statements of Operations during a given period.

The Company accounts for cash consideration (such as sales incentives) given to its customers or resellers as a reduction of revenue, rather than as an operating expense unless the Company receives a benefit that is separate from the customer's purchase from the Company and for which it can reasonably estimate the fair value of the benefit.

CE and Service Provider Licensing

The Company licenses its proprietary IPG and Analog Content Protection ("ACP") technologies to CE manufacturers, integrated circuit makers, service providers and others. The Company generally recognizes revenue on a per-unit shipped model for licenses with CE manufacturers and a per-subscriber model for licenses with service providers. The recognition of revenue from per-unit license fees is based on units reported shipped by the CE manufacturer, which are typically reported to the Company in the quarter immediately following that of actual shipment. In addition, the Company's significant experience and established relationships with certain CE manufacturers enables us to reasonably estimate current period unit shipments for purposes of recognizing revenue. Accordingly, revenue from these customers is recognized in the period the CE manufacturer is estimated to have shipped the units, and revenue adjustments are recorded when the CE manufacturer reports actual shipments to the Company. Revenues from per-subscriber license fees are recognized in the period the services are provided by a licensee, as reported to the Company by the licensee.

Revenues from annual or other license fees are recognized based on the specific terms of the license. For instance, certain CE IPG licensees have entered into agreements for which they have the right to ship an unlimited number of units over a specified term for a flat fee. The Company recognizes revenue from these arrangements on a straight-line basis over the specified term.

At times, the Company enters into license agreements in which we release a licensee from past patent infringement claims and grant a license to ship an unlimited number of units over a future period for a fixed fee. In these arrangements, the Company generally uses BESP to allocate the transaction consideration between the release for past patent infringement claims and the future license. In determining BESP of the release for past patent infringement claims and the future license, the Company considers such factors as the number of units shipped in the past and in what territories these units where shipped, the number of units expected to be shipped in the future and in what territories these units are expected to be shipped, as well as the licensing rate the Company generally receives for units shipped in these territories. As the criteria for the recognition of a contingent gain from the release from past patent infringement claims is generally satisfied on the execution of the agreement, the amount of transaction consideration allocated to the release from past patent infringement claims is generally recognized as revenue in the period the agreement is executed and the amount of transaction consideration allocated to the future license is recognized ratably over the future license term.

In addition, the Company has entered into agreements in which a licensee pays the Company a one-time fee for a perpetual license to its ACP technology. Provided that collectibility is reasonably assured, the Company records the one-time fee as revenue when the agreement is executed as the Company has no significant continuing obligations and the amounts are fixed or determinable.

Arrangements with Multiple System Operators ("MSOs")

The Company's arrangements with MSOs typically include customized software and implementation services, associated maintenance and support, limited training, TiVo-enabled digital video recorders ("DVRs"), non-DVR set-top boxes ("STBs"), and the TiVo service.

The Company has two types of arrangements with MSOs that include technology deployment and engineering services; hosted and not hosted. In instances where TiVo hosts the TiVo service, non-refundable payments received for customization and set up services are deferred and recognized as revenue over the longer of the contractual term or customer relationship period as the deployment and engineering services do not have standalone value. The cost of deployment and engineering services is capitalized to the extent they are deemed recoverable and are subsequently amortized to cost of revenues over the same period as the related revenue. The Company has established VSOE of selling prices for training, DVRs, STBs and maintenance and support based on the price charged in standalone sales of the element or stated renewal rates in the agreements. The BESP for TiVo service is determined considering the size of the MSO and expected volume of deployment, market conditions, competitive landscape, internal costs and total gross margin objectives. Transaction consideration is allocated among individual elements on a relative basis.

In arrangements where the Company does not host the TiVo service, and that include engineering services that are essential to the functionality of the licensed technology or involve significant customization or modification of the software, the Company recognizes revenue pursuant to the software revenue recognition guidance. Under the software revenue recognition

guidance, such arrangements are accounted for using the percentage-of-completion method or the completed-contract method. The percentage-of-completion method is used if reasonably dependable estimates of the extent of progress toward completion can be made and the arrangement as a whole is reasonably expected to be profitable.

The Company measures progress toward completion using an input method based on the ratio of costs incurred to date to total estimated costs of the project (an input method). Project costs are primarily labor and overhead related to the specific activities required for the project. Costs related to general infrastructure or uncommitted platform development are not included in the project cost estimates. When reasonably assured that development costs are recoverable through future revenues, the Company defers recognition of the costs until the future revenues are recognized. The recoverability assessment depends on estimating engineering costs related to the project. For these projects, we are able to make reasonably dependable cost estimates based on historical experience and various other assumptions believed to be reasonable under the circumstances. These estimates include forecasting costs and schedules, tracking progress and costs incurred to date and projecting the remaining effort to complete the project. These estimates are reassessed throughout the term of the arrangement, and revisions to estimates are recognized on a cumulative catch-up basis when the changed conditions become known. Revisions to estimates during the year ended December 31, 2017 were not material. Using different cost estimates, or different methods of measuring progress toward completion may produce materially different results, including potentially a conclusion that development costs may not be recoverable.

In some cases, it may not be possible to separate the various elements within the software arrangement due to a lack of VSOE of selling prices for undelivered elements, a lack of reasonably dependable estimates of total costs or development costs exceed development revenues but there is reasonable assurance that no loss will be incurred under the arrangement. Accordingly, the Company applies the following:

- Where no VSOE exists for undelivered elements, revenue is recognized equal to the costs recognized up to the amount billable to the customer until VSOE for the undelivered elements is established or all of the elements have been delivered.
- Where there is a lack of reasonably dependable estimates, revenue is recognized equal to the costs recognized up to the amount billable to the customer until the estimation uncertainty is resolved, after which the percentage of completion method is applied.
- If the Company is not reasonably assured the arrangement will be profitable, the Company accounts for the arrangement under the completed contract method, which results in a deferral of all revenue and costs until the project is complete. Provisions for losses are recorded when estimates indicate it is probable that a loss will be incurred on the arrangement.

In arrangements where the Company does not host the TiVo service, and that include engineering services that are essential to the functionality of the licensed technology or involve significant customization or modification of the software, provided that the Company is reasonably assured that the arrangement will be profitable and development costs exceed billable development revenues, revenue is recognized equal to the costs recognized until the engineering services are complete. Development costs incurred in excess of revenues recognized are deferred up to the amount deemed recoverable. Thereafter, service revenue is recognized, and an equal amount of deferred development costs are recognized until all deferred development costs are recovered. Once all deferred development costs are recovered, any remaining service revenue is recognized ratably over the remaining service period. As of December 31, 2017 and 2016, the Consolidated Balance Sheets include deferred development costs of $13.6 million and $6.2 million, respectively.

Patent Sales

During 2016, the Company expanded its business strategy of monetizing its intellectual property to include the sale of select patent assets. As patent sales executed under this strategy represent a component of the Company's ongoing major or central operations and activities of monetizing intellectual property, the Company began recognizing patent sales as revenue in 2016. Revenue for the year ended December 31, 2016 includes $1.0 million related to patent sales. No revenue was recognized for the years ended December 31, 2017 and 2015 related to patent sales.

Metadata Licensing

The Company licenses metadata to service providers, CE manufacturers and online portals among others. The Company generally receives a monthly or quarterly fee from our licensees for the right to use the metadata, receive regular updates to the metadata and integrate the metadata into their own service. The Company recognizes metadata revenue ratably over the license term.

Advertising Revenue

The Company generates advertising revenue through our UX. Advertising revenue is recognized when the related advertisement is provided. Advertising revenue is recorded net of agency commissions and revenue shares with service providers and CE manufacturers.

TiVo-enabled DVRs and TiVo Service

The Company sells TiVo-enabled DVRs and the related service directly to customers through bundled sales programs via the TiVo website. Under these bundled programs, the customer receives a DVR and commits to either a minimum subscription period of one year or for the lifetime of the DVR. After the initial minimum subscription period, customers have various pricing options at which they can renew their subscription. Customers have the right to cancel their subscription to the TiVo service within 30 days of subscription activation for a full refund. The Company establishes allowances for expected subscription cancellations based on historical experience.

VSOE of selling price for the subscription services is established based on standalone sales of the service and varies by the length of the service period. The Company is not able to obtain VSOE for the DVR due to infrequent sales of standalone DVRs to customers. The BESP of the DVR is determined based on the price for which the Company would sell the DVR without any service commitment from the customer. Revenue allocated to the DVR is recognized on delivery, up to an amount not contingent on future service, and revenue allocated to the service is recognized ratably over the service period.

Subscription revenues from product lifetime subscriptions are recognized ratably over the estimated useful life of the DVR associated with the subscription. The estimated useful lives depend on assumptions with regard to future churn rates for product lifetime subscriptions. The Company monitors the estimated useful life of a DVR and the impact of differences between actual churn rates and forecasted churn rates. If actual results are not consistent with the Company's current assumptions, the Company may revise the estimated useful life of the DVRs, which could result in the recognition of revenue over a longer or shorter period. The Company recognizes product lifetime subscription revenues over an estimated product life of 66 months.

Hardware Revenues

Hardware revenues are derived from standalone hardware sales and amounts allocated to hardware elements in multiple element arrangements. Customers have the right to return their product within 30 days of the purchase. The Company establishes allowances for expected product returns as a direct reduction of revenue. Certain payments to retailers and distributors, such as market development funds and revenue shares, are recorded as a reduction of hardware revenues rather than as a sales and marketing expense. For market development funds, revenue is reduced at the later of the date at which the related hardware revenue is recognized or the date at which the market development program is offered. For revenue share programs, revenue is reduced when a liability for the revenue share payments has been incurred and the amount of the liability is fixed or determinable.

Taxes Collected from Customers

The Company reports revenue net of taxes collected from customers and remitted to governmental authorities.

Shipping and Handling

Shipping and handling costs are included in Cost of hardware revenues, excluding depreciation and amortization of intangible assets.

Warranty

The Company accrues for the expected material and labor costs required to provide warranty services on its hardware products. The Company’s warranty accrual is estimated based on the total volume of units sold, the term of the warranty period, the expected rate of warranty returns and the estimated cost to replace or repair the defective unit.

Research and Development

Research and development costs are expensed as incurred.

Advertising Costs

Advertising costs are expensed as incurred and are presented within Selling, general and administrative expense in the Consolidated Statements of Operations. Advertising expenses for the years ended December 31, 2017, 2016 and 2015, were $8.8 million, $7.3 million and $7.4 million, respectively.

Restructuring

Management-approved restructuring plans can include employee severance and benefit costs to terminate a specified number of employees, including the acceleration of vesting in equity-based compensation awards, infrastructure charges to vacate facilities and consolidate operations and contract cancellation costs. Restructuring charges are recorded based on estimated employee terminations, site closure and consolidation plans. Employee severance and benefit costs are accrued under these actions when it is probable that benefits will be paid and the amount is reasonably estimable.

Equity-Based Compensation

Equity-based compensation costs are estimated based on the grant date fair value of the award. Equity-based compensation cost is recognized only for those awards expected to meet the service and performance vesting conditions, on a straight-line basis, over the requisite service period of the award. Equity-based compensation is estimated based on the aggregate grant for service-based awards and at the individual vesting tranche for awards with performance and/or market conditions. Forfeiture estimates are based on historical experience.

Recent Accounting Pronouncements

Standards Recently Adopted

In January 2017, the Financial Accounting Standards ("FASB") simplified the goodwill impairment test by eliminating its second step. Pursuant to the simplified test, an entity performs its annual or interim goodwill impairment test by comparing the fair value of a reporting unit with its carrying amount. An impairment charge is recognized for the amount by which the carrying amount exceeds the reporting unit's fair value. The Company elected to early adopt the simplified test. Application of this guidance on January 1, 2017 did not have an effect on the Consolidated Financial Statements.

In March 2016, the FASB simplified certain areas of accounting for stock-based compensation, including accounting for the income tax consequences of stock-based compensation, determining the classification of awards as either equity or liabilities, presenting certain items within the statement of cash flows and introducing an accounting policy election to account for forfeitures of nonvested awards as they occur. Application of this guidance on January 1, 2017 increased the Company's deferred tax assets and the related valuation allowance by $70.1 million, resulting in no material effect on the Consolidated Financial Statements. On adoption, the Company did not change its accounting policy of estimating forfeitures for nonvested awards subject to service conditions.

In March 2016, the FASB clarified the assessment of whether contingent options that can accelerate the payment of principal on debt instruments requires bifurcation as an embedded derivative. The amendments require a contingent option embedded in a debt instrument to be evaluated for possible separate accounting as a derivative instrument without regard to the nature of the exercise contingency. Application of the clarified guidance on January 1, 2017 did not have an effect on the Consolidated Financial Statements.

In July 2015, the FASB changed the measurement principle for inventory from the lower of cost or market to the lower of cost and net realizable value for entities that do not use the last-in, first-out ("LIFO") or retail inventory method. The changes also eliminated the requirement to consider replacement cost or net realizable value less an approximately normal profit margin when measuring inventory for entities that do not use the LIFO or retail inventory method. Application of the changed measurement principle for inventory on January 1, 2017 did not have an effect on the Consolidated Financial Statements.

Standards Pending Adoption

In March 2017, the FASB shortened the amortization period for certain investments in callable debt securities held at a premium to the earliest call date. Application of the shortened amortization period is effective for the Company in the first quarter of 2019 on a modified retrospective basis, with early application permitted. The Company does not expect application of the shortened amortization period to have a material effect on its Consolidated Financial Statements.

In January 2017, the FASB clarified the definition of a business. The clarified guidance provides a more defined framework to use in determining when a set of assets and activities constitute a business. The clarified definition is effective for the Company in the first quarter of 2018 on a prospective basis, with early application permitted. The Company does not expect application of the clarified definition of a business to have a material effect on its Consolidated Financial Statements.

In October 2016, the FASB amended its guidance on the tax effects of intra-entity transfers of assets other than inventory. The amended guidance requires an entity to recognize the income tax consequences of an intra-entity transfer of an asset other than inventory when the transfer occurs. The amendments are effective for the Company in the first quarter of 2018 and is required to be applied on a modified retrospective basis. Early application is permitted. The Company does not expect application of the amended guidance to have a material effect on its Consolidated Financial Statements.

In August 2016, the FASB issued clarifying guidance on the presentation of eight specific cash flow issues for which previous guidance was either unclear or not specific. The clarified guidance is effective for the Company in the first quarter of 2018 and is required to be applied on a retrospective basis. Early application is permitted. The Company does not expect application of the clarified guidance to have a material effect on its Consolidated Financial Statements.

In June 2016, the FASB issued updated guidance that requires entities to use a current expected credit loss model to measure credit-related impairments for financial instruments held at amortized cost. The current expected credit loss model is based on relevant information about past events, including historical experience, current conditions and reasonable and supportable forecasts that affect collectibility. Current expected credit losses, and subsequent adjustments, represent an estimate of lifetime expected credit losses that are recorded as an allowance deducted from the amortized cost basis of the financial instrument. The updated guidance also amends the current other-than-temporary impairment model for available-for-sale debt securities by requiring the recognition of impairments for credit-related losses through an allowance and eliminating the length of time a security has been in an unrealized loss position as a consideration in the determination of whether a credit loss exists. The guidance is effective for the Company in the first quarter of 2020, and is effective using a modified retrospective approach for application of the current expected credit loss model to financial instruments and a prospective approach for credit losses on available-for-sale debt securities. Early application is permitted. The Company is evaluating the effect of application on its Consolidated Financial Statements.

In March 2016, the FASB provided guidance on the derecognition of prepaid stored-value product liabilities, such as gift cards. The guidance is effective for the Company in the first quarter of 2018 and may be applied using a full retrospective or modified retrospective approach, with early adoption permitted. On adoption, the Company expects to record a cumulative effect adjustment, net of tax effects, of less than $3.0 million to reduce Accumulated deficit for prepaid stored-value product liabilities that meet the criteria for derecognition.

In February 2016, the FASB issued a new accounting standard for leases. The new standard generally requires the recognition of financing and operating lease liabilities and corresponding right-of-use assets on the balance sheet. For financing leases, a lessee recognizes amortization of the right-of-use asset as an operating expense over the lease term separately from interest on the lease liability. For operating leases, a lessee recognizes its total lease expense as an operating expense over the lease term. The amendments are effective for the Company in the first quarter of 2019 using a modified retrospective approach, with early application permitted. The Company is evaluating the effect of application on its Consolidated Financial Statements and expects to recognize its existing operating lease commitments as operating lease liabilities and right-of-use assets.

In May 2014, the FASB issued an amended accounting standard for revenue recognition. The amendments address how revenue is recognized in order to improve comparability between the financial statements of companies applying U.S. GAAP and International Financial Reporting Standards. The core principle of the amended revenue standard is for an entity to recognize revenue to depict the transfer of promised goods or services to customers in amounts that reflect the consideration to which the entity expects to be entitled in exchange for those goods or services. In addition, the FASB amended its guidance related to the capitalization and amortization of the incremental costs of obtaining a contract with a customer. The amendments also require enhanced disclosures about the nature, amount, timing and uncertainty of revenue and cash flows arising from an entity’s contracts with customers. The Company expects to initially apply the amendments in the first quarter of 2018 using the modified retrospective transition approach.

On adoption, the Company expects to record a cumulative effect adjustment, net of tax effects, of less than $15.0 million to reduce Accumulated deficit to apply the provisions of the amended revenue recognition standard. The cumulative effect adjustment arises from the following areas:

- For accounting purposes, the Company expects to separate its long-term fixed-fee license agreements into two categories: (i) those agreements that provide rights, over the term of the license, to future technologies that are highly interdependent or highly interrelated to the technologies provided at the inception of the agreement and (ii) those agreements that do not provide for rights to such future technologies. Under current revenue recognition guidance, after the fair value allocation between the past and future components of these agreements, the Company recognizes the future components of revenue from fixed-fee license agreements on a straight-line basis over the term of the related license agreement. On adoption of the amended accounting standard for revenue recognition, the Company expects to continue to recognize revenue from long-term fixed-fee license agreements that provide rights, over the term of the license, to future technologies that are highly interdependent or highly interrelated to the technologies provided at the inception of the agreement as a single performance obligation on a straight-line basis over the term of the related license agreement. Except for one TiVo Solutions license agreement that was signed prior to the TiVo Acquisition Date, the Company's long-term fixed-fee license agreements are expected to be accounted for as single performance obligations.
- The amended accounting standard for revenue recognition requires the recognition of revenue from per-unit royalty licenses in the period in which the licensee's sales are estimated to have occurred, which results in an adjustment to revenue when actual amounts are subsequently reported by certain CE manufacturers and third party IPG providers. In accordance with existing U.S. GAAP, the Company currently recognizes revenue from these licenses in the period the licensee reports its sales, which is generally in the quarter after the underlying sales by the licensee occurred.
- The Company sells TiVo-enabled DVRs and the related service directly to customers through bundled sales programs via the TiVo website. The Company currently allocates the transaction price for these sales between the DVR and the TiVo service based on their relative fair values. In accordance with existing U.S. GAAP, revenue allocated to the DVR is recognized on delivery, up to an amount not contingent on future service delivery, and revenue allocated to the service is recognized ratably over the service period. The amended accounting standard for revenue recognition eliminates the limitation on recognizing the revenue allocated to the DVR to the amount not contingent on future service delivery. As a result, following adoption, the Company expects to recognize the full amount of revenue allocated to the DVR at the time of delivery.
- The amended accounting standard for revenue recognition eliminates the concept of vendor-specific objective evidence ("VSOE") of fair value. Under current industry-specific software revenue recognition guidance, when the Company concluded it did not have VSOE of fair value for the undelivered elements of an arrangement, revenue for the undelivered elements was deferred. The amended accounting standard for revenue recognition requires an evaluation of whether the undelivered elements are distinct performance obligations and, therefore, should each be recognized separately when delivered.
- The amended accounting standard for revenue recognition includes specific guidance for contract modifications. Based on the nature of the modification, the accounting may be updated with a cumulative adjustment to revenue on the execution of the modification or updated prospectively as a result of the modification. For certain contract modifications, the accounting treatment is expected to differ under the amended accounting standard for revenue recognition from the accounting treatment in accordance with existing U.S GAAP.
- Some deferred revenue recognized in accordance with existing U.S. GAAP is expected to be eliminated as part of the effect of adoption. The elimination of deferred revenue on adoption is primarily related to TiVo Solutions' long-term fixed-fee intellectual property license where the performance obligation is satisfied at inception of the license and the other items described above.
- In accordance with existing U.S. GAAP, the Company's cost deferrals related to obtaining a contract have been minimal; however, under the amended cost capitalization requirements, the deferral of incremental costs to obtain a contract with a customer are expected to be more significant. Any incremental costs to obtain a contract with a customer that are capitalized would be amortized over a period of time commensurate with the period of benefit, which may exceed the contract term, and would be subject to periodic impairment reviews.

