RAMBUS INC
Form 10-Q
November 02, 2018
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UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-Q

(Mark One)
ý 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: 000-22339

RAMBUS INC.
(Exact name of registrant as specified in its charter)

Delaware	94-3112828
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)

1050 Enterprise Way, Suite 700 Sunnyvale, California	94089
(Address of principal executive offices)	(ZIP Code)

Registrant's telephone number, including area code: (408) 462-8000

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 ý No o
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 (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ý No o
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 the 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 ý	Accelerated filer o
Non-accelerated filer o	Smaller reporting company o
Emerging growth company o	

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 7(a)(2)(B) of the Securities Act. o

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

The number of shares outstanding of the registrant's Common Stock, par value $.001 per share, was 108,500,937 as of September 30, 2018.

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NOTE REGARDING FORWARD-LOOKING STATEMENTS

This Quarterly Report on Form 10-Q ("Quarterly Report") contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Act of 1934. These forward-looking statements include, without limitation, predictions regarding the following aspects of our future:

- Success in the markets of our products and services or our customers' products;
- Sources of competition;
- Research and development costs and improvements in technology;
- Sources, amounts and concentration of revenue, including royalties;
- Success in signing and renewing license agreements;
- Terms of our licenses and amounts owed under license agreements;
- Technology product development;
- Dispositions, acquisitions, mergers or strategic transactions and our related integration efforts, including our acquisitions of Smart Card Software Ltd., the assets of Semtech Corporation's Snowbush IP group and Inphi Corporation's Memory Interconnect Business;
- Impairment of goodwill and long-lived assets;
- Pricing policies of our customers;
- Changes in our strategy and business model, including the expansion of our portfolio of inventions, products, software, services and solutions to address additional markets in memory, chip, mobile payments, smart ticketing and security;
- Deterioration of financial health of commercial counterparties and their ability to meet their obligations to us;
- Effects of security breaches or failures in our or our customers' products and services on our business;
- Engineering, sales and general and administration expenses;
- Contract revenue;
- Operating results;
- International licenses, operations and expansion;
- Effects of changes in the economy and credit market on our industry and business;
- Ability to identify, attract, motivate and retain qualified personnel;
- Effects of government regulations on our industry and business;
- Manufacturing, shipping and supply partners and/or sale and distribution channels;
- Growth in our business;
- Methods, estimates and judgments in accounting policies;
- Adoption of new accounting pronouncements, including adoption of the new revenue recognition standard on our financial position and results of operations;
- Effective tax rates, including as a result of the new U.S. tax legislation;
- Restructurings and plans of termination;
- Realization of deferred tax assets/release of deferred tax valuation allowance;
- Trading price of our common stock;
- Internal control environment;
- The level and terms of our outstanding debt and the repayment or financing of such debt;
- Protection of intellectual property;
- Any changes in laws, agency actions and judicial rulings that may impact the ability to enforce intellectual property rights;
- Indemnification and technical support obligations;
- Equity repurchase plans;

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- Issuances of debt or equity securities, which could involve restrictive covenants or be dilutive to our existing stockholders;
- Effects of fluctuations in currency exchange rates;
- Outcome and effect of potential future intellectual property litigation and other significant litigation; and
- Likelihood of paying dividends.

You can identify these and other forward-looking statements by the use of words such as “may,” “future,” “shall,” “should,” “expects,” “plans,” “anticipates,” “believes,” “estimates,” “predicts,” “intends,” “potential,” “continue,” “projecting” or the neg terms, or other comparable terminology. Forward-looking statements also include the assumptions underlying or relating to any of the foregoing statements.

Actual results could differ materially from those anticipated in these forward-looking statements as a result of various factors, including those set forth under Part II: Item 1A, “Risk Factors.” All forward-looking statements included in this document are based on our assessment of information available to us at this time. We assume no obligation to update any forward-looking statements.

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PART I—FINANCIAL INFORMATION
Item 1. Financial Statements
RAMBUS INC.
CONDENSED CONSOLIDATED BALANCE SHEETS
(Unaudited)

	September 30, 2018	December 31, 2017
	(In thousands, except shares and par value)	
ASSETS		
Current assets:		
Cash and cash equivalents	$ 134,534	$ 225,844
Marketable securities	113,637	103,532
Accounts receivable	42,674	25,326
Unbilled receivables	164,487	566
Inventories	6,272	5,159
Prepaids and other current assets	14,434	11,317
Total current assets	476,038	371,744
Intangible assets, net	65,411	91,722
Goodwill	208,116	209,661
Property, plant and equipment, net	49,174	54,303
Deferred tax assets	3,930	159,099
Unbilled receivables, long-term	535,422	—
Other assets	5,879	4,543
Total assets	$ 1,343,970	$ 891,072
LIABILITIES & STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 8,572	$ 9,614
Accrued salaries and benefits	14,353	17,091
Convertible notes, short-term	—	78,451
Deferred revenue	12,727	18,272
Income taxes payable, short-term	17,784	258
Other current liabilities	5,942	9,156
Total current liabilities	59,378	132,842
Convertible notes, long-term	140,279	135,447
Long-term imputed financing obligation	36,558	37,262
Long-term income taxes payable	81,400	3,344
Other long-term liabilities	18,040	10,593
Total liabilities	335,655	319,488
Commitments and contingencies (Notes 10 and 14)		
Stockholders' equity:		
Convertible preferred stock, $.001 par value:		
Authorized: 5,000,000 shares		
Issued and outstanding: no shares at September 30, 2018 and December 31, 2017	—	—
Common stock, $.001 par value:		
Authorized: 500,000,000 shares		
Issued and outstanding: 108,500,937 shares at September 30, 2018 and 109,763,967 shares at December 31, 2017	109	110
Additional paid-in capital	1,219,110	1,212,798

Accumulated deficit	(202,276)	(636,227)
Accumulated other comprehensive loss	(8,628)	(5,097)
Total stockholders' equity	1,008,315	571,584
Total liabilities and stockholders' equity	$ 1,343,970	$ 891,072

See Notes to Unaudited Condensed Consolidated Financial Statements

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RAMBUS INC.
CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS
(Unaudited)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
	(In thousands, except per share amounts)			
Revenue:				
Royalties	$33,599	$72,787	$85,022	$211,733
Product revenue	11,753	8,661	27,153	27,966
Contract and other revenue	14,402	17,686	50,463	51,506
Total revenue	59,754	99,134	162,638	291,205
Operating costs and expenses:				
Cost of product revenue*	5,376	5,152	13,932	17,882
Cost of contract and other revenue	5,952	14,456	29,163	43,274
Research and development*	43,131	36,196	120,944	109,718
Sales, general and administrative*	24,462	26,799	79,143	82,122
Gain from sale of intellectual property	—	(479)	—	(479)
Restructuring charges	—	—	2,223	—
Total operating costs and expenses	78,921	82,124	245,405	252,517
Operating income (loss)	(19,167)	17,010	(82,767)	38,688
Interest income and other income (expense), net	8,008	208	25,373	491
Interest expense	(3,976)	(3,287)	(13,031)	(9,754)
Interest and other income (expense), net	4,032	(3,079)	12,342	(9,263)
Income (loss) before income taxes	(15,135)	13,931	(70,425)	29,425
Provision for income taxes	89,758	6,236	85,514	16,119
Net income (loss)	$(104,893)	$7,695	$(155,939)	$13,306
Net income (loss) per share:				
Basic	$(0.97)	$0.07	$(1.44)	$0.12
Diluted	$(0.97)	$0.07	$(1.44)	$0.12
Weighted average shares used in per share calculation:				
Basic	107,897	109,555	108,324	110,353
Diluted	107,897	113,119	108,324	113,861

