Section 1: 10-Q (10-Q)

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

FORM 10-Q

(Mark One)

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

For the quarterly period ended September 30, 2018

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)

N/A

(Former name, former address and former fiscal year, if changed since last report)

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 every Interactive Data File required to be submitted 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 such files). Yes ☑ No ☐

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 ☐	

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 ☑

Indicate the number of shares outstanding of each of the issuer's classes of common stock, as of the latest practicable date.

(in thousands) **Class**	**Outstanding as of October 31, 2018**
Common Stock	123,927

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PART I. FINANCIAL INFORMATION

ITEM 1. FINANCIAL STATEMENTS

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

	September 30, 2018	December 31, 2017
ASSETS	(Unaudited)	
Current assets:		
Cash and cash equivalents	$ 149,655	$ 128,965
Short-term marketable securities	162,073	140,866
Accounts receivable, net	173,749	180,768
Inventory	7,963	11,581
Prepaid expenses and other current assets	36,012	40,719
Total current assets	529,452	502,899
Long-term marketable securities	70,296	82,711
Property and equipment, net	50,689	55,244
Intangible assets, net	524,057	643,924
Goodwill	1,813,183	1,813,227
Other long-term assets	57,104	65,673
Total assets	$ 3,044,781	$ 3,163,678
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable and accrued expenses	$ 92,557	$ 135,852
Unearned revenue	49,667	55,393
Current portion of long-term debt	7,000	7,000
Total current liabilities	149,224	198,245
Taxes payable, less current portion	4,694	3,947
Unearned revenue, less current portion	50,356	58,283
Long-term debt, less current portion	982,801	976,095
Deferred tax liabilities, net	51,150	50,356
Other long-term liabilities	14,982	23,736
Total liabilities	1,253,207	1,310,662
Commitments and contingencies (Note 11)		
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; 125,629 shares issued and 123,875 shares outstanding as of September 30, 2018; and 123,385 shares issued and 122,116 shares outstanding as of December 31, 2017	126	123
Treasury stock, 1,754 shares and 1,269 shares as of September 30, 2018 and December 31, 2017, respectively, at cost	(31,495)	(24,740)
Additional paid-in capital	3,249,615	3,273,022
Accumulated other comprehensive loss	(4,297)	(2,738)
Accumulated deficit	(1,422,375)	(1,392,651)
Total stockholders' equity	1,791,574	1,853,016
Total liabilities and stockholders' equity	$ 3,044,781	$ 3,163,678

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

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

	Three Months Ended September 30, 2018	Three Months Ended September 30, 2017	Nine Months Ended September 30, 2018	Nine Months Ended September 30, 2017
Revenues, net:				
Licensing, services and software	$ 160,783	$ 188,031	$ 516,495	$ 577,545
Hardware	3,926	9,867	10,911	34,675
Total Revenues, net	164,709	197,898	527,406	612,220
Costs and expenses:				
Cost of licensing, services and software revenues, excluding depreciation and amortization of intangible assets	40,749	42,811	126,547	124,398
Cost of hardware revenues, excluding depreciation and amortization of intangible assets	4,220	9,889	14,260	35,877
Research and development	42,053	48,872	133,894	144,386
Selling, general and administrative	39,867	47,431	133,906	147,121
Depreciation	5,338	5,015	16,252	15,869
Amortization of intangible assets	37,242	41,722	119,463	125,100
Restructuring and asset impairment charges	2,921	3,710	8,568	17,623
Total costs and expenses	172,390	199,450	552,890	610,374
Operating (loss) income	(7,681)	(1,552)	(25,484)	1,846
Interest expense	(12,436)	(10,990)	(36,241)	(31,827)
Interest income and other, net	861	1,059	2,971	3,819
Gain (loss) on interest rate swaps	1,033	(39)	7,185	(1,374)
TiVo Acquisition litigation	—	(1,100)	—	(14,006)
Loss on debt extinguishment	—	—	—	(108)
Loss on debt modification	—	—	—	(929)
Loss from continuing operations before income taxes	(18,223)	(12,622)	(51,569)	(42,579)
Income tax expense	4,769	4,341	13,305	13,816
Loss from continuing operations, net of tax	(22,992)	(16,963)	(64,874)	(56,395)
Income from discontinued operations, net of tax	143	—	3,738	—
Net loss	$ (22,849)	$ (16,963)	$ (61,136)	$ (56,395)
Basic loss per share:				
Continuing operations	$ (0.19)	$ (0.14)	$ (0.53)	$ (0.47)
Discontinued operations	—	—	0.03	—
Basic loss per share	$ (0.19)	$ (0.14)	$ (0.50)	$ (0.47)
Weighted average shares used in computing basic per share amounts	123,459	120,935	122,756	119,994
Diluted loss per share:				
Continuing operations	$ (0.19)	$ (0.14)	$ (0.53)	$ (0.47)
Discontinued operations	—	—	0.03	—
Diluted loss per share	$ (0.19)	$ (0.14)	$ (0.50)	$ (0.47)
Weighted average shares used in computing diluted per share amounts	123,459	120,935	122,756	119,994
Dividends declared per share	$ 0.18	$ 0.18	$ 0.54	$ 0.54

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

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

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
Net loss	$ (22,849)	$ (16,963)	$ (61,136)	$ (56,395)
Other comprehensive (loss) income, net of tax:				
Change in foreign currency translation adjustment	(286)	267	(1,889)	3,394
Unrealized gains on marketable securities				
Change in unrealized gains on marketable securities	222	82	114	351
Less: Reclassification adjustment on sale	—	—	216	—
Other comprehensive (loss) income, net of tax	(64)	349	(1,559)	3,745
Comprehensive loss	$ (22,913)	$ (16,614)	$ (62,695)	$ (52,650)

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

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

	Nine Months Ended September 30,	
	2018	2017
Cash flows from operating activities:		
Net loss	$ (61,136)	$ (56,395)
Adjustments to reconcile net loss to net cash provided by operating activities:		
Income from discontinued operations, net of tax	(3,738)	—
Depreciation	16,252	15,869
Amortization of intangible assets	119,463	125,100
Amortization of convertible note discount and note issuance costs	11,586	11,016
Restructuring and asset impairment charges	8,568	17,623
Equity-based compensation	28,226	38,781
Change in fair value of interest rate swaps	(10,245)	(5,102)
TiVo Acquisition litigation	—	14,006
Loss on debt extinguishment	—	108
Loss on debt modification	—	929
Deferred income taxes	(447)	1,035
Other operating, net	1,819	(3,358)
Changes in operating assets and liabilities:		
Accounts receivable	30,548	(42,155)
Inventory	3,618	1,476
Prepaid expenses and other current assets and other long-term assets	7,377	(58,411)
Accounts payable and accrued expenses and other long-term liabilities	(35,237)	(29,680)
Taxes payable	(474)	2,141
Unearned revenue	(2,445)	18,276
Net cash provided by operating activities of continuing operations	113,735	51,259
Net cash provided by operating activities of discontinued operations	—	—
Net cash provided by operating activities	113,735	51,259
Cash flows from investing activities:		
Payments for purchase of short- and long-term marketable securities	(150,583)	(121,979)
Proceeds from sales or maturities of short- and long-term marketable securities	142,753	150,261
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	(17,053)	(22,534)
Payments for purchase of patents	—	(2,000)
Other investing, net	15	(67)
Net cash used in investing activities	(24,868)	(88,206)
Cash flows used in financing activities:		
Proceeds from issuance of long-term debt, net of issuance costs	—	681,552
Principal payments on long-term debt	(5,250)	(687,750)
Payments for dividends	(66,687)	(65,238)
Payments for contingent consideration and deferred holdback	(1,874)	(2,650)
Payments for withholding taxes related to net settlement of restricted awards	(6,755)	(12,784)
Proceeds from employee stock purchase plan and exercise of employee stock options	12,854	22,364
Net cash used in financing activities	(67,712)	(64,506)
Effect of exchange rate changes on cash and cash equivalents	(465)	1,613
Net increase (decrease) in cash and cash equivalents	20,690	(99,840)
Cash and cash equivalents at beginning of period	128,965	192,627
Cash and cash equivalents at end of period	$ 149,655	$ 92,787

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

TIVO CORPORATION AND SUBSIDIARIES
NOTES TO CONDENSED 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 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 ("STB") solutions that enable people to find and enjoy online video, television ("TV"), 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 the Company's 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 which enable advanced audience targeting and measurement in linear and OTT TV advertising. Solutions are sold globally to cable, satellite, consumer electronics ("CE"), entertainment, media and online distribution companies, and, in the United States, the Company sells a suite of DVR and whole home media products and services directly to retail consumers.

Basis of Presentation and Principles of Consolidation

The accompanying unaudited Condensed Consolidated Financial Statements have been prepared in accordance with the rules and regulations of the Securities and Exchange Commission. Certain information and disclosures normally included in financial statements prepared in accordance with accounting principles generally accepted in the United States of America ("U.S. GAAP") have been condensed or omitted in accordance with such rules and regulations. However, the Company believes the disclosures made are adequate to make the information not misleading. In the opinion of management, the accompanying unaudited Condensed Consolidated Financial Statements reflect all adjustments, consisting only of normal recurring adjustments, which in the opinion of management, are considered necessary to present fairly the results for the periods presented.

The information contained in this Quarterly Report on Form 10-Q should be read in conjunction with the audited financial statements and notes thereto and other disclosures contained in the Company’s Annual Report on Form 10-K for the year ended December 31, 2017. The Condensed Consolidated Statements of Operations, Condensed Consolidated Statements of Comprehensive Loss and the Condensed Consolidated Statements of Cash Flows for the interim periods presented are not necessarily indicative of the results to be expected for the year ending December 31, 2018, for any future year, or for any other future interim period.

The accompanying Condensed 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.

Use of Estimates

The preparation of the Condensed Consolidated Financial Statements in conformity with U.S. GAAP requires management to make estimates, assumptions and judgments that affect the reported amounts of assets and liabilities and related disclosures as of 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.

Concentrations of Risk

The TiVo service is enabled using a DVR manufactured by a third-party. 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.

Accounts Receivable

The timing of revenue recognition may differ from the timing of invoicing to customers. The Company records a receivable when revenue is recognized prior to cash collection. A receivable related to revenue recognized for multi-year licenses is recognized when the Company has an unconditional right to invoice and receive payment in the future related to those licenses.

Payment terms and conditions vary by contract type, location of customer and the products or services offered, although terms generally require payment from a customer within 30 to 60 days. When the timing of revenue recognition differs from the timing of cash collection, an evaluation is performed to determine whether the contract includes a significant financing component. As the primary purpose of the Company's invoicing terms is to provide customers with simplified and predictable ways of purchasing products and services, significant financing components are generally not identified in the Company’s contracts with customers.

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. For customers for which a specific allowance for doubtful accounts was recorded, adjustments to recoverability estimates are recorded when there are subsequent changes in the specific customer's circumstances. 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.

Contract Assets

Contract assets primarily consist of revenue recognized in excess of the amount billed to the customer, limited to net realizable value and deferred engineering costs for significant software customization or modification and set-up services to the extent deemed recoverable. Contract assets for unbilled receivables are reclassified to Accounts receivable, net when the right to payment becomes unconditional.

Contract assets also include the incremental costs of obtaining a contract with a customer, principally sales commissions when the renewal commission is not commensurate with the initial commission. The incremental costs of obtaining a contract with a customer are recognized as an asset when the expected period of benefit is greater than one year. The incremental costs of obtaining a contract with a customer are amortized on a straight-line basis over a period of time commensurate with the period of benefit, generally three to five years, which considers the transfer of goods or services to which the assets relate, technological developments during the period of benefit, customer history and other factors. The period of benefit is generally the estimated life of the customer relationship if renewals are expected, and may exceed the contract term. Amortization of the capitalized incremental costs of obtaining a contract with a customer is included in Selling, general and administrative expenses in the Condensed Consolidated Statements of Operations.

Contract assets are classified as current or noncurrent in the Condensed Consolidated Balance Sheets based on when the asset is expected to be realized. Contract assets are subject to periodic impairment reviews.

Contract Liabilities, including Unearned Revenue

Contract liabilities are mainly comprised of unearned revenue related to consumer lifetime subscriptions to the TiVo service and multi-period licensing or cloud-based services and other offerings for which the Company is paid in advance of when control of the good or service is transferred to the customer. Unearned revenue also includes amounts related to professional services to be performed in the future. Unearned revenue arises when cash payments are received or due, including amounts which are refundable, in advance of performance. Contract liabilities exclude amounts expected to be refunded. Payment terms and conditions vary by contract type, location of customer and the products or services offered. For certain products or services and customer types, payment before the products or services are delivered to the customer is required.

Revenue Recognition

General

Revenue is recognized when control of the promised goods or services is transferred to a customer in an amount that reflects the consideration the Company expects to receive in exchange for those goods or services, which may include various combinations of goods and services which are generally capable of being distinct and accounted for as separate performance obligations. Revenue is recognized net of taxes collected from customers which are subsequently remitted to governmental authorities.

Depending on the terms of the contract, a portion of the consideration received may be deferred because of a requirement to satisfy a future obligation. Stand-alone selling price for separate performance obligations is based on observable prices charged to customers for goods or services sold separately or the cost-plus-a-margin approach when observable prices are not available, considering overall pricing objectives.

Arrangements with Multiple Performance Obligations

Some of the Company’s contracts with customers contain multiple performance obligations. For these contracts, the individual performance obligations are separately accounted for if they are distinct. In an arrangement with multiple performance obligations, the transaction price is allocated among the separate performance obligations on a relative stand-alone selling price basis. The determination of stand-alone selling price considers market conditions, the size and scope of the contract, customer and geographic information, and other factors. The allocation of transaction price among performance obligations in a contract may impact the amount and timing of revenue recognized in the Condensed Consolidated Statements of Operations during a given period.

Contract Modifications

Contracts may be modified due to changes in contract specifications or customer requirements. Contract modifications occur when the change in terms either creates new enforceable rights and obligations or changes existing enforceable rights and obligations. The effect of a contract modification for goods and services that are not distinct in the context of the contract on the transaction price is recognized as an adjustment to revenue on a cumulative catch-up basis. Contract modifications that result in goods or services that are distinct from the previously existing contract are accounted for prospectively.

Variable Consideration

When a contract with a customer includes a variable transaction price, an estimate of the consideration to which the Company expects to be entitled to for transferring the promised goods or services is made at contract inception. Depending on the terms of the contract, variable consideration is estimated using either the expected value approach or the most likely value approach. Under either approach to estimating variable consideration, the estimate considers all information (historical, current and forecast) that is reasonably available at contract inception. The amount of variable consideration is estimated at contract inception and updated as additional information becomes available. The estimate of variable consideration is included in the transaction price to the extent it is probable that a significant reversal of cumulative revenue recognized will not occur when the uncertainty associated with the variable consideration is resolved. Subsequent changes in the transaction price resulting from changes in the estimate of variable consideration are allocated to the performance obligations in the contract on the same basis as at contract inception.

Certain payments to retailers and distributors, such as market development funds and revenue shares, are treated as a reduction of the transaction price, and therefore revenue, rather than Selling, general and administrative expense. The reduction of revenue is recognized at the later of when revenue is recognized for the transfer of the related goods or services to the customer or when the Company pays or promises to pay the consideration.

When variable consideration is in the form of a sales-based or usage-based royalty in exchange for a license of intellectual property, or when a license of intellectual property is the predominant item to which the variable consideration relates, revenue is recognized at the later of when the subsequent sale or usage occurs or the performance obligation to which some or all of the sales-based or usage-based royalty has been allocated has been satisfied or partially satisfied.

Significant Judgments

Determining whether promises to transfer multiple goods and services in contracts with customers are considered distinct performance obligations that should be accounted for separately requires significant judgment, including related to the level of integration and interdependency between the performance obligations. In addition, judgment is necessary to allocate the transaction price to the distinct performance obligations, including whether there is a discount or significant financing component to be allocated based on the relative stand-alone selling price of the various performance obligations.

Significant judgment is required to determine the stand-alone selling price for each distinct performance obligation when an observable price is not available. In instances where stand-alone selling price is not directly observable, such as when the Company does not sell the good or service separately, the stand-alone selling price is determined using a range of inputs that includes market conditions and other observable inputs. More than one stand-alone selling price may exist for individual goods and services due to the stratification of those goods and services, considering attributes such as the size of the customer and geographic region.

Due to the nature of the work required to be performed on some performance obligations, significant judgment may be required to determine the transaction price. It is common for the Company's license agreements to contain provisions that can either increase or decrease the transaction price. These variable amounts are generally estimated based on usage or the achievement of performance metrics. In addition to estimating variable consideration, significant judgment is necessary to identify forms of variable consideration, determine whether the variable consideration relates to a sales-based or usage-based royalty of intellectual property and the determination of whether and when to include estimates of variable consideration in the transaction price.

Some hardware products are sold with a right of return and in other circumstances, other credits or incentives may be provided such as consideration (sales incentives) given to customers or resellers, which are accounted for as variable consideration and recognized as a reduction to the revenue recognized. Estimates of returns, credits and incentives are made at contract inception and updated each reporting period.

In contracts 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 software, the Company recognizes revenue as progress toward completion occurs using an input method based on the ratio of costs incurred to date to total estimated costs of the project. Significant judgment is required to estimate the remaining effort to complete the project. These estimates are reassessed throughout the term of the arrangement.

On an ongoing basis, management evaluates its estimates, inputs and assumptions related to revenue recognition. Using different estimates, inputs or assumptions may materially affect the reported amounts of assets and liabilities as of the date of the financial statements and the results of operations for the reporting period.

Nature of goods and services

The following is a discussion of the principal activities from which the Company generates its revenue.

Patent Licensing Agreements

The Company licenses its discovery patent portfolio to traditional pay TV providers, virtual service providers, OTT video providers, CE manufacturers and others. The Company licenses its patented technology portfolio under two revenue models: (i) fixed-fee licenses and (ii) per-unit royalty licenses.

The Company's long-term fixed-fee license agreements provide rights to future patented technologies over the term of the agreement that are highly interdependent or highly interrelated to the patented technologies provided at the inception of the agreement. The Company treats these rights as a single performance obligation with revenue recognized on a straight-line basis over the term of the fixed-fee license agreement.

At times, the Company enters into license agreements in which a licensee is released from past patent infringement claims and is granted a license to ship an unlimited number of units over a future period for a fixed fee. In these arrangements, the Company allocates the transaction price between the release for past patent infringement claims and the future license. In determining the stand-alone selling price 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 geographies these units were shipped, the number of units expected to be shipped in the future and in what geographies these units are expected to be shipped, as well as the licensing rate the Company generally receives for units shipped in the same geographies. As the release from past patent infringement claims is generally satisfied at execution of the agreement, the transaction price allocated to the release from past patent infringement claims is generally recognized in the period the agreement is executed and the amount of transaction price allocated to the future license is recognized ratably over the future license term.

The Company recognizes 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 sales are subsequently reported by the licensees, which is generally in the month or quarter following usage or shipment. The Company generally recognizes revenue from per-unit royalty licenses on a per-subscriber per-month model for licenses with service providers and a per-unit shipped model for licenses with CE manufacturers.

Arrangements with Multiple System Operators for the TiVo Service

The Company's arrangements with multiple system operators ("MSOs") typically include software customization and set-up services, associated maintenance and support, limited training, post-contract support, TiVo-enabled DVRs, non-DVR STBs and the TiVo service.

The Company has two types of arrangements with MSOs that include technology deployment and engineering services. In instances where the Company hosts the TiVo service, non-refundable payments received for customization and set-up services are deferred and recognized as revenue over the contractual term. The related cost of such services is capitalized to the extent it is deemed recoverable and amortized to cost of revenues over the same period as the related TiVo service revenue is recognized. The Company estimates the stand-alone selling prices for training, DVRs, non-DVR STBs and maintenance and support based on the price charged in stand-alone sales of the promised good or service. The stand-alone selling price 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. For a term license to the TiVo service, the Company receives license fees for the hosted TiVo service on either a per-subscriber per-month basis or a fixed fee. The Company recognizes revenue from per-subscriber per-month licenses during the month the TiVo service is provided to the customer and recognizes revenue from fixed fee licenses ratably over the license period.