(2) Acquisitions

TiVo Acquisition

On September 7, 2016, Rovi completed its acquisition of TiVo Solutions, a global leader in next-generation video technology and innovative cloud-based software-as-a-service solutions. On the TiVo Acquisition Date, each issued and outstanding share of TiVo Solutions common stock (other than shares of TiVo Solutions common stock held by those TiVo Solutions stockholders who had properly demanded and not waived or withdrawn appraisal rights under Delaware law as further discussed below) automatically converted into the right to receive $2.75 per share in cash and 0.3853 (the “Exchange Ratio”) validly issued, fully paid and non-assessable shares of TiVo Corporation common stock.

On the TiVo Acquisition Date, (i) each issued and outstanding share of Rovi common stock was converted into one fully paid and non-assessable share of TiVo Corporation common stock and (ii) each Rovi Stock Option, Rovi Restricted Stock Award and Rovi RSU (each as defined in the Merger Agreement) was assumed by TiVo Corporation and automatically converted into a TiVo Corporation Stock Option, TiVo Corporation Restricted Stock Award and TiVo Corporation RSU (each as defined in the Merger Agreement), respectively, on substantially the same terms and conditions as applied to such Rovi Stock Option, Rovi Restricted Stock Award and Rovi RSU.

In addition, each TiVo Solutions Stock Option, TiVo Solutions Restricted Stock Award and TiVo Solutions RSU (each as defined in the Merger Agreement) that was outstanding and held by a continuing employee or consultant (and excluding non-employee directors of TiVo Solutions) was assumed by TiVo Corporation and automatically converted into a TiVo Corporation Stock Option, TiVo Corporation Restricted Stock Award and TiVo Corporation RSU (each as defined in the Merger Agreement), respectively, each on substantially the same terms and conditions as applied to such TiVo Solutions Stock Option, TiVo Solutions Restricted Stock Award and TiVo Solutions RSU (but, taking into account any changes thereto provided for in the TiVo Stock Plans (as defined in the Merger Agreement) in any award agreement or in any such TiVo Solutions Stock Option, TiVo Solutions Restricted Stock Award or TiVo Solutions RSU, as applicable, by reason of the Merger Agreement or the transactions contemplated thereby). As the employee restricted stock awards, stock options and performance-based restricted stock awards remained outstanding after the TiVo Acquisition Date, employee holders were not eligible for the cash component of the merger consideration and the number of TiVo Corporation restricted stock awards or stock options delivered at the TiVo Acquisition Date was based on an exchange ratio of 0.5186.

TiVo Solutions' results of operations and cash flows have been included in the Consolidated Financial Statements for periods subsequent to September 7, 2016. For the year ended December 31, 2017, TiVo Corporation's results include revenue and operating income from TiVo Solutions of $365.8 million and $12.3 million, respectively. For the year ended December 31, 2016, TiVo Corporation's results include revenue and operating loss from TiVo Solutions of $147.4 million and $2.8 million, respectively.

Purchase Price

The aggregate merger consideration was (in thousands):

Aggregate cash consideration	$	269,990
Aggregate fair value of TiVo Corporation shares issued		758,115
Accrual for merger consideration		78,981
Fair value of assumed TiVo Solutions employee equity-based awards allocated to consideration		22,640
Total merger consideration	$	1,129,726

The cash portion of the merger consideration was funded with cash on hand of the combined company. The calculations above use a value for shares of TiVo Corporation common stock issued in the TiVo Acquisition based on a Rovi stock price of $22.42 per share at the close of trading on September 7, 2016. In connection with the TiVo Acquisition, 33.5 million shares of TiVo Corporation common stock were issued to TiVo Solutions stockholders on the TiVo Acquisition Date.

In November 2016, holders of 9.1 million shares of TiVo Solutions common stock outstanding at the TiVo Acquisition Date who did not vote to approve the TiVo Acquisition filed a petition for appraisal ("Dissenting Holders", and the shares held by such Dissenting Holders, the "Dissenting Shares") in the Delaware Court of Chancery. See Note 10 for additional information about the claims asserted by the Dissenting Holders.

The $79.0 million accrual for merger consideration included in the aggregate merger consideration was based on 9.1 million Dissenting Shares assuming a right to receive 0.3853 shares of TiVo Corporation common stock, or 3.5 million shares of TiVo Corporation common stock. In addition, on the TiVo Acquisition Date, TiVo Corporation paid the cash portion of the merger consideration related to the Dissenting Shares, which was $2.75 per share, to an account held by the exchange agent in the TiVo Acquisition. As of December 31, 2016, the exchange agent in the TiVo Acquisition was holding $25.3 million in cash, substantially all of which related to the Dissenting Holders. The accrued merger consideration was presented in Accounts payable and accrued expenses on the Consolidated Balance Sheets as of December 31, 2016.

On March 27, 2017, TiVo Corporation agreed to settle the claims of the Dissenting Holders for $117.0 million, which was paid in cash in April 2017. In connection with the settlement, in March 2017, the exchange agent in the TiVo Acquisition returned $25.1 million in cash related to the Dissenting Holders to TiVo Corporation. As the amount paid to Dissenting Holders resulted from a settlement other than a judgment from the Delaware Court of Chancery, a TiVo Acquisition litigation loss of $12.9 million was recognized in the Consolidated Statements of Operations for the year ended December 31, 2017. The TiVo Acquisition litigation loss includes the settlement amount in excess of the amount due to the Dissenting Holders as merger consideration as well as a $1.1 million loss related to a separate TiVo Acquisition litigation matter.

A portion of the purchase price has been attributed to the substitution of TiVo Solutions' equity-based awards outstanding as of TiVo Acquisition Date for corresponding TiVo Corporation equity-based awards. The fair value of TiVo Solutions' equity-based awards assumed in connection with the TiVo Acquisition was allocated between pre-acquisition service and post-acquisition service based on the proportion of service rendered from the grant date to the TiVo Acquisition Date compared to the total vesting period. Equity-based compensation allocated to pre-acquisition service was included as part of the merger consideration paid for TiVo Solutions. Equity-based compensation allocated to post-acquisition service will be expensed as future service is rendered. The fair value of TiVo Solutions' restricted stock was estimated at the TiVo Acquisition Date using the closing price of Rovi's common stock on the TiVo Acquisition Date. The fair value of TiVo Solutions' stock options was estimated at the TiVo Acquisition Date using the Black-Scholes-Merton option-pricing formula, assuming a weighted-average expected volatility of 31.7%, a weighted-average expected term of nine months, a weighted-average risk-free interest rate of 0.5% and a weighted-average expected dividend yield of 0.0%. The fair value of TiVo Corporation's stock options was estimated at the TiVo Acquisition Date using the Black-Scholes-Merton option-pricing formula, assuming a weighted-average expected volatility of 46.5%, a weighted-average expected term of nine months, a weighted-average risk-free interest rate of 0.5% and a weighted-average expected dividend yield of 0%. The fair value of TiVo Solutions' performance-based awards was estimated at the TiVo Acquisition Date using a Monte-Carlo simulation, assuming a weighted-average expected volatility of 37.5%, a weighted-average expected term of 2.4 years, a weighted-average risk-free interest rate of 0.8% and an expected dividend yield of 0.0%.

Final Purchase Price Allocation

The Consolidated Financial Statements have been prepared using the acquisition method of accounting under U.S. GAAP with Rovi treated as the acquirer of TiVo Solutions for accounting purposes. Under the acquisition method of accounting, the purchase consideration delivered by TiVo Corporation to complete the TiVo Acquisition was allocated to the assets acquired and liabilities assumed generally based on their fair value at the TiVo Acquisition Date. TiVo Corporation has made significant estimates and assumptions in determining the fair value of the assets acquired and liabilities assumed based on discussions with TiVo Solutions’ management and TiVo Corporation’s informed insights into the industries in which TiVo Solutions competes.

The following table summarizes the purchase price allocation, including measurement period adjustments recognized subsequent to the initial purchase price allocation through the end of the measurement period (in thousands):

	Preliminary Purchase Price Allocation	2016 Measurement Period Adjustments	December 31, 2016	2017 Measurement Period Adjustments	Final Purchase Price Allocation
Cash, cash equivalents and marketable securities	$ 503,408	$ —	$ 503,408	$ —	$ 503,408
Accounts receivable	48,766	(169)	48,597	—	48,597
Inventory	15,003	—	15,003	—	15,003
Prepaid expenses and other current assets and other long-term assets	25,976	(67)	25,909	2	25,911
Property and equipment	10,370	(626)	9,744	—	9,744
Intangible assets:					
Developed technology and patents	154,000	—	154,000	—	154,000
Existing contracts and customer relationships	355,000	—	355,000	—	355,000
Trademarks / Tradenames	14,000	—	14,000	—	14,000
Goodwill	464,111	4,219	468,330	932	469,262
Accounts payable and accrued expenses and other long-term liabilities	(74,736)	1,280	(73,456)	(1,175)	(74,631)
Deferred revenue	(63,428)	(76)	(63,504)	—	(63,504)
Current portion of long-term debt	(230,000)	—	(230,000)	—	(230,000)
Deferred tax liabilities, net	(92,744)	(4,561)	(97,305)	241	(97,064)
Total merger consideration	$ 1,129,726	$ —	$ 1,129,726	$ —	$ 1,129,726

If the measurement period adjustments had been recognized as of the TiVo Acquisition Date, their effect on Net (loss) income for the years ended December 31, 2017 and 2016 would have been immaterial.

Valuation Techniques

The fair values of assets acquired and liabilities assumed were preliminarily determined using the income, cost and market approaches. Generally, no fair value adjustments were reflected for current assets and current liabilities as TiVo Solutions' carrying amount was estimated to approximate fair value because of the short-term nature of the items.

The fair value of marketable securities was estimated using observable market-corroborated inputs, such as quoted prices in active markets for similar assets or independent pricing vendors, obtained from a third party pricing service and would be presented in Level 2 of the fair value hierarchy, which is described in Note 6.

The fair value of intangible assets was primarily based on third-party valuations using assumptions developed by management and other information compiled by management including, but not limited to, discounted future expected cash flows. Discounted future expected cash flows are based on significant unobservable inputs and, as a result, the intangible assets acquired would be presented in Level 3 of the fair value hierarchy.

As part of the acquisition, TiVo Corporation assumed TiVo Solutions' 2.0% Convertible Senior Notes due October 2021 (the "2021 Convertible Notes"). The fair value of the 2021 Convertible Notes assumed in the TiVo Acquisition was measured based on quoted market prices and the 2021 Convertible Notes would be classified in Level 2 of the fair value hierarchy. As the 2021 Convertible Notes were subject to repurchase following the acquisition of TiVo Solutions, fair value approximated par and no debt premium or discount was recorded at the TiVo Acquisition Date.

The fair value of contingent consideration liabilities assumed related to legacy TiVo Solutions acquisitions was estimated utilizing a probability-weighted discounted cash flow analysis based on the terms of the underlying purchase agreement. The contingent consideration liability would be classified in Level 3 of the fair value hierarchy. The significant unobservable inputs used in calculating the fair value of the contingent consideration liability include financial performance scenarios, the probability of achieving those scenarios and the discount rate.

An adjustment was recorded for the deferred tax impact of purchase accounting adjustments primarily related to intangible assets and the 2021 Convertible Notes. The incremental deferred tax liabilities were calculated primarily based on the tax effect of the step-up in book basis of net assets of TiVo Solutions excluding the amount attributable to nondeductible goodwill.

The excess of the purchase consideration over the fair value of assets acquired and liabilities assumed was recognized as goodwill. The goodwill is generated from operational synergies and cost savings TiVo Corporation expects to achieve from the combined operations, as well as the expected benefits from future technologies that do not meet the definition of an identifiable intangible asset and TiVo Solutions' knowledgeable and experienced workforce. See Note 7 for the allocation of goodwill to the reportable segments. None of the goodwill is expected to be deductible for tax purposes.

Unaudited Pro Forma Information

The following unaudited pro forma financial information (in thousands, except per share amounts) has been adjusted to give effect to the TiVo Acquisition as if it were consummated on January 1, 2015. The unaudited pro forma financial information is presented for informational purposes only. The unaudited pro forma financial information is not intended to represent or be indicative of the results of operations that would have been reported had the TiVo Acquisition occurred on January 1, 2015 and should not be taken as representative of future results of operations of the combined company.

	Year Ended December 31,	
	2016	2015
Total Revenues, net	$ 876,705	$ 903,962
Net loss	$ (103,050)	$ (133,457)
Basic loss per share	$ (0.89)	$ (1.13)
Diluted loss per share	$ (0.89)	$ (1.13)

The unaudited pro forma financial information includes material, nonrecurring pro forma adjustments directly attributable to the TiVo Acquisition primarily related to a reduction in revenues and costs to adjust TiVo Solutions' historical deferred revenue amortization and deferred technology cost amortization to fair value, the elimination of intercompany revenue as TiVo Solutions purchased products from Rovi prior to the TiVo Acquisition Date, adjustments to the amortization of intangible assets, adjustments for direct and incremental acquisition-related costs and the related tax effects, as well as Rovi's deferred tax asset valuation allowance release as a result of the TiVo Acquisition reflected in the historical financial statements. The unaudited pro forma financial information does not include any cost saving synergies from operating efficiencies or the effect of incremental costs incurred from integrating the companies.

(3) Discontinued Operations and Assets Held for Sale

DivX and MainConcept

During the fourth quarter of 2013, the Company determined it would pursue selling its DivX and MainConcept businesses. DivX and MainConcept were providers of high-quality video compression-decompression software and a software library that enabled the distribution of content across the internet and through recordable media, in either physical or streamed forms. On March 31, 2014, the Company sold its DivX and MainConcept businesses for $52.5 million in cash, plus up to $22.5 million in additional payments based on the achievement of certain revenue milestones over the three years following the sale. In the three years following the sale of DivX and MainConcept, no additional payments were received as the revenue milestones were not satisfied.

The Loss from discontinued operations, net of tax for the year ended December 31, 2016 is due to a settlement with Dolby Laboratories, Inc. ("Dolby") related to unpaid royalties from Rovi's Roxio, DivX and MainConcept businesses ("Legacy Sonic Businesses"). See Note 10 for additional information.

(4) Financial Statement Details

Accounts receivable, net (in thousands):

	December 31, 2017	December 31, 2016
Accounts receivable, gross	$ 183,343	$ 149,105
Less: Allowance for doubtful accounts	(2,575)	(1,963)
Accounts receivable, net	$ 180,768	$ 147,142

Allowance for doubtful accounts (in thousands):

	Year Ended December 31,		
	2017	2016	2015
Balance at beginning of period	$ (1,963)	$ (1,607)	$ (1,135)
Provision for bad debt	1,726	(226)	(600)
Deductions, net	(2,338)	(130)	128
Balance at end of period	$ (2,575)	$ (1,963)	$ (1,607)

Inventory (in thousands):

	December 31, 2017	December 31, 2016
Raw materials	$ 1,846	$ 1,595
Finished goods	9,735	11,591
Inventory	$ 11,581	$ 13,186

Property and equipment, net (in thousands):

	December 31, 2017	December 31, 2016
Computer software and equipment	$ 160,450	$ 136,776
Leasehold improvements	34,629	26,201
Furniture and fixtures	9,137	6,627
Property and equipment, gross	204,216	169,604
Less: Accumulated depreciation and amortization	(148,972)	(121,232)
Property and equipment, net	$ 55,244	$ 48,372

Accounts payable and accrued expenses (in thousands):

	December 31, 2017	December 31, 2016
Accounts payable	$ 10,517	$ 29,218
Accrued compensation and benefits	47,886	54,571
Accrual for merger consideration	—	78,981
Other accrued liabilities	77,449	63,681
Accounts payable and accrued expenses	$ 135,852	$ 226,451

Interest income and other, net (in thousands):

	Year Ended December 31,		
	2017	2016	2015
Interest income	$ 3,122	$ 2,326	$ 1,462
Foreign currency loss	(1,574)	(72)	(379)
Equity method (loss) income	(451)	(454)	(464)
Other income (expense), net	1,818	(112)	97
Interest income and other, net	$ 2,915	$ 1,688	$ 716

Supplemental cash flow information (in thousands):

	Year Ended December 31,		
	2017	2016	2015
Cash paid during the period for:			
Income taxes, net of refunds	$ 17,660	$ 27,468	$ 14,335
Interest	$ 26,567	$ 30,281	$ 33,797
Significant noncash transactions			
Fair value of shares issued in connection with TiVo Acquisition	$ 536	$ 758,115	$ —

(5) Investments

The amortized cost and fair value of cash, cash equivalents and marketable securities by significant investment category were as follows (in thousands):

	December 31, 2017			
	Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value
Cash	$ 38,996	$ —	$ —	$ 38,996
Cash equivalents - Money market funds	89,969	—	—	89,969
Cash and cash equivalents	$ 128,965	$ —	$ —	$ 128,965
Auction rate securities	$ 10,800	$ —	$ (216)	$ 10,584
Corporate debt securities	102,794	—	(397)	102,397
Foreign government obligations	2,249	—	(4)	2,245
U.S. Treasuries / Agencies	108,781	—	(430)	108,351
Marketable securities	$ 224,624	$ —	$ (1,047)	$ 223,577
Cash, cash equivalents and marketable securities				$ 352,542

	December 31, 2016			
	Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value
Cash	$ 50,969	$ —	$ —	$ 50,969
Cash equivalents - Money market funds	141,658	—	—	141,658
Cash and cash equivalents	$ 192,627	$ —	$ —	$ 192,627
Auction rate securities	$ 10,800	$ —	$ (432)	$ 10,368
Corporate debt securities	106,128	8	(215)	105,921
Foreign government obligations	2,246	—	(8)	2,238
U.S. Treasuries / Agencies	127,734	14	(262)	127,486
Marketable securities	$ 246,908	$ 22	$ (917)	$ 246,013
Cash, cash equivalents and marketable securities				$ 438,640

The fair value and gross unrealized losses related to available-for-sale securities, aggregated by investment category and length of time that individual securities have been in a continuous unrealized loss position were as follows (in thousands):

	December 31, 2017					
	Less than 12 Months		12 Months or Longer		Total	
Description of Securities	Fair Value	Unrealized Losses	Fair Value	Unrealized Losses	Fair Value	Unrealized Losses
Auction rate securities	$ —	$ —	$ 10,584	$ (216)	$ 10,584	$ (216)
Corporate debt securities	75,922	(362)	18,484	(35)	94,406	(397)
Foreign government obligations	—	—	2,245	(4)	2,245	(4)
U.S. Treasuries / Agencies	44,968	(184)	63,383	(246)	108,351	(430)
Marketable securities	$ 120,890	$ (546)	$ 94,696	$ (501)	$ 215,586	$ (1,047)

	December 31, 2016					
	Less than 12 Months		12 Months or Longer		Total	
Description of Securities	Fair Value	Unrealized Losses	Fair Value	Unrealized Losses	Fair Value	Unrealized Losses
Auction rate securities	$ —	$ —	$ 10,368	$ (432)	$ 10,368	$ (432)
Corporate debt securities	74,173	(193)	12,278	(22)	86,451	(215)
Foreign government obligations	2,238	(8)	—	—	2,238	(8)
U.S. Treasuries / Agencies	109,657	(244)	2,222	(18)	111,879	(262)
Marketable securities	$ 186,068	$ (445)	$ 24,868	$ (472)	$ 210,936	$ (917)

The Company sold its auction rate securities in January 2018 and realized an immaterial loss.