* Includes stock-based compensation:

Cost of product revenue	$2	$20	$7	$53
Research and development	$3,184	$2,969	$9,662	$9,048
Sales, general and administrative	$3,003	$3,975	$5,922	$11,068

See Notes to Unaudited Condensed Consolidated Financial Statements

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RAMBUS INC.
CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)
(Unaudited)

	Three Months Ended September 30,		Nine Months Ended September 30,	
(In thousands)	2018	2017	2018	2017
Net income (loss)	$(104,893)	$7,695	$(155,939)	$13,306
Other comprehensive income (loss):				
Foreign currency translation adjustment	(1,027)	2,581	(2,798)	7,177
Unrealized gain (loss) on marketable securities, net of tax	(42)	339	(734)	634
Total comprehensive income (loss)	$(105,962)	$10,615	$(159,471)	$21,117

See Notes to Unaudited Condensed Consolidated Financial Statements

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RAMBUS INC.
CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(Unaudited)

	Nine Months Ended September 30,	
	2018	2017
	(In thousands)	
Cash flows from operating activities:		
Net income (loss)	$(155,939)	$13,306
Adjustments to reconcile net income (loss) to net cash provided by operating activities:		
Stock-based compensation	15,591	20,169
Depreciation	8,107	9,971
Amortization of intangible assets	24,352	31,436
Non-cash interest expense and amortization of convertible debt issuance costs	7,587	5,324
Deferred income taxes	78,660	(4,108)
Non-cash restructuring	670	—
Gain from sale of marketable equity security	(291)	—
Gain from sale of assets held for sale	(1,266)	—
Loss from disposal of property, plant and equipment	518	169
Change in operating assets and liabilities:		
Accounts receivable	(16,862)	(23,656)
Unbilled receivables	118,872	—
Prepaid expenses and other assets	(3,729)	6,824
Inventories	(1,271)	617
Accounts payable	153	(2,795)
Accrued salaries and benefits and other liabilities	(6,823)	(1,698)
Income taxes payable	(9,618)	(960)
Deferred revenue	(6,647)	3,248
Net cash provided by operating activities	52,064	57,847
Cash flows from investing activities:		
Purchases of property, plant and equipment	(7,849)	(5,444)
Acquisition of intangible assets	—	(120)
Purchases of marketable securities	(192,824)	—
Maturities of marketable securities	181,704	32,048
Proceeds from sale of equity security	1,350	—
Proceeds from sale of marketable securities	—	4,450
Proceeds from sale of assets held for sale	3,754	—
Proceeds from sale of property, plant and equipment	10	28
Net cash provided by (used in) investing activities	(13,855)	30,962
Cash flows from financing activities:		
Proceeds received from issuance of common stock under employee stock plans	9,266	10,792
Principal payments against lease financing obligation	(786)	(625)
Payments of taxes on restricted stock units	(5,964)	(3,525)
Repayment of 1.125% convertible notes due 2018	(81,207)	—
Repurchase and retirement of common stock, including prepayment under accelerated share repurchase program	(50,031)	(50,036)
Net cash used in financing activities	(128,722)	(43,394)
Effect of exchange rate changes on cash and cash equivalents	(797)	1,636

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Net increase (decrease) in cash and cash equivalents	(91,310)	47,051
Cash and cash equivalents at beginning of period	225,844	135,294
Cash and cash equivalents at end of period	$134,534	$182,345
Non-cash investing activities during the period:		
Property, plant and equipment received and accrued in accounts payable and other liabilities	$675	$1,294

See Notes to Unaudited Condensed Consolidated Financial Statements

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RAMBUS INC.
NOTES TO UNAUDITED CONDENSED CONSOLIDATED FINANCIAL STATEMENTS

1. Basis of Presentation

The accompanying unaudited condensed consolidated financial statements include the accounts of Rambus Inc. ("Rambus" or the "Company") and its wholly-owned subsidiaries. All intercompany accounts and transactions have been eliminated in the accompanying unaudited condensed consolidated financial statements.

In the opinion of management, the unaudited condensed consolidated financial statements include all adjustments (consisting only of normal recurring items) necessary to state fairly the financial position and results of operations for each interim period presented. Interim results are not necessarily indicative of results for a full year.

The unaudited condensed consolidated financial statements have been prepared in accordance with the rules and regulations of the Securities and Exchange Commission (the "SEC") applicable to interim financial information. Certain information and Note disclosures included in the financial statements prepared in accordance with generally accepted accounting principles have been omitted in these interim statements pursuant to such SEC rules and regulations. The information included in this Form 10-Q should be read in conjunction with the consolidated financial statements and notes thereto in Form 10-K for the year ended December 31, 2017.

Operating Segment Definitions

Operating segments are based upon Rambus' internal organization structure, the manner in which its operations are managed, the criteria used by its Chief Operating Decision Maker ("CODM") to evaluate segment performance and availability of separate financial information regularly reviewed for resource allocation and performance assessment.

The Company determined its CODM to be the Chief Executive Officer and determined its operating segments to be: (1) Memory and Interfaces Division ("MID"), which focuses on the design, development, manufacturing through partnerships and licensing of technology and solutions that is related to memory and interfaces; (2) Rambus Security Division ("RSD"), which focuses on the design, development, deployment and licensing of technologies for chip, system and in-field application security, anti-counterfeiting, smart ticketing and mobile payments; and (3) Emerging Solutions Division ("ESD"), which includes the Rambus Labs team and the development efforts in the area of emerging technologies.

On January 30, 2018, the Company announced its plans to close its lighting division ("RLD") including related manufacturing operations in Brecksville, Ohio. The Company believes that such business is not core to its strategy and growth objectives. Refer to Note 15, "Restructuring Charges" for additional details.

For the three and nine months ended September 30, 2018, only MID and RSD were reportable segments as each of them met the quantitative thresholds for disclosure as a reportable segment. The results of the remaining operating segments were shown under "Other," which included RLD.

Comparability

Effective January 1, 2018, Rambus adopted multiple new accounting standards. Prior periods were not retrospectively restated, so the consolidated balance sheet as of December 31, 2017 and results of operations for the three and nine months ended September 30, 2017 were prepared using accounting standards that were different than those in effect as of and for the three and nine months ended September 30, 2018. Therefore, the consolidated balance sheets as of September 30, 2018 and December 31, 2017 are not directly comparable, nor are the results of operations for the three and nine months ended September 30, 2018 and 2017.

Reclassifications

Certain prior periods' amounts were reclassified to conform to the current year's presentation. None of these reclassifications had an impact on reported net income for any of the periods presented.