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 as progress toward completion is made using an input method based on the ratio of costs incurred to date to total estimated costs of the project. Project costs are primarily labor 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 and are expensed as incurred. Estimating project costs requires forecasting costs, tracking progress toward completion 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. Provisions for losses are recorded when estimates indicate it is probable that a loss will be incurred for the contract. The Company generally recognizes revenue from license fees for the TiVo service that it does not host on a per-subscriber per-month basis due to the recognition constraint on intellectual property usage-based royalties.

Subscription Services

Subscription services revenues primarily consist of fees to provide customers with access to one or more of the Company's hosted products such as its i-Guide IPG, advanced search and recommendations, metadata and analytics products, including routine customer support. The Company generally receives per-subscriber per-month fees for its i-Guide IPG and search and recommendations service and revenue is recorded in the month the customer uses the service. The Company generally receives a monthly or quarterly fee from its metadata or analytics licenses for the right to use its metadata or access its analytics platform and to receive regular updates. Revenue from the Company's metadata and analytics service is recognized ratably over the subscription period.

Passport Software

The Company licenses its Passport IPG software to pay TV providers in North and South America. The Company generally receives per-subscriber per-month fees for licenses to its Passport IPG software and support. Due to the usage-based royalty provisions of the revenue recognition guidance, revenue is generally recognized in the month the customer uses the software.

Advertising

The Company generates advertising revenue through its IPGs. 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 sales programs via the TiVo.com website and licenses the sale of TiVo-enabled DVRs through a limited number of retailers. For sales through the TiVo.com website, 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 subscription period, customers have various pricing options when they renew their subscription. Customers have the right to return the DVR within 30 days of purchase. Customers have the right to cancel their subscription to the TiVo service within 30 days of subscription activation for a full refund. For licensed sales of TiVo-enabled DVRs through retailers, the customer commits to either a minimum subscription period of one year or for the lifetime of the DVR.

The stand-alone selling price for the TiVo service is established based on stand-alone sales of the service and varies by the length of the service period. The stand-alone selling price of the DVR is determined based on the price for which the Company would sell the DVR without any service commitment from the customer.

The transaction price allocated to the DVR is recognized as revenue on delivery and the transaction price allocated to the TiVo service is recognized as revenue ratably over the service period. Subscription revenues from lifetime subscriptions are recognized ratably over the estimated useful life of the DVR associated with the subscription. The estimated useful life for a DVR depends on a number of assumptions, including, but not limited to, customer retention rates, the timing of new product introductions and historical experience. As of September 30, 2018, the Company recognizes revenue for lifetime subscriptions over a 66-month period. The Company periodically reassesses the estimated useful life of a DVR. When the actual useful life of the DVR materially differs from the Company's estimate, the estimated useful life of the DVR is adjusted, which could result in the recognition of revenue over a longer or shorter period of time.

Shipping and handling costs associated with outbound freight after control of a DVR has transferred to a customer are accounted for as a fulfillment cost and are included in Cost of hardware revenues, excluding depreciation and amortization of intangible assets as incurred.

Recent Accounting Pronouncements

Standards Recently Adopted

In January 2017, the Financial Accounting Standards ("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 was effective for the Company on January 1, 2018 and was applied using a prospective transition approach. Application of this guidance did not have an effect on the Condensed 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 amendment was effective for the Company on January 1, 2018 and was applied using a modified retrospective transition approach. Application of this guidance did not have an effect on the Condensed 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 was effective for the Company on January 1, 2018 and was applied using a retrospective transition approach. Application of this guidance did not have an effect on the Condensed Consolidated Financial Statements.

In March 2016, the FASB provided guidance for the derecognition of prepaid stored-value product liabilities, such as gift cards. Pursuant to this guidance, among other criteria, prepaid stored-value product liabilities are eligible to be derecognized when the likelihood of redemption becomes remote. The guidance was effective for the Company on January 1, 2018 and was applied using a modified retrospective transition approach. On adoption, the Company recorded a cumulative effect adjustment, net of tax effects, of $2.2 million that reduced Accumulated deficit for prepaid stored-value product liabilities where the likelihood of redemption was deemed to be remote at the adoption date.

In May 2014, the FASB issued an amended accounting standard for revenue recognition. The core principle of the amended revenue recognition guidance 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. 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. 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 Company adopted the amended revenue and cost recognition guidance on January 1, 2018 using the modified retrospective transition approach. On adoption, the Company recorded a cumulative effect adjustment, net of tax effects, that reduced Accumulated deficit by $27.9 million for the effects of the amended revenue recognition guidance and reduced Accumulated deficit by $1.3 million for the effects of capitalizing incremental costs to obtain contracts with customers. The significant differences giving rise to the cumulative effect adjustments are described in Note 5. Results for periods beginning after December 31, 2017 are presented under the amended revenue and cost recognition guidance, while prior period amounts were not restated and continue to be reported in accordance with the Company's previous revenue and cost recognition policies.

Standards Pending Adoption

In August 2018, the FASB modified the requirements for capitalizing costs incurred to implement a hosting arrangement that is a service contract. The modified requirements were intended to align the cost capitalization requirements for hosting arrangements with the cost capitalization requirements for internal-use software. The modified guidance is effective for the Company beginning on January 1, 2020, with early adoption permitted. The guidance can be applied prospectively to all arrangements entered into or materially modified after the effective date or using a retrospective transition approach. The Company does not expect application of the modified requirements for capitalizing costs incurred to implement a hosting arrangement to have a material effect on its Condensed Consolidated Financial Statements.

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 beginning on January 1, 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 Condensed 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 collectability. 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 of the financial instrument. The updated guidance also amends the 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 updated guidance is effective for the Company beginning on January 1, 2020 and is effective using a modified retrospective transition approach for the provisions related to application of the current expected credit loss model to financial instruments and using a prospective transition approach for the provisions related to credit losses on available-for-sale debt securities. Early application is permitted. The Company is evaluating the effect of application on its Condensed Consolidated Financial Statements.

In February 2016, the FASB issued a new accounting standard for leases. The new lease accounting standard generally requires the recognition of operating and financing lease liabilities and corresponding right-of-use assets on the statement of financial position. For operating leases, a lessee recognizes its total lease expense as an operating expense over the lease term. 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. On transition, the difference between the right-of-use asset and lease liabilities, net of any previously recognized lease-related assets and liabilities and any resulting deferred tax impact, is recognized as an adjustment to retained earnings.

The new lease accounting standard is effective for the Company beginning on January 1, 2019 using a modified retrospective transition approach, with early application permitted. The Company is evaluating the effect of application on its Condensed Consolidated Financial Statements and expects to apply the package of practical expedients permitted under the transition guidance within the new lease accounting standard, which among other things, permits the historical lease classification to carryforward. The Company also expects to apply a practical expedient to combine lease and non-lease components within a lease and to apply the transition alternative to record the cumulative effect of adoption on the date of initial application (i.e., January 1, 2019). Adoption of the new lease accounting standard is expected to result in the recognition of the present value of the Company's existing minimum lease payments as lease liabilities and a corresponding right-of-use asset, which may be material to the Condensed Consolidated Balance Sheets. The new lease accounting standard is not expected to materially affect the Condensed Consolidated Statements of Operations, Condensed Consolidated Statements of Comprehensive Loss or the Condensed Consolidated Statements of Cash Flows.

(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. TiVo Solutions' results of operations and cash flows have been included in the Condensed Consolidated Financial Statements for periods subsequent to September 7, 2016.

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 ("Dissenting Holders") filed a petition for appraisal pursuant to Section 262 of the Delaware General Corporation Law in the Court of Chancery of the State of Delaware (In re Appraisal of TiVo, Inc., C.A. No. 12909-CB (Del. Ch.)). On March 27, 2017, TiVo Corporation executed a settlement agreement with the Dissenting Holders to settle their claims 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 Condensed Consolidated Statements of Operations for the nine months ended September 30, 2017.

(3) Discontinued Operations

In the three and nine months ended September 30, 2018, the Company recognized Income from discontinued operations, net of tax of $0.1 million and $3.7 million, respectively, as a result of the expiration of certain indemnification obligations and the execution of settlement agreements during the period associated with previous business disposals, partially offset by an increase in legal defense costs.

(4) Financial Statement Details

Inventory (in thousands):

	September 30, 2018	December 31, 2017
Raw materials	$ 1,042	$ 1,846
Finished goods	6,921	9,735
Inventory	$ 7,963	$ 11,581

Property and equipment, net (in thousands):

	September 30, 2018	December 31, 2017
Computer software and equipment	$ 158,490	$ 150,098
Leasehold improvements	45,303	44,981
Furniture and fixtures	9,971	9,137
Property and equipment, gross	213,764	204,216
Less: Accumulated depreciation and amortization	(163,075)	(148,972)
Property and equipment, net	$ 50,689	$ 55,244

Accounts payable and accrued expenses (in thousands):

	September 30, 2018	December 31, 2017
Accounts payable	$ 10,828	$ 10,517
Accrued compensation and benefits	33,566	47,886
Other accrued liabilities	48,163	77,449
Accounts payable and accrued expenses	$ 92,557	$ 135,852

(5) Revenues

Adoption of Amended Revenue and Cost Recognition Guidance

The Company adopted the provisions of the amended revenue recognition guidance described in Note 1 using the modified retrospective transition approach on January 1, 2018. As such, the amended revenue recognition guidance was applied to those contracts which were not completed as of December 31, 2017. Results for periods beginning after December 31, 2017 are presented under the amended revenue recognition guidance, while prior period amounts were not restated and continue to be reported in accordance with the previous revenue recognition guidance.

In addition, the Company adopted amended guidance related to the capitalization and amortization of incremental costs to obtain a contract with a customer and guidance for the de-recognition of prepaid stored-value product liabilities, such as gift cards, each as described in Note 1 using the modified retrospective transition approach on January 1, 2018.

The cumulative effect of these changes on the Condensed Consolidated Balance Sheets on adoption was as follows (in thousands):

	December 31, 2017	Contracts with Customers	Costs to Obtain Contracts with Customers	De-recognition of Prepaid Stored Value Product Liabilities	January 1, 2018
Accounts receivable, net	$ 180,768	$ 24,177	$ —	$ —	$ 204,945
Prepaid expenses and other current assets	40,719	(2,705)	525	—	38,539
Other long-term assets	65,673	(4,419)	819	—	62,073
Accounts payable and accrued expenses	(135,852)	—	—	2,155	(133,697)
Unearned revenue	(55,393)	11,208	—	—	(44,185)
Deferred tax liabilities, net	(50,356)	(348)	—	—	(50,704)
Accumulated deficit	1,392,651	(27,913)	(1,344)	(2,155)	1,361,239

The most significant impact of the amended revenue recognition guidance relates to the accounting for software arrangements. Under prior industry-specific software revenue recognition guidance, when the Company concluded it did not have vendor-specific objective evidence ("VSOE") of fair value for the undelivered elements of an arrangement, revenue was deferred until the last element without VSOE was delivered. The amended revenue recognition guidance eliminated the concept of VSOE of fair value. The amended revenue recognition guidance requires an evaluation of whether the undelivered elements are distinct performance obligations and, therefore, should each be recognized separately when delivered. On adoption of the amended revenue recognition guidance, the Company accounted for the software and support elements of the TiVo Solutions international MSO agreements as two distinct performance obligations. These agreements contain minimum guarantees, and on adoption of the amended revenue recognition guidance, $34.4 million of these minimums were recorded as an increase in Accounts receivable, net and a reduction to Accumulated deficit as the software was delivered prior to the date of adoption.

The amended revenue recognition guidance also requires the Company to record revenue related to fixed-fee patent licensing agreements that do not provide the right to future patented technologies acquired by the Company during the term of the license when access to the existing patented technology is granted to the licensee. Under prior revenue recognition guidance, the Company recognized revenue from this type of fixed-fee license agreement on a straight-line basis over the term of the agreement. On adoption of the amended revenue recognition guidance, the Company recorded a $10.2 million reduction in Unearned revenue and Accumulated deficit for this type of fixed-fee license agreement.

The amended revenue recognition guidance includes specific guidance for contract modifications. Based on the nature of the modification, the revenue recognized for the contract may be updated on a cumulative catch-up basis on execution of the modification or updated prospectively as a result of the modification. For certain contract modifications, this accounting treatment differs from the accounting treatment in accordance with previous revenue recognition guidance.

Prior to the adoption of the amended revenue recognition guidance, the Company recognized revenue from per-unit royalty licenses with certain CE manufacturers and third party IPG providers in the period the licensee reported its sales to the Company, which was generally in the month or quarter after the underlying sales by the licensee occurred. On adoption of the amended revenue recognition guidance, revenue from per-unit royalty licenses is recognized in the period in which the licensee's sales are estimated to have occurred, limited to the amount of revenue that is not subject to a significant risk of reversal, which results in an adjustment to revenue when actual amounts are subsequently reported by the Company's licensees.

Pursuant to the amended cost capitalization guidance, incremental costs to obtain a contract with a customer are capitalized and amortized over a period of time commensurate with the expected period of benefit, which may exceed the contract term. Prior to the adoption of the amended cost capitalization guidance, the Company expensed incremental costs to obtain a contract with a customer as incurred.

The impact of adoption of the amended revenue and cost recognition guidance on the Condensed Consolidated Statements of Operations was as follows (in thousands):

	Three Months Ended September 30, 2018		
	As Reported	As If Applying Prior Guidance	Effect of Change Higher/(Lower)
Total Revenues, net	$ 164,709	$ 170,868	$ (6,159)
Cost of licensing, services and software revenues, excluding depreciation and amortization of intangible assets	40,749	41,512	(763)
Selling, general and administrative	39,867	40,195	(328)
Loss from continuing operations before income taxes	(18,223)	(13,155)	(5,068)
Income tax expense	4,769	5,143	(374)
Loss from continuing operations, net of tax	(22,992)	(18,298)	(4,694)

	Nine Months Ended September 30, 2018		
	As Reported	As If Applying Prior Guidance	Effect of Change Higher/(Lower)
Total Revenues, net	$ 527,406	$ 543,871	$ (16,465)
Cost of licensing, services and software revenues, excluding depreciation and amortization of intangible assets	126,547	128,458	(1,911)
Selling, general and administrative	133,906	134,232	(326)
Loss from continuing operations before income taxes	(51,569)	(37,341)	(14,228)
Income tax expense	13,305	14,460	(1,155)
Loss from continuing operations, net of tax	(64,874)	(51,801)	(13,073)

Practical Expedients and Exemptions

The Company applies a practical expedient to not perform an evaluation of whether a contract includes a significant financing component when the timing of revenue recognition differs from the timing of cash collection by one year or less.

The Company applies a practical expedient to expense costs to obtain a contract with a customer as incurred as a component of Selling, general and administrative expenses when the amortization period would have been one year or less.

The Company applies a practical expedient when disclosing revenue expected to be recognized from unsatisfied performance obligations to exclude contracts with customers with an original duration of less than one year, contracts for which revenue is recognized based on the amount which the Company has the right to invoice for services performed and amounts attributable to variable consideration arising from (i) a sales-based or usage-based royalty of an intellectual property license or (ii) when variable consideration is allocated entirely to a wholly unsatisfied performance obligation or to a wholly unsatisfied promise to transfer a distinct good or service that forms part of a single performance obligation.

Revenue Details

The following tables depict how the nature, amount, timing and uncertainty of revenue and cash flows are affected by economic factors by disaggregating revenue by product offering (in Note 15), significant customer, contract-type and geographic area. These tables include revenue recognized from contracts with customers and revenue from other sources, including out-of-license settlements. As noted above, amounts for the three and nine months ended September 30, 2017 have not been adjusted to reflect adoption of the amended revenue recognition guidance.

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

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
AT&T Inc. ("AT&T")	11%	14%	10%	14%

Substantially all revenue from AT&T is reported in the Intellectual Property Licensing segment.

By segment, the pattern of revenue recognition was as follows (in thousands):

	Three Months Ended September 30, 2018		
	Product	Intellectual Property Licensing	Total Revenues, net
Goods and services transferred at a point in time	$ 22,093	$ 26,528	$ 48,621
Goods and services transferred over time	72,519	39,768	112,287
Out-of-license settlements	—	3,801	3,801
Total Revenues, net	$ 94,612	$ 70,097	$ 164,709

	Nine Months Ended September 30, 2018		
	Product	Intellectual Property Licensing	Total Revenues, net
Goods and services transferred at a point in time	$ 79,569	$ 81,977	$ 161,546
Goods and services transferred over time	224,682	125,212	349,894
Out-of-license settlements	—	15,966	15,966
Total Revenues, net	$ 304,251	$ 223,155	$ 527,406

Total Revenues, net by geographic area was as follows (in thousands):

	Three Months Ended September 30, 2018	Nine Months Ended September 30, 2018
United States	$ 115,312	$ 351,423
United Kingdom	9,131	56,361
Rest of the world	40,266	119,622
Total Revenues, net	$ 164,709	$ 527,406

Revenue by geography is predominately based on the end user's location. Other than the United States, no country accounted for more than 10% of revenue for the three months ended September 30, 2018. Other than the United States and the United Kingdom, no country accounted for more than 10% of revenue for the nine months ended September 30, 2018.

Accounts receivable, net (in thousands):

	September 30, 2018	December 31, 2017
Accounts receivable, gross	$ 176,499	$ 183,343
Less: Allowance for doubtful accounts	(2,750)	(2,575)
Accounts receivable, net	$ 173,749	$ 180,768

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

	September 30, 2018	December 31, 2017
AT&T	16%	28%
Virgin Media	11%	(a)

(a) Customer below 10% of Accounts receivable, net as of the date presented.

Contract Balances

Contract assets primarily consist of revenue recognized in excess of the amount billed to the customer, limited to net realizable value and deferred engineering costs for significant software customization or modification and set-up services to the extent deemed recoverable. Contract assets also include the incremental costs of obtaining a contract with a customer, principally sales commissions when the renewal commission is not commensurate with the initial commission. Following adoption of the amended revenue recognition guidance, contract assets were recorded in the Condensed Consolidated Balance Sheets as follows (in thousands):

	September 30, 2018	January 1, 2018
Accounts receivable, net	$ 46,154	$ 68,858
Prepaid expenses and other current assets	1,527	1,167
Other long-term assets	7,988	6,783
Total contract assets, net	$ 55,669	$ 76,808

No impairment losses were recognized with respect to contract assets for the three and nine months ended September 30, 2018.

Contract liabilities are mainly comprised of unearned revenue related to consumer lifetime subscriptions for the TiVo service and multi-period licensing or cloud-based services and other offerings for which the Company is paid in advance of when control of the promised good or service is transferred to the customer. Unearned revenue also includes amounts related to professional services to be performed in the future. For the three and nine months ended September 30, 2018, the Company recognized $10.3 million and $33.3 million, respectively, of revenue that had been included in Unearned revenue as of December 31, 2017.

As of September 30, 2018, approximately $818.6 million of revenue is expected to be recognized from remaining performance obligations that are primarily related to fixed-fee intellectual property and software-as-a-service agreements, which is expected to be recognized as follows: 7.2% in the remainder of 2018, 25.6% in 2019, 18.5% in 2020, 13.0% in 2021, 9.5% in 2022, and 26.1% thereafter.

(6) Investments

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

	September 30, 2018			
	Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value
Cash	$ 45,530	$ —	$ —	$ 45,530
Cash equivalents - Money market funds	104,125	—	—	104,125
Cash and cash equivalents	$ 149,655	$ —	$ —	$ 149,655
Corporate debt securities	$ 115,765	$ 4	$ (420)	$ 115,349
U.S. Treasuries / Agencies	117,298	—	(278)	117,020
Marketable securities	$ 233,063	$ 4	$ (698)	$ 232,369
Cash, cash equivalents and marketable securities				$ 382,024

	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

As of September 30, 2018, 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	$ 162,530	$ 162,073
Due in 1-2 years	70,533	70,296
Total	$ 233,063	$ 232,369

As of September 30, 2018 and December 31, 2017, the Condensed Consolidated Balance Sheets include equity securities accounted for under the equity method with a carrying amount of $1.7 million and $1.1 million, respectively, and equity securities without a readily determinable fair value with a carrying amount of $1.5 million and $1.5 million, respectively. The carrying amount of the Company's equity securities without a readily determinable fair value is measured as cost, less any impairment, plus or minus changes resulting from observable price changes in orderly transactions for the identical, or a similar, security of the same issuer. No impairments or adjustments to the carrying amount of the Company's equity securities without a readily determinable fair value were recognized for the three and nine months ended September 30, 2018 and 2017.

(7) 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.