As of December 31, 2017, the amortized cost and fair value of marketable securities, by contractual maturity, were as follows (in thousands):

	Amortized Cost	Fair Value
Due in less than 1 year	$ 141,274	$ 140,866
Due in 1-2 years	72,550	72,127
Due in more than 2 years	10,800	10,584
Total	$ 224,624	$ 223,577

As of December 31, 2017 and December 31, 2016, non-marketable equity securities accounted for under the equity method had a carrying amount of $1.1 million and $1.6 million, respectively, and non-marketable equity securities accounted for under the cost method had a carrying amount of $1.5 million and $2.7 million, respectively. We periodically review our non-marketable equity securities for potential impairment. For the year ended December 31, 2017, an other-than-temporary impairment loss of $1.2 million was recognized on non-marketable equity securities. No impairments were recognized for the years ended December 31, 2016 and 2015 on non-marketable equity securities.

(6) Fair Value Measurements

Fair Value Hierarchy

The Company uses valuation techniques that are based on observable and unobservable inputs to measure fair value. Observable inputs are developed using publicly available information and reflect the assumptions market participants would use, while unobservable inputs are developed using the best information available about the assumptions market participants would use. Fair value measurements are classified in a hierarchy that gives the highest priority to observable inputs and the lowest priority to unobservable inputs. Assets and liabilities are classified in the fair value hierarchy based on the lowest level input that is significant to the fair value measurement in its entirety:

- *Level 1.* Quoted prices in active markets for identical assets or liabilities.
- *Level 2.* Inputs other than Level 1 inputs that are observable for the asset or liability, either directly or indirectly, such as quoted prices for similar assets or liabilities in active markets, quoted prices for identical or similar assets or liabilities in markets that are not active, or market-corroborated inputs.
- *Level 3.* Unobservable inputs for the asset or liability.

Recurring Fair Value Measurements

Assets and liabilities reported at fair value on a recurring basis in the Consolidated Balance Sheets were classified in the fair value hierarchy as follows (in thousands):

	December 31, 2017			
	Total	Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Assets				
Cash and cash equivalents				
Money market funds	$ 89,969	$ 89,969	$ —	$ —
Short-term marketable securities				
Corporate debt securities	49,396	—	49,396	—
Foreign government obligations	2,245	—	2,245	—
U.S. Treasuries / Agencies	89,225	—	89,225	—
Long-term marketable securities				
Auction rate securities	10,584	—	—	10,584
Corporate debt securities	53,001	—	53,001	—
U.S. Treasuries / Agencies	19,126	—	19,126	—
Total Assets	$ 313,546	$ 89,969	$ 212,993	$ 10,584
Liabilities				
Accounts payable and accrued expenses				
Cubiware contingent consideration	$ (2,234)	$ —	$ —	$ (2,234)
Other long-term liabilities				
Interest rate swaps	(9,735)	—	(9,735)	—
Total Liabilities	$ (11,969)	$ —	$ (9,735)	$ (2,234)

	December 31, 2016			
	Total	Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Assets				
Cash and cash equivalents				
Money market funds	$ 141,658	$ 141,658	$ —	$ —
Short-term marketable securities				
Corporate debt securities	76,568	—	76,568	—
U.S. Treasuries / Agencies	40,516	—	40,516	—
Long-term marketable securities				
Auction rate securities	10,368	—	—	10,368
Corporate debt securities	29,353	—	29,353	—
Foreign government obligations	2,238	—	2,238	—
U.S. Treasuries / Agencies	86,970	—	86,970	—
Total Assets	$ 387,671	$ 141,658	$ 235,645	$ 10,368
Liabilities				
Accounts payable and accrued expenses				
Cubiware contingent consideration	$ (1,988)	$ —	$ —	$ (1,988)
Interest rate swaps	(648)	—	(648)	—
Other long-term liabilities				
Cubiware contingent consideration	(3,285)	—	—	(3,285)
Interest rate swaps	(19,303)	—	(19,303)	—
Total Liabilities	$ (25,224)	$ —	$ (19,951)	$ (5,273)

The Company recognizes transfers between levels of the fair value hierarchy at the end of the reporting period. For the years ended December 31, 2017, 2016 and 2015, there were no transfers between levels of the fair value hierarchy.

Changes in the fair value of assets and liabilities classified in Level 3 of the fair value hierarchy were as follows (in thousands):

	Year Ended December 31,						
	2017		2016		2015		
	Auction Rate Securities	Cubiware Contingent Consideration	Auction Rate Securities	Cubiware Contingent Consideration	Auction Rate Securities	IntegralReach Contingent Consideration	Veveo Contingent Consideration
Balance at beginning of period	$ 10,368	$ (5,273)	$ 10,260	$ —	$ 10,638	$ (3,000)	$ (3,000)
Assumed in TiVo Acquisition	—	—	—	(6,548)	—	—	—
Settlements	—	2,650	—	—	—	3,000	2,140
Gain included in earnings	—	389	—	1,275	—	—	860
Unrealized gains (losses) included in other comprehensive income	216	—	108	—	(378)	—	—
Balance at end of period	$ 10,584	$ (2,234)	$ 10,368	$ (5,273)	$ 10,260	$ —	$ —

For the year ended December 31, 2017, the Gain included in earnings related to the Cubiware contingent consideration liability is included in Selling, general and administrative expense as a $1.0 million gain related to remeasurement of the liability offset in part by $0.6 million of Interest expense related to accretion of the liability to future value. The Gain included

in earnings related to the Cubiware contingent consideration liability for the year ended December 31, 2016 is included in Selling, general and administrative expense as a $1.6 million gain related to remeasurement of the Cubiware contingent consideration offset in part by $0.3 million of Interest expense related to accretion of the liability to future value. The Gain included in earnings related to remeasurement of the Veveo Contingent Consideration liability for the year ended December 31, 2015 is included in Selling, general and administrative expense.

Non-recurring Fair Value Measurements

In May 2017, TiVo Corporation vacated a portion of a leased facility as part of its ongoing TiVo Integration Restructuring Plan (as described in Note 8) resulting in a $6.7 million loss on the impairment of certain property and equipment, principally leasehold improvements. The fair value of the impaired assets was estimated using a discounted cash flow analysis that incorporated among other items, the timing and amount of expected future cash flows associated with the assets, income tax rates and economic and market conditions, as well as a risk adjusted discount rate. The fair value of the impaired assets would be classified in Level 2 of the fair value hierarchy.

Valuation Techniques

The fair value of marketable securities, other than auction rate securities, is estimated using observable market-corroborated inputs, such as quoted prices in active markets for similar assets or independent pricing vendors, obtained from a third-party pricing service.

The fair value of auction rate securities is estimated using a discounted cash flow analysis or other type of valuation model. These estimates are highly judgmental and incorporate, among other items, the likelihood of redemption, credit and liquidity spreads, duration, interest rates and the timing and amount of expected future cash flows. These securities are also compared, when possible, to other observable data for securities with characteristics similar to the securities held by the Company.

The fair value of contingent consideration liabilities related to acquisitions is estimated utilizing a probability-weighted discounted cash flow analysis based on the terms of the underlying purchase agreement. The significant unobservable inputs used in calculating the fair value of contingent consideration liabilities related to acquisitions include financial performance scenarios, the probability of achieving those scenarios and the risk adjusted discount rate.

The fair value of interest rate swaps is estimated using a discounted cash flow analysis that considers the expected future cash flows of each interest rate swap. This analysis reflects the contractual terms of the interest rate swap, including the remaining period to maturity, and uses market-corroborated inputs, including forward interest rate curves and implied interest rate volatilities. The fair value of an interest rate swap is estimated by netting the discounted future fixed cash payments against the discounted expected variable cash receipts. The variable cash receipts are estimated based on an expectation of future interest rates derived from forward interest rate curves. The fair value of an interest rate swap also incorporates credit valuation adjustments to reflect the nonperformance risk of the Company and the respective counterparty. In adjusting the fair value of its interest rate swaps for the effect of nonperformance risk, the Company considers the effect of its master netting agreements.

Other Fair Value Disclosures

The carrying amount and fair value of debt issued or assumed by the Company were as follows (in thousands):

	December 31, 2017		December 31, 2016	
	Carrying Amount	**Fair Value (1)**	**Carrying Amount**	**Fair Value (1)**
2020 Convertible Notes	$ 311,766	$ 326,888	$ 297,646	$ 349,140
2021 Convertible Notes	48	48	48	48
Term Loan Facility B	671,281	679,722	677,038	686,766
Total Long-term debt	$ 983,095	$ 1,006,658	$ 974,732	$ 1,035,954

(1) The fair value of debt issued by the Company is estimated using quoted prices for the identical instrument in a market that is not active and considers interest rates currently available to companies of similar credit standing for similar terms and remaining maturities and considers the nonperformance risk of the Company. If reported at fair value in the Consolidated Balance Sheets, debt issued or assumed by the Company would be classified in Level 2 of the fair value hierarchy.

(7) Goodwill and Intangible Assets, Net

Goodwill

Goodwill allocated to the reportable segments and changes in the carrying amount of goodwill were as follows (in thousands):

	Intellectual Property Licensing	Product	Total
December 31, 2015	$ 1,184,500	$ 159,152	$ 1,343,652
TiVo Acquisition	106,620	361,710	468,330
Foreign currency translation	—	136	136
December 31, 2016	1,291,120	520,998	1,812,118
TiVo Acquisition	212	720	932
Foreign currency translation	—	177	177
December 31, 2017	$ 1,291,332	$ 521,895	$ 1,813,227

Goodwill resulting from the TiVo Acquisition was allocated to the Company's reportable segments based on the relative fair value of the TiVo Solutions businesses assigned to the Company's reporting units.

Goodwill at each reporting unit is evaluated for potential impairment annually, as of the beginning of the fourth quarter, and whenever events or changes in circumstances indicate the carrying amount of goodwill may not be recoverable. No goodwill impairment charges have been recognized as a result of an interim or annual impairment test during the years ended December 31, 2017, 2016 and 2015.

Intangible Assets, Net

Intangible assets, net consisted of the following (in thousands):

	December 31, 2017			
	Weighted-Average Remaining Useful Life	Gross	Accumulated Amortization	Net
Finite-lived intangible assets				
Developed technology and patents	4.7 years	$ 1,034,458	$ (676,465)	$ 357,993
Existing contracts and customer relationships	12.0 years	403,244	(139,289)	263,955
Content databases and other	5.2 years	57,053	(49,077)	7,976
Trademarks / Tradenames	N/A	8,300	(8,300)	—
Total finite-lived intangible assets		1,503,055	(873,131)	629,924
Indefinite-lived intangible assets				
TiVo Tradename	N/A	14,000	—	14,000
Total intangible assets		$ 1,517,055	$ (873,131)	$ 643,924

	December 31, 2016		
	Gross	Accumulated Amortization	Net
Finite-lived intangible assets			
Developed technology and patents	$ 1,031,280	$ (586,800)	$ 444,480
Existing contracts and customer relationships	402,143	(64,123)	338,020
Content databases and other	59,390	(49,052)	10,338
Trademarks / Tradenames	8,300	(8,300)	—
Total finite-lived intangible assets	1,501,113	(708,275)	792,838
Indefinite-lived intangible assets			
TiVo Tradename	14,000	—	14,000
Total intangible assets	$ 1,515,113	$ (708,275)	$ 806,838

Patent Acquisitions

In the year ended December 31, 2017, the Company purchased a portfolio of patents for $2.0 million in cash. The Company accounted for the patent portfolio purchase as an asset acquisition and is amortizing the purchase price over a weighted average period of five years.

In the year ended December 31, 2016, the Company purchased a portfolio of patents for $2.5 million in cash. The Company accounted for the patent portfolio purchase as an asset acquisition and is amortizing the purchase price over a weighted average period of five years.

Future Amortization

As of December 31, 2017, future estimated amortization expense for finite-lived intangible assets was as follows (in thousands):

2018	$ 147,282
2019	109,960
2020	109,215
2021	66,445
2022	25,524
Thereafter	171,498
Total	$ 629,924

(8) Restructuring and Asset Impairment Charges

Components of Restructuring and asset impairment charges were as follows (in thousands):

	Year Ended December 31,		
	2017	2016	2015
Facility-related costs	$ 4,465	$ 527	$ 2,337
Severance costs	4,696	10,044	(177)
Share-based payments	2,663	14,951	—
Contract termination costs	4	1,342	—
Asset impairment	7,220	452	—
Restructuring and asset impairment charges	$ 19,048	$ 27,316	$ 2,160

Accrued restructuring costs were as follows (in thousands):

	December 31, 2017	December 31, 2016
Facility-related costs	$ 693	$ 758
Severance costs	584	3,796
Contract termination costs	37	183
Accrued restructuring costs	$ 1,314	$ 4,737

We expect a substantial portion of the Accrued restructuring costs, including those associated with the TiVo Integration Restructuring Plan, to be paid at various dates through the first half of 2018.

TiVo Integration Restructuring Plan

Following completion of the TiVo Acquisition, TiVo Corporation began implementing integration plans intended to realize operational synergies between Rovi and TiVo Solutions (the "TiVo Integration Restructuring Plan"). As a result of these integration plans, TiVo Corporation expects to eliminate duplicative positions resulting in severance costs and the termination of certain leases and other contracts. In May 2017, TiVo Corporation vacated a portion of a leased facility resulting in a $6.7 million loss on the impairment of certain property and equipment, principally leasehold improvements. Restructuring activities related to the TiVo Integration Restructuring Plan were as follows (in thousands):

	December 31, 2017					
	Balance at Beginning of Period	Restructuring Expense	Cash Settlements	Non-Cash Settlements	Other	Balance at End of Period
Facility-related costs	$ 224	$ 3,690	$ (3,486)	$ —	$ (317)	$ 111
Severance costs	3,504	4,850	(7,876)	—	(30)	448
Share-based payments	—	2,663	—	(2,663)	—	—
Contract termination costs	63	4	(67)	—	—	—
Asset impairment	—	7,220	—	(7,220)	—	—
Total	$ 3,791	$ 18,427	$ (11,429)	$ (9,883)	$ (347)	$ 559

	December 31, 2016					
	Balance at Beginning of Period	Restructuring Expense	Cash Settlements	Non-Cash Settlements	Other	Balance at End of Period
Facility-related costs	$ —	$ 277	$ (53)	$ —	$ —	$ 224
Severance costs	—	9,657	(6,153)	—	—	3,504
Share-based payments	—	14,951	—	(14,951)	—	—
Contract termination costs	—	63	—	—	—	63
Total	$ —	$ 24,948	$ (6,206)	$ (14,951)	$ —	$ 3,791

Legacy Rovi Restructuring Plans

In the year ended December 31, 2016, Rovi initiated certain facility rationalization activities (the "Legacy Rovi Restructuring Plans"), including relocating its corporate headquarters from Santa Clara, California to San Carlos, California and consolidating its Silicon Valley operations into the corporate headquarters, and eliminated a number of positions associated with a reorganization of the sales force structure, downsizing the global services workforce and eliminating certain general and administrative positions. As a result of changes in estimates related to sublease rental rates expected to be obtained for vacated facilities, Restructuring and asset impairment charges of $0.8 million and $2.4 million, respectively, were recognized in the years ended December 31, 2017 and 2016 related to the Legacy Rovi Restructuring Plans. As of December 31, 2017, Accrued restructuring costs of $0.7 million are included in the Consolidated Balance Sheets related to the Legacy Rovi Restructuring Plans.

Legacy TiVo Solutions Restructuring Plans

In the year ended December 31, 2016, certain termination benefits were offered by TiVo Solutions in connection with the elimination of a number of positions prior to the TiVo Acquisition Date (the "Legacy TiVo Solutions Restructuring Plans")

expired. As a result of these termination benefits expiring unused, Restructuring and asset impairment charges recognized for the year ended December 31, 2017 were reduced by $0.2 million. As of December 31, 2017, the Legacy TiVo Solutions Restructuring Plans were completed and no Accrued restructuring costs are included in the Consolidated Balance Sheets related to the Legacy TiVo Solutions Restructuring Plans.

(9) Debt and Interest Rate Swaps

A summary of the Company's financing arrangements was as follows (dollars in thousands):

				December 31, 2017		December 31, 2016	
	Stated Interest Rate	Issue Date	Maturity Date	Outstanding Principal	Carrying Amount	Outstanding Principal	Carrying Amount
2020 Convertible Notes	0.500%	March 4, 2015	March 1, 2020	$ 345,000	$ 311,766	$ 345,000	$ 297,646
2021 Convertible Notes	2.000%	September 22, 2014	October 1, 2021	48	48	48	48
Term Loan Facility B	Variable	July 2, 2014	July 2, 2021	675,500	671,281	682,500	677,038
Total Long-term debt				$ 1,020,548	983,095	$ 1,027,548	974,732
Less: Current portion of long-term debt					7,000		7,000
Long-term debt, less current portion					$ 976,095		$ 967,732

2020 Convertible Notes

Rovi issued $345.0 million in aggregate principal of 0.500% Convertible Senior Notes that mature March 1, 2020 (the “2020 Convertible Notes”) at par pursuant to an Indenture dated March 4, 2015 (as supplemented, the "2015 Indenture"). The 2020 Convertible Notes were sold in a private placement and bear interest at an annual rate of 0.500% payable semi-annually in arrears on March 1 and September 1 of each year, commencing September 1, 2015. In connection with the TiVo Acquisition, TiVo Corporation and Rovi entered into a supplemental indenture under which TiVo Corporation became a guarantor of the 2020 Convertible Notes and the notes became convertible into TiVo Corporation common stock.

The 2020 Convertible Notes were convertible at an initial conversion rate of 34.5968 shares of TiVo Corporation common stock per $1,000 of principal of notes, which was equivalent to an initial conversion price of $28.9044 per share of TiVo Corporation common stock. The conversion rate and conversion price are subject to adjustment pursuant to the 2015 Indenture, including as a result of dividends paid by TiVo Corporation. As of December 31, 2017, the 2020 Convertible Notes are convertible at a conversion rate of 36.0271 shares of TiVo Corporation common stock per $1,000 principal of notes, which is equivalent to a conversion price of $27.7569 per share of TiVo Corporation common stock.

Holders may convert the 2020 Convertible Notes, prior to the close of business on the business day immediately preceding December 1, 2019, in multiples of $1,000 of principal under the following circumstances:

- during any calendar quarter commencing after the calendar quarter ending on June 30, 2015 (and only during such calendar quarter), if the last reported sale price of TiVo Corporation's common stock for at least 20 trading days (whether or not consecutive) during the period of 30 consecutive trading days ending on the last trading day of the immediately preceding calendar quarter is greater than or equal to 130% of the conversion price on each applicable trading day;
- during the five business day period after any ten consecutive trading day period in which the trading price per $1,000 of principal of 2020 Convertible Notes for each trading day was less than 98% of the product of the last reported sale price of TiVo Corporation’s common stock and the conversion rate on each such trading day; or
- on the occurrence of specified corporate events.