2. Recent Accounting Pronouncements

Recent Accounting Pronouncements Adopted

In February 2018, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update (ASU) No. 2018-02, "Income Statement - Reporting Comprehensive Income (Topic 220): Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income". The amendments in this ASU allow entities to reclassify from AOCI to retained

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earnings "stranded" tax effects resulting from passage of the Tax Cuts and Jobs Act ("the Act") on December 22, 2017. An entity that elects to reclassify these amounts must reclassify stranded tax effects related to the change in federal tax rate for all items accounted for in other comprehensive income (e.g., employee benefits, cumulative translation adjustments). Entities may also elect to reclassify other stranded tax effects that relate to the Act but do not directly relate to the change in the federal tax rate (e.g., state taxes). However, because the amendments only relate to the reclassification of the income tax effects of the Act, the underlying guidance requiring the effect of a change in tax laws or rates to be included in income from operations is not affected. Upon adoption of this ASU, entities are required to disclose their policy for releasing the income tax effects from AOCI. ASU 2018-02 is effective for annual periods beginning after December 15, 2018, and interim periods within those fiscal years. Early adoption is permitted. The amendments in this ASU may be applied retrospectively to each period in which the effect of the Act is recognized or an entity may elect to apply the amendments in the period of adoption. The Company early adopted this ASU in the first quarter of 2018. The adoption of this ASU did not have a material impact on the Company's consolidated financial statements.

In May 2017, the FASB issued ASU No. 2017-09, "Compensation—Stock Compensation (Topic 718): Scope of Modification Accounting," which amends the scope of modification accounting for share-based payment arrangements. Specifically, an entity would not apply modification accounting if the fair value, vesting conditions, and classification of the awards are the same immediately before and after the modification. This ASU is effective for interim and annual reporting periods beginning after December 15, 2017. The Company adopted this ASU on January 1, 2018. The adoption of this ASU did not have a material impact on the Company's consolidated financial statements.

In January 2017, the FASB issued ASU No. 2017-01, "Business Combinations (Topic 805): Clarifying the Definition of a Business." The amendment seeks to clarify the definition of a business with the objective of adding guidance to assist entities with evaluating whether transactions should be accounted for as acquisitions (or disposals) of assets or businesses. The definition of a business affects many areas of accounting including acquisitions, disposals, goodwill and consolidation. This ASU is effective for interim and annual reporting periods beginning after December 15, 2017, including interim periods within those periods. The amendments should be applied prospectively on or after the effective dates. The Company adopted this ASU on January 1, 2018. The adoption of this ASU did not have a material impact on the Company's consolidated financial statements.

In January 2016, the FASB issued ASU No. 2016-01, which amends certain aspects of the recognition, measurement, presentation and disclosure of certain financial instruments, including equity investments and liabilities measured at fair value under the fair value option. The main provisions include a requirement that all investments in equity securities be measured at fair value through earnings, with certain exceptions, and a requirement to present separately in other comprehensive income the portion of the total change in fair value attributable to an entity’s own credit risk for financial liabilities where the fair value option has been elected. The Company adopted this ASU on January 1, 2018. Upon adoption, the Company reclassified approximately $1.1 million of unrealized gain related to its equity investment security classified as available-for-sale from accumulated other comprehensive income (AOCI) to retained earnings as a cumulative-effect adjustment, and began recording changes in fair value through earnings.

ASU No. 2014-09, Revenue from Contracts with Customers

In May 2014, the FASB issued ASU No. 2014-09, Revenue from Contracts with Customers in Accounting Standards Codification (ASC) Topic 606 ("ASC 606" or "the New Revenue Standard"), which superseded the revenue recognition requirements in ASC Topic 605, Revenue Recognition (“ASC 605”). The New Revenue Standard sets forth a single, comprehensive revenue recognition model for all contracts with customers to improve comparability. The New Revenue Standard requires revenue recognition to depict the transfer of goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. The New Revenue Standard can be applied either retrospectively to each prior reporting period presented (i.e., full retrospective adoption) or with the cumulative effect of initially applying the update recognized at the date of the initial application (i.e., modified retrospective adoption) along with additional disclosures.

The Company adopted the New Revenue Standard on January 1, 2018 and all the related amendments using the modified retrospective method. The Company had previously planned on adopting the New Revenue Standard using the full retrospective method, but ultimately determined to adopt the modified retrospective method. The Company recognized the cumulative effect of initially applying the new revenue standard as an adjustment to the opening balance of accumulated deficit as of January 1, 2018. The comparative information for prior periods has not been recasted and continues to be reported under the accounting standards in effect for those periods. The Company recognized unbilled receivables (contract assets) of $818 million predominantly due to how revenue is recognized for the Company's fixed-fee licensing arrangements (as noted in the first bullet point below), deferred revenue (contract liabilities) of $2 million, withholding tax liabilities of $105 million (and a corresponding deferred tax asset of $105 million, with an offsetting $16 million valuation allowance), and $174 million deferred tax liability. In the aggregate, these adjustments resulted in a $626 million net credit to accumulated deficit.

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The most significant impacts of the New Revenue Standard relate to the following:

- Revenue recognized for certain patent and technology licensing arrangements has changed under the New Revenue Standard. Revenue for (i) fixed-fee arrangements (including arrangements that include minimum guaranteed amounts), (ii) variable royalty arrangements that the Company has concluded are fixed in substance and (iii) the fixed portion of hybrid fixed/variable arrangements is recognized upon control over the underlying IP use right transferring to the licensee rather than upon billing under ASC 605, net of the effect of significant financing components calculated using customer-specific, risk-adjusted lending rates and recognized over time on an effective rate basis. As a consequence of the acceleration of revenue recognition and for matching purposes, all withholding taxes to be paid over the term of these licensing arrangements were expensed on the date the licensing revenue was recognized.

- Adoption of the New Revenue Standard resulted in revenue recognition being accelerated for variable royalties and the variable portion of hybrid fixed/variable patent and technology licensing arrangements. Under the New Revenue Standard, royalty revenue is being recognized on the basis of management's estimates of sales or usage, as applicable, of the licensed IP in the period of reference, with a true-up being recorded in subsequent periods based on actual sales or usage as reported by licensees (rather than upon receiving royalty reports from licensees as was the case under ASC 605).

- Adoption of the New Revenue Standard also resulted in revenue recognition being accelerated for certain professional services arrangements, including arrangements consisting of significant software customization or modification and development arrangements. Under the New Revenue Standard, such arrangements are accounted for based on man-days incurred during the reporting period as compared to estimated total man-days necessary for contract completion, as the customer either controls the asset as it is created or enhanced by us or, where the asset has no alternative use to us, we are entitled to payment for performance to date and expect to fulfill the contract - revenue recognition is no longer capped to the lesser of inputs in the period or accepted billable project milestones as was the case under ASC 605.

Adoption of the New Revenue Standard had no impact to cash provided by (used in) operating, financing, or investing activities on the Company's Consolidated Statements of Cash Flows.

In accordance with the New Revenue Standard requirements, the disclosure of the impact of adoption on the Company's Consolidated Statement of Operations and Balance Sheet was as follows (in thousands):

	Three Months Ended September 30, 2018			Nine Months Ended September 30, 2018		
(In thousands)	As Reported	Effect of Change Higher/ (Lower)	Amounts under ASC 605	As Reported	Effect of Change Higher/ (Lower)	Amounts under ASC 605
Consolidated Statement of Operations						
Revenue:						
Royalties	$33,599	$42,105	$75,704	$85,022	$141,482	$226,504
Product revenue	11,753	—	11,753	27,153	377	27,530
Contract and other revenue	14,402	(2,019)	12,383	50,463	(5,378)	45,085
Total revenue	$59,754	$40,086	$99,840	$162,638	$136,481	$299,119
Costs and expenses:						
Interest income and other income (expense), net	$8,008	$(6,532)	$1,476	$25,373	$(21,087)	$4,286
Provision for income taxes	$89,758	$(10,509)	$79,249	$85,514	$—	$85,514
Net loss	$(104,893)	$44,063	$(60,830)	$(155,939)	$115,394	$(40,545)

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(In thousands)	September 30, 2018 As Reported	Effect of Change Higher/ (Lower)	Amounts under ASC 605
Consolidated Balance Sheet			
Assets:			
Unbilled receivables	$699,909	$(699,909)	$ —
Liabilities:			
Deferred revenue	12,877	(88)	12,789
Income taxes payable	99,184	(94,117)	5,067
Stockholders' equity:			
Accumulated deficit	202,276	510,894	713,170

Recent Accounting Pronouncements Not Yet Adopted

In August 2018, the FASB issued ASU 2018-13, "Fair Value Measurement (Topic 820): Disclosure Framework-Changes to the Disclosure Requirements for Fair Value Measurement." The amendments in this ASU remove certain disclosures, modify certain disclosures and add additional disclosures. This ASU is effective for interim and annual reporting periods beginning after December 15, 2019. Early adoption is permitted. Certain disclosures in ASU 2018-13 would need to be applied on a retrospective basis and others on a prospective basis. The Company is currently evaluating the impact that this guidance will have on its consolidated financial statements.