The Company recognizes transfers between levels of the fair value hierarchy as of the end of the reporting period. For the three and nine months ended September 30, 2018 and 2017, there were no transfers between levels of the fair value hierarchy.

Recurring Fair Value Measurements

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

	September 30, 2018			
	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	$ 104,125	$ 104,125	$ —	$ —
Short-term marketable securities				
Corporate debt securities	85,785	—	85,785	—
U.S. Treasuries / Agencies	76,288	—	76,288	—
Prepaid expenses and other current assets				
Interest rate swaps	231	—	231	—
Long-term marketable securities				
Corporate debt securities	29,564	—	29,564	—
U.S. Treasuries / Agencies	40,732	—	40,732	—
Other long-term assets				
Interest rate swaps	440	—	440	—
Total Assets	$ 337,165	$ 104,125	$ 233,040	$ —
Liabilities				
Other long-term liabilities				
Interest rate swaps	$ (145)	$ —	$ (145)	$ —
Total Liabilities	$ (145)	$ —	$ (145)	$ —

The Company's interest rate swaps are subject to master netting arrangements and have been presented on a net basis in the Condensed Consolidated Balance Sheets where applicable. As of September 30, 2018, interest rate swaps in an asset position with a fair value of $0.7 million that mature in 2021 were netted against interest rate swaps in a liability position with a fair value of $0.2 million that mature in 2021 in the Condensed Consolidated Balance Sheets and in the table above.

	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)

Rollforward of Level 3 Fair Value Measurements

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

	Three Months Ended September 30,		
	2018	2017	
	Cubiware Contingent Consideration	Auction Rate Securities	Cubiware Contingent Consideration
Balance at beginning of period	$ (3,599)	$ 10,584	$ (5,715)
Settlements	1,874	—	2,650
Transfers out (a)	1,700	—	—
Gain (loss) included in earnings	25	—	(386)
Balance at end of period	$ —	$ 10,584	$ (3,451)

	Nine Months Ended September 30,			
	2018		2017	
	Auction Rate Securities	Cubiware Contingent Consideration	Auction Rate Securities	Cubiware Contingent Consideration
Balance at beginning of period	$ 10,584	$ (2,234)	$ 10,368	$ (5,273)
Sales	(10,715)	—	—	—
Settlements	—	1,874	—	2,650
Transfers out (a)	—	1,700	—	—
Gain (loss) included in earnings	(85)	(1,340)	—	(828)
Unrealized loss reclassified on sale	216	—	—	—
Unrealized gains included in other comprehensive income	—	—	216	—
Balance at end of period	$ —	$ —	$ 10,584	$ (3,451)

(a) During the three and nine months ended September 30, 2018, $1.7 million related to the Cubiware contingent consideration was reclassified to a contingent liability that is not measured at fair value.

For the three and nine months ended September 30, 2018, the Gain (loss) included in earnings related to the Cubiware contingent consideration liability is included in Selling, general and administrative expense related to remeasurement of the liability as a $0.1 million gain and a $1.1 million loss, respectively, and in Interest expense related to accretion of the liability to future value of less than $0.1 million and $0.2 million, respectively. For the three and nine months ended September 30, 2017, the Gain (loss) included in earnings related to the Cubiware contingent consideration liability is included in Selling, general and administrative expense related to remeasurement of the liability as a $0.2 million and $0.3 million loss, respectively, and in Interest expense related to accretion of the liability to future value of $0.1 million and $0.5 million, respectively.

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 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):

	September 30, 2018		December 31, 2017	
	Carrying Amount	Fair Value (a)	Carrying Amount	Fair Value (a)
2020 Convertible Notes	$ 322,849	$ 328,412	$ 311,766	$ 326,888
2021 Convertible Notes	48	48	48	48
Term Loan Facility B	666,904	668,574	671,281	679,722
Total Long-term debt	$ 989,801	$ 997,034	$ 983,095	$ 1,006,658

(a) The fair value of debt issued or assumed 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 Condensed Consolidated Balance Sheets, debt issued or assumed by the Company would be classified in Level 2 of the fair value hierarchy.

(8) Goodwill and Intangible Assets, Net

Goodwill

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

	Product	Intellectual Property Licensing	Total
December 31, 2017	$ 521,895	$ 1,291,332	$ 1,813,227
Foreign currency translation	(44)	—	(44)
September 30, 2018	$ 521,851	$ 1,291,332	$ 1,813,183

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.

Intangible Assets, Net

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

	September 30, 2018		
	Gross	Accumulated Amortization	Net
Finite-lived intangible assets			
Developed technology and patents	$ 1,034,085	$ (742,956)	$ 291,129
Existing contracts and customer relationships	402,896	(190,692)	212,204
Content databases and other	57,157	(50,433)	6,724
Trademarks / Tradenames	8,300	(8,300)	—
Total finite-lived intangible assets	1,502,438	(992,381)	510,057
Indefinite-lived intangible assets			
TiVo Tradename	14,000	—	14,000
Total intangible assets	$ 1,516,438	$ (992,381)	$ 524,057

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

Patent Acquisition

In the nine months ended September 30, 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.

Future Amortization of Finite-Lived Intangible Assets

As of September 30, 2018, future estimated amortization expense for finite-lived intangible assets was as follows (in thousands):

Remainder of 2018	$	27,763
2019		109,855
2020		109,109
2021		66,341
2022		38,602
Thereafter		158,387
Total	$	510,057

(9) Restructuring and Asset Impairment Charges

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

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
Facility-related costs	$ 99	$ 3,034	$ 387	$ 4,244
Severance costs	2,822	220	5,606	4,260
Share-based payments	—	456	2,575	2,374
Contract termination costs	—	—	—	4
Asset impairment	—	—	—	6,741
Restructuring and asset impairment charges	$ 2,921	$ 3,710	$ 8,568	$ 17,623

Components of accrued restructuring costs were as follows (in thousands):

	September 30, 2018	December 31, 2017
Facility-related costs	$ 459	$ 693
Severance costs	3,337	584
Contract termination costs	—	37
Accrued restructuring costs	$ 3,796	$ 1,314

The Company expects a substantial portion of the accrued restructuring costs to be paid by the end of 2018.

Profit Improvement Plan

In February 2018, the Company announced its intention to explore strategic alternatives. In connection with exploring strategic alternatives, the Company initiated certain cost saving actions (the "Profit Improvement Plan"). As a result of the Profit Improvement Plan, the Company expects to move certain positions to lower cost locations, eliminate layers of management and rationalize facilities resulting in severance costs and the termination of certain leases and other contracts. Restructuring activities for the Profit Improvement Plan for the nine months ended September 30, 2018 were as follows (in thousands):

	Balance at Beginning of Period	Restructuring Expense	Cash Settlements	Non-Cash Settlements	Other	Balance at End of Period
Facility-related costs	$ —	$ 47	$ (47)	$ —	$ —	$ —
Severance costs	—	5,478	(2,276)	—	(11)	3,191
Share-based payments	—	2,575	—	(2,575)	—	—
Total	$ —	$ 8,100	$ (2,323)	$ (2,575)	$ (11)	$ 3,191

The Company expects to incur material restructuring costs in connection with the Profit Improvement Plan through the middle of 2019.

TiVo Integration Restructuring Plan

Following completion of the TiVo Acquisition, TiVo Corporation began implementing integration plans that were intended to realize operational synergies between Rovi and TiVo Solutions (the "TiVo Integration Restructuring Plan"). As a result of these integration plans, the Company eliminated duplicative positions resulting in severance costs and the termination of certain leases and other contracts. Restructuring activities related to the TiVo Integration Restructuring Plan for the nine months ended September 30, 2018 were as follows (in thousands):

	Balance at Beginning of Period	Restructuring Expense	Cash Settlements	Other	Balance at End of Period
Facility-related costs	$ 111	$ 280	$ (165)	$ (39)	$ 187
Severance costs	448	127	(564)	1	12
Total	$ 559	$ 407	$ (729)	$ (38)	$ 199

As of September 30, 2018, the TiVo Integration Restructuring Plan is substantially complete.

Legacy Rovi and TiVo Solutions Restructuring Plans

Prior to the TiVo Acquisition, Rovi and TiVo Solutions had each initiated restructuring plans. As of September 30, 2018, the Legacy Rovi Restructuring Plan and the Legacy TiVo Solutions Restructuring Plan are complete. For the nine months ended September 30, 2018, Restructuring and asset impairment charges of $0.1 million were recognized in the Condensed Consolidated Statements of Operations related to these plans. As of September 30, 2018, accrued restructuring costs of $0.4 million are included in the Condensed Consolidated Balance Sheets related to the Legacy Rovi Restructuring Plan.

(10) Debt and Interest Rate Swaps

A summary of debt issued by or assumed by the Company was as follows (dollars in thousands):

				September 30, 2018		December 31, 2017	
	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	$ 322,849	$ 345,000	$ 311,766
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	670,250	666,904	675,500	671,281
Total Long-term debt				$ 1,015,298	989,801	$ 1,020,548	983,095
Less: Current portion of long-term debt					7,000		7,000
Long-term debt, less current portion					$ 982,801		$ 976,095

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 September 30, 2018, the 2020 Convertible Notes are convertible at a conversion rate of 37.4422 shares of TiVo Corporation common stock per $1,000 principal of notes, which is equivalent to a conversion price of $26.7078 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.

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 Condensed 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 Condensed Consolidated Balance Sheets included the following (in thousands):

	September 30, 2018	December 31, 2017
Liability component		
Principal outstanding	$ 345,000	$ 345,000
Less: Unamortized debt discount	(19,622)	(29,499)
Less: Unamortized debt issuance costs	(2,529)	(3,735)
Carrying amount	$ 322,849	$ 311,766
Equity component	$ 63,854	$ 63,854

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

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
Stated interest	$ 431	$ 431	$ 1,294	$ 1,294
Amortization of debt discount	3,331	3,179	9,877	9,428
Amortization of debt issuance costs	412	374	1,206	1,093
Total interest expense	$ 4,174	$ 3,984	$ 12,377	$ 11,815

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 Condensed 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 Condensed 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 September 30, 2018, the call options give TiVo Corporation the right, but not the obligation, to purchase up to 12.9 million shares of TiVo Corporation's common stock at an exercise price of $26.7078 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 September 30, 2018, 12.5 million warrants were outstanding with an exercise price of $37.0942 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 Condensed 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 September 30, 2018, the 2021 Convertible Notes are convertible at a conversion rate of 23.4025 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 $36.1372 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 (“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 nine months ended September 30, 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.

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 2018.

Debt Maturities

As of September 30, 2018, aggregate expected principal payments on long-term debt, including the current portion of long-term debt, were as follows (in thousands):

Remainder of 2018	$	1,750
2019 (a)		352,000
2020		7,000
2021		654,548
Total	$	1,015,298

(a) 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 Condensed Consolidated Balance Sheets at fair value with changes in fair value recorded as Gain (loss) on interest rate swaps in the Condensed Consolidated Statements of Operations. Amounts are presented in the Condensed Consolidated Balance Sheets after considering the right of offset based on its master netting agreements. During the three months ended September 30, 2018 and 2017, the Company recorded gains of $1.0 million and losses of $39.0 thousand, respectively, from adjusting its interest rate swaps to fair value. During the nine months ended September 30, 2018 and 2017, the Company recorded gains of $7.2 million and losses of $1.4 million, respectively, from adjusting its interest rate swaps to fair value.

Details of the Company's interest rate swaps as of September 30, 2018 and December 31, 2017 were as follows (dollars in thousands):

			Notional			
Contract Inception	**Contract Effective Date**	**Contract Maturity**	**September 30, 2018**	**December 31, 2017**	**Interest Rate Paid**	**Interest Rate Received**
Senior Secured Credit Facility						
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

(11) Commitments and Contingencies

Purchase Commitments

During the normal course of business, the Company orders finished goods from a third party with advanced lead times that allow the third party to procure component supplies necessary to satisfy the Company’s purchase orders. A significant portion of the Company’s purchase commitments consist of firm, non-cancelable and unconditional purchase commitments. In certain instances, the Company has the option to cancel, reschedule or adjust its purchase commitments based on business needs prior to the purchase order becoming non-cancelable. As of September 30, 2018, the Company had total purchase commitments for finished-goods inventory of $4.4 million, of which $0.7 million was accrued in the Condensed Consolidated Balance Sheets.

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 from 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 Condensed 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, that could be obtained and liquidated 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. Legal costs are expensed as incurred.

On June 15, 2011, TNS Media Research, LLC (d/b/a Kantar Media Audiences, or Kantar) brought a claim for declaratory judgment against TRA Global Inc. (which was acquired by TiVo Inc. in July 2012 and renamed TiVo Research and Analytics, Inc. or TiVo Research) in U.S. District Court alleging non-infringement of a TiVo Research patent, among other claims. TiVo Research responded by alleging affirmative defenses as well as counterclaims alleging infringement by Kantar of the TiVo Research patent at issue and one other patent. On February 22, 2016, the District Court granted Kantar's summary judgment motion on invalidity under Section 101 as to each of TiVo Research's asserted patent claims. On May 18, 2018, the District Court granted Kantar’s motion for attorneys' fees and expenses related to TiVo Research’s patent claims in this action. During the three months ended June 30, 2018, TiVo Research recorded a $4.5 million loss and agreed to transfer of ownership of the two patents at issue to Kantar as part of a settlement agreement. TiVo Research paid the settlement during the three and nine months ended September 30, 2018.

The Company believes it has recorded adequate provisions for any such matters and, as of September 30, 2018, it was not reasonably possible that a material loss had been incurred in excess of the amounts recognized in the Condensed Consolidated Financial Statements. 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 Condensed 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 Condensed Consolidated Financial Statements could be materially adversely affected in a particular period by the resolution of one or more of these contingencies.

(12) 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 and Diluted EPS were as follows (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
Weighted average shares used in computing basic per share amounts	123,459	120,935	122,756	119,994
Dilutive effect of equity-based compensation awards	—	—	—	—
Weighted average shares used in computing diluted per share amounts	123,459	120,935	122,756	119,994

Weighted average potential shares excluded from the calculation of Diluted EPS as their effect would have been anti-dilutive were as follows (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
Restricted awards	5,401	5,234	4,153	4,444
Stock options	1,907	2,544	2,238	3,004
2020 Convertible Notes (a)	12,918	12,294	12,918	12,294
2021 Convertible Notes (a)	1	1	1	1
Warrants related to 2020 Convertible Notes (a)	12,525	12,079	12,424	12,079
Weighted average potential shares excluded from the calculation of Diluted EPS	32,752	32,152	31,734	31,822

(a) See Note 10 for additional details.

For the three months ended September 30, 2018 and 2017, 0.6 million and 0.5 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. For the nine months ended September 30, 2018 and 2017, 0.9 million and 0.5 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.

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 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 $26.7078 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 $12.45 per share on September 30, 2018, the if-converted value of the 2020 Convertible Notes was less than the outstanding principal.

The 2020 Convertible Notes would be dilutive if the Company's common stock closed at or above $26.7078 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 10 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 10 have an effect on Diluted EPS when the Company's share price exceeds the warrant's strike price of $37.0942 per share. As the price of the Company's common stock increases above the warrant strike price, additional dilution would occur.

Changes in Shareholders Equity

Changes in stockholders' equity for the three and nine months ended September 30, 2018 were as follows (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 June 30, 2018	124,528	$ 125	(1,557)	$ (28,925)	$ 3,257,093	$ (4,233)	$ (1,399,526)	$ 1,824,534
Net loss							(22,849)	(22,849)
Other comprehensive income, net of tax						(64)		(64)
Issuance of common stock under employee stock purchase plan	511	—			5,278			5,278
Issuance of restricted stock, net	590	1			—			1
Equity-based compensation					9,526			9,526
Dividends					(22,282)			(22,282)
Withholding taxes related to net share settlement of restricted stock units			(197)	(2,570)				(2,570)
Balance as of September 30, 2018	125,629	$ 126	(1,754)	$ (31,495)	$ 3,249,615	$ (4,297)	$ (1,422,375)	$ 1,791,574

	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, 2017	123,385	$ 123	(1,269)	$ (24,740)	$ 3,273,022	$ (2,738)	$ (1,392,651)	$ 1,853,016
Cumulative effect adjustment (a)							31,412	31,412
Net loss							(61,136)	(61,136)
Other comprehensive income, net of tax						(1,559)		(1,559)
Issuance of common stock under employee stock purchase plan	1,150	2			12,852			12,854
Issuance of restricted stock, net	1,094	1			—			1
Equity-based compensation					30,252			30,252
Dividends					(66,511)			(66,511)
Withholding taxes related to net share settlement of restricted stock units			(485)	(6,755)				(6,755)
Balance as of September 30, 2018	125,629	$ 126	(1,754)	$ (31,495)	$ 3,249,615	$ (4,297)	$ (1,422,375)	$ 1,791,574

(a) See Note 1 and Note 5 for additional information.

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. During the three and nine months ended September 30, 2018 and 2017, no shares were repurchased under the share repurchase program. As of September 30, 2018, the Company had $150.0 million of share repurchase authorization remaining.

The Company issues restricted stock and restricted stock units (collectively, "restricted awards") as part of the equity-based compensation plans described in Note 13. For the majority of restricted stock units, 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 Condensed 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 three months ended September 30, 2018 and 2017, the Company withheld 0.2 million and 0.1 million shares of common stock to satisfy $2.6 million and $1.5 million of required withholding taxes, respectively. During the nine months ended September 30, 2018 and 2017, the Company withheld 0.5 million and 0.7 million shares of common stock to satisfy $6.8 million and $12.8 million of required withholding taxes, respectively.

Dividends

For the three months ended September 30, 2018 and 2017, the Company declared and paid dividends of $0.18 and $0.18 per share, respectively, for aggregate cash payments of $22.3 million and $21.9 million, respectively. For the nine months ended September 30, 2018 and 2017, the Company declared and paid dividends of $0.54 and $0.54 per share, respectively, for aggregate cash payments of $66.7 million and $65.2 million, respectively.

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.

(13) 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 awards, 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 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 September 30, 2018, the Company had 30.0 million shares of common stock reserved and 10.8 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 TiVo Acquisition Date. The TiVo 2008 Plan permits the grant of restricted awards, 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 the TiVo 2008 Plan generally have a contractual term of seven years. As of September 30, 2018, there were 3.9 million shares of common stock reserved for future issuance as outstanding awards vest under the TiVo 2008 Plan. The TiVo 2008 Plan expired in August 2018, and no further shares of common stock are 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 is subject to a market condition, 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.

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 September 30, 2018, the Company had 4.7 million shares of common stock reserved and 4.7 million shares available for issuance under the ESPP.

Valuation Techniques and Assumptions

The Company's restricted awards are generally not eligible for dividend protection. Prior to and including February 14, 2017, the fair value of restricted awards subject to service 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 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 awards 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 grant and projected employee exercise behavior. Expected volatility 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 is estimated by calculating the period the award is expected to be outstanding based on historical experience and the terms of the grant. The risk-free interest rate is estimated based on the yield on U.S. Treasury zero-coupon bonds with remaining terms similar to the expected term 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:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
Restricted stock units subject to market conditions				
Expected volatility	39.2%	53.1%	39.2%	53.1%
Expected term	2.5 years	2.5 years	2.5 years	2.5 years
Risk-free interest rate	2.6%	1.5%	2.6%	1.5%
Expected dividend yield	5.5%	3.9%	5.5%	3.9%
ESPP shares				
Expected volatility	44.3%	42.2%	43.5%	42.0%
Expected term	1.3 years	1.3 years	1.3 years	1.3 years
Risk-free interest rate	2.5%	1.3%	2.2%	1.1%
Expected dividend yield	6.1%	3.9%	5.7%	2.4%

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 on a cumulative catch-up basis 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:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
Weighted average grant date fair value				
Restricted awards	$ 11.55	$ 17.05	$ 11.72	$ 17.48
ESPP shares	$ 3.67	$ 5.78	$ 3.94	$ 5.70
Equity-based compensation				
Pre-tax equity-based compensation, excluding amounts included in restructuring expense	$ 9,471	$ 13,007	$ 28,226	$ 38,781
Pre-tax equity-based compensation, included in restructuring expense	$ —	$ 456	$ 2,575	$ 2,374

As of September 30, 2018, there was $76.2 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 2.5 years.