On or after December 1, 2019 until the close of business on the second scheduled trading day immediately preceding the maturity date, holders may convert the 2020 Convertible Notes, in multiples of $1,000 of principal, at any time.

In addition, during the 35-day trading period following a Merger Event, as defined in the 2015 Indenture, holders may convert the 2020 Convertible Notes, in multiples of $1,000 of principal. The TiVo Acquisition was considered a Merger Event pursuant to the 2015 Indenture. No holders elected to convert their 2020 Convertible Notes during the 35-day trading period following the TiVo Acquisition.

On conversion, a holder will receive the conversion value of the 2020 Convertible Notes converted based on the conversion rate multiplied by the volume-weighted average price of TiVo Corporation's common stock over a specified observation period. On conversion, Rovi will pay cash up to the aggregate principal of the 2020 Convertible Notes converted and deliver shares of TiVo Corporation's common stock in respect of the remainder, if any, of the conversion obligation in excess of the aggregate principal of the 2020 Convertible Notes being converted.

The conversion rate is subject to adjustment in certain events, including certain events that constitute a "Make-Whole Fundamental Change" (as defined in the 2015 Indenture). In addition, if Rovi undergoes a "Fundamental Change" (as defined in the 2015 Indenture) prior to March 1, 2020, holders may require Rovi to repurchase for cash all or a portion of the 2020 Convertible Notes at a repurchase price equal to 100% of the principal of the repurchased 2020 Convertible Notes, plus accrued and unpaid interest. The conversion rate is also subject to customary anti-dilution adjustments.

The 2020 Convertible Notes are not redeemable prior to maturity by Rovi and no sinking fund is provided. The 2020 Convertible Notes are unsecured and do not contain financial covenants or restrictions on the payment of dividends, the incurrence of indebtedness or the repurchase of other securities by Rovi. The 2015 Indenture includes customary terms and covenants, including certain events of default after which the 2020 Convertible Notes may be due and payable immediately.

TiVo Corporation has separately accounted for the liability and equity components of the 2020 Convertible Notes. The initial carrying amount of the liability component was calculated by estimating the value of the 2020 Convertible Notes using TiVo Corporation's estimated non-convertible borrowing rate of 4.75% at the time the instrument was issued. The carrying amount of the equity component, representing the value of the conversion option, was determined by deducting the liability component from the principal of the 2020 Convertible Notes. The difference between the principal of the 2020 Convertible Notes and the liability component is considered a debt discount which is being amortized to interest expense using the effective interest method over the expected term of the 2020 Convertible Notes. The equity component of the 2020 Convertible Notes was recorded as a component of Additional paid-in capital in the Consolidated Balance Sheets and will not be remeasured as long as it continues to meet the conditions for equity classification. Related to the 2020 Convertible Notes, the Consolidated Balance Sheets included the following (in thousands):

	December 31, 2017	December 31, 2016
Liability component		
Principal outstanding	$ 345,000	$ 345,000
Less: Unamortized debt discount	(29,499)	(42,144)
Less: Unamortized debt issuance costs	(3,735)	(5,210)
Carrying amount	$ 311,766	$ 297,646
Equity component	$ 63,854	$ 63,854

Components of interest expense related to the 2020 Convertible Notes included in the Consolidated Statements of Operations were as follows (in thousands):

	Year Ended December 31,		
	2017	2016	2015
Stated interest	$ 1,725	$ 1,725	$ 1,423
Amortization of debt discount	12,645	12,071	9,639
Amortization of debt issuance costs	1,475	1,334	1,020
Total interest expense	$ 15,845	$ 15,130	$ 12,082

Rovi incurred $9.3 million in transaction costs related to the issuance of the 2020 Convertible Notes which were allocated to liability and equity components based on the relative amounts calculated for the 2020 Convertible Notes at the date of issuance. Transaction costs of $7.6 million attributable to the liability component were recorded in Long-term debt, less current portion in the Consolidated Balance Sheets and are being amortized to interest expense using the effective interest method over the expected term of the 2020 Convertible Notes. Transaction costs of $1.7 million attributable to the equity component were recorded as a component of Additional paid-in capital in the Consolidated Balance Sheets.

Purchased Call Options and Sold Warrants related to the 2020 Convertible Notes

Concurrent with the issuance of the 2020 Convertible Notes in 2015, Rovi paid $64.8 million to purchase call options with respect to its common stock. The call options gave TiVo Corporation the right, but not the obligation, to purchase up to 11.9 million shares of TiVo Corporation's common stock at an exercise price of $28.9044 per share, which corresponds to the initial conversion price of the 2020 Convertible Notes, and are exercisable by TiVo Corporation on conversion of the 2020 Convertible Notes. The exercise price is subject to adjustment, including as a result of dividends paid by TiVo Corporation. As of December 31, 2017, the call options give TiVo Corporation the right, but not the obligation, to purchase up to 12.4 million shares of TiVo Corporation's common stock at an exercise price of $27.7569 per share. The call options are intended to reduce the potential dilution from conversion of the 2020 Convertible Notes. The purchased call options are separate transactions from the 2020 Convertible Notes and holders of the 2020 Convertible Notes do not have any rights with respect to the purchased call options.

Concurrent with the issuance of the 2020 Convertible Notes in 2015, Rovi received $31.3 million from the sale of warrants that provide the holder of the warrant the right, but not the obligation, to purchase up to 11.9 million shares of TiVo Corporation common stock at an exercise price of $40.1450 per share. The exercise price is subject to adjustment, including as a result of dividends paid by TiVo Corporation. As of December 31, 2017, 12.2 million warrants were outstanding with an exercise price of $38.5512 per share. The warrants are exercisable beginning June 1, 2020 and can be settled in cash or shares at TiVo Corporation's election. The warrants were entered into to offset the cost of the purchased call options. The warrants are separate transactions from the 2020 Convertible Notes and holders of the 2020 Convertible Notes do not have any rights with respect to the warrants.

The amounts paid to purchase the call options and received to sell the warrants were recorded in Additional paid-in capital in the Consolidated Balance Sheets.

2021 Convertible Notes

TiVo Solutions issued $230.0 million in aggregate principal of 2.0% Convertible Senior Notes that mature October 1, 2021 (the "2021 Convertible Notes") at par pursuant to an Indenture dated September 22, 2014 (as supplemented, "the 2014 Indenture"). The 2021 Convertible Notes bear interest at an annual rate of 2.0%, payable semi-annually in arrears on April 1 and October 1 of each year, commencing April 2015. On October 12, 2016, TiVo Solutions repaid $229.95 million of the par value of the 2021 Convertible Notes.

The 2021 Convertible Notes were convertible at an initial conversion rate of 56.1073 shares of TiVo Solutions common stock per $1,000 principal of notes, which was equivalent to an initial conversion price of $17.8230 per share of TiVo Solutions common stock. Following the TiVo Acquisition, the 2021 Convertible Notes were convertible at a conversion rate of 21.6181 shares of TiVo Corporation common stock per $1,000 principal of notes and $154.30 per $1,000 principal of notes, which was equivalent to a conversion price of $39.12 per share of TiVo Corporation common stock. The conversion rate and conversion price are subject to adjustment pursuant to the 2014 Indenture, including as a result of dividends paid by TiVo Corporation. As of December 31, 2017, the 2021 Convertible Notes are convertible at a conversion rate of 22.5000 shares of TiVo Corporation common stock per $1,000 principal of notes and $154.30 per $1,000 principal of notes, which is equivalent to a conversion price of $37.5867 per share of TiVo Corporation common stock.

TiVo Solutions can settle the 2021 Convertible Notes in cash, shares of common stock, or any combination thereof pursuant to the 2014 Indenture. Subject to certain exceptions, holders may require TiVo Solutions to repurchase, for cash, all or part of their 2021 Convertible Notes upon a “Fundamental Change” (as defined in the 2014 Indenture) at a price equal to 100% of the principal amount of the 2021 Convertible Notes being repurchased plus any accrued and unpaid interest up to, but excluding, the “Fundamental Change Repurchase Date” (as defined in the 2014 Indenture). In addition, on a “Make-Whole Fundamental Change” (as defined in the 2014 Indenture) prior to the maturity date of the 2021 Convertible Notes, TiVo Solutions will, in some cases, increase the conversion rate for a holder that elects to convert its 2021 Convertible Notes in connection with such Make-Whole Fundamental Change.

Purchased Call Options and Sold Warrants related to the 2021 Convertible Notes

In September 2014, counterparties entered into convertible note hedge transactions with TiVo Solutions covering approximately 12.9 million shares of TiVo Solutions’ common stock, in the aggregate, which is the number of shares initially underlying the 2021 Convertible Notes. In connection with the Fundamental Change under the 2021 Convertible Notes, TiVo Solutions and the counterparties agreed to terminate the convertible note hedge transactions early. During the year ended December 31, 2016, TiVo Solutions received $12.1 million from the counterparties to settle the convertible note hedge

transactions.

Concurrent with the purchase of the convertible note hedge transactions, TiVo Solutions sold warrants to purchase up to approximately 12.9 million shares of TiVo Solutions' common stock, in the aggregate, which is the number of shares initially underlying the 2021 Convertible Notes. In connection with the Fundamental Change under the 2021 Convertible Notes, TiVo Solutions and the counterparties agreed to terminate the warrants early. During the year ended December 31, 2016, TiVo Solutions paid $5.8 million to the counterparties to settle the warrants.

Convertible Senior Notes Due 2040

The Company issued $460.0 million in aggregate principal of 2.625% Convertible Senior Notes due in 2040 at par (the "2040 Convertible Notes") pursuant to an Indenture dated March 17, 2010 (the "2010 Indenture"). On February 20, 2015, holders of $287.4 million of outstanding principal exercised their right to require the Company to repurchase their 2040 Convertible Notes for cash. On June 30, 2015, the Company redeemed the remaining $3.6 million of outstanding 2040 Convertible Notes. In connection with these transactions, $0.1 million was recorded as Loss on debt extinguishment in the Consolidated Statements of Operations for the year ended December 31, 2015.

Components of interest expense related to the 2040 Convertible Notes included in the Consolidated Statements of Operations were as follows (in thousands):

	Year Ended December 31,		
	2017	**2016**	**2015**
Stated interest	$ —	$ —	$ 1,114
Amortization of debt discount	—	—	1,865
Amortization of debt issue costs	—	—	242
Total interest expense	$ —	$ —	$ 3,221

Senior Secured Credit Facility

On July 2, 2014, Rovi Corporation, as parent guarantor, and two of its wholly-owned subsidiaries, Rovi Solutions Corporation and Rovi Guides, Inc., as borrowers, and certain of its other subsidiaries, as subsidiary guarantors, entered into a Credit Agreement (the "Credit Agreement"). After the completion of the TiVo Acquisition, TiVo Corporation became a guarantor under the Credit Agreement. The Credit Agreement provided for a (i) five-year $125.0 million term loan A facility ("Term Loan Facility A"), (ii) seven-year $700.0 million term loan B facility ("Term Loan Facility B" and together with Term Loan Facility A, the "Term Loan Facility") and (iii) five-year $175.0 million revolving credit facility (including a letter of credit sub-facility) (the "Revolving Facility" and together with the Term Loan Facility, the "Senior Secured Credit Facility"). In September 2015, Rovi made a voluntary principal prepayment to extinguish Term Loan Facility A and elected to terminate the Revolving Facility.

Prior to the refinancing described below, loans under Term Loan Facility B bore interest, at the Company's option, at a rate equal to either LIBOR, plus an applicable margin equal to 3.00% per annum (subject to a 0.75% LIBOR floor) or the prime lending rate, plus an applicable margin equal to 2.00% per annum.

On January 26, 2017, TiVo Corporation, as parent guarantor, two of its wholly-owned subsidiaries, Rovi Solutions Corporation and Rovi Guides, Inc., as borrowers, and certain of TiVo Corporation's other subsidiaries, as subsidiary guarantors, entered into Refinancing Agreement No. 1 with respect to Term Loan Facility B. The $682.5 million in proceeds from Refinancing Agreement No. 1 was used to repay existing loans under Term Loan Facility B in full. The borrowing terms for Refinancing Agreement No. 1 are substantially similar to the borrowing terms of Term Loan Facility B. However, loans under Refinancing Agreement No. 1 bear interest, at the borrower's option, at a rate equal to either LIBOR, plus an applicable margin equal to 2.50% per annum (subject to a 0.75% LIBOR floor) or the prime lending rate, plus an applicable margin equal to 1.50% per annum. Refinancing Agreement No. 1 requires quarterly principal payments of $1.75 million through June 2021, with any remaining balance payable in July 2021. Refinancing Agreement No. 1 is part of the Senior Secured Credit Facility.

The refinancing of Term Loan Facility B resulted in a Loss on debt extinguishment of $0.1 million and a Loss on debt modification of $0.9 million for the year ended December 31, 2017. Creditors in Term Loan Facility B that elected not to participate in Refinancing Agreement No. 1 were extinguished. Creditors in Term Loan Facility B that elected to participate in Refinancing Agreement No. 1 and for which the present value of future cash flows was not substantially different were accounted for as a debt modification.

In June 2015 and September 2015, the Company made voluntary principal prepayments of $50.0 million and $75.0 million, respectively, on Term Loan Facility A. The September 2015 voluntary principal prepayment extinguished Term Loan Facility A. In February 2015, the Company borrowed $100.0 million against the Revolving Facility, in part, to extinguish a portion of the 2040 Convertible Notes. In March 2015, using a portion of the proceeds from the 2020 Convertible Notes issuance, all outstanding borrowings under the Revolving Facility were repaid. In September 2015, the Revolving Facility was terminated at the Company's election. The voluntary principal prepayments on Term Loan Facility A and the termination of the Revolving Facility resulted in a Loss on debt extinguishment of $2.8 million which was recognized in the Consolidated Statements of Operations for the year ended December 31, 2015 related to the unamortized debt discount and unamortized debt issuance costs.

The Credit Agreement contains customary representations and warranties and customary affirmative and negative covenants applicable to the Company and its subsidiaries, including, among other things, restrictions on indebtedness, liens, investments, mergers, dispositions, prepayment of other indebtedness, and dividends and other distributions. The Credit Agreement is secured by substantially all of the Company's assets. The Company may be required to make an additional payment on the Term Loan Facility each February. This payment is calculated as a percentage of the prior year's "Excess Cash Flow" as defined in the Credit Agreement. No additional payment was required in February 2017.

Debt Maturities

As of December 31, 2017, aggregate expected future principal payments on long-term debt, including the current portion of long-term debt, were as follows (in thousands):

2018	$	7,000
2019 (1)		352,000
2020		7,000
2021		654,548
Total	$	1,020,548

(1) While the 2020 Convertible Notes are scheduled to mature on March 1, 2020, future principal payments are presented based on the date the 2020 Convertible Notes can be freely converted by holders, which is December 1, 2019. However, the 2020 Convertible Notes may be converted by holders prior to December 1, 2019 in certain circumstances.

Interest Rate Swaps

The Company issues long-term debt denominated in U.S. dollars based on market conditions at the time of financing and may enter into interest rate swaps to achieve a primarily fixed interest rate. Alternatively, the Company may choose not to enter into an interest rate swap or may terminate a previously executed interest rate swap if it believes a larger proportion of floating-rate debt would be beneficial. The Company has not designated any of its interest rate swaps as hedges for accounting purposes. The Company records interest rate swaps in the Consolidated Balance Sheets at fair value with changes in fair value recorded as Income (loss) on interest rate swaps in the Consolidated Statements of Operations. Amounts are presented in the Consolidated Balance Sheets after considering the right of offset and the effect of master netting agreements. During the years ended December 31, 2017, 2016 and 2015, the Company recorded a gain of $1.9 million and losses of $3.9 million and $13.4 million, respectively, from adjusting its interest rate swaps to fair value.

Details of the Company's interest rate swaps as of December 31, 2017 and December 31, 2016 were as follows (dollars in thousands):

			Notional			
Contract Inception	**Contract Effective Date**	**Contract Maturity**	**December 31, 2017**	**December 31, 2016**	**Interest Rate Paid**	**Interest Rate Received**
Senior Secured Credit Facility						
May 2012	April 2014	March 2017	$ —	$ 215,000	(1)	One month USD-LIBOR
June 2013	January 2016	March 2019	$ 250,000	$ 250,000	2.23%	One month USD-LIBOR
September 2014	January 2016	July 2021	$ 125,000	$ 125,000	2.66%	One month USD-LIBOR
September 2014	March 2017	July 2021	$ 200,000	$ 200,000	2.93%	One month USD-LIBOR

(1) The Company paid a fixed interest rate which gradually increased from 0.65% for the three-month settlement period ended in June 2014 to 2.11% for the settlement period ended in March 2017.

(10) Commitments and Contingencies

Product Warranties

The Company's standard manufacturer's warranty period to consumers for TiVo-enabled DVRs is 90 days for parts and labor from the date of consumer purchase, and from 91 days-365 days for parts only. Within the limited warranty period, consumers are offered a no-charge exchange for TiVo-enabled DVRs returned due to product defect, within 90 days from the date of consumer purchase. Thereafter, consumers may exchange a TiVo-enabled DVR with a product defect for a variable charge. The Company also offers a warranty through its Continual Care program which extends the one-year warranty for parts only to customers who use the latest BOLT and Roamio DVRs for as long as such customers maintain an active TiVo service subscription. The Company recognizes costs associated with the Continual Care warranties at the time of the DVR sale. As of December 31, 2017 and 2016, the accrued warranty was $0.2 million and $0.5 million and is included in Accounts payable and accrued expenses in the Consolidated Balance Sheets.

Customers who purchase a TiVo service subscription for the lifetime of the DVR are able to purchase separately priced optional two-year and three-year extended warranties. The Company defers and amortizes revenue and costs associated with the sales of these extended warranties over the warranty period or until a warranty is redeemed. Additionally, the Company offers its MSO customers separately priced optional three-year extended warranties. The Company recognizes the revenues associated with the sale of MSO extended warranties over the second and third year of the warranty period. As of December 31, 2017, the extended warranty deferred revenue and deferred cost were $0.6 million and $0.1 million, respectively. As of December 31, 2016, the extended warranty deferred revenue and deferred cost were $2.0 million and $0.2 million, respectively. The Company's extended warranty deferred revenue is included in Deferred revenue and extended warranty deferred costs are included in Prepaid expenses and other current assets in the Consolidated Balance Sheets.

Purchase Commitments

In August 2016, Rovi entered into a 10-year patent license agreement with DISH. Under the terms of the license agreement, DISH will pay a monthly, per-subscriber license fee to Rovi for the period beginning on April 5, 2016 consistent with Rovi's existing licensing program for its largest Pay TV providers. In addition, DISH agreed to provide TiVo Solutions with a release for all past products and a going-forward covenant not-to-sue under DISH's existing patents during the 10-year license term in exchange for TiVo Solutions providing DISH certain TiVo Solutions products during the term and cash payments by TiVo Solutions to DISH of $60.3 million in the aggregate, of which $30.3 million was paid in the third quarter of 2017, $15.0 million was paid in the second quarter of 2017 and $15.0 million was paid in the fourth quarter of 2016. The TiVo Solutions release and covenant transaction is being recognized as a reduction to revenue over the license term in the Consolidated Statements of Operations. No changes were made to the prior, existing patent settlement between EchoStar Corporation and DISH Network Corporation (together, "EchoStar"), and TiVo Solutions as a result of this agreement.