In June 2018, the FASB issued ASU 2018-07, "Compensation - Stock Compensation (Topic 718)," to expand the scope of Topic 718 to include share-based payment transactions for acquiring goods and services from nonemployees. This ASU is effective for interim and annual reporting periods beginning after December 15, 2018. Early adoption is permitted, including adoption in an interim period. The Company is currently evaluating the impact that this guidance will have on its consolidated financial statements.

In July 2017, the FASB issued ASU No. 2017-11, "Earnings Per Share (Topic 260), Distinguishing Liabilities from Equity (Topic 480), Derivatives and Hedging (Topic 815)." The amendments in Part I of this ASU change the classification analysis of certain equity-linked financial instruments (or embedded features) with down round features. When determining whether certain financial instruments should be classified as liabilities or equity instruments, a down round feature no longer precludes equity classification when assessing whether the instrument is indexed to an entity's own stock. The amendments also clarify existing disclosure requirements for equity-classified instruments. As a result, a freestanding equity-linked financial instrument (or embedded conversion option) no longer would be accounted for as a derivative liability at fair value as a result of the existence of a down round feature. For freestanding equity classified financial instruments, the amendments require entities that present earnings per share (EPS) in accordance with Topic 260 to recognize the effect of the down round feature when it is triggered. That effect is treated as a dividend and as a reduction of income available to common shareholders in basic EPS. Convertible instruments with embedded conversion options that have down round features are now subject to the specialized guidance for contingent beneficial conversion features (in Subtopic 470-20, Debt-Debt with Conversion and Other Options), including related EPS guidance (in Topic 260). The amendments in Part II of this ASU recharacterize the indefinite deferral of certain provisions of Topic 480 that now are presented as pending content in the FASB codification, to a scope exception. Those amendments do not have an accounting effect. This ASU is effective for interim and annual reporting periods beginning after December 15, 2018. Early adoption is permitted, including adoption in an interim period. The Company is currently evaluating the impact that this guidance will have on its consolidated financial statements.

In March 2017, the FASB issued ASU No. 2017-08, "Receivables - Nonrefundable Fees and Other Costs (Topic 310): Premium Amortization on Purchased Callable Debt Securities," which amends the amortization period for certain purchased callable debt securities held at a premium. This ASU will shorten the amortization period for the premium to be amortized to the earliest call date. This ASU does not apply to securities held at a discount, which will continue to be amortized to maturity. This ASU is effective for interim and annual reporting periods beginning after December 15, 2018. Early adoption is permitted, including adoption in an interim period. The Company is currently evaluating the impact that this guidance will have on its consolidated financial statements.

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In January 2017, the FASB issued ASU No. 2017-04, "Intangibles-Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment," which removes Step 2 of the goodwill impairment test. A goodwill impairment will now be the amount by which a reporting unit's carrying value exceeds its fair value, not to exceed the carrying amount of goodwill. This ASU is effective for interim and annual reporting periods beginning after December 15, 2019. Early adoption is permitted, including adoption in an interim period. The Company is currently evaluating the impact that this guidance will have on its consolidated financial statements.

In June 2016, the FASB issued ASU No. 2016-13. The purpose of this ASU is to require a financial asset measured at amortized cost basis to be presented at the net amount expected to be collected. Credit losses relating to available-for-sale debt securities should be recorded through an allowance for credit losses. This ASU is effective for interim and annual reporting periods beginning after December 15, 2019. The Company is currently evaluating the impact that this guidance will have on its financial condition and results of operations.

In February 2016, the FASB issued ASU No. 2016-02, "Leases." This ASU requires lessees to recognize right-of-use assets and liabilities for operating leases, initially measured at the present value of the lease payments, on the balance sheet. In addition, it requires lessees to recognize a single lease cost, calculated so that the cost of the lease is allocated over the lease term, generally on a straight-line basis. In July 2018, the FASB issued ASU No. 2018-10, "Codification Improvements to Topic 842, Leases," and ASU No. 2018-11, "Leases (Topic 842)," which allow the application of the new guidance at the beginning of the year of adoption, recognizing a cumulative-effect adjustment to the opening balance of retained earnings in the period of adoption, in addition to the method of applying the new guidance retrospectively to each prior reporting period presented. The amendments in ASU No. 2018-10 and ASU No. 2018-11 have the same effective and transition requirements as ASU 2016-02.

This ASU will become effective for the Company in the first quarter of fiscal year 2019. The Company is evaluating the impact that the new accounting standard will have on its consolidated financial statements, which will consist primarily of a balance sheet gross up of right-of-use assets and lease liabilities on the consolidated balance sheets upon adoption, which will increase the Company's total assets and liabilities.

3. Revenue Recognition

The Company recognizes revenue upon transfer of control of promised goods and services in an amount that reflects the consideration it expects to receive in exchange for those goods and services. Unless indicated otherwise below, all of the goods and services are distinct and are accounted for as separate performance obligations.

Where an arrangement includes multiple performance obligations, the transaction price is allocated to these on a relative standalone selling prices basis. The Company has established standalone selling prices for all of its offerings - specifically, a same pricing methodology is consistently applied to all licensing arrangements; all services offerings are priced within tightly controlled bands and all contracts that include support and maintenance state a renewal rate or price that is systematically enforced.

Rambus' revenue consists of royalty, product and contract and other revenue. Royalty revenue consists of patent and technology license royalties. Products consist of memory buffer chipsets sold directly and indirectly to module manufacturers and OEMs worldwide through multiple channels, including our direct sales force and distributors. Contract and other revenue consists of software license fees, engineering fees associated with integration of Rambus' technology solutions into its customers' products and support and maintenance fees.

1.Royalty Revenue

Rambus' patent and technology licensing arrangements generally range between 1 and 7 years in duration and generally grant the licensee the right to use the Company's entire IP portfolio as it evolves over time. These arrangements do not typically grant the licensee the right to terminate for convenience and where such rights exist, termination is prospective, with no refund of fees already paid by the licensee. There is no interdependency or interrelation between the IP included in the portfolio licensed upon contract inception and any IP subsequently made available to the licensee, and the Company would be able to fulfill its promises by transferring the portfolio and the additional IP use rights independently. However, the numbers of additions to, and removals from the portfolio (for example when a patent expires and renewal is not granted to the Company) in any given period have historically been relatively consistent; as such, the Company does not allocate the transaction price between the rights granted at contract inception and those subsequently granted over time as a function of these additions.