Equity-Based Compensation Award Activity

Activity related to the Company's restricted awards for the nine months ended September 30, 2018 was as follows:

	Restricted Awards (In Thousands)	Weighted-Average Grant Date Fair Value
Outstanding as of beginning of period	5,899	$ 17.78
Granted	3,339	$ 11.72
Vested	(1,552)	$ 20.41
Forfeited	(2,135)	$ 15.02
Outstanding as of end of period	5,551	$ 14.46

As of September 30, 2018, 5.4 million restricted stock units were unvested, which includes 0.3 million performance-based restricted stock units. As of September 30, 2018, 0.2 million shares of restricted stock were unvested. The aggregate fair value of restricted awards vested during the three months ended September 30, 2018 and 2017 was $8.6 million and $5.0 million, respectively. The aggregate fair value of restricted awards vested during the nine months ended September 30, 2018 and 2017 was $21.5 million and $41.6 million, respectively.

Activity related to the Company's stock options for the nine months ended September 30, 2018 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	2,368	$ 27.16		
Forfeited and expired	(497)	$ 36.45		
Outstanding as of end of period	1,871	$ 24.69	1.2 years	$ —
Vested and expected to vest as of September 30, 2018	1,871	$ 24.69	1.2 years	$ —
Exercisable as of September 30, 2018	1,825	$ 24.71	1.2 years	$ —

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 stock option, multiplied by the number of in-the-money stock 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. No stock options were exercised during the three and nine months ended September 30, 2018. The aggregate intrinsic value of stock options exercised during the three and nine months ended September 30, 2017 was less than $0.1 million and $2.0 million, respectively.

(14) Income Taxes

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 expense.

Components of Income tax expense were as follows (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
Foreign withholding tax	$ 3,566	$ 4,106	$ 10,635	$ 11,118
State income tax	42	(992)	221	143
Foreign income tax	18	252	578	996
Change in net deferred tax liabilities	213	691	(277)	1,372
Change in unrecognized tax benefits	62	(64)	59	(8)
Transition Tax	868	—	868	—
Change in indefinite reinvestment assertion	—	—	1,221	—
Release of deferred tax asset valuation allowance	—	348	—	195
Income tax expense	$ 4,769	$ 4,341	$ 13,305	$ 13,816

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 the potential outcomes of these audits in order to determine the appropriateness of its tax positions. 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 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 Condensed Consolidated Financial Statements.

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 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.

On December 22, 2017, the SEC Staff issued guidance to address the application of U.S. GAAP in situations where a registrant does not have the necessary information to complete the accounting for certain effects of the Tax Act of 2017. As of September 30, 2018, the Company had not completed its accounting for the income tax effects of the Tax Act of 2017. Where the Company has made reasonable estimates of the effect, but for which the analysis is not yet complete, the Company has recorded provisional amounts based on information available as of September 30, 2018. During the three and nine months ended September 30, 2018, the provisional amounts recognized as of December 31, 2017 were adjusted as described below. 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 to account for those items based on the tax laws in effect immediately prior to enactment of the Tax Act of 2017. The items described below, including the provisional items, are subject to change as additional information becomes available, limited to a measurement period of one year from enactment of the Tax Act of 2017.

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, during the nine months ended September 30, 2018, the Company revised its estimate of the Transition Tax to $33.7 million. The Company expects to use $32.8 million of available tax credits to offset the majority of the Transition Tax. As of September 30, 2018, the Company estimates the Transition Tax for U.S. states that have enacted laws to conform with the Tax Act of 2017 to be less than $0.1 million, which is substantially offset by U.S. state net operating losses, resulting in no net estimated U.S. state Transition Tax. Accordingly, during the three and nine months ended September 30, 2018, the Company recognized $0.9 million of Transition Tax expense that is not expected to be offset by available tax credits. To complete its estimate of the Transition Tax, the Company must complete its calculation of the effects on U.S. states whose laws conform with the Tax Act of 2017.

The Tax Act of 2017 requires 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 and the lack of clear guidance on federal and state application of the GILTI rules, as of September 30, 2018, the Company has not completed its analysis of the tax impacts of the GILTI. However, the Company has recorded provisional tax expense that is not material to the Company's financial statements for the three and nine months ended September 30, 2018. The tax effect of GILTI is fully offset by the Company’s net operating losses, resulting in no net U.S. federal income tax expense from GILTI. To complete its estimate of GILTI, the Company must complete its calculation of the effects on U.S. states whose laws conform with the Tax Act of 2017. 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 component of current income tax expense when incurred or to factor such amounts into the Company’s measurement of its deferred tax expense. The Company has made an accounting policy election to treat GILTI as a component of current income tax expense.

The Tax Act of 2017 created a minimum tax on corporations for payments to related foreign persons (referred to as the base erosion and anti-abuse tax ("BEAT")). Due to the complexity of the BEAT rules and the lack of clear guidance on federal and U.S. state application of the BEAT rules, including rules on the ability to use loss carryovers to offset BEAT liability, the Company has not completed its analysis of the effects of the BEAT as of September 30, 2018. During the three and nine months ended September 30, 2018, the Company provisionally estimated it has no BEAT liability.

As a result of the Tax Act of 2017, during the nine months ended September 30, 2018, the Company changed its assertion regarding the indefinite reinvestment of undistributed foreign earnings. In the year ended December 31, 2017, the Company accrued a Transition Tax liability for U.S. federal and certain U.S. state income taxes on its non-U.S. subsidiaries’ previously undistributed foreign earnings. The nature of the Transition Tax is that undistributed foreign earnings are now considered previously taxed income ("PTI") for U.S. federal income tax purposes. However, because the PTI was previously taxed, any repatriation of PTI is not subject to additional U.S. federal income tax. The Company determined that a distribution of PTI would be subject to tax, and provisionally recorded $1.2 million in foreign withholding taxes during the nine months ended September 30, 2018. The Company's revised assertion regarding indefinite reinvestment of undistributed earnings is that only undistributed earnings in excess of PTI are indefinitely reinvested. The Company previously asserted that all of its foreign undistributed earnings were indefinitely reinvested.

(15) 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, data analytics and licensing the TiVo service, licensing metadata and selling TiVo-enabled devices. The Product segment also includes 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 TV providers (directly and through their suppliers), mobile device manufacturers, CE manufacturers and OTT video providers.

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.

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Segment results were as follows (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
Product				
Platform Solutions	$ 73,147	$ 82,244	$ 241,295	$ 253,398
Software and Services	19,851	20,718	57,949	65,739
Other	1,614	628	5,007	3,859
Revenues, net	94,612	103,590	304,251	322,996
Adjusted Operating Expenses (1)	79,347	91,307	250,280	280,314
Adjusted EBITDA (2)	15,265	12,283	53,971	42,682
Intellectual Property Licensing				
US Pay TV Providers	44,474	63,288	143,606	195,365
CE Manufacturers	8,859	15,479	26,754	38,296
New Media, International Pay TV Providers and Other	16,764	15,541	52,795	55,563
Revenues, net	70,097	94,308	223,155	289,224
Adjusted Operating Expenses (1)	23,461	24,243	73,790	69,247
Adjusted EBITDA (2)	46,636	70,065	149,365	219,977
Corporate				
Adjusted Operating Expenses (1)	14,825	15,851	45,385	47,084
Adjusted EBITDA (2)	(14,825)	(15,851)	(45,385)	(47,084)
Consolidated				
Total Revenues, net	164,709	197,898	527,406	612,220
Adjusted Operating Expenses (1)	117,633	131,401	369,455	396,645
Adjusted EBITDA (2)	47,076	66,497	157,951	215,575
Depreciation	5,338	5,015	16,252	15,869
Amortization of intangible assets	37,242	41,722	119,463	125,100
Restructuring and asset impairment charges	2,921	3,710	8,568	17,623
Equity-based compensation	9,471	13,007	28,226	38,781
Transition and integration costs	(148)	3,394	9,303	15,701
Earnout amortization	—	958	1,494	2,875
CEO transition cash costs	—	—	(975)	—
Remeasurement of contingent consideration	(67)	243	1,104	317
Gain on settlement of acquired receivable	—	—	—	(2,537)
Operating (loss) income	(7,681)	(1,552)	(25,484)	1,846
Interest expense	(12,436)	(10,990)	(36,241)	(31,827)
Interest income and other, net	861	1,059	2,971	3,819
Gain (loss) on interest rate swaps	1,033	(39)	7,185	(1,374)
TiVo Acquisition litigation	—	(1,100)	—	(14,006)
Loss on debt extinguishment	—	—	—	(108)
Loss on debt modification	—	—	—	(929)
Loss from continuing operations before income taxes	$ (18,223)	$ (12,622)	$ (51,569)	$ (42,579)

(1) Adjusted Operating Expenses is defined as operating expenses excluding Depreciation, Amortization of intangible assets, Restructuring and asset impairment charges, Equity-based compensation, Transition and integration costs, retention earn-outs payable to former shareholders of acquired businesses, CEO transition cash costs, Remeasurement of contingent consideration and Gain on settlement of acquired receivable.

(2) Adjusted EBITDA is defined as operating income excluding Depreciation, Amortization of intangible assets, Restructuring and asset impairment charges, Equity-based compensation, Transition and integration costs, retention earn-outs payable to former shareholders of acquired businesses, CEO transition cash costs, Remeasurement of contingent consideration and Gain on settlement of acquired receivable.

ITEM 2. MANAGEMENT’S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

Forward-Looking Statements

This Quarterly Report on Form 10-Q 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 2., "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, future revenues to be recognized following adoption of the amended revenue recognition guidance, the expected impact of the Tax Act of 2017, the Company’s previously announced exploration of strategic alternatives and its related cost-saving and restructuring activities, 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 II, Item 1A. of this Quarterly Report on Form 10-Q. Except as required by law, we specifically disclaim any obligation to update such forward-looking statements.

The following commentary should be read in conjunction with the Consolidated Financial Statements and related notes thereto contained in Part II, Item 8. of our Annual Report on Form 10-K for the year ended December 31, 2017 and the Condensed Consolidated Financial Statements and related notes thereto contained in Part I, Item 1. of this Quarterly Report on Form 10-Q, which are incorporated by reference herein.

Executive Overview of Results

TiVo Corporation 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.

Our 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 user experience ("UX") products and services to multi-channel video service providers and consumer electronics ("CE") manufacturers, in-guide advertising, analytics, licensing the TiVo service, licensing metadata and selling TiVo-enabled devices. We group our Product segment into three verticals based on the products delivered to our customer: Platform Solutions; Software and Services; and Other. Platform Solutions includes licensing Company-developed UX products, the TiVo service and selling TiVo-enabled devices. Software and Services includes licensing our metadata, advanced search and recommendation and data analytics products, as well as in-guide advertising. Other includes 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 ("TV") providers (directly and through their suppliers), mobile device manufacturers, 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 segment into three verticals based primarily on the business of our customer: US Pay TV Providers; CE Manufacturers; and New Media, International Pay TV Providers and Other. 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). CE Manufacturers includes the licensing of our patents to traditional CE manufacturers. New Media, International Pay TV Providers and Other includes licensing to international pay TV providers, virtual service providers, mobile device manufacturers and content and new media companies.

Total Revenues, net for the three months ended September 30, 2018 decreased by 17% compared to the prior year primarily as a result of a $21.1 million decrease in revenue from TiVo Solutions agreements that were entered into with AT&T, DirecTV, EchoStar and Verizon prior to the TiVo Acquisition Date as a result of contract expirations and adopting the amended revenue recognition guidance on January 1, 2018, a $5.9 million decrease in Hardware revenue primarily resulting from a planned transition away from the hardware business, a $4.5 million decrease in revenue from two international multiple system operators ("MSO") software customers as a result of adopting the amended revenue recognition guidance and a $3.3 million decrease in catch-up payments intended to make us whole for the pre-license period of use. 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 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 we anticipate 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 three months ended September 30, 2018, our Loss from continuing operations, net of tax was $23.0 million, or $0.19 per diluted share, compared to $17.0 million, or $0.14 per diluted share, in the prior year. The larger loss was due to a $33.2 million decrease in revenue, which was partially offset by a $5.7 million decrease in Cost of hardware revenues, excluding depreciation and amortization of intangible assets primarily resulting from a planned transition away from the hardware business, a $6.8 million decrease in Research and development costs, a $7.6 million decrease in Selling, general and administrative expenses and a $4.5 million decrease in Amortization of intangible assets. The decrease in Research and development and Selling, general and administrative expenses reflect benefits from cost saving initiatives, including lower consulting and compensation costs.

Comparison of Three and Nine Months Ended September 30, 2018 and 2017

The condensed consolidated results of operations for the three and nine months ended September 30, 2018 compared to the prior year were as follows (dollars in thousands):

	Three Months Ended September 30,			
	2018	2017	Change $	Change %
Revenues, net:				
Licensing, services and software	$ 160,783	$ 188,031	$ (27,248)	(14)%
Hardware	3,926	9,867	(5,941)	(60)%
Total Revenues, net	164,709	197,898	(33,189)	(17)%
Costs and expenses:				
Cost of licensing, services and software revenues, excluding depreciation and amortization of intangible assets	40,749	42,811	(2,062)	(5)%
Cost of hardware revenues, excluding depreciation and amortization of intangible assets	4,220	9,889	(5,669)	(57)%
Research and development	42,053	48,872	(6,819)	(14)%
Selling, general and administrative	39,867	47,431	(7,564)	(16)%
Depreciation	5,338	5,015	323	6 %
Amortization of intangible assets	37,242	41,722	(4,480)	(11)%
Restructuring and asset impairment charges	2,921	3,710	(789)	(21)%
Total costs and expenses	172,390	199,450	(27,060)	(14)%
Operating loss	(7,681)	(1,552)	(6,129)	395 %
Interest expense	(12,436)	(10,990)	(1,446)	13 %
Interest income and other, net	861	1,059	(198)	(19)%
Gain (loss) on interest rate swaps	1,033	(39)	1,072	(2,749)%
TiVo Acquisition litigation	—	(1,100)	1,100	N/a
Loss from continuing operations before income taxes	(18,223)	(12,622)	(5,601)	44 %
Income tax expense	4,769	4,341	428	10 %
Loss from continuing operations, net of tax	(22,992)	(16,963)	(6,029)	36 %
Income from discontinued operations, net of tax	143	—	143	N/a
Net loss	$ (22,849)	$ (16,963)	$ (5,886)	35 %

	Nine Months Ended September 30, 2018	2017	Change $	Change %
Revenues, net:				
Licensing, services and software	$ 516,495	$ 577,545	$ (61,050)	(11)%
Hardware	10,911	34,675	(23,764)	(69)%
Total Revenues, net	527,406	612,220	(84,814)	(14)%
Costs and expenses:				
Cost of licensing, services and software revenues, excluding depreciation and amortization of intangible assets	126,547	124,398	2,149	2 %
Cost of hardware revenues, excluding depreciation and amortization of intangible assets	14,260	35,877	(21,617)	(60)%
Research and development	133,894	144,386	(10,492)	(7)%
Selling, general and administrative	133,906	147,121	(13,215)	(9)%
Depreciation	16,252	15,869	383	2 %
Amortization of intangible assets	119,463	125,100	(5,637)	(5)%
Restructuring and asset impairment charges	8,568	17,623	(9,055)	(51)%
Total costs and expenses	552,890	610,374	(57,484)	(9)%
Operating (loss) income	(25,484)	1,846	(27,330)	(1,480)%
Interest expense	(36,241)	(31,827)	(4,414)	14 %
Interest income and other, net	2,971	3,819	(848)	(22)%
Gain (loss) on interest rate swaps	7,185	(1,374)	8,559	(623)%
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	(51,569)	(42,579)	(8,990)	21 %
Income tax expense	13,305	13,816	(511)	(4)%
Loss from continuing operations, net of tax	(64,874)	(56,395)	(8,479)	15 %
Income from discontinued operations, net of tax	3,738	—	3,738	N/a
Net loss	$ (61,136)	$ (56,395)	$ (4,741)	8 %

Total Revenues, net

For the three months ended September 30, 2018, Total Revenues, net decreased 17% compared to the prior year as Product revenues decreased $9.0 million and Intellectual Property Licensing revenue decreased $24.2 million. The adoption of the amended revenue recognition guidance on January 1, 2018 decreased revenue for the three months ended September 30, 2018 by $6.2 million compared to what revenue would have been under the prior revenue recognition guidance. Product generated 57.4% and 52.3% of Total Revenues, net for the three months ended September 30, 2018 and 2017, respectively.

For the nine months ended September 30, 2018, Total Revenues, net decreased 14% compared to the prior year as Product revenues decreased $18.7 million and Intellectual Property Licensing revenue decreased $66.1 million. The adoption of the amended revenue recognition guidance on January 1, 2018 decreased revenue for the nine months ended September 30, 2018 by $16.5 million compared to what revenue would have been under the prior revenue recognition guidance. Product generated 57.7% and 52.8% of Total Revenues, net for the nine months ended September 30, 2018 and 2017, respectively.

For details on the changes in Total Revenues, net, see the discussion of our segment results below. For the year ended December 31, 2018, we expect revenue to be approximately $20 million lower under the amended revenue recognition guidance than it would have been under the prior revenue recognition guidance.

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 and our metadata offering.

For the three and nine months ended September 30, 2018, Cost of licensing, services and software revenues, excluding depreciation and amortization of intangible assets decreased 5% and increased 2%, respectively. For the three months ended September 30, 2018, lower compensation costs and benefits from cost saving initiatives were partially offset by an increase in patent litigation costs of $1.1 million, which primarily related to the ongoing Comcast litigation. For the nine months ended September 30, 2018, an $11.2 million increase in patent litigation costs, primarily related to the ongoing Comcast litigation, was partially offset by benefits from cost saving initiatives, lower compensation costs and a $0.3 million decrease in Transition and integration costs associated with the TiVo Acquisition. 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 by the Company primarily as a means to generate revenue from the TiVo service. As a result, generating positive gross margins from hardware sales is not the primary goal of our hardware operations.

For the three and nine months ended September 30, 2018, the decrease in Cost of hardware revenues, excluding depreciation and amortization of intangible assets was attributable to the planned transition away from the hardware business and a $1.0 million decrease in Transition and integration costs associated with the TiVo Acquisition.

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 three months ended September 30, 2018, Research and development expenses decreased 14% compared to the prior year primarily due to a $3.6 million decrease in consulting costs, a $1.6 million decrease in facilities and information technology costs and a $0.7 million decrease in Transition and integration costs associated with the TiVo Acquisition.

For the nine months ended September 30, 2018, Research and development expenses decreased 7% compared to the prior year primarily due to a $10.2 million decrease in consulting costs, a $4.5 million decrease in facilities and information technology costs and a $2.0 million decrease in Transition and integration costs associated with the TiVo Acquisition, partially offset by a $5.7 million increase in compensation costs.

For the three and nine months ended September 30, 2018, certain contractors were converted to employees in India in connection with the ongoing Profit Improvement restructuring action described below. These contractor conversions reduce consulting costs and increase compensation costs.

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 16% decrease in Selling, general and administrative expenses during the three months ended September 30, 2018 was primarily due to a $3.6 million decrease in compensation costs, a $2.8 million decrease in Transition and integration costs associated with the TiVo Acquisition and benefits from cost saving initiatives.

The 9% decrease in Selling, general and administrative expenses during the nine months ended September 30, 2018 was primarily due to a $11.0 million decrease in compensation costs, including as a result of turnover among the senior executive staff including our former Chief Executive Officer, a $3.1 million decrease in Transition and integration costs associated with the TiVo Acquisition, a $2.3 million decrease in consulting costs and benefits from cost saving initiatives. These decreases were partially offset by a $2.5 million gain in the prior year from the settlement of an acquired receivable.

Amortization of intangible assets

The decrease in Amortization of intangible assets expenses during the three and nine months ended September 30, 2018 was primarily due to certain TiVo Solutions intangible assets becoming fully amortized during the three months ended September 30, 2018.

Restructuring and asset impairment charges

In February 2018, we announced our intention to explore strategic alternatives. In connection with exploring strategic alternatives, we initiated certain cost saving actions (the "Profit Improvement Plan"). As a result of the Profit Improvement Plan, we expect to move certain positions to lower cost locations, eliminate layers of management and rationalize facilities resulting in severance costs and the termination of certain leases and other contracts. In connection with the Profit Improvement Plan, we expect to generate approximately $25 million in annualized cost savings and to incur material restructuring costs through the middle of 2019. As a result of actions associated with the Profit Improvement Plan, Restructuring charges of $2.8 million and $8.1 million, primarily for severance-related benefits, were recognized in the three and nine months ended September 30, 2018, respectively.