The Company purchases components from a variety of suppliers and uses several contract manufacturers to provide manufacturing services for its products. During the normal course of business, in order to manage manufacturing lead times and help ensure adequate component supply, the Company enters into agreements with contract manufacturers and suppliers that either allow them to procure inventory based on criteria as defined by the Company or that establish the parameters defining the Company's requirements. A significant portion of the Company's purchase commitments arising from these agreements consists of firm, non-cancelable and unconditional purchase commitments. In certain instances, these agreements allow the Company the option to cancel, reschedule or adjust the Company's purchase commitments based on its business needs prior to firm orders being placed. As of December 31, 2017, the Company had total purchase commitments for inventory of $5.3 million, of which $1.1 million was accrued in the Consolidated Balance Sheets.

Lease Commitments

The Company leases facilities and certain equipment pursuant to non-cancelable operating lease agreements expiring through 2027. Rent expense is recognized on a straight-line basis over the lease term. Lease incentives are amortized over the lease term on a straight-line basis.

Future minimum payments for operating leases as of December 31, 2017 were as follows (in thousands):

2018	$	18,861
2019		16,003
2020		14,143
2021		13,286
2022		12,309
Thereafter		35,908
Gross future minimum lease payments	$	110,510
Less: Sublease receipts		(49,349)
Net future minimum lease payments	$	61,161

Rent expense was $15.4 million, $13.3 million and $12.3 million for the years ended December 31, 2017, 2016 and 2015, respectively.

Indemnifications

In the normal course of business, the Company provides indemnifications of varying scopes and amounts to certain of its licensees against claims made by third parties arising out of the use and / or incorporation of the Company's products, intellectual property, services and / or technologies into the licensees' products and services. TiVo Solutions has also indemnified certain customers and business partners for, among other things, the licensing of its products, the sale of its DVRs, and the provision of engineering and consulting services. The Company’s obligation under its indemnification agreements with customer and business partners would arise in the event a third party filed a claim against one of the parties that was covered by the Company’s indemnification. Pursuant to these agreements, the Company may indemnify the other party for certain losses suffered or incurred by the indemnified party in connection with various types of claims, which may include, without limitation, intellectual property infringement, advertising and consumer disclosure laws, certain tax liabilities, negligence and intentional acts in the performance of services and violations of laws.

In some cases, the Company may receive tenders of defense and indemnity arising out of products, intellectual property services and / or technologies that are no longer provided by the Company due to having divested certain assets, but which were previously licensed or provided by the Company.

The term of the Company's indemnification obligations is generally perpetual. The Company's indemnification obligations are typically limited to the cumulative amount paid to the Company by the licensee under the license agreement; however, some license agreements, including those with the Company's largest MSO and digital broadcast satellite providers, have larger limits or do not specify a limit on amounts that may be payable under the indemnity arrangements.

The Company cannot reasonably estimate the possible range of losses that may be incurred pursuant to its indemnification obligations, if any. Variables affecting any such assessment include but are not limited to: the nature of the claim asserted; the relative merits of the claim; the financial ability of the party suing the indemnified party to engage in protracted litigation; the number of parties seeking indemnification; the nature and amount of damages claimed by the party suing the indemnified party; and the willingness of such party to engage in settlement negotiations. Due to the nature of the Company's potential indemnity liability, the Consolidated Financial Statements could be materially adversely affected in a particular period by one or more of these indemnities.

Under certain circumstances, TiVo Solutions may seek to recover some or all amounts paid to an indemnified party from its insurers. TiVo Solutions does not have any assets held either as collateral or by third parties that, on the occurrence of an event requiring it to indemnify a customer, TiVo Solutions could obtain and liquidate to recover all or a portion of the amounts paid pursuant to its indemnification obligations.

Legal Proceedings

The Company may be involved in various lawsuits, claims and proceedings, including intellectual property, commercial, securities and employment matters that arise in the normal course of business. The Company accrues a liability when management believes information available prior to the issuance of the financial statements indicates it is probable a loss has been incurred as of the date of the financial statements and the amount of loss can be reasonably estimated. The Company adjusts its accruals to reflect the impact of negotiations, settlements, rulings, advice of legal counsel and other information and

events pertaining to a particular case. The Company believes it has recorded adequate provisions for any such matters and, as of December 31, 2017, it was not reasonably possible that a material loss had been incurred in excess of the amounts recognized in the Consolidated Financial Statements. Legal costs are expensed as incurred. Based on its experience, the Company believes that damage amounts claimed in these matters are not meaningful indicators of potential liability. Some of the matters pending against the Company involve potential compensatory, punitive or treble damage claims or sanctions, that, if granted, could require the Company to pay damages or make other expenditures in amounts that could have a material adverse effect on its Consolidated Financial Statements. Given the inherent uncertainties of litigation, the ultimate outcome of the ongoing matters described herein cannot be predicted with certainty. While litigation is inherently unpredictable, the Company believes it has valid defenses with respect to the legal matters pending against it. Nevertheless, the Consolidated Financial Statements could be materially adversely affected in a particular period by the resolution of one or more of these contingencies.

On November 15, 2016, Driehaus Appraisal Litigation Fund, L.P., Driehaus Companies Profit Sharing Plan and Trust, and Richard H. Driehaus IRA (the “Driehaus Entities”) filed a petition for appraisal pursuant to Section 262 of the Delaware General Corporation Law ("Section 262") in the Court of Chancery of the State of Delaware covering a total of 1.9 million shares of common stock of TiVo Solutions in connection with the TiVo Acquisition. Additionally, on November 15, 2016, Fir Tree Value Master Fund L.P. and Fir Tree Capital Opportunity Master Fund L.P. (the “Fir Tree Entities” and together with the Driehaus Entities, the “Appraisal Petitioners”) filed a petition for appraisal pursuant to Section 262 in the Court of Chancery of the State of Delaware covering a total of 7.2 million shares of common stock of TiVo Solutions in connection with the TiVo Acquisition. On January 11, 2017, the Court of Chancery consolidated the two petitions into a consolidated action entitled In re Appraisal of TiVo, Inc., C.A. No. 12909-CB (Del. Ch.). The Appraisal Petitioners were also seeking the payment of their costs and attorneys’ fees. As discussed in Note 2, on March 27, 2017, TiVo Corporation executed a settlement agreement with the Dissenting Holders to settle the claims of the Dissenting Holders for $117.0 million, which was paid in cash in April 2017.

On January 27, 2017, UBS Securities LLC ("UBS") filed a complaint against TiVo Solutions alleging TiVo Solutions breached its contractual obligations to UBS under a September 14, 2010 letter agreement (the "Letter Agreement") whereby TiVo Solutions retained UBS as its financial advisor. In the complaint, UBS alleged that TiVo Solutions never terminated its Letter Agreement with UBS and, as a result, TiVo Solutions breached its obligations to UBS by (i) not paying UBS's annual retainer fee of $0.3 million for an unspecified number of years, but totaling an amount of $1.4 million, including unpaid retainer fees and out-of-pocket expenses, and (ii) not considering or retaining UBS as TiVo Solutions' financial advisor in connection with its merger with Rovi, for which UBS alleged TiVo Solutions owed it a fee of $14.5 million (the amount TiVo Solutions paid its financial advisor for the merger). The Company and UBS settled this matter in May 2017 for $0.7 million, to be paid in a combination of a current cash payment and potential future service fees.

On May 10, 2016, Rovi received a letter from Dolby demanding unpaid royalties in the amount of $11.5 million related to (i) software licensed by Rovi's Sonic Solutions subsidiary and (ii) certain support and maintenance agreements that Sonic had with certain larger customers during the period from 2009 to 2012. Dolby further claimed that it was entitled to interest on the allegedly unpaid royalties in the amount of $11.8 million. The alleged unpaid royalties cover products that were divested by Rovi as the Legacy Sonic Businesses from 2012 to 2014 and presented as a discontinued operation. On July 20, 2016, Rovi received another letter from Dolby, proposing to forego the interest it claims it is owed relating to certain portions of the dispute if a settlement is reached promptly. However, Dolby added an additional demand for unpaid royalties in the amount of $9.5 million related to software distributions allegedly made by Rovi's former MainConcept subsidiary, for a total demand of $20.9 million. In October 2016, Rovi settled Dolby's demands for unpaid royalties for $5.0 million. The expense resulting from the settlement related to the Legacy Sonic Businesses was recognized in Loss from discontinued operations, net of tax for the year ended December 31, 2016.

(11) Stockholders' Equity

Earnings (Loss) Per Share

Basic earnings per share ("EPS") is computed using the weighted average number of common shares outstanding during the period. Diluted EPS is computed using the weighted average number of common shares and dilutive common share equivalents outstanding during the period, except for periods of a loss from continuing operations. In periods of a loss from continuing operations, no common share equivalents are included in Diluted EPS because their effect would be anti-dilutive.

The number of shares used to calculate Basic EPS and Diluted EPS were as follows (in thousands):

	Year Ended December 31,		
	2017	2016	2015
Weighted average shares used in computing basic per share amounts	120,355	93,064	84,133
Dilutive effect of equity-based compensation awards	—	1,198	—
Weighted average shares used in computing diluted per share amounts	120,355	94,262	84,133

Weighted average potential shares excluded from the calculation of Diluted EPS as their effect would have been anti-dilutive were as follows (in thousands):

	Year Ended December 31,		
	2017	2016	2015
Restricted awards	4,567	1,741	2,861
Stock options	2,850	3,448	4,133
2020 Convertible Notes (1)	12,429	11,936	9,876
2021 Convertible Notes (1)	1	564	—
2040 Convertible Notes (1)	—	—	869
Warrants related to 2020 Convertible Notes (1)	12,232	11,936	9,876
Weighted average potential shares excluded from the calculation of Diluted EPS	32,079	29,625	27,615

(1) See Note 9 for additional details.

The calculation of earnings per share for the year ended December 31, 2016 excludes 3.5 million shares of TiVo Corporation common stock that were potentially issuable to Dissenting Holders as the Dissenting Holders had not decided whether or not to receive the consideration they were entitled to as a result of the TiVo Acquisition. As the contingency had not been satisfied as of December 31, 2016, the potentially issuable shares of common stock were excluded from the calculation of Basic and Diluted EPS. See Note 2 for additional details.

For the years ended December 31, 2017, 2016 and 2015, 0.4 million, 0.7 million and 0.9 million weighted average performance-based restricted awards, respectively, were excluded from the calculation of Diluted EPS as the performance metric had yet to be achieved or their inclusion would have been anti-dilutive.

Effect of the 2020 Convertible Notes and related transactions on Diluted EPS

In periods when the Company reports income from continuing operations, the potential dilutive effect of additional shares of common stock that may be issued on conversion of the 2020 Convertible Notes are included in the calculation of Diluted EPS under the treasury stock method if the price of the Company’s common stock exceeds the conversion price. The 2020 Convertible Notes have no impact on Diluted EPS until the price of the Company's common stock exceeds the conversion price of $27.7569 per share because the principal of the 2020 Convertible Notes is required to be settled in cash. Based on the closing price of the Company's common stock of $15.60 per share on December 31, 2017, the if-converted value of the 2020 Convertible Notes was less than the outstanding principal.

Under the treasury stock method, the 2020 Convertible Notes would be dilutive if the Company’s common stock closes at or above $27.7569 per share. However, on conversion, no economic dilution is expected from the 2020 Convertible Notes as the exercise of call options purchased by the Company with respect to its common stock described in Note 9 is expected to eliminate any potential dilution from the 2020 Convertible Notes that would have otherwise occurred. The call options are always excluded from the calculation of Diluted EPS as they are anti-dilutive under the treasury stock method.

The warrants sold by the Company with respect to its common stock in connection with the 2020 Convertible Notes described in Note 9 have an effect on Diluted EPS when the Company’s share price exceeds the warrant’s strike price of $38.5512 per share. As the price of the Company’s common stock increases above the warrant strike price, additional dilution would occur.

Share Repurchase Program

On February 14, 2017, TiVo Corporation's Board of Directors approved an increase to the share repurchase program authorization to $150.0 million. The February 2017 authorization includes amounts which were outstanding under previously authorized share repurchase programs. As of December 31, 2017, the Company had $150.0 million of share repurchase authorization remaining. During the years ended December 31, 2017 and 2016, no shares were repurchased under the share repurchase program. During the year ended December 31, 2015, the Company repurchased 9.5 million shares of its common stock pursuant to the authorized repurchase plan for $150.2 million.

The Company accounts for treasury stock using the cost method. In connection with the TiVo Acquisition, all shares repurchased by the Company prior to, and including, September 7, 2016 were retired.

The Company issues restricted awards as part of the equity incentive plans described in Note 12. For the majority of restricted awards, shares are withheld to satisfy required withholding taxes at the vesting date. Shares withheld to satisfy required withholding taxes in connection with the vesting of restricted awards are treated as common stock repurchases in the Consolidated Financial Statements because they reduce the number of shares that would have been issued on vesting. However, these withheld shares are not considered common stock repurchases under the Company's authorized share repurchase plan. During the years ended December 31, 2017, 2016 and 2015, the Company withheld 0.8 million, 0.7 million and 15.0 thousand shares of common stock to satisfy $15.1 million, $14.1 million and $0.1 million of required withholding taxes, respectively.

Dividends

For the year ended December 31, 2017, the Company declared and paid aggregate dividends of $0.72 per share, for an aggregate cash payment of $87.1 million. No dividend payments were made in the years ended December 31, 2016 and 2015.

Section 382 Transfer Restrictions

On September 7, 2016, upon the effective time of the TiVo Acquisition, the Company’s certificate of incorporation was amended and restated to include certain transfer restrictions intended to preserve tax benefits related to the net operating loss carryforwards (“NOLs”) of the Company pursuant to Section 382 of Internal Revenue Code of 1986, as amended (the “Code”), that apply to transfers made by 5% stockholders, transferees related to a 5% stockholder, transferees acting in coordination with a 5% stockholder, or transfers that would result in a stockholder becoming a 5% stockholder. If the Company experiences an “ownership change,” as defined in Section 382 of the Code, its ability to fully utilize the NOLs on an annual basis will be substantially limited, and the timing of the usage of the NOLs could be substantially delayed, which could therefore significantly impair the value of those benefits. These transfer restrictions are intended to act as a deterrent to any person (an “Acquiring Person”) acquiring (together with all affiliates and associates of such person) beneficial ownership of 5% or more of the Company's outstanding common stock within the meaning of Section 382 of the Code, without the approval of the Company's Board of Directors. Such transfer restrictions will expire on the earlier of (i) the repeal of Section 382 or any successor statute if the Company’s Board of Directors determines that such restrictions are no longer necessary or desirable for the preservation of certain tax benefits, (ii) the beginning of a taxable year to which the Company’s Board of Directors determines that no tax benefits may be carried forward or (iii) the end of the day on September 7, 2019, three years from the effective time of the TiVo Acquisition when the Company’s certificate of incorporation was amended and restated to include certain transfer restrictions. The Company conducted a stockholder advisory vote with respect to the maintenance of such transfer restrictions in its certificate of incorporation at its 2017 Annual Meeting of Stockholders and the stockholders approved of such transfer restrictions.

(12) Equity-based Compensation

Restricted Awards and Stock Options

The Company grants equity-based compensation awards from the Rovi 2008 Equity Incentive Plan (the “Rovi 2008 Plan”). The Rovi 2008 Plan permits the grant of restricted stock, restricted stock units, stock options and similar types of equity awards to employees, officers, directors and consultants of the Company. Restricted stock is considered outstanding at the time of the grant as holders are entitled to voting rights. Awards of restricted stock and restricted stock units (collectively, "restricted awards") are generally subject to a four year graded vesting period. Stock options generally have vesting periods of four years with one quarter of the grant vesting on the first anniversary of the grant, followed by monthly vesting thereafter. Stock options generally have a contractual term of seven years. As of December 31, 2017, the Company had 30.0 million shares of common stock reserved and 11.5 million shares of common stock available for issuance under the Rovi 2008 Plan.

On September 7, 2016, the Company assumed the TiVo Inc. Amended and Restated 2008 Equity Incentive Award Plan (the “TiVo 2008 Plan”). The Company amended and restated the TiVo 2008 Plan effective as of the closing of the TiVo Acquisition to be the TiVo Corporation Titan Equity Incentive Award Plan for purposes of awards granted following the closing of the TiVo Acquisition. The TiVo 2008 Plan permits the grant of restricted stock, restricted stock units, stock options and similar types of equity awards to employees, officers, directors and consultants of the Company. Restricted stock is considered outstanding at the time of the grant as holders are entitled to voting rights. Restricted awards assumed from the TiVo 2008 Plan are generally subject to a three year vesting period, with semiannual vesting. Restricted awards issued by the Company from the TiVo 2008 Plan are generally subject to a four year graded vesting period. Stock options assumed from the TiVo 2008 Plan generally have a four year vesting period with one quarter of the grant vesting on the first anniversary of the grant followed by monthly vesting thereafter. Stock options assumed from TiVo 2008 Plan generally have a contractual term of seven years. As of December 31, 2017, there were 3.9 million shares of common stock reserved and 1.8 million shares of common stock available for future grant under the TiVo 2008 Plan.

The Company also grants performance-based restricted stock units to certain of its senior officers for three-year performance periods. Vesting in the performance-based restricted stock units may subject to either market conditions or performance conditions as well as a service condition. Depending on the level of achievement, the maximum number of shares that could be issued on vesting generally could be up to 200% of the target number of performance-based restricted stock units granted.

For awards subject to a market vesting condition, the fair value per award is fixed at the grant date and the amount of compensation expense is not adjusted during the performance period regardless of changes in the level of achievement of the market condition. For awards subject to a performance vesting condition, the fair value per award is fixed at the grant date; however, the amount of compensation expense is adjusted throughout the performance period based on the probability of achievement of the performance condition, with compensation expense based on the number of shares ultimately issued. In December 2017, all outstanding awards subject to performance vesting conditions were modified and the performance vesting condition was replaced with a market vesting condition. This modification did not have a material effect on the Consolidated Statements of Operations.

Employee Stock Purchase Plan

The Company’s 2008 Employee Stock Purchase Plan (“ESPP”) allows eligible employees to purchase shares of the Company’s common stock at a discount through payroll deductions. The ESPP consists of up to four consecutive six-month purchase periods within a twenty-four month offering period. Employees purchase shares each purchase period at the lower of 85% of the market value of the Company’s common stock at either the beginning of the offering period or the end of the purchase period.

As of December 31, 2017, the Company had 5.8 million shares of common stock reserved and 5.8 million shares available for issuance under the ESPP.

Valuation Techniques and Assumptions

The Company's restricted awards subject to service or performance conditions are not eligible for dividend protection. Prior to and including February 14, 2017, the fair value of restricted awards subject to service or performance conditions was estimated as the price of the Company's common stock at the close of trading on the date of grant. Subsequent to February 14, 2017, the fair value of restricted awards subject to service or performance conditions is estimated as the price of the Company's common stock at the close of trading on the date of grant, less the present value of dividends expected to be paid during the vesting period.

A Monte Carlo simulation is used to estimate the fair value of restricted stock units subject to market conditions with expected volatility estimated using the historical volatility of the Company's common stock.

The Company uses the Black-Scholes-Merton option-pricing formula to estimate the fair value of stock options and ESPP shares. The Black-Scholes-Merton option-pricing formula uses complex and subjective inputs, such as the expected volatility of the Company's common stock over the expected term of the award and projected employee exercise behavior. Expected volatility for stock options and ESPP shares is estimated using a combination of historical volatility and implied volatility derived from publicly-traded options on the Company's common stock. The expected term of stock options and ESPP shares is estimated by calculating the average term from historical experience. The risk-free interest rate is the yield on U.S. Treasury zero-coupon bonds with remaining terms similar to the expected term of the stock options and ESPP shares at the

grant date. For stock options and ESPP shares granted prior to and including February 14, 2017, the Company assumed an expected dividend yield of zero as it had not historically paid a dividend. For stock options and ESPP shares granted subsequent to February 14, 2017, the Company assumes a constant dividend yield commensurate with the dividend yield on the grant date.