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Patent and technology licensing arrangements result in fixed payments received over time, with guaranteed minimum payments on occasion, variable payments calculated based on the licensee’s sale or use of the IP, or a mix of fixed and variable payments.

For fixed-fee arrangements (including arrangements that include minimum guaranteed amounts), variable royalty arrangements that the Company has concluded are fixed in substance and the fixed portion of hybrid fixed/variable arrangements, the Company recognizes revenue upon control over the underlying IP use right transferring to the licensee, net of the effect of significant financing components calculated using customer-specific, risk-adjusted lending rates ranging between 3% and 6%, with the related interest income being recognized over time on an effective rate basis. Where a licensee has the contractual right to terminate a fixed-fee arrangement for convenience without any substantive penalty payable upon such termination, the Company applies the guidance in the New Revenue Standard to the duration of the contract in which the parties have present enforceable rights and obligations and only recognizes revenue for amounts that are due and payable.

For variable arrangements, the Company recognizes revenue based on an estimate of the licensee’s sale or usage of the IP during the period of reference, typically quarterly, with a true-up being recorded when the Company receives the actual royalty report from the licensee.

2.Product Revenue

Product revenue is recognized upon shipment of product to customers, net of accruals for estimated sales returns and allowances, and to distributors, net of accruals for price protection and rights of return on products unsold by the distributors. To date, none of these accruals have been significant. The Company transacts with direct customers primarily pursuant to standard purchase orders for delivery of products and generally allows customers to cancel or change purchase orders within limited notice periods prior to the scheduled shipment date.

3.Contract and Other Revenue

Contract and other revenue consists of software license fees and engineering fees associated with integration of Rambus’ technology solutions into its customers’ related support and maintenance.

An initial software arrangement generally consists of a term-based or perpetual license, significant software customization services and support and maintenance services that include post-implementation customer support and the right to unspecified software updates and enhancements on a when and if available basis. The Company recognizes the license and customization services revenue based on man-days incurred during the reporting period as compared to the estimated total man-days necessary for each contract, and the support and maintenance revenue ratably over term. The Company recognizes license renewal revenue at the beginning of the renewal period. The Company recognizes revenue from professional services purchased in addition to an initial software arrangement on a cumulative catch-up basis if these services are not distinct from the services provided as part of the initial software arrangement, or as a separate contract if these services are distinct.

During the first quarter of 2016, the Company acquired Smart Card Software Ltd., which included Bell Identification Ltd. (Payment Product Group) and Ecebs Ltd. (Ticketing Products Group), which transact mostly in software and Software-as-a-Service arrangements, respectively.

The Company's Payment Product Group derives a significant portion of its revenue from heavily customized software in the mobile market, whereby the Payment Product Group’s software solution interacts with third-party solutions and other payment platforms to provide the functionality the customer requires. Historically, these third-party solutions have evolved at a rapid pace, with the Payment Product Group being required to deliver as part of its support and maintenance services the patches and updates needed to maintain the functionality of its own software offering. As the utility of the solution to the end customer erodes very quickly without these updates, these are viewed as critical and the customized software solution and updates are not separately identifiable. As such, these arrangements are treated as a single performance obligation; revenue is deferred until completion of the customization services, and recognized ratably over the committed support and maintenance term, typically ranging from 1 year to 3 years.

The Company's Ticketing Products Group primarily derives revenue from ticketing services arrangements that systematically consist of a software component, support and maintenance, managed services and hosting services. The software could be hosted by third-party hosting service providers or the Company. All arrangements entered into subsequent to the acquisition preclude customers from taking possession of the software at any time during the hosting term and the Company has concluded that should a customer that was under contract as of the acquisition date ever request possession of the software, the Ticketing Products Group would have the ability to charge the customer, and enforce a claim to payment of a substantive fee in exchange for such right, and that the costs of setting up the environment needed to run the software would act as a

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significant disincentive to the customer taking possession of the software. Based on the above, the Company concluded that these services are a single performance obligation, with customers simultaneously receiving and consuming the benefits provided by the Ticketing Products Group's performance, and recognize ticketing services revenue ratably over the term, commencing upon completion of setup activities. The Company recognizes setup fees upon completion. While these activities do not transfer a service to the customer, the Company elected not to defer and amortize these fees over the expected duration of the customer relationship owing to the immateriality of the amounts charged.

Significant Judgments

Historically and with the exception noted below, no significant judgment has generally been required in determining the amount and timing of revenue from the Company's contracts with customers.

- The Company has adequate tools and controls in place, and substantial experience and expertise in timely and accurately tracking man-days incurred in completing customization and other professional services, and quantifying changes in estimates.

Key estimates used in recognizing revenue predominantly consist of the following:

- All fixed-fee arrangements result in cash being received after control over the underlying IP use right has transferred to the licensee, and over a period exceeding a year. As such, all these arrangements include a significant financing component. The Company calculates a customer-specific lending rate using a Daily Treasury Yield Curve Rate that changes depending on the date on which the licensing arrangement was entered into and the term (in years) of the arrangement, and takes into consideration a licensee-specific risk profile determined based on a review of the licensee's "Full Company View" Dun & Bradstreet report obtained on the date the licensing arrangement was signed by the parties, with a risk premium being added to the Daily Treasury Yield Curve Rate considering the overall business risk, financing strength and risk indicators, as listed.

- The Company recognizes revenue on variable fee licensing arrangements on the basis of estimates. In connection with the adoption of the New Revenue Standard, the Company has set up specific procedures and controls to ensure timely and accurate quantification of variable royalties, and implemented new systems to enable the preparation of the estimates and reporting of the financial information required by the New Revenue Standard.

Contract Balances

Timing of revenue recognition may differ from the timing of invoicing to the Company's customers. The Company records contract assets when revenue is recognized prior to invoicing, and a contract liability when revenue is recognized subsequent to invoicing.

The contract assets are primarily related to the Company's fixed fee IP licensing arrangements and rights to consideration for performance obligations delivered but not billed as of September 30, 2018. The contract assets are transferred to receivables when the billing occurs.

The Company's contract balances were as follows:

(In thousands)	As of September 30, 2018	January 1, 2018
Unbilled receivables	$699,909	$818,371
Deferred revenue	12,877	20,737

During the three and nine months ended September 30, 2018, the Company recognized $3.2 million and $19.6 million of revenue, respectively, that was included in the contract balances, as adjusted for ASC 606, as of January 1, 2018.

Revenue allocated to remaining performance obligations represents the transaction price allocated to the performance obligations that are unsatisfied, or partially unsatisfied, which includes unearned revenue and amounts that will be invoiced and recognized as revenue in future periods. Contracted but unsatisfied performance obligations were approximately $10.3 million as of September 30, 2018, which the Company primarily expects to recognize over the next 2 years.

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4. Earnings (Loss) Per Share

Basic earnings (loss) per share is calculated by dividing the net income (loss) by the weighted average number of common shares outstanding during the period. Diluted earnings per share is calculated by dividing the earnings by the weighted average number of common shares and potentially dilutive securities outstanding during the period. Potentially dilutive common shares consist of incremental common shares issuable upon exercise of stock options, employee stock purchases, restricted stock and restricted stock units and shares issuable upon the conversion of convertible notes. The dilutive effect of outstanding shares is reflected in diluted earnings per share by application of the treasury stock method. This method includes consideration of the amounts to be paid by the employees and the amount of unrecognized stock-based compensation related to future services. No potential dilutive common shares are included in the computation of any diluted per share amount when a net loss is reported.