Following completion of the TiVo Acquisition, integration plans were implemented which were intended to realize operational synergies between Rovi and TiVo Solutions (the "TiVo Integration Restructuring Plan"). We eliminated duplicative positions resulting in severance costs and the termination of certain leases and other contracts as part of the integration activities. In connection with the TiVo Integration Restructuring Plan, we generated over $110 million in annualized cost synergies. As a result of actions associated with the TiVo Integration Restructuring Plan, Restructuring and asset impairment charges of $3.9 million were recognized in the three months ended September 30, 2017, and $0.4 million and $17.1 million were recognized in the nine months ended September 30, 2018 and 2017, respectively. No Restructuring and asset impairment charges were recognized for the TiVo Integration Restructuring Plan in the three months ended September 30, 2018.

Interest expense

The $1.4 million and $4.4 million increase in Interest expense during the three and nine months ended September 30, 2018 was primarily due to an increase in interest rates associated with Term Loan Facility B, which bears interest, at our election, at a rate equal to either London Interbank Offering Rate ("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.

Interest income and other, net

The $0.2 million decrease in Interest income and other, net during the three months ended September 30, 2018 was primarily due to $1.4 million in higher foreign currency losses, partially offset by a $0.6 million increase in interest income due to an increase in interest rates and interest earning assets and a $0.5 million gain from the sale of a strategic investment.

The $0.8 million decrease in Interest income and other, net during the nine months ended September 30, 2018 was primarily due to $2.6 million of lower gains from the sale of strategic investments and $0.2 million in higher foreign currency losses, partially offset by a $1.2 million increase in income from an equity method investment and a $1.2 million increase in interest income due to an increase in interest rates and interest earning assets.

Gain (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 Condensed Consolidated Statements of Operations (see Note 10 to the Condensed Consolidated Financial Statements included in Part I, Item 1 of this Quarterly Report on Form 10-Q 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 receive a floating rate of interest and pay a fixed rate of interest. When there is an increase in expected future 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") 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. 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 Condensed Consolidated Statements of Operations for the nine months ended September 30, 2017. The TiVo Acquisition litigation loss represents the settlement amount in excess of the amount due to the Dissenting Holders as merger consideration.

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 nine months ended September 30, 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 nine months ended September 30, 2017.

Income tax 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 expense.

We recorded Income tax expense for the three months ended September 30, 2018 of $4.8 million, which primarily consists of $3.6 million of Foreign withholding tax and a $0.9 million Transition Tax associated with the Tax Act of 2017. We recorded Income tax expense for the three months ended September 30, 2017 of $4.3 million, which primarily consists of $4.1 million of Foreign withholding tax and $0.7 million from a Change in net deferred tax liabilities, partially offset by a $1.0 million benefit from State income tax.

We recorded Income tax expense for the nine months ended September 30, 2018 of $13.3 million, which primarily consists of $10.6 million of Foreign withholding tax, $1.2 million from a Change in indefinite reinvestment assertion regarding the indefinite reinvestment of certain foreign earnings, a $0.9 million Transition Tax associated with the Tax Act of 2017 and $0.6 million of Foreign income tax, partially offset by a $1.0 million benefit to continuing operations from a gain on discontinued operations. We recorded Income tax expense for the nine months ended September 30, 2017 of $13.8 million, which primarily consists of $11.1 million of Foreign withholding tax, $1.4 million from a Change in net deferred tax liabilities and $1.0 million of Foreign income tax.

The year-over-year decrease in foreign withholding taxes was due to a smaller portion of license fees received in 2018 coming from licensees in countries subject to foreign withholding taxes.

We have not completed our accounting for the effects of the Tax Act of 2017 which was signed into law on December 22, 2017. The Tax Act of 2017 enacted comprehensive tax reform that made broad and complex changes to the U.S. federal tax code as described in Note 14 of the Condensed Consolidated Financial Statements included in Part I, Item 1 of this Quarterly Report on Form 10-Q, which is incorporated by reference herein.

Income from discontinued operations, net of tax

In the three and nine months ended September 30, 2018, we recognized Income from discontinued operations, net of tax of $0.1 million and $3.7 million, respectively, as a result of the expiration of certain indemnification obligations and the execution of settlement agreements during the period associated with previous business disposals, partially offset by an increase in legal defense costs.

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 15 of the Condensed Consolidated Financial Statements included in Part I, Item 1 of this Quarterly Report on Form 10-Q, which is incorporated by reference herein.

Product

The Product segment's results of operations for the three and nine months ended September 30, 2018 compared to the prior year were as follows (dollars in thousands):

	Three Months Ended September 30,			
	2018	2017	Change $	Change %
Platform Solutions	$ 73,147	$ 82,244	$ (9,097)	(11)%
Software and Services	19,851	20,718	(867)	(4)%
Other	1,614	628	986	157 %
Product Revenues	94,612	103,590	(8,978)	(9)%
Adjusted Operating Expenses	79,347	91,307	(11,960)	(13)%
Adjusted EBITDA	$ 15,265	$ 12,283	$ 2,982	24 %
Adjusted EBITDA Margin	16.1%	11.9%		

	Nine Months Ended September 30,			
	2018	2017	Change $	Change %
Platform Solutions	$ 241,295	$ 253,398	$ (12,103)	(5)%
Software and Services	57,949	65,739	(7,790)	(12)%
Other	5,007	3,859	1,148	30 %
Product Revenues	304,251	322,996	(18,745)	(6)%
Adjusted Operating Expenses	250,280	280,314	(30,034)	(11)%
Adjusted EBITDA	$ 53,971	$ 42,682	$ 11,289	26 %
Adjusted EBITDA Margin	17.7%	13.2%		

For the three and nine months ended September 30, 2018, the $9.1 million and $12.1 million decrease in Platform Solutions revenue was primarily attributable to a decrease in hardware revenue due to a planned transition away from the hardware business. Platform Solutions revenue includes total hardware revenue of $3.9 million and $9.9 million for the three months ended September 30, 2018 and 2017, respectively, and $10.9 million and $34.7 million for the nine months ended September 30, 2018 and 2017, respectively. Hardware revenue is expected to continue to decline due to the planned transition away from the business and as MSO 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 ("STBs") sold to MSO partners.

In addition, Platform Solutions revenue from two international MSO software customers decreased by $4.5 million and $13.8 million for the three and nine months ended September 30, 2018, respectively, due to adopting the amended revenue recognition guidance on January 1, 2018. A reduction in revenue from these two international MSO customers is expected to continue for the remainder of 2018. These two international MSO software customer licenses included minimum guaranteed royalties, most of which were recorded as an adjustment to Accumulated deficit as part of the cumulative effect of adopting the amended revenue recognition guidance as we have separated the license and support into distinct performance obligations. Under the previous revenue recognition guidance, revenue from these transactions would have been recognized over the license term as we did not have vendor-specific objective evidence ("VSOE") of fair value of support. Under the amended revenue recognition guidance, VSOE of fair value is no longer required, which results in revenue being recognized earlier than it would have been under the prior revenue recognition guidance.

The decrease in Platform Solutions revenue for the nine months ended September 30, 2018 was partially offset by a $22.8 million increase in revenue from an international MSO customer exercising a contractual option during the three months ended March 31, 2018 to purchase a fully paid license to its current version of the TiVo software and purchasing additional engineering services. Under the prior industry-specific software revenue recognition guidance, we would have recognized $1.9 million more and $19.9 million less in revenue for the three and nine months ended September 30, 2018, respectively, from this customer.

For the three months ended September 30, 2018, Software and Services revenue decreased $0.9 million primarily due to a $2.3 million decrease in advertising and analytics revenue and the expiration of our metadata license with Comcast on September 30, 2017. These decreases were partially offset by a $1.9 million increase in Personalized Content Discovery professional services revenue. For the nine months ended September 30, 2018, Software and Services revenue decreased $7.8 million as a result of a $5.2 million decrease in advertising and analytics revenue and a $4.1 million decrease in metadata revenue, which was primarily due to expiration of our metadata license with Comcast on September 30, 2017, partially offset by a $1.5 million increase in Personalized Content Discovery revenue.

For the three and nine months ended September 30, 2018, Other revenue is primarily derived from ACP sales, which is expected to decline in the future.

Product Adjusted Operating Expenses decreased 13% and 11% for the three and nine months ended September 30, 2018 compared to the prior year due to decreases of $5.7 million and $21.6 million, respectively, in Cost of hardware revenues as a result of the planned transition away from the hardware business and benefits from cost savings initiatives.

The increase in Adjusted EBITDA Margin for the three months ended September 30, 2018 primarily relates a shift in the Product business mix toward higher margin products as hardware becomes a smaller portion of the Product business as a result of the planned transition away from the hardware business and benefits from cost savings initiatives, partially offset by the effects of adopting the amended revenue recognition standard. The increase in Adjusted EBITDA Margin for the nine months ended September 30, 2018 includes a benefit from adopting the amended revenue recognition standard as a result of the fully paid software license discussed above, a shift in business mix toward higher margin products and benefits from cost savings initiatives.

Intellectual Property Licensing

The Intellectual Property Licensing segment's results of operations for the three and nine months ended September 30, 2018 compared to the prior year were as follows (dollars in thousands):

	Three Months Ended September 30,			
	2018	2017	Change $	Change %
US Pay TV Providers	$ 44,474	$ 63,288	$ (18,814)	(30)%
CE Manufacturers	8,859	15,479	(6,620)	(43)%
New Media, International Pay TV Providers and Other	16,764	15,541	1,223	8 %
Intellectual Property Licensing Revenues	70,097	94,308	(24,211)	(26)%
Adjusted Operating Expenses	23,461	24,243	(782)	(3)%
Adjusted EBITDA	$ 46,636	$ 70,065	$ (23,429)	(33)%
Adjusted EBITDA Margin	66.5%	74.3%		

	Nine Months Ended September 30, 2018	2017	Change $	Change %
US Pay TV Providers	$ 143,606	$ 195,365	$ (51,759)	(26)%
CE Manufacturers	26,754	38,296	(11,542)	(30)%
New Media, International Pay TV Providers and Other	52,795	55,563	(2,768)	(5)%
Intellectual Property Licensing Revenues	223,155	289,224	(66,069)	(23)%
Adjusted Operating Expenses	73,790	69,247	4,543	7 %
Adjusted EBITDA	$ 149,365	$ 219,977	$ (70,612)	(32)%
Adjusted EBITDA Margin	66.9%	76.1%		

For the three and nine months ended September 30, 2018, revenue from US Pay TV Providers decreased primarily due to decreases of $20.9 million and $51.2 million, respectively, in revenue from TiVo Solutions agreements entered into with AT&T, DirecTV, EchoStar and Verizon Communications, Inc. ("Verizon") prior to the TiVo Acquisition Date as a result of adopting the amended revenue recognition guidance on January 1, 2018 and contract expirations. Revenue from catch-up payments from US Pay TV Providers intended to make us whole for the pre-license period of use increased revenue by $1.1 million and decreased revenue by $2.1 million for the three and nine months ended September 30, 2018, respectively.

Prior to the TiVo Acquisition Date, TiVo Solutions entered into agreements with AT&T, DirecTV, EchoStar and Verizon that expired by the end of July 2018. Revenue from US Pay TV Providers includes $2.8 million and $23.7 million for the three months ended September 30, 2018 and 2017, respectively, from these agreements. Revenue from US Pay TV Providers includes $20.1 million and $71.3 million for the nine months ended September 30, 2018 and 2017, respectively, from these agreements. Consistent with our expectations, to date, renewals of the TiVo Solutions intellectual property licenses 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.

For the three and nine months ended September 30, 2018, the decrease in revenue from CE Manufacturers was partially attributable to a customer being out-of-license. We anticipate this customer will eventually execute a new license. On occasion, we have licenses expire in a given period where the customer is licensed later in the year, which results in catch-up payments intended to make us whole for the out-of-license period. Revenue from catch-up payments intended to make us whole for the pre-license period of use decreased revenue from CE Manufacturers by $3.9 million and $4.1 million for the three and nine months ended September 30, 2018, respectively. Additionally, a decrease in our licensees' market share, combined with continuing pressures on our licensees' business models, has caused revenue from CE Manufacturers to decline. Such declines could continue unless we are able to successfully license new entrants to this market.

For the three months ended September 30, 2018, the change in New Media, International Pay TV Providers and Other reflects growth in revenue from New Media and International Pay TV customers, partially offset by a decrease of $0.5 million in revenue from catch-up payments intended to make us whole for the pre-license period of use. For the nine months ended September 30, 2018, the change in New Media, International Pay TV Providers and Other reflects a decrease of $5.3 million in revenue from catch-up payments intended to make us whole for the pre-license period of use, partially offset by growth in revenue from New Media and International Pay TV customers.

Intellectual Property Licensing Adjusted Operating Expenses decreased 3% and increased 7% during the three and nine months ended September 30, 2018, respectively. For the three months ended September 30, 2018, the decline in Adjusted Operating Expenses reflects benefits from cost savings initiatives, partially offset by a $1.1 million increase in patent litigation costs, which primarily relates to the ongoing Comcast litigation. For the nine months ended September 30, 2018, the increase in Adjusted Operating Expenses reflects an $11.2 million increase in patent litigation costs, which primarily relates to the ongoing Comcast litigation, partially offset by benefits from cost savings initiatives.

The decrease in Adjusted EBITDA Margin for the three and nine months ended September 30, 2018 is primarily the result of a decrease in Intellectual Property Licensing revenue and an increase in patent litigation costs, partially offset by benefits from cost savings initiatives.

Corporate

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

Corporate costs for the three and nine months ended September 30, 2018 compared to the prior year were as follows (dollars in thousands):

	Three Months Ended September 30,			
	2018	2017	Change $	Change %
Adjusted Operating Expenses	$ 14,825	$ 15,851	$ (1,026)	(6)%

	Nine Months Ended September 30,			
	2018	2017	Change $	Change %
Adjusted Operating Expenses	$ 45,385	$ 47,084	$ (1,699)	(4)%

For the three and nine months ended September 30, 2018, the decrease in Corporate Adjusted Operating Expenses primarily reflects a benefit from cost savings initiatives.

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 September 30, 2018, we had $149.7 million in Cash and cash equivalents, $162.1 million in Short-term marketable securities and $70.3 million in Long-term marketable securities. Our cash, cash equivalents and marketable securities are held in numerous locations around the world, with $84.6 million held by our foreign subsidiaries as of September 30, 2018. 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 nine months ended September 30, 2018 compared to the prior year were as follows (in thousands):

	Nine Months Ended September 30,			
	2018	2017	Change $	Change %
Net cash provided by operating activities of continuing operations	$ 113,735	$ 51,259	$ 62,476	122 %
Net cash used in investing activities	(24,868)	(88,206)	63,338	(72)%
Net cash used in financing activities	(67,712)	(64,506)	(3,206)	5 %
Effect of exchange rate changes on cash and cash equivalents	(465)	1,613	(2,078)	(129)%
Net increase (decrease) in cash and cash equivalents	$ 20,690	$ (99,840)	$ 120,530	(121)%

Net cash provided by operating activities of continuing operations for the nine months ended September 30, 2018 increased $62.5 million. The increase was primarily due to the timing of collections on Accounts receivable, net, $45.3 million of cash used in 2017 to prepay a license and lower payments in 2018 for restructuring plans and corporate bonuses, partially offset by $7.4 million in payments related to TiVo Solutions' acquisition of Cubiware as performance milestones were achieved during the nine months ended September 30, 2018 and certain cash collections in advance of revenue being recognized in 2017. We expect to make material cash payments for restructuring actions in connection with the Profit Improvement Plan through the middle of 2019. 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 II, Item 1A. of this Quarterly Report on Form 10-Q, which are incorporated by reference herein.

Net cash used in investing activities for the nine months ended September 30, 2018 decreased $63.3 million. Net proceeds from marketable security investment transactions decreased by $36.1 million compared to the prior year. The decrease in capital expenditures for the nine months ended September 30, 2018 was primarily associated with infrastructure projects designed to integrate the TiVo Acquisition in 2017. We expect 2018 full year capital expenditures of approximately $25 million for infrastructure projects designed to support anticipated growth in our business and to strengthen our operations infrastructure. We also expect elevated capital expenditures to continue in 2019 as we complete the facility rationalization portion of our Profit Improvement Plan.

Net cash used in investing activities for the nine months ended September 30, 2017 also reflects transactions related to the Dissenting Holders in connection with the TiVo Acquisition. 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 to the Condensed Consolidated Financial Statements included in Part I, Item 1 of this Quarterly Report on Form 10-Q, which is incorporated by reference herein.

Net cash used in financing activities for the nine months ended September 30, 2018 includes a decrease of $6.0 million in tax withholding payments from the net share settlement of restricted awards, partially offset by a decrease in cash receipts of $9.5 million from sales of stock through our employee stock purchase plan and the exercise of employee stock options. Net cash used in financing activities for the nine months ended September 30, 2018 and 2017 each reflect $5.3 million in principal payments on Term Loan Facility B. The nine months ended September 30, 2017 also includes the effect of refinancing Term Loan Facility B. For the nine months ended September 30, 2018 and 2017, dividends of $0.54 per share were declared resulting in an aggregate cash payment of $66.7 million and $65.2 million, respectively.

On February 14, 2017, TiVo Corporation's Board of Directors approved an increase to the stock repurchase program authorization to $150.0 million, which remains available as of September 30, 2018.

Capital Resources

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

	September 30, 2018		December 31, 2017	
	Outstanding Principal	Carrying Amount	Outstanding Principal	Carrying Amount
2020 Convertible Notes	$ 345,000	$ 322,849	$ 345,000	$ 311,766
2021 Convertible Notes	48	48	48	48
Term Loan Facility B	670,250	666,904	675,500	671,281
Total	$ 1,015,298	$ 989,801	$ 1,020,548	$ 983,095

During the next twelve months, $7.0 million of outstanding principal is scheduled to mature. For more information on our borrowings, see Note 10 to the Condensed Consolidated Financial Statements included in Part I, Item 1 of this Quarterly Report on Form 10-Q, 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 September 30, 2018, the 2020 Convertible Notes are convertible at a conversion rate of 37.4422 shares of TiVo Corporation common stock per $1,000 principal of notes, which is equivalent to a conversion price of $26.7078 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 September 30, 2018, the 2021 Convertible Notes are convertible at a conversion rate of 23.4025 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 $36.1372 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 additional payment was required in February 2018.

Critical Accounting Policies and Estimates

The preparation of our Condensed 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 included in Part I, Item 1 of this Quarterly Report on Form 10-Q. 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 amounts reported in the Condensed Consolidated Financial Statements are reasonable; however, actual results could differ materially.

On January 1, 2017, we adopted an amended accounting standard for revenue recognition. For additional information, see Note 1 and Note 5 to the Condensed Consolidated Financial Statements included in Part I, Item 1 of this Quarterly Report on Form 10-Q, which are incorporated by reference herein. Other than the adoption of the amended revenue recognition guidance, there have been no significant changes to our critical accounting policies and estimates as compared to those disclosed in "Critical Accounting Policies and Estimates" in Part II, Item 7 of our Annual Report on Form 10-K for the year ended December 31, 2017, which is incorporated by reference herein.

Revenue Recognition

General

Revenue is recognized when control of the promised goods or services is transferred to a customer in an amount that reflects the consideration we expect to receive in exchange for those goods or services, which may include various combinations of products and services which are generally capable of being distinct and accounted for as separate performance obligations. Revenue is recognized net of any taxes collected from customers, which are subsequently remitted to governmental authorities.

Depending on the terms of the contract, a portion of the consideration received may be deferred because of a requirement to satisfy a future obligation. Stand-alone selling price for separate performance obligations is based on observable prices charged to customers for goods or services sold separately or the cost-plus-a-margin approach when observable prices are not available, considering overall pricing objectives.

Arrangements with Multiple Performance Obligations

Some of our contracts with customers contain multiple performance obligations. For these contracts, the individual performance obligations are separately accounted for if they are distinct. In an arrangement with multiple performance obligations, the transaction price is allocated among the separate performance obligations on a relative stand-alone selling price basis. The determination of stand-alone selling price considers market conditions, the size and scope of the contract, customer and geographic information, and other factors. The allocation of transaction price among performance obligations in a contract may impact the amount and timing of revenue recognized in the Condensed Consolidated Statements of Operations during a given period.