Weighted-average assumptions used to estimate the fair value of equity-based compensation awards granted during the period were as follows:

	Year Ended December 31,		
	2017	2016	2015
Restricted stock units subject to market conditions:			
Expected volatility	50.1%	53.5%	45.1%
Expected term	3.0 years	4.1 years	4.0 years
Risk-free interest rate	1.9%	1.1%	1.3%
Expected dividend yield	4.0%	0.0%	0.0%
ESPP shares:			
Expected volatility	42.0%	55.6%	53.0%
Expected term	1.3 years	1.3 years	1.3 years
Risk-free interest rate	1.1%	0.6%	0.4%
Expected dividend yield	2.4%	0.0%	0.0%
Stock options:			
Expected volatility	N/A	55.9%	41.0%
Expected term	N/A	3.0 years	3.0 years
Risk-free interest rate	N/A	1.0%	1.0%
Expected dividend yield	N/A	0.0%	0.0%

The number of awards expected to vest during the requisite service period is estimated at the time of grant using historical data and equity-based compensation is only recognized for awards for which the requisite service is expected to be rendered. Forfeiture estimates are revised during the requisite service period and the effect of changes in the number of awards expected to vest during the requisite service period is recognized as a cumulative effect adjustment in the period estimates are revised.

The weighted-average grant date fair value of equity-based awards (per award) and pre-tax equity-based compensation expense (in thousands) was as follows:

	Year Ended December 31,		
	2017	2016	2015
Restricted awards	$ 15.18	$ 22.07	$ 21.05
ESPP shares	$ 5.70	$ 7.30	$ 5.33
Stock options	N/A	$ 9.53	$ 9.03
Pre-tax equity-based compensation, excluding amounts included in restructuring expense	$ 52,561	$ 47,670	$ 42,647
Pre-tax equity-based compensation, included in restructuring expense	$ 2,663	$ 14,951	$ —

Included in Pre-tax equity-based compensation, excluding amounts included in restructuring expense is $3.5 million of expense for the year ended December 31, 2016 related to the incremental fair value resulting from the replacement of TiVo Solutions equity-based awards with corresponding TiVo Corporation equity-based awards.

As of December 31, 2017, there was $73.7 million of unrecognized compensation cost, net of estimated forfeitures, related to unvested equity-based awards which is expected to be recognized over a remaining weighted average period of 2.4 years.

Equity-Based Compensation Award Activity

Activity related to the Company's restricted awards for the year ended December 31, 2017 was as follows:

	Restricted Awards (In Thousands)	Weighted-Average Grant Date Fair Value
Outstanding as of beginning of period	5,162	$ 21.80
Granted	3,949	$ 15.18
Vested	(2,581)	$ 21.12
Forfeited	(631)	$ 19.70
Outstanding as of end of period	5,899	$ 17.78

As of December 31, 2017, 5.3 million restricted stock units were unvested, which includes 1.2 million performance-based restricted stock units. As of December 31, 2017, 0.6 million shares of restricted stock were unvested. The aggregate fair value of restricted awards vested during the years ended December 31, 2017, 2016 and 2015 was $48.6 million, $46.7 million and $25.1 million, respectively.

Activity related to the Company's stock options for the year ended December 31, 2017 was as follows:

	Options (In Thousands)	Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Term	Aggregate Intrinsic Value (In Thousands)
Outstanding as of beginning of period	3,938	$ 28.21		
Exercised	(470)	$ 14.58		
Forfeited and expired	(1,100)	$ 36.32		
Outstanding as of end of period	2,368	$ 27.16	2.5 years	$ 46
Vested and expected to vest as of December 31, 2017	2,347	$ 27.19	2.4 years	$ 46
Exercisable as of December 31, 2017	2,084	$ 27.61	2.2 years	$ 45

The aggregate intrinsic value in the table above represents the total pre-tax intrinsic value that option holders would have received had all option holders exercised their options at the end of the last trading day in the period. The aggregate intrinsic value is the difference between the closing price of the Company's common stock on the last trading day of the period and the exercise price of the option, multiplied by the number of in-the-money options.

The aggregate intrinsic value of stock options exercised is the difference between the market price of the Company's common stock at the time of exercise and the exercise price of the stock option multiplied by the number of stock options exercised. The aggregate intrinsic value of stock options exercised during the years ended December 31, 2017, 2016 and 2015 was $2.1 million, $2.1 million and $0.4 million, respectively.

(13) Income Taxes

Deferred Tax Assets and Liabilities

Significant deferred tax assets and deferred tax liabilities were as follows (in thousands):

	December 31, 2017	December 31, 2016
Deferred tax assets:		
Federal net operating losses	$ 187,003	$ 331,365
Tax credit carryforwards	151,707	151,687
State net operating losses and credits	102,077	77,113
Accrued liabilities	22,771	37,163
Deferred revenue	22,699	26,256
Equity-based compensation	6,185	20,892
Capital and other losses	14,300	25,276
Other	10,541	15,876
Gross deferred tax assets	517,283	685,628
Valuation allowance	(390,161)	(428,778)
Net deferred tax assets	127,122	256,850
Deferred tax liabilities:		
Intangible assets	(175,731)	(332,892)
Gross deferred tax liabilities	(175,731)	(332,892)
Net deferred tax liabilities	$ (48,609)	$ (76,042)

Deferred tax assets and liabilities are presented in the Consolidated Balance Sheets as follows (in thousands):

	December 31, 2017	December 31, 2016
Other long-term assets	$ 1,747	$ 1,412
Deferred tax liabilities, net	(50,356)	(77,454)
Net deferred tax liabilities	$ (48,609)	$ (76,042)

As of December 31, 2017, the Company had recorded deferred tax assets for the tax effects of the following gross tax loss carryforwards (in thousands):

	Carryforward Amount	Years of Expiration
Federal	$ 1,036,183	2019 - 2035
State	$ 1,184,488	2019 - 2035

Utilization of federal and state net operating losses and credit carryforwards may be subject to limitations to due future ownership changes.

As of December 31, 2017, the Company had the following credits available to reduce future income tax expense as follows (in thousands):

	Carryforward Amount	Years of Expiration
Federal research and development credits	$ 61,321	2018 - 2036
State research and development credits	$ 61,735	Indefinite
Foreign tax credits	$ 105,100	2018 - 2024

Deferred Tax Asset Valuation Allowance

During 2010, the Company entered into a closing agreement with the Internal Revenue Service through its Pre-Filing Agreement ("PFA") program confirming that the Company recognized an ordinary tax loss of $2.4 billion from the 2008 sale of its TV Guide Magazine business. In connection with the PFA closing agreement, the Company established a valuation allowance as a result of determining that it was more-likely-than-not that its deferred tax assets would not be realized. While the Company believes that its fundamental business model is robust, there has been no change to the Company's position that it is more-likely-than-not that this deferred tax asset will not be realized.

The deferred tax asset valuation allowance and changes in the deferred tax asset valuation allowance consisted of the following (in thousands):

	Year Ended December 31,		
	2017	2016	2015
Balance at beginning of period	$ (428,778)	$ (449,694)	$ (409,559)
Additions	(66,578)	(12,971)	(57,902)
Assumed in acquisition	—	(52,243)	—
Deductions resulting from business combination	195	86,130	—
Deductions resulting from Tax Act of 2017	105,000	—	—
Other deductions, net	—	—	17,767
Balance at end of period	$ (390,161)	$ (428,778)	$ (449,694)

During the year ended December 31, 2016, the Company recorded an income tax benefit of $86.1 million due to a change in the deferred tax asset valuation allowance resulting from the TiVo Acquisition. In connection with the TiVo Acquisition, a deferred tax liability was recorded for finite-lived intangible assets as described in Note 2. These deferred tax liabilities are considered a source of future taxable income which allowed TiVo Corporation to reduce its pre-acquisition deferred tax asset valuation allowance. The change in the pre-acquisition deferred tax asset valuation allowance is a transaction recognized separate from the business combination and reduces income tax expense in the period of the business combination.

Increases in the deferred tax valuation allowance for the year ended December 31, 2015 primarily related to decreases in liabilities for unrecognized tax benefits which were previously applied against U.S. federal and state deferred tax assets.

Unrecognized Tax Benefits

Unrecognized tax benefits and changes in unrecognized tax benefits were as follows (in thousands):

	Year Ended December 31,		
	2017	2016	2015
Balance at beginning of period	$ 83,055	$ 60,346	$ 134,962
Increases:			
Assumed in acquisition	365	21,441	—
Tax positions related to the current year	6,263	1,032	963
Tax positions related to prior years	2,091	3,651	1,385
Decreases:			
Tax positions related to prior years	(2,232)	(1,047)	(2,874)
Tax Act of 2017	(15,282)	—	—
Audit settlements	—	(161)	(69,816)
Statute of limitations lapses	(1,242)	(2,072)	(3,690)
Foreign currency	62	(135)	(584)
Balance at end of period	$ 73,080	$ 83,055	$ 60,346

The amount of unrecognized tax benefits that would affect the Company's effective tax rate, if recognized, was $3.9 million and $4.9 million as of December 31, 2017 and 2016, respectively.

The Company recorded a benefit of $0.1 million, $0.2 million and $1.0 million for interest and penalties related to unrecognized tax benefits for the years ended December 31, 2017, 2016 and 2015, respectively. Accrued interest and penalties related to unrecognized tax benefits were $0.7 million and $0.8 million at December 31, 2017 and 2016.

In the normal course of business, the Company conducts business globally and, as a result, files U.S. federal, state and foreign income tax returns in various jurisdictions and therefore is subject to examination by taxing authorities throughout the world. With few exceptions, the Company is no longer subject to income tax examinations for years prior to 2010. During the year ended December 31, 2015, the Company closed its audits with the California tax authorities through December 31, 2010. The closing of the California audits resulted in a reduction of unrecognized tax benefits, which was substantially offset by a change in the deferred tax asset valuation allowance. Based on the status of U.S. federal, state and foreign tax audits, the Company does not believe it is reasonably possible that a significant change in unrecognized tax benefits will occur in the next twelve months.

The Company believes it has provided adequate reserves for all tax deficiencies or reductions in tax benefits that could result from U.S. federal, state and foreign tax audits. The Company regularly assesses potential outcomes of these audits in order to determine the appropriateness of its tax provision. Adjustments to accruals for unrecognized tax benefits are made to reflect the impact of negotiations, settlements, rulings, advice of legal counsel and other information and events pertaining to a particular income tax audit. However, income tax audits are inherently unpredictable and there can be no assurance that the Company will accurately predict the outcome of these audits. The amounts ultimately paid on resolution of an audit could be materially different from the amounts previously recognized, and therefore the resolution of one or more of these uncertainties in any particular period could have a material adverse impact on the Consolidated Financial Statements.

Income tax (benefit) expense

The components of (Loss) income from continuing operations before income taxes consist of the following (in thousands):

	Year Ended December 31,		
	2017	2016	2015
United States	$ (55,846)	$ (32,843)	$ (2,456)
Rest of the world	7,611	8,407	11,919
(Loss) income from continuing operations before income taxes	$ (48,235)	$ (24,436)	$ 9,463

Income tax (benefit) expense consisted of the following (in thousands):

	Year Ended December 31,		
	2017	2016	2015
Current:			
Federal	$ —	$ —	$ —
State	906	3,380	(1,998)
Foreign	16,329	20,952	11,132
Total current income tax expense	17,235	24,332	9,134
Deferred:			
Federal	(24,579)	(83,059)	2,081
State	(1,947)	(2,875)	2,127
Foreign	(988)	(83)	413
Total deferred income tax benefit (expense)	(27,514)	(86,017)	4,621
Income tax (benefit) expense	$ (10,279)	$ (61,685)	$ 13,755

For the years ended December 31, 2017, 2016 and 2015, the Company utilized U.S. federal net operating loss carryforwards of $235.8 million, $65.1 million and $99.5 million, respectively. For the years ended December 31, 2017, 2016 and 2015, the Company utilized state net operating loss carryforwards of $35.2 million, $13.5 million and $20.1 million, respectively.

Income tax (benefit) expense differed from the amounts computed by applying the U.S. federal income tax rate of 35% to (Loss) income from continuing operations before income taxes as a result of the following (in thousands):

	Year Ended December 31,		
	2017	2016	2015
Federal income tax	$ (16,882)	$ (8,553)	$ 3,312
State income tax, net of federal benefit	(397)	434	4,029
Foreign income tax rate differential	(748)	(1,713)	(2,992)
Foreign withholding tax	13,849	20,571	9,724
Repatriation of foreign income, deemed and actual	1,526	4,573	477
Change in unrecognized tax benefits	(704)	(1,203)	(4,515)
Change in valuation allowance	12,511	(81,614)	5,463
Equity-based compensation	(976)	2,696	1,972
Tax settlements	—	166	(3,437)
Transaction-related costs	5,724	2,753	—
Entity rationalization	2,369	—	—
Tax Act of 2017	(26,551)	—	—
Other, net	—	205	(278)
Income tax (benefit) expense	$ (10,279)	$ (61,685)	$ 13,755

Due to the fact that the Company has significant net operating loss carryforwards and has recorded a valuation allowance against a significant portion of its deferred tax assets, foreign withholding taxes are the primary driver of Income tax (benefit) expense. Luxembourg is the main contributor to the Company's foreign income tax rate differential. For the years ended December 31, 2017, 2016 and 2015, Luxembourg had gains. An audit settlement with the California tax authorities related to the Company's 2008 state tax return during the year ended December 31, 2015 resulted in an income tax benefit of $4.0 million.

Tax Act of 2017

On December 22, 2017, the Tax Cuts and Jobs Act (the "Tax Act of 2017") was signed into law. The Tax Act of 2017 enacted comprehensive tax reform that made broad and complex changes to the U.S. federal income tax code which affect 2017, including, but not limited to requiring a one-time transition tax on certain unrepatriated earnings of foreign subsidiaries that is payable over eight years (the "Transition Tax"). The Tax Act of 2017 also establishes new tax laws which affect 2018 and later years, including, but not limited to, a reduction of the U.S. federal corporate income tax rate from 35% to 21%, a general elimination of U.S. federal income taxes on dividends from foreign subsidiaries and a new provision designed to tax global intangible low-taxed income ("GILTI"), a limitation of the deductibility of interest expense, a limitation of the deduction for newly generated net operating losses to 80% of current year taxable income and the elimination of net operating loss carrybacks.

The Company has not completed its accounting for the income tax effects of the Tax Act of 2017. On December 22, 2017, the SEC Staff issued guidance to address the application of U.S. GAAP in situations when a registrant does not have the necessary information to complete the accounting for certain income tax effects of the Tax Act of 2017. Where the Company has been able to make reasonable estimates of the effect for which its analysis is not yet complete, the Company has recorded provisional amounts. Where the Company has not been able to make reasonable estimates of the effect the Tax Act of 2017, no amounts have been recognized and the Company has continued accounting for those items based on the tax laws in effect immediately prior to the enactment of the Tax Act of 2017.

The Company was able to make reasonable estimates of certain effects and, therefore, has recorded provisional amounts as follows:

- Revaluation of deferred tax assets and liabilities: The Tax Act of 2017 reduces the U.S. federal corporate income tax rate from 35% to 21% for tax years beginning after December 31, 2017. In addition, the Tax Act of 2017 makes certain changes to the depreciation rules and implements new limits on the deductibility of certain executive compensation. The Company has evaluated these changes and recognized a provisional decrease to its net deferred tax assets of $105.0 million with a corresponding decrease to the deferred tax asset valuation allowance. The Company also recognized a provisional decrease to its deferred tax liabilities associated with indefinite-lived intangible assets of $26.6 million with a corresponding tax benefit. The Company is still completing its calculation of the impact of these changes on its deferred tax balances.

- Transition Tax on unrepatriated foreign earnings: The Transition Tax on unrepatriated foreign earnings is a tax on previously untaxed accumulated and current earnings and profits (“E&P”) of the Company’s foreign subsidiaries. Based on the amount of post-1986 E&P of the Company's foreign subsidiaries, as well as the amount of non-U.S. income taxes paid on such earnings, the Company estimates its Transition Tax to be $33.8 million, which is fully offset by net operating losses resulting in no estimated net Transition Tax expense. To complete its estimate of the Transition Tax, the Company must complete its calculation of E&P, complete its calculation of the effects on U.S. states whose laws conform with the Internal Revenue Code, determine whether to offset the Transition Tax with foreign tax credits, and make a final determination of historical non-U.S. income taxes paid and/or accrued.
- Limits on executive compensation: The Tax Act of 2017 imposes new limits on the deductibility of executive stock-based compensation. To determine the effect of the new limits, the Company must determine whether compensation resulting from agreements executed before the effective date of the Tax Act of 2017 are grandfathered by the Tax Act of 2017. The Company estimates the effect of the new limits was not material; however, the Company has not completed its analysis of state conformity with respect to these provisions of the Tax Act of 2017, including any effect on the apportionment of taxable income among the states in which it conducts business.
- Valuation allowance: The Company must assess whether its deferred tax asset valuation allowance is affected by various aspects of the Tax Act of 2017 (e.g., deemed repatriation of deferred foreign income, future GILTI inclusions, new categories of foreign tax credits). As the Company has recorded provisional amounts related to certain portions of the Tax Act of 2017, any corresponding change in the deferred tax asset valuation allowance is also provisional. However, the Company was able to determine that the Tax Act of 2017 does not change its assertion that its U.S. federal deferred tax assets are not more likely than not to be realized, thus the Company has maintained its deferred tax asset valuation allowance for U.S. federal deferred tax assets.

No provisional amounts were recorded for the following elements of the Tax Act of 2017 as the Company was not able to make reasonable estimates of their effects:

- Global intangible low taxed income (“GILTI”): The Tax Act of 2017 creates a new requirement that certain income (i.e., GILTI) earned by foreign subsidiaries must be included currently in the gross income of the U.S. shareholder. Due to the complexity of the GILTI rules, the Company continues to evaluate its accounting implications. Under U.S. GAAP, the Company is permitted to make an accounting policy election to either treat taxes due on future inclusions in U.S. taxable income related to GILTI as a current-period expense when incurred or to factor such amounts into the Company’s measurement of its deferred taxes. The Company has not yet completed its analysis of the GILTI rules and has not made an accounting policy election with respect to the treatment of the GILTI tax.
- Indefinite reinvestment assertion: Beginning in 2018, the Tax Act provides a 100% deduction for dividends received from 10-percent owned foreign corporations by U.S. corporate shareholders, subject to a one-year holding period. Although dividend income is now exempt from U.S. federal income tax, U.S. GAAP requires companies to account for the tax consequences of outside basis differences and other tax impacts of investments in non-U.S. subsidiaries. The Company accrued a liability for U.S. federal and certain state income taxes on its non-U.S. subsidiaries’ previously undistributed foreign earnings. While the Company has accrued the Transition Tax on the deemed repatriated earnings that were previously asserted to be indefinitely reinvested, additional outside basis differences likely exist, which could result in additional state income tax, foreign income tax and foreign withholding taxes if the amount equal to the outside basis difference were repatriated. Therefore, the Company was unable to determine a reasonable estimate of the remaining tax liability, if any, under the Tax Act of 2017 for its remaining outside basis differences or evaluate how the Tax Act of 2017 affects the Company’s existing accounting position to indefinitely reinvest unremitted foreign earnings.