The following table sets forth the computation of basic and diluted net income (loss) per share:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
Net income (loss) per share:	(In thousands, except per share amounts)			
Numerator:				
Net income (loss)	$(104,893)	$7,695	$(155,939)	$13,306
Denominator:				
Weighted-average shares outstanding - basic	107,897	109,555	108,324	110,353
Effect of potential dilutive common shares	—	3,564	—	3,508
Weighted-average shares outstanding - diluted	107,897	113,119	108,324	113,861
Basic net income (loss) per share	$(0.97)	$0.07	$(1.44)	$0.12
Diluted net income (loss) per share	$(0.97)	$0.07	$(1.44)	$0.12

For the three months ended September 30, 2018 and 2017, options to purchase approximately 1.4 million and 1.8 million shares, respectively, and for the nine months ended September 30, 2018 and 2017, options to purchase approximately 1.3 million and 1.9 million shares, respectively, were excluded from the calculation because they were anti-dilutive after considering proceeds from exercise and related unrecognized stock-based compensation expense. For the three and nine months ended September 30, 2018, an additional 1.9 million and 2.8 million shares, respectively, were excluded from the weighted average dilutive shares because there was a net loss position for the periods.

5. Intangible Assets and Goodwill

Goodwill

The following tables present goodwill information for each of the reportable segments for the nine months ended September 30, 2018:

Reportable Segment:	As of December 31, 2017	Effect of Exchange Rates (1)	As of September 30, 2018
	(In thousands)		
MID	$66,643	$—	$66,643
RSD	143,018	(1,545)	141,473
Total	$209,661	$(1,545)	$208,116

(1) Effect of exchange rates relates to foreign currency translation adjustments for the period.

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Reportable Segment:	As of September 30, 2018 Gross Carrying Amount	Accumulated Impairment Losses	Net Carrying Amount
	(In thousands)		
MID	$66,643	$ —	$66,643
RSD	141,473	—	141,473
Other	21,770	(21,770)	—
Total	$229,886	$ (21,770)	$208,116

Intangible Assets

The components of the Company's intangible assets as of September 30, 2018 and December 31, 2017 were as follows:

	Useful Life	As of September 30, 2018 Gross Carrying Amount (1)	Accumulated Amortization (1)	Net Carrying Amount
		(In thousands)		
Existing technology	3 to 10 years	$259,131	$ (210,086)	$ 49,045
Customer contracts and contractual relationships	1 to 10 years	68,167	(53,401)	14,766
Non-compete agreements and trademarks	3 years	300	(300)	—
In-process research and development	Not applicable	1,600	—	1,600
Total intangible assets		$329,198	$ (263,787)	$ 65,411

	Useful Life	As of December 31, 2017 Gross Carrying Amount (1)	Accumulated Amortization (1)	Net Carrying Amount
		(In thousands)		
Existing technology	3 to 10 years	$258,008	$ (191,554)	$ 66,454
Customer contracts and contractual relationships	1 to 10 years	68,794	(48,626)	20,168
Non-compete agreements and trademarks	3 years	300	(300)	—
In-process research and development	Not applicable	5,100	—	5,100
Total intangible assets		$332,202	$ (240,480)	$ 91,722

(1) The changes in gross carrying amount and accumulated amortization reflect the effects of exchange rates during the period.

During the three and nine months ended September 30, 2018, the Company did not purchase or sell any intangible assets. During the three and nine months ended September 30, 2017, the Company acquired patents related to its memory technology for an immaterial amount.

Included in customer contracts and contractual relationships are favorable contracts which are acquired software and service agreements where the Company has no performance obligations. Cash received from these acquired favorable contracts reduces the favorable contract intangible asset. For the three months ended September 30, 2018 and 2017, the Company received $0.2 million and $0.5 million, respectively, related to the favorable contracts. For the nine months ended September 30, 2018 and 2017, the Company received $1.1 million and $2.8 million, respectively, related to the favorable contracts. As of September 30, 2018 and December 31, 2017, the net balance of the favorable contract intangible assets was $1.0 million and $1.7 million, respectively.

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Amortization expense for intangible assets for the three and nine months ended September 30, 2018 was $5.1 million and $24.4 million, respectively. Amortization expense for intangible assets for the three and nine months ended September 30, 2017 was $10.5 million and $31.4 million, respectively. The estimated future amortization of intangible assets as of September 30, 2018 was as follows (amounts in thousands):

Years Ending December 31:	Amount
2018 (remaining 3 months)	$4,874
2019	20,251
2020	20,293
2021	13,083
2022	2,002
Thereafter	3,308
Total amortizable purchased intangible assets	$63,811
In-process research and development	1,600
Total intangible assets	$65,411

It is reasonably possible that the businesses could perform significantly below the Company's expectations or a deterioration of market and economic conditions could occur. This would adversely impact the Company's ability to meet its projected results, which could cause the goodwill in any of its reporting units or long-lived assets in any of its asset groups to become impaired. Significant differences between these estimates and actual cash flows could materially affect the Company's future financial results. If the Company determines that its goodwill or long-lived assets are impaired, it would be required to record a non-cash charge that could have a material adverse effect on its results of operations and financial position.

6. Segments and Major Customers

For the three and nine months ended September 30, 2018, MID and RSD were reportable segments as each of them met the quantitative thresholds for disclosure as a reportable segment. The results of the remaining operating segments were shown under “Other.”

The Company evaluates the performance of its segments based on segment operating income (loss), which is defined as revenue minus segment operating expenses. Segment operating expenses are comprised of direct operating expenses.

Segment operating expenses do not include sales, general and administrative expenses and the allocation of certain expenses managed at the corporate level, such as stock-based compensation, amortization, and certain bonus and acquisition costs. The “Reconciling Items” category includes these unallocated sales, general and administrative expenses as well as corporate level expenses.

The tables below present reported segment operating income (loss) for the three and nine months ended September 30, 2018 and 2017, respectively.

	For the Three Months Ended September 30, 2018				For the Nine Months Ended September 30, 2018			
	MID	RSD	Other	Total	MID	RSD	Other	Total
	(In thousands)				(In thousands)			
Revenues	$44,737	$15,017	$—	$59,754	$113,702	$46,495	$2,441	$162,638
Segment operating expenses	27,035	12,538	3,154	42,727	72,581	40,216	11,994	124,791
Segment operating income (loss)	$17,702	$2,479	$(3,154)	$17,027	$41,121	$6,279	$(9,553)	$37,847
Reconciling items				(36,194)				(120,614)
Operating loss				$(19,167)				$(82,767)
Interest and other income (expense), net				4,032				12,342
Loss before income taxes				$(15,135)				$(70,425)

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	For the Three Months Ended September 30, 2017				For the Nine Months Ended September 30, 2017			
	MID	RSD	Other	Total	MID	RSD	Other	Total
	(In thousands)				(In thousands)			
Revenues	$68,787	$26,312	$4,035	$99,134	$206,784	$72,883	$11,538	$291,205
Segment operating expenses	21,130	11,796	7,802	40,728	65,187	36,409	25,191	126,787
Segment operating income (loss)	$47,657	$14,516	$(3,767)	$58,406	$141,597	$36,474	$(13,653)	$164,418
Reconciling items				(41,396)				(125,730)
Operating income				$17,010				$38,688
Interest and other income (expense), net				(3,079)				(9,263)
Income before income taxes				$13,931				$29,425

The Company’s CODM does not review information regarding assets on an operating segment basis. Additionally, the Company does not record intersegment revenue or expense.