Contract Modifications

Contracts may be modified due to changes in contract specifications or customer requirements. Contract modifications occur when the change in terms either creates new enforceable rights and obligations or changes existing enforceable rights and obligations. The effect of a contract modification for goods and services that are not distinct in the context of the contract on the transaction price is recognized as an adjustment to revenue on a cumulative catch-up basis. Contract modifications that result in goods or services that are distinct from the previously existing contract are accounted for prospectively.

Variable Consideration

When a contract with a customer includes a variable transaction price, an estimate of the consideration to which we expect to be entitled to for transferring the promised goods or services is made at contract inception. Depending on the terms of the contract, variable consideration is estimated using either the expected value approach or the most likely value approach. Under either approach to estimating variable consideration, the estimate considers all information (historical, current and forecast) that is reasonably available at contract inception. The amount of variable consideration is estimated at contract inception and updated as additional information becomes available. The estimate of variable consideration is included in the transaction price to the extent it is probable that a significant reversal of cumulative revenue recognized will not occur when the uncertainty associated with the variable consideration is resolved. Subsequent changes in the transaction price resulting from changes in the estimate of variable consideration are allocated to the performance obligations in the contract on the same basis as at contract inception.

Certain payments to retailers and distributors, such as market development funds and revenue shares, are treated as a reduction of the transaction price, and therefore revenue, rather than Selling, general and administrative expense. The reduction of revenue is recognized at the later of when revenue is recognized for the transfer of the related goods or services to the customer or when we pay or promise to pay the consideration.

When variable consideration is in the form of a sales-based or usage-based royalty in exchange for a license of intellectual property, or when a license of intellectual property is the predominant item to which the variable consideration relates, revenue is recognized at the later of when the subsequent sale or usage occurs or the performance obligation to which some or all of the sales-based or usage-based royalty has been allocated has been satisfied or partially satisfied.

Significant Judgments

Determining whether promises to transfer multiple goods and services in contracts with customers are considered distinct performance obligations that should be accounted for separately requires significant judgment, including related to the level of integration and interdependency between the performance obligations. In addition, judgment is necessary to allocate the transaction price to the distinct performance obligations, including whether there is a discount or significant financing component to be allocated based on the relative stand-alone selling price of the various performance obligations.

Significant judgment is required to determine the stand-alone selling price for each distinct performance obligation when an observable price is not available. In instances where stand-alone selling price is not directly observable, such as when we do not sell the good or service separately, the stand-alone selling price is determined using a range of inputs that includes market conditions and other observable inputs. More than one stand-alone selling price may exist for individual goods and services due to the stratification of those goods and services, considering attributes such as the size of the customer and geographic region.

Due to the nature of the work required to be performed on some performance obligations, significant judgment may be required to determine the transaction price. It is common for our license agreements to contain provisions that can either increase or decrease the transaction price. These variable amounts are generally estimated based on usage or the achievement of performance metrics. In addition to estimating variable consideration, significant judgment is necessary to identify forms of variable consideration, determine whether the variable consideration relates to a sales-based or usage-based royalty of intellectual property and the determination of whether and when to include estimates of variable consideration in the transaction price.

Some hardware products are sold with a right of return and in other circumstances, other credits or incentives may be provided such as consideration (sales incentives) given to customers or resellers, which are accounted for as variable consideration and recognized as a reduction to the revenue recognized. Estimates of returns, credits and incentives are made at contract inception and updated each reporting period.

In contracts 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 software, we recognize revenue as progress toward completion occurs using an input method based on the ratio of costs incurred to date to total estimated costs of the project. Significant judgment is required to estimate the remaining effort to complete the project. These estimates are reassessed throughout the term of the arrangement.

On an ongoing basis, management evaluates its estimates, inputs and assumptions related to revenue recognition. Using different estimates, inputs or assumptions may materially affect the reported amounts of assets and liabilities as of the date of the financial statements and the results of operations for the reporting period.

Nature of goods and services

The following is a discussion of the principal activities from which we generate revenue.

Patent Licensing Agreements

We license our discovery patent portfolio to traditional pay TV providers, virtual service providers, OTT video providers, CE manufacturers and others. We license our patented technology portfolio under two revenue models: (i) fixed fee licenses and (ii) per-unit royalty licenses.

Our long-term fixed-fee license agreements provide rights to future patented technologies over the term of the agreement that are highly interdependent or highly interrelated to the patented technologies provided at the inception of the agreement. We treat these rights as a single performance obligation with revenue recognized on a straight-line basis over the term of the fixed-fee license agreement.

At times, we enter into license agreements in which a licensee is released from past patent infringement claims and is granted a license to ship an unlimited number of units over a future period for a fixed fee. In these arrangements, we allocate the transaction price between the release for past patent infringement claims and the future license. In determining the stand-alone selling price 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 geographies these units where shipped, the number of units expected to be shipped in the future and in what geographies these units are expected to be shipped, as well as the licensing rate we generally receive for units shipped in the same geographies. As the release from past patent infringement claims is generally satisfied at execution of the agreement, the transaction price allocated to the release from past patent infringement claims is generally recognized in the period the agreement is executed and the amount of transaction price allocated to the future license is recognized ratably over the future license term.

We recognize 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 sales are subsequently reported by the licensees, which is generally in the month or quarter following usage or shipment. We generally recognize revenue from per-unit royalty licenses on a per-subscriber per-month model for licenses with service providers and a per-unit shipped model for licenses with CE manufacturers.

Arrangements with Multiple System Operators for the TiVo Service

Our arrangements with multiple system operators ("MSOs") typically include software customization and set-up services, associated maintenance and support, limited training, post-contract support, TiVo-enabled digital video recorders ("DVRs"), non-DVR STBs and the TiVo service.

We have two types of arrangements with MSOs that include technology deployment and engineering services. 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 contractual term. The related cost of such services is capitalized to the extent it is deemed recoverable and amortized to cost of revenues over the same period as the related TiVo service revenue is recognized. We estimate the stand-alone selling prices for training, DVRs, non-DVR STBs and maintenance and support based on the price charged in stand-alone sales of the promised good or service. The stand-alone selling price 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. For a term license to the TiVo service, we receive license fees for the hosted TiVo service on either a per-subscriber per-month basis or a fixed fee. We recognize revenue from per-subscriber per-month licenses during the month the TiVo service is provided to the customer and recognizes revenue from fixed fee licenses ratably over the license period.

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 as progress toward completion is made using an input method based on the ratio of costs incurred to date to total estimated costs of the project. Project costs are primarily labor 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 and are expensed as incurred. Estimating project costs requires forecasting costs, tracking progress toward completion 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. Provisions for losses are recorded when estimates indicate it is probable that a loss will be incurred for the contract. We generally recognize revenue from license fees for the TiVo service that it does not host on a per-subscriber per-month basis due to the recognition constraint on intellectual property usage-based royalties.

Subscription Services

Subscription services revenues primarily consist of fees to provide customers with access to one or more of our hosted products such as our i-Guide IPG, advanced search and recommendations, metadata and analytics products, including routine customer support. We generally receive per-subscriber per-month fees for our i-Guide IPG and search and recommendations service and revenue is recorded in the month the customer uses the service. We generally receive a monthly or quarterly fee from its metadata or analytics licenses for the right to use its metadata or access its analytics platform and to receive regular updates. Revenue from our metadata and analytics service is recognized ratably over the subscription period.

Passport Software

We license our Passport IPG software to pay TV providers in North and South America. We generally receive per-subscriber per-month fees for licenses to the Passport IPG software and support. Due to the usage-based royalty provisions of the revenue recognition guidance, revenue is generally recognized in the month the customer uses the software.

Advertising

We generate advertising revenue through our IPGs. 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 related service directly to customers through sales programs via the TiVo.com website and license the sale of TiVo-enabled DVRs through a limited number of retailers. For sales through the TiVo.com website, 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 subscription period, customers have various pricing options when they renew their subscription. Customers have the right to return the DVR within 30 days of purchase. Customers have the right to cancel their subscription to the TiVo service within 30 days of subscription activation for a full refund. For licensed sales of TiVo-enabled DVRs through retailers, the customer commits to either a minimum subscription period of one year or for the lifetime of the DVR.

The stand-alone selling price for the TiVo service is established based on stand-alone sales of the service and varies by the length of the service period. The stand-alone selling price of the DVR is determined based on the price for which we would sell the DVR without any service commitment from the customer.

The transaction price allocated to the DVR is recognized as revenue on delivery and the transaction price allocated to the TiVo service is recognized as revenue ratably over the service period. Subscription revenues from lifetime subscriptions are recognized ratably over the estimated useful life of the DVR associated with the subscription. The estimated useful life for a DVR depends on a number of assumptions, including, but not limited to, customer retention rates, the timing of new product introductions and historical experience. As of September 30, 2018, we recognize revenue for lifetime subscriptions over a 66-month period. We periodically reassess the estimated useful life of a DVR. When the actual useful life of the DVR materially differs from our estimate, the estimated useful life of the DVR is adjusted, which could result in the recognition of revenue over a longer or shorter period of time.

Shipping and handling costs associated with outbound freight after control of a DVR has transferred to a customer are accounted for as a fulfillment cost and are included in Cost of hardware revenues, excluding depreciation and amortization of intangible assets as incurred.

Contractual Obligations

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 remained 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. During the nine months ended September 30, 2018, $5.5 million was paid related to the guaranteed payments and $1.9 million was paid related to the additional earn-out. As of September 30, 2018, total payments of $5.2 million have been earned, but remain unpaid pending the resolution of a matter for which the selling shareholders have an indemnification obligation to TiVo Solutions.

In the normal course of business, we order finished goods inventory with advanced lead times from a third party that allow the third party to procure inventory based on our purchase orders. As a result of a manufacturing outsourcing agreement that became effective during the nine months ended September 30, 2018, our unconditional purchase obligations as of September 30, 2018 were reduced to $4.4 million.

For information about our contractual obligations, see "Contractual Obligations" in Part II, Item 7 of our Annual Report on Form 10-K for the year ended December 31, 2017, which is incorporated by reference herein. Other than the items described above, our contractual obligations have not changed materially since December 31, 2017.

Off-Balance Sheet Arrangements

For information about our off-balance sheet arrangements, see "Off-Balance Sheet Arrangements" in Part II, Item 7 of our Annual Report on Form 10-K for the year ended December 31, 2017, which is incorporated by reference herein. Since December 31, 2017, 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 Condensed Consolidated Financial Statements included in Part I, Item 1 of this Quarterly Report on Form 10-Q, which is incorporated by reference herein.

ITEM 3. 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 affect our financial position, results of operations or cash flows. For quantitative and qualitative disclosures about market risk, see Part II, Item 7A of our Annual Report on Form 10-K for the year ended December 31, 2017, which is incorporated reference herein. Our exposure to market risk has not changed materially since December 31, 2017.

ITEM 4. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

As of the end of the period covered by this report, we carried out an evaluation, under the supervision and with participation of management, including our Interim Chief Executive Officer and our Chief Financial Officer, of the effectiveness of the design and operation of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act). In evaluating the disclosure controls and procedures, management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives, and management necessarily is required to apply its judgment in evaluating the cost-benefit relationship of possible controls and procedures. Based on their evaluation, our Interim Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures were effective as of the end of the period covered by this report.

Changes in Internal Control Over Financial Reporting

We believe there have been no changes to our internal controls over financial reporting during the quarter ended September 30, 2018, that have materially affected, or are reasonably likely to materially affect, our internal controls over financial reporting.

PART II. OTHER INFORMATION

ITEM 1. LEGAL PROCEEDINGS

Information with respect to this item is contained in Note 11 to the Condensed Consolidated Financial Statements included in Part I, Item 1 of this Quarterly Report on Form 10-Q, which is incorporated by reference herein.

ITEM 1A. RISK FACTORS

Management believes that there have been no significant changes to the risk factors associated with our business as compared to those disclosed in Part 1, Item 1A of our Annual Report on Form 10-K for the year ended December 31, 2017, which is incorporated by reference herein.

ITEM 2. UNREGISTERED SALES OF EQUITY SECURITIES AND USE OF PROCEEDS

Issuer Purchases of Equity Securities

We may choose to repurchase shares under our 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 September 30, 2018 (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)
July 2018	—	$ —	—	$ 150,000
August 2018	—	$ —	—	$ 150,000
September 2018	—	$ —	—	$ 150,000
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 September 30, 2018, we withheld 0.2 million shares of common stock to satisfy $2.6 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 3. DEFAULTS UPON SENIOR SECURITIES

None.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

ITEM 5. OTHER INFORMATION

None.

ITEM 6. EXHIBITS

Exhibit Number	Exhibit Description	Incorporated by Reference			Filed Herewith
		Company Form+	Filing Date	Exhibit Number	
10.01	Form of Notice of Restricted Stock Unit/Restricted Stock Unit Agreement pursuant to Rovi 2008 Equity Incentive Plan**				X
10.02	Form of Notice of Restricted Stock Unit/Restricted Stock Unit Agreement pursuant to TiVo Corporation Titan Equity Incentive Plan**				X
10.03	2018 Senior Executive Company Incentive Plan**				X
10.04	Offer letter to Raghavendra Rau dated July 23, 2018**	8-K	July 27, 2018	10.1	
10.05	Executive Severance and Arbitration Agreement with Raghavendra Rau dated July 23, 2018**	8-K	July 27, 2018	10.2	
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

* Furnished herewith.

** Management contract or compensatory plan or arrangement.

Signatures

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

TIVO CORPORATION		
Authorized Officer:		
Date:	By:	/s/ Raghavendra Rau
November 7, 2018		Raghavendra Rau
		Interim President and Chief Executive Officer
Principal Financial Officer:		
Date:	By:	/s/ Peter C. Halt
November 7, 2018		Peter C. Halt
		Chief Financial Officer
Principal Accounting Officer:		
Date:	By:	/s/ Wesley Gutierrez
November 7, 2018		Wesley Gutierrez
		Chief Accounting Officer and Treasurer

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Section 2: EX-10.01 (EXHIBIT 10.01)

Exhibit 10.01

TIVO CORPORATION

ROVI CORPORATION 2008 EQUITY INCENTIVE PLAN

NOTICE OF RESTRICTED STOCK UNIT GRANT

TiVo Corporation (the "Company") hereby grants you, **%%FIRST_NAME%-% %%LAST_NAME%-%** (the "Participant"), Restricted Stock Units under the Rovi Corporation 2008 Equity Incentive Plan, as amended (the "Plan"). The date of this Notice of Restricted Stock Unit Grant ("Notice") is **%%OPTION_DATE,'Month DD, YYYY'%-%**. Subject to the provisions of this Notice, the Restricted Stock Unit Grant Agreement (the "Agreement") and of the Plan, the features of the Restricted Stock Units are as follows:

Number of Shares: **%%TOTAL_SHARES_GRANTED,'999,999,999'%-%**

Vesting Commencement Date: **%%OPTION_DATE,'Month DD, YYYY'%-%**

Vesting of Restricted Stock Units: The Restricted Stock Units will vest over a four-year period according to the following schedule:

> Twenty-five percent (25%) of the Restricted Stock Units shall vest on each 12-month anniversary of the Vesting Commencement Date, subject to Participant's Continuous Service (as defined in Section 5 of the Agreement) through the applicable vesting date.

Issuance Schedule: Subject to any adjustment as set forth in the Plan or Section 12 of the Agreement, one share of Common Stock will be issued for each Restricted Stock Unit that vests at the time set forth in Section 5 of the Agreement.

Unless otherwise defined herein or in the Agreement, capitalized terms herein or in the Agreement will have the defined meanings ascribed to them in the Plan.

The Company and Participant agree that the Restricted Stock Units described in this Notice are governed by the provisions of the Agreement attached to and made a part of this document. The Participant acknowledges receipt of this Notice and the Agreement, represents that the Participant has read and is familiar with the provisions in this Notice and the attached Agreement, and hereby accepts the Restricted Stock Unit Grant subject to all of the terms and conditions set forth in this Notice and the attached Agreement.

TiVo Corporation		Accepted by:	
		PARTICIPANT	
By:		Name:	______________________
Title:	Chief Human Resources Officer	Signature:	______________________
Address:	2160 Gold Street	Date:	______________________
	San Jose, CA 95002		

ATTACHMENTS: Restricted Stock Unit Grant Agreement
Rovi Corporation 2008 Equity Incentive Plan

TIVO CORPORATION

ROVI CORPORATION 2008 EQUITY INCENTIVE PLAN

RESTRICTED STOCK UNIT GRANT AGREEMENT

THE RESTRICTED STOCK UNITS ARE SUBJECT TO THE TERMS AND CONDITIONS OF THE PLAN. ONLY CERTAIN PROVISIONS OF THE PLAN ARE INCLUDED IN THIS AGREEMENT. A COPY OF THE PLAN IS ATTACHED TO THIS AGREEMENT AND SHOULD BE READ CAREFULLY.

1. Grant of Restricted Stock Units. The Company hereby grants to Participant a Restricted Stock Unit Grant for that number of Restricted Stock Units set forth in the Notice. This award represents the right to be issued on a future date one (1) share of Common Stock for each Restricted Stock Unit that vests on the applicable vesting date(s) (subject to any adjustment under Section 12 below) as indicated in the Notice. As of the Date of Grant, the Company will credit to a bookkeeping account maintained by the Company for Participant's benefit the number of Restricted Stock Units/shares of Common Stock subject to the award. This award was granted in consideration of Participant's services to the Company.

2. Leave of Absence. During any authorized leave of absence, the vesting of the Restricted Stock Units shall be suspended after the leave of absence exceeds a period of thirty (30) days. Vesting of the Restricted Stock Units shall resume upon the Participant's termination of the leave of absence and return to service to the Company and/or its Subsidiaries. The vesting schedule of the Restricted Stock Units shall be extended by the length of the suspension.

3. Non-transferability of Restricted Stock Units. The Restricted Stock Units shall not be transferable (including by sale, assignment, pledge or hypothecation) other than by will or the laws of intestate succession. The designation of a beneficiary does not constitute a transfer. Participant shall not sell, transfer, assign, pledge or otherwise encumber the Restricted Stock Units until all vesting requirements have been met.

4. Stockholder Rights. Stock underlying Restricted Stock Units will not be issued until the Restricted Stock Units have vested. A Participant awarded Restricted Stock Units shall have no rights as a Company stockholder with respect to such Restricted Stock Units until such time as the Restricted Stock Units have vested and Stock underlying the Restricted Stock Units has been issued.

5. Vesting and Earning of Restricted Stock Unit; Date of Issuance.

(a) If Participant's service with the Company or a Subsidiary, whether as an employee, consultant, or director, is not interrupted or terminated (such status is described herein as "Continuous Service"), then the Restricted Stock Units shall vest and shares shall be issued as promptly as reasonably practicable thereafter in accordance with the Notice. The issuance of shares in respect of the Restricted Stock Units is intended to comply with Treasury Regulations Section 1.409A-1(b)(4) and will be construed and administered in such a manner. Subject to the satisfaction of the withholding obligations set forth in this Agreement, in the event one or more Restricted Stock Units vests, the Company shall issue to Participant one (1) share of Common Stock for each Restricted Stock Unit that vests on the applicable vesting date(s) (subject to any adjustment under Section 12 below). The issuance date determined by this paragraph is referred to as the "Original Issuance Date".

(b) If the Original Issuance Date falls on a date that is not a business day, delivery shall instead occur as promptly as reasonably practicable thereafter.

(c) The foregoing notwithstanding, in the event that Participant remains in Continuous Service at the time a Corporate Transaction (as defined below) occurs, the Board, or the board of directors of any corporation assuming the obligations of the Company hereunder, shall either (a) assume the outstanding Restricted Stock Units or make a substitution on an equitable basis of appropriate Stock of the

Company or of the merged, consolidated, or otherwise reorganized corporation which will be issuable in respect to the shares of Stock, or (b) provide that the Restricted Stock Units shall become immediately vested with respect to all the units of the Restricted Stock Unit Grant. For purposes of this Agreement a "Corporate Transaction" shall mean: (i) a dissolution or liquidation of the Company; (ii) a merger or consolidation in which the Company is not the surviving corporation (other than a merger or consolidation with a wholly-owned subsidiary, a reincorporation of the Company in a different jurisdiction, or other transaction in which there is no substantial change in the stockholders of the Company or their relative stock holdings and the Units are assumed, converted or replaced by the successor corporation, which assumption will be binding on all Participants); (iii) a merger in which the Company is the surviving corporation but after which the stockholders of the Company (other than any stockholder which merges (or which owns or controls another corporation which merges) with the Company in such merger) cease to own their shares or other equity interests in the Company; (iv) the sale of substantially all of the assets of the Company; or (v) any other transaction which qualifies as a "corporate transaction" under Section 424(a) of the Code, wherein the stockholders of the Company give up all of their equity interest in the Company (except for the acquisition, sale or transfer of all or substantially all of the outstanding shares of the Company from or by the stockholders of the Company).