The provisional amounts are estimated based on information available as of December 31, 2017. The items described above, including the provisional items, are subject to change as additional information becomes available, but no later than one year from enactment of the Tax Act of 2017.

(14) Segment Information

Reportable segments are identified based on the Company's organizational structure and information reviewed by the Company’s chief operating decision maker ("CODM") to evaluate performance and allocate resources. The Company's operations are organized into two reportable segments for financial reporting purposes: Product and Intellectual Property Licensing. The Product segment consists primarily of licensing Company-developed UX products and services to multi-channel video service providers and CE manufacturers, in-guide advertising revenue, data analytics revenue and revenue from licensing the TiVo service, licensing metadata and selling TiVo-enabled devices. The Product segment also includes sales of legacy Analog Content Protection, VCR Plus+ and media recognition products. The Intellectual Property Licensing segment consists primarily of licensing the Company's patent portfolio to U.S. and international pay-television providers (directly and through their suppliers), mobile device manufacturers, CE manufacturers and OTT video providers.

During the fourth quarter of 2017, the Company reorganized the presentation of revenue within its Intellectual Property Licensing segment to US Pay TV Providers, Consumer Electronics Manufacturers and New Media, International Pay TV Providers and Other to better portray its growth strategy. Revenue from US Pay TV Providers includes direct and indirect licensing of traditional US Pay TV Providers regardless of the particular distribution technology (e.g., cable, satellite or the internet). Consumer Electronics Manufacturers revenue includes the licensing of our patents to traditional CE manufacturers. New Media, International Pay TV Providers and Other revenue includes licensing international pay TV providers, virtual service providers, mobile device manufacturers and content and new media companies. Revenue within the Intellectual Property Licensing segment for prior periods has been reclassified to conform to the current presentation.

Segment results are derived from the Company's internal management reporting system. The accounting policies used to derive segment results are substantially the same as those used by the consolidated company. Intersegment revenues and expenses have been eliminated from segment financial information as transactions between reportable segments are excluded from the measure of segment profitability reviewed by the CODM. In addition, certain costs are not allocated to the segments as they are considered corporate costs. Corporate costs primarily include general and administrative costs such as corporate management, finance, legal and human resources. The CODM uses an Adjusted EBITDA (as defined below) measure to evaluate the performance of, and allocate resources to, the segments. Segment balance sheets are not used by the CODM to allocate resources or assess performance.

Segment results were as follows (in thousands):

	Year Ended December 31,		
	2017	2016	2015
Product			
Platform Solutions	$ 334,004	$ 205,395	$ 137,814
Software and Services	84,964	83,811	84,956
Other	4,548	12,470	21,679
Revenues, net	423,516	301,676	244,449
Adjusted Operating Expenses (1)	377,107	251,529	195,364
Adjusted EBITDA (2)	46,409	50,147	49,085
Intellectual Property Licensing			
US Pay TV Providers	278,973	222,346	174,397
Consumer Electronics Manufacturers	51,219	46,145	51,871
New Media, International Pay TV Providers and Other	72,748	78,926	55,554
Revenues, net	402,940	347,417	281,822
Adjusted Operating Expenses (1)	97,059	79,820	60,926
Adjusted EBITDA (2)	305,881	267,597	220,896
Corporate			
Adjusted Operating Expenses (1)	62,148	56,673	54,681
Adjusted EBITDA (2)	(62,148)	(56,673)	(54,681)
Consolidated			
Total Revenues, net	826,456	649,093	526,271
Adjusted Operating Expenses (1)	536,314	388,022	310,971
Adjusted EBITDA (2)	290,142	261,071	215,300
Depreciation	22,144	18,698	17,410
Amortization of intangible assets	166,657	104,989	76,982
Restructuring and asset impairment charges	19,048	27,316	2,160
Equity-based compensation	52,561	47,670	42,647
Transaction, transition and integration costs	20,364	39,950	—
Earnout amortization and settlement	3,833	2,467	—
CEO transition cash costs	4,305	—	—
Remeasurement of contingent consideration	(1,023)	(1,614)	(860)
Gain on settlement of acquired receivable	(2,537)	—	—
Change in franchise tax reserve	—	154	859
Contested proxy election costs	—	—	4,346
Operating income	4,790	21,441	71,756
Interest expense	(42,756)	(43,681)	(46,826)
Interest income and other, net	2,915	1,688	716
Income (loss) on interest rate swaps	1,859	(3,884)	(13,368)
TiVo Acquisition litigation	(14,006)	—	—
Loss on debt extinguishment	(108)	—	(2,815)
Loss on debt modification	(929)	—	—
(Loss) income from continuing operations before income taxes	$ (48,235)	$ (24,436)	$ 9,463

(1) Adjusted Operating Expenses is defined as operating expenses excluding Depreciation, Amortization of intangible assets, Restructuring and asset impairment charges, Equity-based compensation, Transaction, transition and integration costs, retention earn-outs payable to former shareholders of acquired businesses, earn-out settlements, CEO

transition cash costs, Remeasurement of contingent consideration, Gain on settlement of acquired receivable, Change in franchise tax reserve and Contested proxy election costs.

(2) Adjusted EBITDA is defined as operating income excluding Depreciation, Amortization of intangible assets, Restructuring and asset impairment charges, Equity-based compensation, Transaction, transition and integration costs, retention earn-outs payable to former shareholders of acquired businesses, earn-out settlements, CEO transition cash costs, Remeasurement of contingent consideration, Gain on settlement of acquired receivable, Change in franchise tax reserve and Contested proxy election costs.

(15) Geographic Information

Revenue by geographic area was as follows (in thousands):

	Year Ended December 31,		
	2017	2016	2015
United States	$ 616,883	$ 469,325	$ 345,260
Rest of the world	209,573	179,768	181,011
Total Revenues, net	$ 826,456	$ 649,093	$ 526,271

Revenue by geography is predominately based on the end user's location. Other than the U.S., no country accounted for more than 10% of revenue for the years ended December 31, 2017, 2016 and 2015.

Property and equipment, net by geographic area was as follows (in thousands):

	December 31, 2017	December 31, 2016
United States	$ 46,756	$ 45,908
Rest of the world	8,488	2,464
Property and equipment, net	$ 55,244	$ 48,372

As of December 31, 2017, India accounted for 13.0% of Property and equipment, net. Other than the U.S., no country accounted for more than 10% of Property and equipment, net as of December 31, 2016.

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(16) Quarterly Financial Data (Unaudited)

	Q1	Q2	Q3	Q4
	(in thousands, except per share amounts)			
2017				
Total Revenues, net	$ 205,764	$ 208,558	$ 197,898	$ 214,236
Restructuring and asset impairment charges	4,539	9,374	3,710	1,425
Operating (loss) income from continuing operations	(5,345)	8,743	(1,552)	2,944
Net (loss) income	(34,661)	(4,771)	(16,963)	18,439
Basic (loss) earnings per share	$ (0.29)	$ (0.04)	$ (0.14)	$ 0.15
Weighted average shares used in computing basic per share amounts	118,813	120,209	120,935	121,427
Diluted (loss) earnings per share	$ (0.29)	$ (0.04)	$ (0.14)	$ 0.15
Weighted average shares used in computing diluted per share amounts	118,813	120,209	120,935	122,362
Dividends declared per share	$ 0.18	$ 0.18	$ 0.18	$ 0.18
2016				
Total Revenues, net	$ 118,384	$ 125,245	$ 153,121	$ 252,343
Restructuring and asset impairment charges	2,333	—	22,311	2,672
Operating income (loss) from continuing operations	11,397	10,178	(20,035)	19,901
(Loss) income from continuing operations, net of tax	(17,652)	(9,408)	54,439	9,870
Loss from discontinued operations, net of tax	—	—	(4,517)	(71)
Net (loss) income	(17,652)	(9,408)	49,922	9,799
Basic (loss) earnings per share:				
Continuing operations	$ (0.22)	$ (0.11)	$ 0.60	$ 0.08
Discontinued operations	—	—	(0.05)	—
Basic (loss) earnings per share	$ (0.22)	$ (0.11)	$ 0.55	$ 0.08
Weighted average shares used in computing basic per share amounts	81,375	82,110	91,131	117,394
Diluted (loss) earnings per share:				
Continuing operations	$ (0.22)	$ (0.11)	$ 0.59	$ 0.08
Discontinued operations	—	—	(0.05)	—
Diluted (loss) earnings per share	$ (0.22)	$ (0.11)	$ 0.54	$ 0.08
Weighted average shares used in computing diluted per share amounts	81,375	82,110	92,144	119,298

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Section 2: EX-10.22 (EXHIBIT 10.22)

Exhibit 10.22

TIVO CORPORATION
EXECUTIVE SEVERANCE AND ARBITRATION AGREEMENT

THIS EXECUTIVE SEVERANCE AND ARBITRATION AGREEMENT (the "Agreement") is made and entered into as of ________________, 2017 by and between TiVo Corporation, a Delaware corporation (the "Company") and _________________ ("Executive").

WHEREAS, the Board of Directors (the "Board") of the Company has recommended and authorized the Company to enter into a severance agreement in the form hereof with Executive; and

WHEREAS, the Board has determined that, in the event of a possible threatened or pending sale or other change in control of the Company, it is imperative that the Company and the Board be able to rely upon Executive to continue in Executive's position, and that the Company be able to receive and rely upon Executive's advice, if requested, as to the best interests of the Company and its stockholders without concern that Executive might be distracted by the personal uncertainties and risks created by any such possible transactions; and

WHEREAS, in connection with the foregoing, Executive may, in addition to Executive's regular duties, be called upon to assist in the assessment of any such possible transactions, advise management and the Board as to whether such proposals would be in the best interests of the Company and its stockholders, and to take such other actions as the Board might determine to be appropriate;

NOW, THEREFORE, to assure the Company that it will have the continued dedication of Executive and the availability of Executive's advice and counsel through the occurrence of any Change in Control (as defined in Section 1(b) below) of the Company, and to induce Executive to enter into and remain in the employ of the Company, and for other good and valuable consideration, the Company and Executive agree as follows:

1. Payment of Severance Benefit.

(a) In the event that a Change in Control (as hereinafter defined) occurs and, within the period beginning ninety (90) days before the date of the Change in Control and ending twelve (12) months thereafter, (a) Executive's employment is terminated by the Company or a Subsidiary (as hereinafter defined) without Cause (as hereinafter defined) or (b) Executive voluntarily terminates his/her employment with Company and its Subsidiaries with Good Reason (as hereinafter defined), then the Company shall pay to Executive severance pay under this Agreement. Transfer of Executive's employment from the Company to a Subsidiary (or to an entity of which the Company is a Subsidiary) or from a Subsidiary to the Company or to another Subsidiary (or to an entity of which the Company is a Subsidiary), by itself shall not be considered a termination of Executive's employment. Such severance pay shall be in the form of salary continuation of Executive's regular base pay in effect ninety (90) days before the time of the Change in Control or at the time of the termination of his or her employment, whichever is greater. The Company shall pay such severance pay during the twelve (12) month period immediately following the date on which Executive's employment with the Company terminates; provided, however, that, if Executive commences new employment within such twelve (12) month period, such severance pay shall cease on the later of (i) the date six (6) months after Executive's employment with the Company terminates or (ii) the date Executive commences new employment.

(b) "Change in Control" means any of the following events: (i) any "person" or "group" (as defined in or pursuant to Sections 13(d) or 14(d) of the Securities Exchange Act of 1934, as amended (the "Exchange Act")) other than the Company, a subsidiary of the Company or other company affiliated with the Company is or becomes the "beneficial owner" (as defined in Rule 13d-3 promulgated under the Exchange Act), directly or indirectly (including by holding securities which are exercisable for or convertible into shares of capital stock of the Company), of securities of the Company representing 50% or more of the voting power of the outstanding shares of capital stock of the Company entitled to vote generally in the election of directors, so long as, in the case of a Company subsidiary or other affiliated company becoming such a beneficial owner (a "Top Hat"), stockholders of the Company immediately prior to such transaction own at least fifty percent (50%) of the stock of the subsidiary or other affiliated company immediately following the Top Hat; (ii) the Company sells or exchanges, through merger, assignment or otherwise, in one or more transactions, other than in the ordinary course of business, assets which provided at least seventy percent (70%) of the revenues or pre-tax net income of the Company and its Subsidiaries on a consolidated basis during the most recently completed fiscal year; or (iii) in transactions other than a Top Hat, Continuing Directors cease to constitute at least a majority of the Board, and in the case of a Top Hat, Continuing Directors do not comprise a majority of the Board of Directors of

the entity that becomes the beneficial owner of the Company’s securities immediately following the Top Hat. “Continuing Directors” are (A) each director serving on the Board on the date of this Agreement, and (B) any successor to any such director whose nomination or selection was approved by a majority of the directors in office at the time of the director’s nomination or selection. Notwithstanding the foregoing, the following events shall not constitute a Change in Control: any acquisition of beneficial ownership pursuant to (i) a reclassification, however effected, of the Company’s authorized common stock, or (ii) a corporate reorganization involving the Company or a Subsidiary which does not result in a material change in the ultimate ownership by the stockholders of the Company (through their ownership of the Company or its successor resulting from the reorganization) of the assets of the Company and its Subsidiaries, but only if such reclassification or reorganization has been approved by the Board.

(c) “Cause” means the occurrence of any one or more of the following: (i) conviction of any felony or any act of fraud, misappropriation or embezzlement which has an immediate and materially adverse effect on the Company or a Subsidiary; (ii) engaging in a fraudulent act to the material damage or prejudice of the Company or a Subsidiary or engaging in conduct or activities materially damaging to the property, business or reputation of the Company or a Subsidiary; (iii) failure to comply in any material respect with the terms of any applicable employment agreement or any written policies or directives of the Board which have an immediate and materially adverse effect on the Company or a Subsidiary and which has not been corrected within 30 days after written notice from the Company of such failure; (iv) any material act or omission involving malfeasance or negligence in the performance of employment duties which has an immediate and materially adverse effect on the Company or a Subsidiary and which has not been corrected within 30 days after written notice from the Company; or (v) material breach of any other agreement with the Company, which has an immediate and materially adverse effect on the Company or a Subsidiary and which has not been cured within 30 days after written notice from the Company of such breach.

(d) “Good Reason” means the occurrence of any of the following without the Executive’s consent: (i) a material diminution in the Executive’s authority, duties or responsibilities, (ii) the assignment to the Executive of any duties or responsibilities that are materially inconsistent with the Executive’s authority, duties or responsibilities; (iii) a material diminution in the Executive’s base salary; or (iv) a relocation of the Executive’s principal place of employment to a new work site requiring an increase in one-way commute from Executive’s residence of more than thirty-five (35) miles. Within 30 days of the initial occurrence of any of the events listed in this section, Executive must provide written notice to the Company of the occurrence of the event, and the Company shall have 30 days following receipt of such notice during which it may remedy the condition. If such event is not remedied by the Company within such 30-day period, Executive’s termination must be effective not later than thirty (30) days thereafter. If (i) Executive fails to give such notice within the 30-day period or (ii) the Company remedies the condition within the 30-day period or (iii) the Executive does not terminate his or her employment following an unremedied condition within thirty days after the Company’s remedy period, then the occurrence of such event shall not constitute “Good Reason.”

(e) “Subsidiary” means (i) any corporation, foreign or domestic, in which the Company directly or indirectly owns 50% or more of the issued and outstanding voting stock on an “as converted basis” or (ii) any partnership, foreign or domestic, in which the Company owns a direct or indirect interest equal to 50% or more of the outstanding equity interests.

(f) Notwithstanding the foregoing, if any payment hereunder, or any portion thereof, is considered “nonqualified deferred compensation” that is to be paid to Executive at a time that he is considered to be a “specified employee,” in each case as defined and determined for purposes of Section 409A of the Internal Revenue Code of 1986 as amended ("Section 409A"), and is to be paid within six months following Executive’s termination of employment, then to the extent that such payment is not otherwise exempt from the application of the 20% excise tax under Section 409A, such payment shall be delayed and paid on the first day of the seventh calendar month following the month in which Executive’s termination of employment occurs.

2. Welfare Benefits.

(a) During the period that Company is obligated to pay Executive severance pay pursuant to Section 1(a) above, or, if sooner, until Executive is entitled to Welfare Benefits (as defined below) under any plan maintained by any entity employing Executive after Executive’s employment with the Company terminates, Company shall provide to Executive (and his/her spouse and other qualified dependents) all Welfare Benefits that Company provided to Executive (and his/her spouse and qualified dependents) immediately prior to the Change in Control. For purposes of this Agreement, the term “Welfare Benefits” shall include, without limitation, all life, dental, vision, health, accident and disability benefit plans, other similar welfare plans, and any equivalent successor policy, plan, program or arrangement that may now exist or be adopted hereafter by the Company or a Subsidiary that provide reasonably equivalent Welfare Benefits in the aggregate as the predecessor policy, plan, program or arrangement (and which policies, plans, programs or arrangements may be freely modified or cancelled at any time by the Company or a Subsidiary). Notwithstanding the foregoing, with respect to any Welfare Benefits provided through an insurance policy, the Company’s obligation to provide such Welfare Benefits following a Change in Control shall be limited by the terms of such policy;

provided, however, that (i) the Company shall make reasonable efforts (which efforts shall not include incurring additional cost) to amend such policy to provide the continued coverage described in this Section 2(a) and (ii) if such policy is not amended to provide the continued benefits described in this Section 2(a), the Company shall pay Executive the lesser of an amount equal to what Executive's COBRA premiums would have been or Executive's cost of comparable replacement coverage.

(b) If prior to the Change in Control Executive was required to contribute towards the cost of a Welfare Benefit as a condition of receiving such Welfare Benefit, the Executive may be required to continue contributing towards the cost of such Welfare Benefit under the same terms and conditions as applied to the Executive immediately prior to the Change in Control in order to receive such Welfare Benefit.

3. Equity Compensation. To the extent that the Company has granted Executive Stock Awards (stock options, restricted stock awards or other forms of equity compensation) (collectively, "Stock Awards"), and notwithstanding the provisions of any agreement(s) pursuant to which the Stock Awards are granted, in the event that a Change in Control occurs and, within the period beginning ninety (90) days before the date of the Change in Control and ending twelve (12) months thereafter, (a) Executive's employment is terminated by the Company or a Subsidiary without Cause or (b) Executive voluntarily terminates his or her employment with Company and its Subsidiaries with Good Reason, then on the last day of Executive's employment with the Company and its Subsidiaries, all of the Stock Awards held by Executive shall become fully vested and exercisable (for clarity, for any Stock Award whose vesting is tied to Company or individual performance metrics, the terms of such Stock Award shall control with respect to any measurement of vesting or exercisability of such Stock Award at the time of Change of Control first and then this Section 3 shall apply to any resulting non-performance shares).

4. Other Employee Benefits. The benefits provided to Executive hereunder shall not be affected by or reduced because of any other benefits (including, but not limited to, salary, bonus, pension, stock option or stock purchase plan) to which Executive may be entitled by reason of his or her employment with the Company or any Subsidiary thereof or the termination of his or her employment with the Company, and no other such benefit by reason of such employment shall be so affected or reduced because of the benefits bestowed by this Agreement. Notwithstanding the foregoing, if Executive qualifies for severance pay under Section 1(a) of this Agreement, such severance pay will be in lieu of, and not in addition to, any severance to other termination payments to which Executive may be entitled under any employment agreement with, or other plan or arrangement of, the Company.

5. Withholding. All amounts payable by the Company hereunder shall be subject to all federal, state, local and other withholdings and employment taxes as required by applicable law.