Accounts receivable from the Company's major customers representing 10% or more of total accounts receivable at September 30, 2018 and December 31, 2017, respectively, was as follows:

Customer	As of September 30, 2018	December 31, 2017
Customer 1 (MID reportable segment)	12 %	*
Customer 2 (RSD reportable segment)	*	11 %
Customer 3 (Other segment)	*	12 %
Customer 4 (MID and RSD reportable segment)	*	13 %
Customer 5 (MID and RSD reportable segment)	43 %	*

* Customer accounted for less than 10% of total accounts receivable in the period

Revenue from the Company’s major customers representing 10% or more of total revenue for the three and nine months ended September 30, 2018 and 2017, respectively, was as follows:

	Three Months Ended September 30,		Nine Months Ended September 30,	
Customer	2018	2017	2018	2017
Customer A (MID and RSD reportable segments)	*	18 %	*	17 %
Customer B (MID reportable segment)	*	12 %	*	13 %
Customer C (MID reportable segment)	*	13 %	*	13 %
Customer D (MID reportable segment)	13 %	*	*	*
Customer E (MID and RSD reportable segments)	*	*	11 %	*
Customer F (MID and RSD reportable segments)	34 %	*	13 %	*

* Customer accounted for less than 10% of total revenue in the period

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Revenue from customers in the geographic regions based on the location of contracting parties was as follows:

	Three Months Ended September 30,		Nine Months Ended September 30,	
(In thousands)	2018	2017	2018	2017
Taiwan	$ 3,962	$ 1,392	$ 20,419	$ 7,410
South Korea	388	29,476	10,656	86,736
USA	37,899	43,532	78,983	123,115
Japan	3,889	4,933	20,201	18,508
Europe	4,156	9,160	11,628	17,850
Canada	820	933	4,115	3,353
Singapore	7,953	4,927	14,103	17,563
Asia-Other	687	4,781	2,533	16,670
Total	$ 59,754	$ 99,134	$ 162,638	$ 291,205

7. Marketable Securities

Rambus invests its excess cash and cash equivalents primarily in U.S. government-sponsored obligations, commercial paper, corporate notes and bonds, money market funds and municipal notes and bonds that mature within three years. As of September 30, 2018 and December 31, 2017, all of the Company’s cash equivalents and marketable securities had a remaining maturity of less than one year.

All cash equivalents and marketable securities are classified as available-for-sale. Total cash, cash equivalents and marketable securities are summarized as follows:

	As of September 30, 2018				
(In thousands)	Fair Value	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Weighted Rate of Return
Money market funds	$ 10,838	$ 10,838	$ —	$ —	1.95 %
U.S. Government bonds and notes	24,989	24,990	—	(1)	1.86 %
Corporate notes, bonds, commercial paper and other	163,929	164,024	—	(95)	2.16 %
Total cash equivalents and marketable securities	199,756	199,852	—	(96)	
Cash	48,415	48,415	—	—	
Total cash, cash equivalents and marketable securities	$ 248,171	$ 248,267	$ —	$ (96)	

	As of December 31, 2017				
(In thousands)	Fair Value	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Weighted Rate of Return
Money market funds	$ 10,915	$ 10,915	$ —	$ —	1.16 %
U.S. Government bonds and notes	55,220	55,221	—	(1)	1.12 %
Corporate notes, bonds, commercial paper and other	195,073	195,204	—	(131)	1.39 %
Total cash equivalents and marketable securities	261,208	261,340	—	(132)	
Cash	68,168	68,168	—	—	
Total cash, cash equivalents and marketable securities	$ 329,376	$ 329,508	$ —	$ (132)	

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Available-for-sale securities are reported at fair value on the balance sheets and classified as follows:

	As of September 30, 2018	As of December 31, 2017
	(In thousands)	
Cash equivalents	$86,119	$ 157,676
Short term marketable securities	113,637	103,532
Total cash equivalents and marketable securities	199,756	261,208
Cash	48,415	68,168
Total cash, cash equivalents and marketable securities	$248,171	$ 329,376

The Company continues to invest in highly rated quality, highly liquid debt securities. As of September 30, 2018, these securities have a remaining maturity of less than one year. The Company holds all of its marketable securities as available-for-sale, marks them to market, and regularly reviews its portfolio to ensure adherence to its investment policy and to monitor individual investments for risk analysis, proper valuation, and unrealized losses that may be other than temporary.

The estimated fair value of cash equivalents and marketable securities classified by the length of time that the securities have been in a continuous unrealized loss position at September 30, 2018 and December 31, 2017 are as follows:

	Fair Value		Gross Unrealized Loss	
	September 30, 2018	December 31, 2017	September 30, 2018	December 31, 2017
	(In thousands)			
Less than one year				
U.S. Government bonds and notes	$24,989	$ 42,581	$ (1)	$ (1)
Corporate notes, bonds and commercial paper	163,929	194,015	(95)	(131)
Total Corporate notes, bonds, and commercial paper and U.S. Government bonds and notes	$188,918	$ 236,596	$ (96)	$ (132)

The gross unrealized loss at September 30, 2018 and December 31, 2017 was not material in relation to the Company’s total available-for-sale portfolio. The gross unrealized loss can be primarily attributed to a combination of market conditions as well as the demand for and duration of the U.S. government-sponsored obligations and corporate notes and bonds. There is no need to sell these investments, and the Company believes that it can recover the amortized cost of these investments. The Company has found no evidence of impairment due to credit losses in its portfolio. Therefore, these unrealized losses were recorded in other comprehensive income. However, the Company cannot provide any assurance that its portfolio of cash, cash equivalents and marketable securities will not be impacted by adverse conditions in the financial markets, which may require the Company in the future to record an impairment charge for credit losses which could adversely impact its financial results.

See Note 8, “Fair Value of Financial Instruments,” for discussion regarding the fair value of the Company’s cash equivalents and marketable securities.

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8. Fair Value of Financial Instruments

The following table presents the financial instruments that are carried at fair value and summarizes the valuation of its cash equivalents and marketable securities by the above pricing levels as of September 30, 2018 and December 31, 2017:

	As of September 30, 2018			
	Total	Quoted Market Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
	(In thousands)			
Money market funds	$10,838	$ 10,838	$ —	$ —
U.S. Government bonds and notes	24,989	—	24,989	—
Corporate notes, bonds, commercial paper and other	163,929	—	163,929	—
Total available-for-sale securities	$199,756	$ 10,838	$ 188,918	$ —

	As of December 31, 2017			
	Total	Quoted Market Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
	(In thousands)			
Money market funds	$10,915	$ 10,915	$ —	$ —
U.S. Government bonds and notes	55,220	—	55,220	—
Corporate notes, bonds, commercial paper and other	195,073	1,058	194,015	—
Total available-for-sale securities	$261,208	$ 11,973	$ 249,235	$ —

The Company monitors its investments for other-than-temporary impairment and records appropriate reductions in carrying value when necessary. The Company monitors its investments for other-than-temporary losses by considering current factors, including the economic environment, market conditions, operational performance and other specific factors relating to the business underlying the investment, reductions in carrying values when necessary and the Company's ability and intent to hold the investment for a period of time which may be sufficient for anticipated recovery in the market. Any other-than-temporary loss is reported under "Interest and other income (expense), net" in the condensed consolidated statement of operations.

For the three and nine months ended September 30, 2018 and 2017, there were no transfers of financial instruments between different categories of fair value.