(d) The Committee has sole authority to determine whether and to what degree the Restricted Stock Units have vested and been earned and shares are issuable and to interpret the terms and conditions of this Agreement and the Plan.

6. Termination of Employment or Service. In the event that Participant's Continuous Service is terminated for any reason, including death or Disability, and Participant has not yet vested all or part of the Restricted Stock Units pursuant to the Notice and Section 5, then the Restricted Stock Units, to the extent not vested as of Participant's termination date, shall be forfeited immediately upon such termination, and Participant shall have no further rights with respect to the Restricted Stock Units that have not yet vested. In jurisdictions requiring notice in advance of an effective termination of Continuous Service, Participant shall be deemed terminated upon the actual cessation of providing services to the Company notwithstanding any required notice period that must be fulfilled before a termination of the Continuous Service can be effective under applicable laws. Participant expressly acknowledges and agrees that the termination of Continuous Service shall result in forfeiture of the Restricted Stock Units to the extent the Restricted Stock Units have not vested as of the date of termination.

7. Payment of Par Value. As a condition to the delivery to Participant of the shares of Stock subject to the Restricted Stock Units after such units have vested, Participant authorizes the Company to deduct from compensation due to Participant from the Company or Participant's employer, if different (the "Employer"), an amount equal to the par value of the shares of Stock to be issued hereunder. Such withholding shall be deducted from Participant's compensation payable on the Company's or the Employer's regularly scheduled payroll date immediately prior to each vesting date of the Restricted Stock Units, as set forth in the Notice and in this Agreement, unless otherwise determined by the Committee. As of the date of this Agreement, the par value for one share of the Company's common stock is $.001.

8. Settlement of Restricted Stock Units. The Company shall not be obligated to deliver any shares of Stock hereunder for such period as may be required by it in order to comply with applicable federal or state statutes, laws and regulations.

9. No Acquired Rights. Participant agrees and acknowledges that:

(a) the Plan is discretionary in nature and that the Company can amend, cancel, or terminate it at any time;

(b) the grant of the Restricted Stock Units under the Plan is voluntary and occasional and does not create any contractual or other right to receive future grants of any Restricted Stock Units or benefits in lieu of any Restricted Stock Units, even if Restricted Stock Units have been granted repeatedly in the past and regardless of any reasonable notice period mandated under local law;

(c) the value of the Restricted Stock Units is an extraordinary item of compensation which is outside the scope of Participant's employment contract, if any;

(d) the Restricted Stock Units are not part of normal or expected compensation or salary for any purposes, including, but not limited to, calculating termination, severance, resignation, redundancy, end of service payments, bonuses, long-service awards, pension, retirement benefits, or similar payments;

(e) the Restricted Stock Units shall expire upon termination of Participant's Continuous Service for any reason except as may otherwise be explicitly provided in the Plan and this Agreement;

(f) the future value of the shares of Stock awarded under the Plan is unknown and cannot be predicted with certainty;

(g) no claim or entitlement to compensation or damages arises from the termination of the Restricted Stock Units or diminution in value of the Restricted Stock Units or shares of Stock purchased under the Plan and Participant irrevocably releases the Company from any such claim; and

(h) Participant's participation in the Plan shall not create a right to further employment with the Company and shall not interfere with the ability of the Company to terminate Participant's Continuous Service at any time, with or without Cause.

10. Tax Withholding.

(a) Participant is responsible for, and by accepting the Restricted Stock Units agrees to bear, all taxes of any nature, including any income tax, withholding tax, social insurance, payroll tax, fringe benefit tax, payment on account, interest, penalties or other tax related items arising out of the grant of the Restricted Stock Units, the vesting of the Restricted Stock Units, the distribution of the shares underlying the Restricted Stock Units, or the subsequent sale of the shares (collectively, the "Tax Items"), that are legally imposed upon Participant in connection with the Restricted Stock Units, and the Company does not assume, and will not be liable to any party for, any cost or liability arising in connection with such Tax Items legally imposed on Participant. The Company has not provided any tax advice with respect to the Restricted Stock Units or the disposition of the shares. Participant should obtain advice from an appropriate independent professional adviser with respect to the tax implications of any aspect of the Restricted Stock Units, including the grant or vesting of the Restricted Stock Units or the subsequent sale of any shares.

(b) In the event that the Company or the Employer, including any Subsidiary qualified to deduct tax at source, is required to withhold any Tax Items as a result of any event occurring in connection with the Restricted Stock Units, the Employer will satisfy Tax Items by withholding, from the shares to be delivered to the Participant upon vesting, a number of shares having an aggregate fair market value equal to the amount of the Tax Items. The number of shares withheld to satisfy the Tax Items will be rounded up to the nearest whole share. Depending on the withholding method, the Company or the Employer may withhold or account for Tax Items by considering applicable minimum statutory withholding amounts or other applicable withholding rates, including maximum applicable rates, in which case Participant may receive a refund of any over-withheld amount in cash and will have no entitlement to the Common Stock equivalent. Once the Tax Items have been satisfied by withholding a number of shares for tax purposes, the Participant is deemed to have been issued the full number of shares subject to the release tranche in this grant. The Participant shall pay the Tax Items that the Company may be required to withhold if the Tax Items cannot be satisfied by the means previously described. The Company has sole discretion to require or permit the Participant to make alternate arrangements satisfactory to the Company for such withholdings in advance of the arising withholding obligations. No shares will be issued unless and until satisfactory arrangements (as determined by the Company) have been made by the Participant with respect to the payment of any income and other taxes which the Company determines must be withheld or collected with respect to such shares. By accepting this award, Participant expressly consents to the withholding of shares and to any additional cash withholding as provided for in this paragraph.

(c) Participant acknowledges and agrees that the ultimate liability for any Tax Items legally due by Participant is and remains Participant's responsibility and that the Company and or the Employer (a) make no representations nor undertakings regarding the treatment of any such Tax Items in connection with any aspect of the Restricted Stock Units, including the grant or vesting of the Restricted Stock Units, the distribution of the shares underlying the Restricted Stock Units, or the subsequent sale of the shares acquired from the Restricted Stock Units; and (b) do not commit to structure the terms or any aspect of the Restricted Stock Units to reduce or eliminate the Participant's liability for such Tax Items. The Company may refuse to deliver the shares if Participant fails to comply with Participant's obligations in connection with the satisfaction of the Tax Items.

11. Administration. The authority to construe and interpret this Agreement and the Plan, and to administer all aspects of the Plan, shall be vested in the Committee (as such term is defined in the Plan), and the Committee shall have all powers with respect to this Agreement as are provided in the Plan. Any interpretation of this Agreement by the Committee and any decision made by it with respect to this Agreement is final and binding.

12. Adjustments Upon Changes in Capitalization. In the event of any change in the outstanding Stock of the Company by reason of stock dividends, recapitalization, mergers, consolidations, split-up, combinations or exchanges of shares and the like, the number and kind of shares subject to the Restricted Stock Units immediately prior to such event shall be appropriately adjusted by the Board in accordance with the terms of the Plan, and such adjustment shall be conclusive.

13. Appendix. The Restricted Stock Units shall be subject to any special provisions set forth in the Appendix for Participant's country. Moreover, if Participant relocates to one of the countries included in the Appendix during the life of the Restricted Stock Units or while holding shares of Common Stock acquired under the Plan, the special provisions for such country shall apply to Participant to the extent the Company determines that the application of such provisions is advisable or necessary in order to comply with local law or facilitate the administration of the Plan. The Appendix constitutes part of this Agreement.

14. Entire Agreement; Amendment; Binding Effect; Governing Law; Plan Controls. The Plan is incorporated herein by reference. The Plan and this Agreement constitute the entire agreement of the parties with respect to the subject matter hereof and supersede in their entirety all prior undertakings and agreements of the Company and Participant with respect to the subject matter hereof, and may not be modified adversely to Participant's interest except by means of a writing signed by the Company and Participant. The waiver by the Company of a breach of any provision of this Agreement by Participant shall not operate or be construed as a waiver of any subsequent breach by Participant. This Agreement shall be binding upon and shall inure to the benefit of the parties hereto and their respective executors, administrators, next-of-kin, successors and assigns. This Agreement is governed by the laws of the state of Delaware. In the event of any conflict between the terms and provisions of the Plan and this Agreement, the Plan terms and provisions shall govern. Capitalized terms used but not defined in this Agreement have the meanings assigned to them in the Plan. Certain other important terms governing this Agreement are contained in the Plan.

15. Notices; Electronic Delivery. Any notice required or permitted by this Agreement shall be in writing and shall be deemed sufficient when delivered personally, or at time of transmission if sent by telegram or fax or forty-eight (48) hours after being deposited in the U.S. mail, as certified or registered mail, with postage prepaid, or at the time an electronic confirmation of receipt is received if delivery is by email, and addressed to the party to be notified at such party's address as set forth in the Notice or as subsequently modified by written notice. Any notice for delivery outside the United States will be sent by email, facsimile or by express courier. By accepting the Restricted Stock Units, the Participant consents to receive documents related to participation in the Plan and this award by electronic delivery and to participate in the Plan through an online or electronic system established and maintained by the Company or another third party designated by the Company.

16. Severability. The provisions of this Agreement are severable and if any one or more provisions may be determined to be illegal or otherwise unenforceable, in whole or in part, the remaining provisions shall nevertheless be binding and enforceable.

17. Counterparts; Further Instruments. This Agreement may be executed in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. The parties hereto agree to execute such further instruments and to take such further action as may be reasonably necessary to carry out the purposes and intent of this Agreement.

18. Compliance with Section 409A of the Code. This award is intended to comply with the "short-term deferral" rule set forth in Treasury Regulation Section 1.409A-1(b)(4). Notwithstanding the foregoing, if it is determined that the Award fails to satisfy the requirements of the short-term deferral rule and is otherwise deferred compensation subject to Section 409A, and if the Participant is a "specified employee" (within the meaning set forth in Section 409A(a)(2)(B)(i) of the Code) as of the date of the Participant's "separation from service" (within the meaning of Treasury Regulation Section 1.409A-1(h) and without regard to any alternative definition thereunder), then the issuance of any shares that would otherwise be made upon the date of the separation from service or within the first six (6) months thereafter will not be made on the originally scheduled date(s) and will instead be issued in a lump sum on the date that is six (6) months and one day after the date of the separation from service, with the balance of the shares issued thereafter in accordance with the original vesting and issuance schedule set forth above, but if and only if such delay in the issuance of the shares is necessary to avoid the imposition of adverse taxation on the Participant in respect of the shares under Section 409A of the Code. Each installment of shares that vests is intended to constitute a "separate payment" for purposes of Treasury Regulation Section 1.409A-2(b)(2).

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Section 3: EX-10.02 (EXHIBIT 10.02)

Exhibit 10.02

TIVO CORPORATION

TITAN EQUITY INCENTIVE AWARD PLAN

NOTICE OF RESTRICTED STOCK UNIT GRANT

TiVo Corporation (the "Company") hereby grants you, **%%FIRST_NAME%-% %%LAST_NAME%-%** (the "Participant"), Restricted Stock Units under the Titan Equity Incentive Award Plan (the "Plan"). The date of this Notice of Restricted Stock Unit Grant ("Notice") is **%%OPTION_DATE,'Month DD, YYYY'%-%**. Subject to the provisions of this Notice, the Restricted Stock Unit Grant Agreement (the "Agreement") and of the Plan, the features of the Restricted Stock Units are as follows:

Number of Shares: **%%TOTAL_SHARES_GRANTED,'999,999,999'%-%**

Vesting Commencement Date: **%%OPTION_DATE,'Month DD, YYYY'%-%**

Vesting of Restricted Stock Units: The Restricted Stock Units will vest over a four-year period according to the following schedule:

> Twenty-five percent (25%) of the Restricted Stock Units shall vest on each 12-month anniversary of the Vesting Commencement Date, subject to Participant's Continuous Service (as defined in the Plan) through the applicable vesting date.

Issuance Schedule: Subject to any adjustment as set forth in the Plan or Section 12 of the Agreement, one share of Common Stock will be issued for each Restricted Stock Unit that vests at the time set forth in Section 5 of the Agreement.

Unless otherwise defined herein or in the Agreement, capitalized terms herein or in the Agreement will have the defined meanings ascribed to them in the Plan.

The Company and Participant agree that the Restricted Stock Units described in this Notice are governed by the provisions of the Agreement attached to and made a part of this document. The Participant acknowledges receipt of this Notice and the Agreement, represents that the Participant has read and is familiar with the provisions in this Notice and the attached Agreement, and hereby accepts the Restricted Stock Unit Grant subject to all of the terms and conditions set forth in this Notice and the attached Agreement.

TiVo Corporation	Accepted by:

		PARTICIPANT	
By:		Name:	
Title:	Chief Human Resources Officer	Signature:	
Address:	2160 Gold Street San Jose, CA 95002	Date:	

ATTACHMENTS: Restricted Stock Unit Grant Agreement
TiVo Corporation Titan Equity Incentive Award Plan

TIVO CORPORATION

TITAN EQUITY INCENTIVE AWARD PLAN

RESTRICTED STOCK UNIT GRANT AGREEMENT

THE RESTRICTED STOCK UNITS ARE SUBJECT TO THE TERMS AND CONDITIONS OF THE PLAN. ONLY CERTAIN PROVISIONS OF THE PLAN ARE INCLUDED IN THIS AGREEMENT. A COPY OF THE PLAN IS ATTACHED TO THIS AGREEMENT AND SHOULD BE READ CAREFULLY.

1. Grant of Restricted Stock Units. The Company hereby grants to Participant a Restricted Stock Unit Grant for that number of Restricted Stock Units set forth in the Notice. This award represents the right to be issued on a future date one (1) share of Common Stock for each Restricted Stock Unit that vests on the applicable vesting date(s) (subject to any adjustment under Section 12 below) as indicated in the Notice. As of the Date of Grant, the Company will credit to a bookkeeping account maintained by the Company for Participant's benefit the number of Restricted Stock Units/shares of Common Stock subject to the award. This award was granted in consideration of Participant's services to the Company.

2. Leave of Absence. During any authorized leave of absence, the vesting of the Restricted Stock Units shall be suspended after the leave of absence exceeds a period of thirty (30) days. Vesting of the Restricted Stock Units shall resume upon the Participant's termination of the leave of absence and return to service to the Company and/or its Subsidiaries. The vesting schedule of the Restricted Stock Units shall be extended by the length of the suspension.

3. Non-transferability of Restricted Stock Units. The Restricted Stock Units shall not be transferable (including by sale, assignment, pledge or hypothecation) other than by will or the laws of intestate succession. The designation of a beneficiary does not constitute a transfer. Participant shall not sell, transfer, assign, pledge or otherwise encumber the Restricted Stock Units until all vesting requirements have been met.

4. Stockholder Rights. Stock underlying Restricted Stock Units will not be issued until the Restricted Stock Units have vested. A Participant awarded Restricted Stock Units shall have no rights as a Company stockholder with respect to such Restricted Stock Units until such time as the Restricted Stock Units have vested and Stock underlying the Restricted Stock Units has been issued.

5. Vesting and Earning of Restricted Stock Unit; Date of Issuance.

(a) If Participant remains in Continuous Service, then the Restricted Stock Units shall vest and shares shall be issued as promptly as reasonably practicable thereafter in accordance with the Notice. The issuance of shares in respect of the Restricted Stock Units is intended to comply with Treasury Regulations Section 1.409A-1(b)(4) and will be construed and administered in such a manner. Subject to the satisfaction of the withholding obligations set forth in this Agreement, in the event one or more Restricted Stock Units vests, the Company shall issue to Participant one (1) share of Common Stock for each Restricted Stock Unit that vests on the applicable vesting date(s) (subject to any adjustment under Section 12 below). The issuance date determined by this paragraph is referred to as the "Original Issuance Date".

(b) If the Original Issuance Date falls on a date that is not a business day, delivery shall instead occur as promptly as reasonably practicable thereafter.

(c) The foregoing notwithstanding, in the event that Participant remains in Continuous Service at the time a Corporate Transaction (as defined in the Plan) occurs, the Board, or the board of directors of any corporation assuming the obligations of the Company hereunder, shall either (a) assume the outstanding Restricted Stock Units or make a substitution on an equitable basis of appropriate Stock of the Company or of the merged, consolidated, or otherwise reorganized corporation which will be issuable in respect to the shares of Stock, or (b) provide that the Restricted Stock Units shall become immediately vested with respect to all the units of the Restricted Stock Unit Grant.

(d) The Committee has sole authority to determine whether and to what degree the Restricted Stock Units have vested and been earned, and shares are issuable and to interpret the terms and conditions of this Agreement and the Plan.

6. Termination of Employment or Service. In the event that Participant's Continuous Service is terminated for any reason, including death or Disability, and Participant has not yet vested all or part of the Restricted Stock Units pursuant to the Notice and Section 5, then the Restricted Stock Units, to the extent not vested as of Participant's termination date, shall be forfeited immediately upon such termination, and Participant shall have no further rights with respect to the Restricted Stock Units that have not yet vested. In jurisdictions requiring notice in advance of an effective termination of Continuous Service, Participant shall be deemed terminated upon the actual cessation of providing services to the Company notwithstanding any required notice period that must be fulfilled before a termination of the Continuous Service can be effective under applicable laws. Participant expressly acknowledges and agrees that the termination of Continuous Service shall result in forfeiture of the Restricted Stock Units to the extent the Restricted Stock Units have not vested as of the date of termination.

7. Payment of Par Value. As a condition to the delivery to Participant of the shares of Stock subject to the Restricted Stock Units after such units have vested, Participant authorizes the Company to deduct from compensation due to Participant from the Company or Participant's employer, if different (the "Employer"), an amount equal to the par value of the shares of Stock to be issued hereunder. Such withholding shall be deducted from Participant's compensation payable on the Company's or the Employer's regularly scheduled payroll date immediately prior to each vesting date of the Restricted Stock Units, as set forth in the Notice and in this Agreement, unless otherwise determined by the Committee. As of the date of this Agreement, the par value for one share of the Company's common stock is $.001.

8. Settlement of Restricted Stock Units. The Company shall not be obligated to deliver any shares of Stock hereunder for such period as may be required by it in order to comply with applicable federal or state statutes, laws and regulations.

9. No Acquired Rights. Participant agrees and acknowledges that:

(a) the Plan is discretionary in nature and that the Company can amend, cancel, or terminate it at any time;

(b) the grant of the Restricted Stock Units under the Plan is voluntary and occasional and does not create any contractual or other right to receive future grants of any Restricted Stock Units or benefits in lieu of any Restricted Stock Units, even if Restricted Stock Units have been granted repeatedly in the past and regardless of any reasonable notice period mandated under local law;

(c) the value of the Restricted Stock Units is an extraordinary item of compensation which is outside the scope of Participant's employment contract, if any;

(d) the Restricted Stock Units are not part of normal or expected compensation or salary for any purposes, including, but not limited to, calculating termination, severance, resignation, redundancy, end of service payments, bonuses, long-service awards, pension, retirement benefits, or similar payments;

(e) the Restricted Stock Units shall expire upon termination of Participant's Continuous Service for any reason except as may otherwise be explicitly provided in the Plan and this Agreement;

(f) the future value of the shares of Stock awarded under the Plan is unknown and cannot be predicted with certainty;

(g) no claim or entitlement to compensation or damages arises from the termination of the Restricted Stock Units or diminution in value of the Restricted Stock Units or shares of Stock purchased under the Plan and Participant irrevocably releases the Company from any such claim; and

(h) Participant's participation in the Plan shall not create a right to further employment with the Company and shall not interfere with the ability of the Company to terminate Participant's Continuous Service at any time, with or without Cause.