6. Subsequent Employment with Competitor. Executive's right to receive benefits under this Agreement, including Executive's right to exercise any Stock Awards that have accelerated under this Agreement, shall cease immediately upon Executive's employment by any company that the Company reasonably determines to be a competitor of the Company and its Subsidiaries.

7. No Solicitation of Employees. Executive hereby agrees that for a period of one year following the termination of Executive's employment by or contractual relationship with the Company, for whatever reason, Executive will not directly or indirectly solicit, induce or influence any person who is engaged as an employee or otherwise by the Company or its Subsidiaries to seek employment with any other business, nor will Executive provide any information regarding employees of the Company or its Subsidiaries for the purpose of directly or indirectly soliciting, inducing or influencing an employee of the Company or its Subsidiaries to seek employment with any other business, including without limitation name, e-mail address, telephone or fax numbers, job titles or compensation information, to any third party without the prior written consent of the Company. Executive acknowledges that such information is proprietary to the Company and that providing such information for any unauthorized purpose, including without limitation the direct or indirect solicitation of such employees for employment, is strictly prohibited, and Executive further acknowledges that violation of this provision would result in damage to the Company for which Executive may be held personally liable, and Executive agrees that should Executive violate this provision, the Company may obtain injunctive relief as well as actual, incidental, or punitive damages, if appropriate.

8. Arbitration of Claims. The following arbitration provisions shall apply to any claim brought by Executive or the Company after the date of this Agreement even if the facts upon which the claim is based arose prior to the execution of this Agreement.

(a) Claims Covered by this Agreement. To the maximum extent permitted by law, the Company and Executive mutually consent to the resolution by arbitration of all claims or causes of action that the Company may have against Executive or that Executive may have against the Company or against its officers, directors, employees, or agents in the capacity as such or otherwise (collectively "claims"). The claims covered by this Agreement include, but are not limited to, claims for

breach of any contract or covenant (express or implied); tort claims; claims for discrimination (including, but not limited to, race, sex, sexual harassment, or any type of unlawful harassment, religion, national origin, age, marital status, medical condition, disability or sexual orientation); claims for wrongful termination in violation of public policy; and claims for violation of any federal, state, or other governmental law, statute, regulation or ordinance, including, but not limited to, all claims arising under Title VII of the Civil Rights Act of 1969, as amended, the Age Discrimination in Employment Act of 1967, the Americans with Disabilities Act, the California Fair Employment & Housing Act, the California Labor Code, the Consolidated Omnibus Budget Reconciliation Act of 1985, the Fair Labor Standards Act or Employee Retirement Income Security Act.

(b) Claims Not Covered by the Agreement. Claims Executive may have for workers' compensation, unemployment compensation benefits or wage and hour claims within the jurisdiction of the California Labor Commissioner are not covered by this Agreement. Notwithstanding the fact that Executive is not required to arbitrate such claims, he/she may, if he/she so chooses, submit wage and hour claims to binding arbitration pursuant to this Agreement. Also not covered are claims by either party for injunctive and/or other equitable relief, as to which the parties understand and agree that either party may seek and obtain relief from a court of competent jurisdiction.

(c) Required Notice of All Claims. The Company and Executive agree that the aggrieved party must give written notice of any claim to the other party. Written notice to the Company, or its officers, employees or agents shall be sent to the Company's Chief Executive Officer. Executive will be given notice at the last address recorded in his/her personnel file or such other address as Executive may provide to the Company from time to time following the date of this Agreement by a writing specifying that it is the address for notice under this Agreement. The written notice shall identify and describe the nature of all claims asserted and detail the facts upon which such claims are based. The notice shall be sent to the other party by certified or registered mail, return receipt requested.

(d) Arbitration Procedures. The Company and Executive agree that, except as provided in this Agreement, any arbitration shall be in accordance with and under the auspices and rules of the American Arbitration Association (hereinafter the "Arbitration Service"). The arbitration shall take place in Santa Clara County, California, unless the parties mutually agree to conduct the arbitration in a different location. The arbitrator shall be selected by the mutual agreement of the parties. If the parties cannot agree on a neutral arbitrator, Executive first, and then the Company, will alternately strike names from a list provided by the Arbitration Service until only one name remains. The arbitrator shall have exclusive authority to resolve any dispute relating to the interpretation, applicability, enforceability or formation of this Agreement, including but not limited to any claim that all or any part of this Agreement is void or voidable. The arbitrator shall apply the applicable statue of limitations to any claim, taking into account compliance with subparagraph paragraph 8(c) of this Agreement. The arbitrator shall issue a written opinion and award, which shall be signed and dated. The arbitrator shall be permitted to award those remedies that are available under applicable law. The arbitrator's decision regarding the claims shall be final and binding upon the parties. The arbitrator's award shall be enforceable in any court having jurisdiction thereof.

(e) Acknowledgment of Jury Trial Waiver. Executive understands that, by this Agreement, he/she is waiving his or her right to have a claim adjudicated by a court or jury. Any party may be represented by an attorney or other representative selected by the party.

(f) Arbitration Fees and Costs; Attorneys' Fees. Executive will be required to pay an arbitration fee to initiate the arbitration equal to what he/she would be charged as a first appearance fee in court. The Company shall advance the remaining fees and costs of the arbitrator. However, to the extent permissible under the law, and following the arbitrator's ruling on the matter, the arbitrator may rule that the arbitrator's fees and costs be distributed in an alternative manner. The arbitrator's award in any arbitration brought pursuant to the provisions of this Agreement shall provide for the prevailing party to recover from the other party the prevailing party's reasonable attorneys' fees relating to such action.

(g) Requirements for Modification or Revocation. This agreement to arbitrate shall survive the termination of Executive's employment with the Company. It can only be revoked or modified by a writing signed by the parties that specifically states an intent to revoke or modify this Agreement.

(h) Consideration. Executive understands that the provisions for severance pay as set forth herein and his or her continued employment with the Company are consideration for his/her acceptance of these arbitration provisions. In addition, the promises by the Company and by Executive to arbitrate claims, rather than litigate them before courts or other bodies, provide consideration for each other.

(i) Violation of this Agreement. Should any party to this Agreement hereafter institute any legal action or administrative proceeding against the other with respect to any claim required to be arbitrated under this Agreement or

pursue any arbitral dispute by any method other than arbitration, the responding party shall recover from the initiating party all damages, costs, expenses and attorneys' fees incurred as a result of such action.

9. Entire Agreement; Effect of Prior Agreements. This is the complete agreement of the parties on the subjects set forth herein, including severance pay upon a Change in Control and arbitration of disputes. This Agreement supersedes any prior or contemporaneous oral or written understanding on such subjects. No party is relying on any representations, oral or written, on the subject of the effect, enforceability, or meaning of this Agreement, except as specifically set forth in this Agreement. In the event of a conflict between any of the terms of this Agreement and any of the terms of (i) any of the agreements related to the Stock Awards, or (ii) that certain accepted original offer of employment between Executive and the Company, the terms of this Agreement shall prevail. Without limiting the generality of the foregoing, the arbitration provisions of the arbitration policy accompanying the original offer of employment shall be superseded by the arbitration provisions set forth in this Agreement.

10. Amendment. This Agreement may not be amended without the prior written consent of both Executive and the Company.

11. No Right to Continued Employment. This Agreement does not constitute a contract of employment, does not change the status of the Executive's employment and does not change the Company's policies regarding termination of employment. Nothing in this Agreement shall be deemed to give Executive the right to be retained in the service of the Company or to deny the Company any right it may have to discharge or demote Executive at any time; provided, however, that any termination of employment of Executive, or any removal of Executive as an executive officer of the Company primarily in contemplation of a Change in Control shall not be effective to deny Executive the benefits of this Agreement, including without limitation Sections 1, 2 and 3 hereof. No provision of this Agreement shall in any way limit, restrict or prohibit Executive's right to terminate employment with the Company or leave his/her position as a senior executive.

12. Severability. If a court or other body of competent jurisdiction determines that any provision of this Agreement is invalid or unenforceable, that provision will be adjusted rather than voided, if possible, so that it is enforceable to the maximum extent possible, or, if it is not possible to so adjust such provision, this Agreement shall be construed in all respects as if such invalid or unenforceable provision were omitted. The invalidity and unenforceability of any particular provision of this Agreement shall not affect any other provision hereof, and all other provisions of the Agreement shall be valid and enforceable to the fullest extent possible.

13.Successors.

(a) The Company will require any successor, whether direct or indirect, by purchase, merger, consolidation or otherwise, to all or substantially all of the business and/or assets of the Company to expressly assume and agree to perform this Agreement in the same manner and to the same extent that the Company would be required to perform it if no such succession had taken place.

(b) This Agreement shall inure to the benefit of, and be enforceable by, Executive's personal or legal representatives, executors, administrators, successors, heirs, distributes, devisees and legatees.

14. Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the State of California without regard or reference to the rules of conflicts of law that would require the application of the laws of any other jurisdiction.

IN WITNESS WHEREOF, the parties hereto have duly executed this Agreement, effective as of the date set forth in the first paragraph hereof.

TIVO CORPORATION EXECUTIVE

By: ________________________________ By: ________________________________

Name: Thomas Carson, CEO Name: ______________________________

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Section 3: EX-10.31 (EXHIBIT 10.31)

Exhibit 10.31

October 4, 2017

Thomas Carson
BY HAND DELIVERY

Dear Tom,

This is to confirm the parameters of your retirement from TiVo Corporation or one of its subsidiaries (collectively, "***TiVo***" or the "***Company***"), which was publicly announced by the Company on May 24, 2017 and the orderly continuation of your duties in connection with the Board of Directors (the "***Board***") finding your successor.

As previously discussed, you will continue in your role as President and CEO and a member of the Board of TiVo until the date on which a new CEO commences employment (the "***Transition Date***"). As of the Transition Date, you also will cease being a member of the Board of Directors and you will no longer be responsible for your current responsibilities as CEO and you will no longer have your current team reporting to you. From the Transition Date through April 6, 2018 (the "***Termination Date***", and such period being referred to as the "***Transition Period***"), your new title will be Strategic Advisor, reporting to the Chairman of the Board of the Company. During the Transition Period, you agree to support the orderly transition of responsibilities for Company operations to the new CEO and help advise the Board as requested.

During the Transition Period, your base salary of $625,000 and 2017 Senior Executive Company Incentive Plan bonus eligibility of 100% of base salary remain unchanged. In addition, all issued unvested equity awards will remain eligible to vest in accordance with their terms during the Transition Period. You will receive standard health, welfare and other employee benefits during the Transition Period as any other full-time employee; provided, however, you shall not be eligible to participate in the 2018 Senior Executive Company Incentive Plan. During the Transition Period and the Salary Continuation period (as defined below), your position will be located in the Wayne, Pennsylvania office and/or remotely from your home in Pennsylvania, provided, however, that occasional travel on business related activities may be needed. The Company shall reimburse you for all reasonable business-related expenses and business travel expenses incurred during the Transition Period and the Salary Continuation Period in accordance with the Company's travel and expense reimbursement policy (and the parameters for CEO-level employees contained in the Company's travel policy in effect as of the Transition Date shall apply during both the Transition Period and the Salary Continuation Period).

Until the earliest to occur of (i) the date on which your employment is terminated through no fault of your own (and other than due to death or disability) and (ii) the Transition Date, you shall continue to be entitled to all rights and benefits for which you are eligible under the terms and conditions of the Amended and Restated Executive Severance and Arbitration Agreement (the "***Executive Agreement***") made and entered into as of December 14, 2011 by and between you and the Company, after which time no payments shall be made pursuant to the Executive Agreement but the remainder of the Executive Agreement shall remain in effect in accordance with its terms.

Following the end of the Transition Period, in exchange for (a) signing a separation agreement and release of claims against the Company in a form acceptable to the Company and allowing such release to take effect within the sixty (60) day period following the Termination Date and (b) continuing to assist the Company during the Salary Continuation period (as defined below) on matters of historical knowledge, including but not limited to existing or future litigation about which you have relevant knowledge, you will be offered the following severance benefits:

(i) An amount equal to twelve months of base salary ($625,000), less all applicable withholdings and deductions, paid over such twelve-month period on the schedule and subject to the conditions described in Section 1(h) of the Executive Agreement (the "***Salary Continuation***").

(ii) A payment of $625,000, which is equal to 100% of your annual target bonus (assuming full performance, but no over-performance, of targets, and for clarity excluding any discretionary bonuses), payable in a lump-sum, less applicable deductions and withholdings, on the 60th day following the Termination Date. For the avoidance of doubt, this reference to a bonus amount is solely as a proxy for calculating the severance payment and is not a substitute for your actual bonus, if any, under the 2017 Senior Executive Company Incentive Plan.

(iii) Acceleration of the vesting of Stock Awards (as defined in Section 3 of the Executive Agreement), other than Performance-Based Vesting Shares (as defined in Section 3 of the Executive Agreement), held by you as of the Termination Date as to the number of shares that would have vested in accordance with the applicable vesting

schedule as if you had been in service for an additional twelve months from the Termination Date (without giving effect to any Change in Control that may occur following the Transition Date). Vested stock options may be exercised for a period of twelve (12) months following the date of your separation from service, but only to the extent it was exercisable on such separation date (after taking into account any acceleration).

(iv) Welfare Benefits in accordance with Section 2(a) through 2(c) of the Executive Agreement. For avoidance of doubt, the Company shall not provide the outplacement assistance benefit reimbursement contained in Section 2(d) of the Executive Agreement.

(v) The Company's directors' and officers' liability insurance policy shall continue to insure you after the Transition Period against insurable events which occurred while you were a director or officer of TiVo Corporation or its subsidiaries. In addition, your Indemnification Agreement dated May 2, 2008 shall also continue with respect to claims arising out of your employment with the Company as provided under such agreement.

If your employment is terminated through no fault of your own (and other than due to death or disability) prior to the end of the Transition Period, you shall receive, as applicable (i) your base salary and all other accrued amounts through the termination date and (ii) subject to your execution, delivery and non-revocation of an effective release of all claims against the Company within the sixty (60) day period following the date of your separation from service, the following:

(a) in a lump sum, on the 60th day following the date of your separation from service, the remainder of your base salary amount for the Transition Period, less any amounts already paid through the date of your separation from service; and

(b) all of the severance benefits listed in sections (i)-(v) above.

Sincerely,

James Meyer
Chairman of the Board

Agreed & Accepted: ____________________ __________
Thomas Carson Date

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Section 4: EX-21.01 (EXHIBIT 21.01)

Exhibit 21.01

LIST OF SUBSIDIARIES

NAME	STATE OR OTHER JURISDICTION OF INCORPORATION
All Media Guide, LLC	Delaware
Aptiv Digital LLC	Delaware
Cubiware Sp. z o.o.	Poland
DigitalSmiths Corporation	Delaware
EuroMedia Group, Inc.	Delaware
Fanhattan, Inc.	Delaware
Gemstar Development LLC	California
Gemstar-TV Guide Interactive, LLC	Delaware
Interactive Program Guide, Inc. (46.25% owned)	Japan
InterActual Technologies, Inc.	California
IPG Development Venture, LLC	Delaware

Rovi Corporation	Delaware
Rovi Corporation (Shanghai) Co., Ltd.	China
Rovi Corporate Services, Inc.	Delaware
Rovi Data Solutions, Inc.	Delaware
Rovi Europe Ltd.	United Kingdom
Rovi Global Services SARL	Luxembourg
Rovi Guides, Inc.	Delaware
Rovi International Solutions SARL	Luxembourg
Rovi Netherlands BV	Netherlands
Rovi Solutions Corporation	Delaware
Rovi Technologies Corporation	Delaware
Sonic Solutions International, Inc.	Delaware
Sonic Solutions Holdings Inc.	Delaware
Sonic Solutions LLC	California
TiVo Brands LLC	Delaware
TiVo Canada Inc.	Canada
TiVo Europe S.R.L.	Romania
TiVo International, Inc.	Delaware
TiVo Korea Co. Ltd.	Korea
TiVo KK	Japan
TiVo Research and Analytics, Inc.	Delaware
TiVo Singapore Pte. Ltd.	Singapore
TiVo Solutions Inc.	Delaware
TiVo Solutions Mexico S. de R.L. de C.V.	Mexico
TV Guide Affiliate Sales & Marketing, Inc.	Delaware
TV Guide Interactive Group, Inc.	Delaware
TV Guide International, Inc.	Delaware
TV Guide Media Sales, Inc.	Delaware
TV Guide Mobile Entertainment, Inc.	Delaware
TV Guide Online, Inc.	Delaware

TVG-PMC, Inc.	Delaware
TVSM Publishing, Inc.	Delaware
Veveo, Inc.	Delaware
Veveo (India) Private Limited	India

All subsidiaries are 100% owned unless otherwise noted.

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Section 5: EX-23.01 (EXHIBIT 23.01)

Exhibit 23.01

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in the Registration Statement (Form S-8 No. 333-213578) pertaining to the Rovi Corporation 2000 Equity Incentive Plan, Rovi Corporation Amended 2008 Equity Incentive Plan, Rovi Corporation Amended 2008 Employee Stock Purchase Plan, TiVo Inc. Amended and Restated 1999 Equity Incentive Plan, and TiVo Inc. Amended and Restated 2008 Equity Incentive Award Plan (now named the "TiVo Corporation Titan Equity Incentive Award Plan") of TiVo Corporation of our reports dated February 27, 2018, with respect to the consolidated financial statements of TiVo Corporation and subsidiaries, and the effectiveness of internal control over financial reporting of TiVo Corporation and subsidiaries, included in this Annual Report (Form 10-K) for the year ended December 31, 2017.

/s/ Ernst & Young LLP

Los Angeles, California
February 27, 2018

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Section 6: EX-31.01 (EXHIBIT 31.01)

Exhibit 31.01

CERTIFICATION

I, Enrique Rodriguez, certify that:

1. I have reviewed this Annual Report on Form 10-K of TiVo Corporation;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our

supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent function):

a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 27, 2018

/s/ Enrique Rodriguez
Enrique Rodriguez
President and Chief Executive Officer

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Section 7: EX-31.02 (EXHIBIT 31.02)

Exhibit 31.02

CERTIFICATION

I, Peter C. Halt, certify that:

1. I have reviewed this Annual Report on Form 10-K of TiVo Corporation;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent function):

a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are

reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 27, 2018

/s/ Peter C. Halt

Peter C. Halt
Chief Financial Officer

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Section 8: EX-32.01 (EXHIBIT 32.01)

Exhibit 32.01

SECTION 1350 CERTIFICATION

In connection with the Annual Report of TiVo Corporation (the "Company") on Form 10-K for the period ended December 31, 2017, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), Enrique Rodriguez certifies in his capacity as Chief Executive Officer of the Company, pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (18 U.S.C. Section 1350, as adopted), that to the best of his knowledge:

(a) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. 78m(a) or 78o (d)), and

(b) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operation of the Company.

IN WITNESS WHEREOF, the undersigned has hereunto signed this Certification as of February 27, 2018.

/s/ Enrique Rodriguez

Enrique Rodriguez
President and Chief Executive Officer

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Section 9: EX-32.02 (EXHIBIT 32.02)

Exhibit 32.02

SECTION 1350 CERTIFICATION

In connection with the Annual Report of TiVo Corporation (the "Company") on Form 10-K for the period ended December 31, 2017, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), Peter C. Halt certifies in his capacity as Chief Financial Officer of the Company, pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (18 U.S.C. Section 1350, as adopted), that to the best of his knowledge:

(a) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. 78m(a) or 78o (d)), and

(b) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operation of the Company.

IN WITNESS WHEREOF, the undersigned has hereunto signed this Certification as of February 27, 2018.

/s/ Peter C. Halt

Peter C. Halt
Chief Financial Officer

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