10. Tax Withholding.

a. Participant is responsible for, and by accepting the Restricted Stock Units agrees to bear, all taxes of any nature, including any income tax, withholding tax, social insurance, payroll tax, fringe benefit tax, payment on account, interest, penalties or other tax related items arising out of the grant of the Restricted Stock Units, the vesting of the Restricted Stock Units, the distribution of the shares underlying the Restricted Stock Units, or the subsequent sale of the shares (collectively, the "Tax Items"), that are legally imposed upon Participant in connection with the Restricted Stock Units, and the Company does not assume, and will not be liable to any party for, any cost or liability arising in connection with such Tax Items legally imposed on Participant. The Company has not provided any tax advice with respect to the Restricted Stock Units or the disposition of the shares. Participant should obtain advice from an appropriate independent professional adviser with respect to the tax implications of any aspect of the Restricted Stock Units, including the grant or vesting of the Restricted Stock Units or the subsequent sale of any shares.

b. In the event that the Company or the Employer, including any Subsidiary qualified to deduct tax at source, is required to withhold any Tax Items as a result of any event occurring in connection with the Restricted Stock Units, the Employer will satisfy Tax Items by withholding, from the shares to be delivered to the Participant upon vesting, a number of shares having an aggregate fair market value equal to the amount of the Tax Items. The number of shares withheld to satisfy the Tax Items will be rounded up to the nearest whole share. Depending on the withholding method, the Company or the Employer may withhold or account for Tax Items by considering applicable minimum statutory withholding amounts or other applicable withholding rates, including maximum applicable rates, in which case Participant may receive a refund of any over-withheld amount in cash and will have no entitlement to the Common Stock equivalent. Once the Tax Items have been satisfied by withholding a number of shares for tax purposes, the Participant is deemed to have been issued the full number of shares subject to the release tranche in this grant. The Participant shall pay the Tax Items that the Company may be required to withhold if the Tax Items cannot be satisfied by the means previously described. The Company has sole discretion to require or permit the Participant to make alternate arrangements satisfactory to the Company for such withholdings in advance of the arising withholding obligations. No shares will be issued unless and until satisfactory arrangements (as determined by the Company) have been made by the Participant with respect to the payment of any income and other taxes which the Company determines must be withheld or collected with respect to such shares. By accepting this award, Participant expressly consents to the withholding of shares and to any additional cash withholding as provided for in this paragraph.

c. Participant acknowledges and agrees that the ultimate liability for any Tax Items legally due by Participant is and remains Participant's responsibility and that the Company and or the Employer (a) make no representations nor undertakings regarding the treatment of any such Tax Items in connection with any aspect of the Restricted Stock Units, including the grant or vesting of the Restricted Stock Units, the distribution of the shares underlying the Restricted Stock Units, or the subsequent sale of the shares acquired from the Restricted Stock Units; and (b) do not commit to structure the terms or any aspect of the Restricted Stock Units to reduce or eliminate the Participant's liability for such Tax Items. The Company may refuse to deliver the shares if Participant fails to comply with Participant's obligations in connection with the satisfaction of the Tax Items.

11. Administration. The authority to construe and interpret this Agreement and the Plan, and to administer all aspects of the Plan, shall be vested in the Committee (as such term is defined in the Plan), and the Committee shall have all powers with respect to this Agreement as are provided in the Plan. Any interpretation of this Agreement by the Committee and any decision made by it with respect to this Agreement is final and binding.

12. Adjustments Upon Changes in Capitalization. In the event of any change in the outstanding Stock of the Company by reason of stock dividends, recapitalization, mergers, consolidations, split-up, combinations or exchanges of shares and the like, the number and kind of shares subject to the Restricted Stock Units immediately prior to such event shall be appropriately adjusted by the Board in accordance with the terms of the Plan, and such adjustment shall be conclusive.

13. Entire Agreement; Amendment; Binding Effect; Governing Law; Plan Controls. The Plan is incorporated herein by reference. The Plan and this Agreement constitute the entire agreement of the parties with respect to the subject matter hereof and supersede in their entirety all prior undertakings and agreements of the Company and Participant with respect to the subject matter hereof, and may not be modified adversely to Participant's interest except by means of a writing signed by the Company and Participant. The waiver by the Company of a breach of any

provision of this Agreement by Participant shall not operate or be construed as a waiver of any subsequent breach by Participant. This Agreement shall be binding upon and shall inure to the benefit of the parties hereto and their respective executors, administrators, next-of-kin, successors and assigns. This Agreement is governed by the laws of the state of Delaware. In the event of any conflict between the terms and provisions of the Plan and this Agreement, the Plan terms and provisions shall govern. Capitalized terms used but not defined in this Agreement have the meanings assigned to them in the Plan. Certain other important terms governing this Agreement are contained in the Plan.

14. Notices; Electronic Delivery. Any notice required or permitted by this Agreement shall be in writing and shall be deemed sufficient when delivered personally, or at time of transmission if sent by telegram or fax or forty-eight (48) hours after being deposited in the U.S. mail, as certified or registered mail, with postage prepaid, or at the time an electronic confirmation of receipt is received if delivery is by email, and addressed to the party to be notified at such party's address as set forth in the Notice or as subsequently modified by written notice. Any notice for delivery outside the United States will be sent by email, facsimile or by express courier. By accepting the Restricted Stock Units, the Participant consents to receive documents related to participation in the Plan and this award by electronic delivery and to participate in the Plan through an online or electronic system established and maintained by the Company or another third party designated by the Company.

15. Severability. The provisions of this Agreement are severable and if any one or more provisions may be determined to be illegal or otherwise unenforceable, in whole or in part, the remaining provisions shall nevertheless be binding and enforceable.

16. Counterparts; Further Instruments. This Agreement may be executed in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. The parties hereto agree to execute such further instruments and to take such further action as may be reasonably necessary to carry out the purposes and intent of this Agreement.

17. Compliance with Section 409A of the Code. This award is intended to comply with the "short-term deferral" rule set forth in Treasury Regulation Section 1.409A-1(b)(4). Notwithstanding the foregoing, if it is determined that the Award fails to satisfy the requirements of the short-term deferral rule and is otherwise deferred compensation subject to Section 409A, and if the Participant is a "specified employee" (within the meaning set forth in Section 409A(a)(2)(B)(i) of the Code) as of the date of the Participant's "separation from service" (within the meaning of Treasury Regulation Section 1.409A-1(h) and without regard to any alternative definition thereunder), then the issuance of any shares that would otherwise be made upon the date of the separation from service or within the first six (6) months thereafter will not be made on the originally scheduled date(s) and will instead be issued in a lump sum on the date that is six (6) months and one day after the date of the separation from service, with the balance of the shares issued thereafter in accordance with the original vesting and issuance schedule set forth above, but if and only if such delay in the issuance of the shares is necessary to avoid the imposition of adverse taxation on the Participant in respect of the shares under Section 409A of the Code. Each installment of shares that vests is intended to constitute a "separate payment" for purposes of Treasury Regulation Section 1.409A-2(b)(2).

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Section 4: EX-10.03 (EXHIBIT 10.03)

Exhibit 10.03

TiVo Corporation
2018 Senior Executive Company Incentive Plan

I. **INTRODUCTION**

a. The Objective of the 2018 Senior Executive Company Incentive Plan (the "Plan") is to (i) enhance stockholder value by promoting strong linkages between executive contributions and company performance; (ii) support achievement of the business objectives of TiVo Corporation and its subsidiaries (the "Company"); and (iii) promote retention of participating employees of the Company.

b. **Participants:** This plan applies solely to the Chief Executive Officer and the senior executives reporting directly to the Chief Executive Officer at TiVo Corporation (the "Participants").

c. **Effective Date:** This Plan is effective for the fiscal year 2018, beginning January 1, 2018 through December 31, 2018. This Plan is limited in time and expires automatically on December 31, 2018. All benefits under this Plan are voluntary benefits. Participation in this Plan during fiscal year 2018 does not convey any entitlement to participate in this or future plans or to the same or similar bonus payment benefits.

d. **Changes in the Plan:** The Company presently has no plans to change the Plan during the fiscal year. However, this plan is a voluntary benefit provided by the Company and by virtue of the fact that bonuses are not a contractual entitlement and are paid at the sole discretion of the Company, the Company reserves the right to modify the Plan, in total or in part, at any time. Any such change must be in writing and approved by the Compensation Committee of the Board of Directors. The Compensation Committee of the Board of Directors reserves the right to interpret the Plan document as needed and such interpretations shall be final, conclusive and binding on all persons, and shall be given the maximum deference permitted by law.

e. **Entire Agreement:** This Plan is the entire agreement between the Company and the employee regarding the subject matter of this Plan and supersedes all prior bonus or commission incentive plans, whether with TiVo Corporation or any subsidiary or affiliate thereof, or any written or verbal representations regarding the subject matter of this Plan.

II. ELIGIBILITY AND INCENTIVE PLAN ELEMENTS

a. **Eligibility:** The Participants are eligible for the incentive payout if they meet the following requirements:

- Except as otherwise explicitly set forth in the Participant's Incentive Target Percentage Schedule (as defined below), are not currently on a sales incentive or commission plan or any other significant form of variable compensation (such as a services bonus plan); and
- Are not on a performance improvement plan at the time of calculation and have not received a written notice of warning or other disciplinary action during the year that remains in effect at the time of calculation

<u>AND</u>

The Participant must be employed in an incentive-eligible position on or before the first working day of the last fiscal quarter of fiscal year 2018 and must be employed by the Company on the day the bonus is paid to be eligible for a 2018 incentive payment. Participants may expect to receive their 2018 incentive payment no later than March 15, 2019. Participants in the Plan with less than one year of service will be eligible for a prorated incentive amount as set forth in Proration Factor below. In no event will any individual accrue any right or entitlement to any incentive under this Plan unless that individual is employed by the Company on the day the bonus is paid.

Any exception to the above must be approved in writing by the Compensation Committee of the Board of Directors.

b. **Calculation of Incentive:** With respect to each Participant, (1) the "Company Performance Incentive" shall mean the

Participant's Annual Base Salary times such Participant's Incentive Target Percentage times the Company Performance Factor times such Participant's Company Performance Weighting times such Participant's Proration Factor; (2) the "Individual Performance Incentive" shall mean the Participant's Annual Base Salary times such Participant's Incentive Target Percentage times such Participant's Individual Performance Weighting times such Participant's Individual Performance Factor times such Participant's Proration Factor and (3) as applicable, the "Business Group Performance Incentive" shall mean the Participant's Annual Base Salary times such Participant's Incentive Target Percentage times the Business Group Performance Factor times such Participant's Business Group Performance Weighting times such Participant's Proration Factor. In no event shall any Participant's total payout under this Plan exceed 200% of Participant's Incentive Target Percentage (in dollars based on Annual Base Salary).

c. **The Annual Base Salary** in effect at the end of the fiscal year represents the basis for the incentive calculation. Nothing in the Plan, or arising as a result of a Participant's participation in the Plan, shall prevent the Company from changing a Participant's Annual Base Salary at any time based on such factors as the Company in its sole discretion determines appropriate.

d. **Incentive Target Percentage** is a percentage level of Annual Base Salary determined by the employee's position except as otherwise approved by the Compensation Committee of the Board of Directors.

These targets will be weighted by company and individual performance, and will be set forth in an Incentive Target Percentage Schedule for each Participant in substantially the form attached hereto as Schedule A.

e. **Individual Performance Factor ("IPF")** is based on the manager's evaluation of the employee's accomplishments and contributions to TiVo's business objectives for the fiscal year. Managers use the three "check-in ratings" given throughout the year as reference points to inform this evaluation. This factor can range from 0 to 200% based on the Performance Rating of the individual.

f. **Company Performance Factor ("CPF")** is based upon the Company achieving an established worldwide revenue target and a worldwide Adjusted EBITDA target per the 2018 operating plan approved by the Board of Directors of the Company. The applicable targets for fiscal year 2018 can be amended by the Compensation Committee of the Board of Directors at any time during the fiscal year. Notwithstanding anything to the contrary contained herein, the Compensation Committee of the Board of Directors has the discretion to determine to pay less than the full amount (including to pay zero percent) of the payout to which any Participant would otherwise be entitled, which determination shall be based upon such factors as the Compensation Committee of the Board of Directors determines appropriate (including without limitation as a result of the Company's or a Participant's failing to achieve one or more objectives with respect to the fiscal year). The Revenue and Adjusted EBITDA attainment percentages will be determined using a straight-line interpolation approach relative to the Threshold, Target and Maximum attainment set forth during the year. The Company Performance Factor will be determined using the table below, provided however that the Company Performance factor may be modified at the sole discretion of the Compensation Committee of the Board of Directors for any reason, including in the event that such Company Performance is due to an extraordinary or exceptional circumstance.

g. **CPF Formula.** The CPF payout equals the average of the payout of Revenue and Adjusted EBITDA. The plan provides for a Threshold payout of 50% relative to 90% attainment of Target. Below 90% of attainment, the plan provides for 0% payout. Between 90% and 100% attainment (Target) the plan provides for a straight-line interpolation of 5% points of payout for every 1% point of attainment. From 100% (Target) to 110% of attainment, the plan provides for 10% points of payout for every 1% point of attainment. The plan provides for a Maximum payout of 200% relative to 110% or more of attainment of Target. This is summarized in the table below.

	Revenue			ADJUSTED EBITDA		
	Attainment	Payout	Slope	Attainment	Payout	Slope
Threshold	90%	50%	5 pts	90%	50%	5 pts
Target	100%	100%		100%	100%	
Max	110%	200%	10 pts	110%	200%	10 pts

Example: CPF Payout = Average (EBITDA Payout + Revenue Payout)

Actual Revenue is 95% of Goal
Actual EBITDA is 105% of Goal

Company Performance Factor = (75% + 150%) / 2 = 112.5%

h. **Business Group Performance Factor ("BGPF")** is based on the Business Group achieving an established Business Group revenue target and contribution margin target that is approved by the Board of Directors of the Company. This factor will apply only to selected leaders in Advanced Media & Advertising, User Experience, Consumer and Metadata. This factor will not apply to employees in shared service areas such as IT, Finance, HR, Marketing, Legal etc. The applicable targets for fiscal year 2018 can be amended by the Compensation Committee of the Board of Directors at any time during the fiscal year. Notwithstanding anything to the contrary contained herein, the Compensation Committee of the Board of Directors has the discretion to determine to pay less than the full amount (including to pay zero percent) of the payout to which any Participant would otherwise be entitled, which determination shall be based upon such factors as the Compensation Committee of the Board of Directors determines appropriate (including without limitation as a result of the Business Group's or a Participant's failing to achieve one or more objectives with respect to the fiscal year). The Business Group Revenue and Business Group Non-GAAP Contribution Margin attainment percentages will be determined using a straight-line interpolation approach relative to the Threshold, Target and Maximum attainment set forth during the year. The BGPF will be determined using the table below, provided however, the BGPF may be modified at the sole discretion of the Compensation Committee of the Board of Directors for any reason, including in the event that such Business Performance is due to an extraordinary or exceptional circumstance.

i. **BGPF Formula.** The BGPF payout equals the average of the payout of the applicable Business Group Revenue and Business Group Non-GAAP Contribution Margin. The plan provides for a Threshold payout of 50% relative to 90% attainment of Target. Below 90% of attainment, the plan provides for 0% payout. Between 90% and 100% attainment (Target) the plan provides for a straight-line interpolation of 5% points of payout for every 1% point of attainment. From 100% (Target) to 110% of attainment, the plan provides for 10% points of payout for every 1% point of attainment. The plan provides for a Maximum payout of 200% relative to 110% or more of attainment of Target. This is summarized in the table below.

Business Group Revenue and Non-GAAP Contribution Margin

	BG Revenue			BG Non-GAAP Contribution Margin		
	Attainment	Payout	Slope	Attainment	Payout	Slope
Threshold	90%	50%	5 pts	90%	50%	5 pts
Target	100%	100%		100%	100%	
Max	110%	200%	10 pts	110%	200%	10 pts

j. **Transfers and Terminations:** Any employee who is a Participant in the Plan and who transfers to a new position not governed by this Plan will be eligible on a pro-rata basis for the applicable period and paid as defined by the Plan. Employees who transfer into the Plan from another plan and/or from one Business Group to another will be subject to proration as well, and consequently will be eligible to receive an incentive payment based on their participation in this Plan during fiscal year 2018 applying the Proration Factors referred to below. Payments from the Plan are subject to reduction by advances, unearned commission advances, draws or prorations and appropriate withholdings. Any exceptions to the Plan must be in writing and approved by the Compensation Committee of the Board of Directors.

A Participant must be employed as of the day the bonus is paid to be eligible for the year- end incentive. No incentive shall be deemed earned until the payment date. If, prior to a payment date, an employee voluntarily resigns from employment or the employee's employment is terminated for cause, the employee will not be eligible for any incentive payment. If, prior to a payment date, an employee is terminated by the Company for reasons other than for cause, the Compensation Committee of the Board of Directors shall have absolute discretion to determine if the employee will remain eligible to receive any bonus payment, which bonus payment, if awarded, shall be prorated for the portion of the Plan Year during which employee was employed by the Company.

k. **Proration Factor** accounts for the number of calendar days during the fiscal year that the employee is in the incentive-eligible position. For example, the proration factor for an employee who has been on the Plan the entire year will be 1.00. For an employee who has been on the plan for 6 months, the factor will be 0.50. Employees in the following situations will have a Proration Factor of less than 1.00:

- Participants in the Plan who transferred to a new position not covered by the Plan
- Employees who transferred from one incentive-eligible position to another incentive-eligible position. Employees in this situation will have their incentive prorated based on the length of time in each position.
- Employees who have been in the Plan less than 12 months (such as a new hire)
- Employees who have been on a leave of absence of any length during the fiscal year
- Employees working less than the full time standard work week will receive an incentive prorated according to the following schedule:

Hours Worked	Incentive Eligibility
Less than full time > half time as defined by standard work week	Prorated according to the average number of hours worked
Less than half time of standard work week	Not incentive eligible

Any modification to the above schedule must be approved by (i) the Chief Executive Officer, the Chief Financial Officer and Chief Human Resources Officer in advance of the year end close date, provided that no Participant may approve a modification to his or her own schedule, or (ii) if necessary, the Compensation Committee of the Board of Directors.

III. PRACTICES AND PROCEDURES

a. **Procedure:**

- A copy of the Plan will be made available to each Participant.
- All incentive payments will be made after all required or elected withholdings have been deducted.

b. **Governing Law:** This Plan is governed by the law of California and the parties hereby submit to the exclusive jurisdiction of the County of Santa Clara, California courts.

SCHEDULE A

INCENTIVE TARGET PERCENTAGE SCHEDULE

Position	**Incentive Target**	**Company Performance Weighting**	**Individual Performance Weighting**	**Business Unit Performance Weighting**
President & Chief Executive Officer	125%	100%	—%	—%
Chief Intellectual Property Officer	70%	75%	25%	—%
Chief Financial Officer	70%	75%	25%	—%
Chief Human Resources Officer	50%	75%	25%	—%
EVP, General Counsel and Chief Compliance Officer	55%	75%	25%	—%
EVP, Strategy and Corporate Development	55%	75%	25%	—%
SVP and GM, Advanced Media and Advertising	55%	20%	30%	50%
SVP & GM, User Experience & Consumer	55%	20%	30%	50%
SVP & GM, Metadata	55%	20%	30%	50%

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Section 5: EX-31.01 (EXHIBIT 31.01)

Exhibit 31.01

CERTIFICATION

I, Raghavendra Rau, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q 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: November 7, 2018

/s/ Raghavendra Rau

Raghavendra Rau
Interim President and Chief Executive Officer

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Section 6: EX-31.02 (EXHIBIT 31.02)

Exhibit 31.02

CERTIFICATION

I, Peter C. Halt, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q 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: November 7, 2018

/s/ Peter C. Halt

Peter C. Halt
Chief Financial Officer

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Section 7: EX-32.01 (EXHIBIT 32.01)

Exhibit 32.01

SECTION 1350 CERTIFICATION

In connection with the Quarterly Report of TiVo Corporation (the "Company") on Form 10-Q for the period ended September 30, 2018, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), Raghavendra Rau certifies in his capacity as Interim 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 November 7, 2018.

/s/ Raghavendra Rau

Raghavendra Rau
Interim President and Chief Executive Officer

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Section 8: EX-32.02 (EXHIBIT 32.02)

Exhibit 32.02

SECTION 1350 CERTIFICATION

In connection with the Quarterly Report of TiVo Corporation (the "Company") on Form 10-Q for the period ended September 30, 2018, 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 November 7, 2018.

/s/ Peter C. Halt

Peter C. Halt
Chief Financial Officer

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