The following table presents the financial instruments that are not carried at fair value but require fair value disclosure as of September 30, 2018 and December 31, 2017:

	As of September 30, 2018			As of December 31, 2017		
(In thousands)	Face Value	Carrying Value	Fair Value	Face Value	Carrying Value	Fair Value
1.375% Convertible Senior Notes due 2023 (the "2023 Notes")	$172,500	$140,279	$155,897	$172,500	$135,447	$173,450
1.125% Convertible Senior Notes due 2018 (the "2018 Notes")	$—	$—	$—	$81,207	$78,451	$100,802

The fair value of the convertible notes at each balance sheet date is determined based on recent quoted market prices for these notes which is a level 2 measurement. As discussed in Note 9, "Convertible Notes," as of September 30, 2018, the 2023 Notes are carried at their aggregate face value of $172.5 million, less any unamortized debt discount and unamortized debt issuance costs. The carrying value of other financial instruments, including accounts receivable, accounts payable and other liabilities, approximates fair value due to their short maturities.

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9. Convertible Notes

The Company’s convertible notes are shown in the following table:

(In thousands)	As of September 30, 2018	As of December 31, 2017
2023 Notes	$172,500	$172,500
2018 Notes	—	81,207
Total principal amount of convertible notes	$172,500	$253,707
Unamortized discount - 2023 Notes	(30,048)	(34,506)
Unamortized discount - 2018 Notes	—	(2,547)
Unamortized debt issuance costs - 2023 Notes	(2,173)	(2,547)
Unamortized debt issuance costs - 2018 Notes	—	(209)
Total convertible notes	$140,279	$213,898
Less current portion	—	78,451
Total long-term convertible notes	$140,279	$135,447

During the third quarter of 2018, the Company paid upon maturity the remaining $81.2 million in aggregate principal amount of the 2018 Notes. Additionally, the Company delivered 423,873 shares of the Company's common stock as settlement related to the in-the-money conversion feature of the 2018 Notes at maturity. The value of the shares delivered was approximately $5.0 million.

Interest expense related to the notes for the three and nine months ended September 30, 2018 and 2017 was as follows:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
	(In thousands)			
2023 Notes coupon interest at a rate of 1.375%	$593	$—	$1,779	$—
2023 Notes amortization of discount and debt issuance costs at an additional effective interest rate of 4.9%	1,632	—	4,831	—
2018 Notes coupon interest at a rate of 1.125%	96	388	377	1,164
2018 Notes amortization of discount and debt issuance costs at an additional effective interest rate of 5.5%	559	1,801	2,756	5,324
Total interest expense on convertible notes	$2,880	$2,189	$9,743	$6,488

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10. Commitments and Contingencies

As of September 30, 2018, the Company's material contractual obligations were as follows (in thousands):

	Total	Remainder of 2018	2019	2020	2021	2022	Thereafter
Contractual obligations (1)							
Imputed financing obligation (2)	$11,102	$ 1,631	$6,602	$2,869	$—	$—	$—
Leases and other contractual obligations	23,844	4,932	5,518	4,558	4,683	3,291	862
Software licenses (3)	6,324	2,792	3,532	—	—	—	—
Convertible notes	172,500	—	—	—	—	—	172,500
Interest payments related to convertible notes	10,680	—	2,372	2,372	2,372	2,372	1,192
Total	$224,450	$ 9,355	$18,024	$9,799	$7,055	$5,663	$174,554

(1) The above table does not reflect possible payments in connection with uncertain tax benefits of approximately $23.7 million including $21.6 million recorded as a reduction of long-term deferred tax assets and $2.1 million in long-term income taxes payable as of September 30, 2018. As noted below in Note 13, "Income Taxes," although it is possible that some of the unrecognized tax benefits could be settled within the next 12 months, the Company cannot reasonably estimate the outcome at this time.

(2) With respect to the imputed financing obligation, the main components of the difference between the amount reflected in the contractual obligations table and the amount reflected on the unaudited condensed consolidated balance sheets are the interest on the imputed financing obligation and the estimated common area expenses over the future periods. The amount includes the amended Ohio lease and the amended Sunnyvale lease.

(3) The Company has commitments with various software vendors for agreements generally having terms longer than one year.

Building lease expense was approximately $1.3 million and $3.8 million for the three and nine months ended September 30, 2018, respectively. Building lease expense was approximately $1.2 million and $3.2 million for the three and nine months ended September 30, 2017, respectively. Deferred rent of $1.5 million and $0.5 million as of September 30, 2018 and December 31, 2017, respectively, was included in other liabilities.

Indemnification

From time to time, the Company indemnifies certain customers as a necessary means of doing business. Indemnification covers customers for losses suffered or incurred by them as a result of any patent, copyright, or other intellectual property infringement or any other claim by any third party arising as result of the applicable agreement with the Company. The Company generally attempts to limit the maximum amount of indemnification or liability that the Company could be exposed to under these agreements, however, this is not always possible. The fair value of the liability as of September 30, 2018 and December 31, 2017 is not material.

11. Equity Incentive Plans and Stock-Based Compensation

As of September 30, 2018, 10,076,069 shares of the 35,400,000 cumulative shares approved under both the current 2015 Equity Incentive Plan (the "2015 Plan") and past 2006 Equity Incentive Plan (the "2006 Plan") remain available for grant, which included an increase of 4,000,000 shares approved under the 2015 Plan. On April 23, 2015, the Company's stockholders approved the 2015 Plan, which authorizes 4,000,000 shares for future issuance plus the number of shares that remained available for grant under the 2006 Plan as of the effective date of the 2015 Plan. The 2015 Plan became effective and replaced the 2006 Plan on April 23, 2015. The 2015 Plan was the Company's only plan for providing stock-based incentive awards to eligible employees, executive officers, non-employee directors and consultants as of September 30, 2018. No further awards will be made under the 2006 Plan, but the 2006 Plan will continue to govern awards previously granted under it. In addition, any shares subject to stock options or other awards granted under the 2006 Plan that on or after the effective date of the 2015 Plan are forfeited, cancelled, exchanged or surrendered or terminate under the 2006 Plan will become available for grant under the 2015 Plan. Also, on April 26, 2018, the Company's stockholders approved an additional 5,500,000 shares for issuance under the 2015 Plan.

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A summary of shares available for grant under the Company's plans is as follows:

	Shares Available for Grant
Shares available as of December 31, 2017	5,051,147
Increase in shares approved for issuance	5,500,000
Stock options granted	(711,479)
Stock options forfeited	875,417
Nonvested equity stock and stock units granted (1) (2)	(4,630,283)
Nonvested equity stock and stock units forfeited (1)	3,991,267
Total available for grant as of September 30, 2018	10,076,069

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(1) For purposes of determining the number of shares available for grant under the 2015 Plan against the maximum number of shares authorized, each share of restricted stock granted reduces the number of shares available for grant by 1.5 shares and each share of restricted stock forfeited increases shares available for grant by 1.5 shares.

(2) Amount includes 525,965 shares that have been reserved for potential future issuance related to certain performance unit awards granted in the first quarter of 2018 and discussed under the section titled "Nonvested Equity Stock and Stock Units" below.

General Stock Option Information

The following table summarizes stock option activity under the 2006 Plan and 2015 Plan for the nine months ended September 30, 2018 and information regarding stock options outstanding, exercisable, and vested and expected to vest as of September 30, 2018.

	Options Outstanding			
	Number of Shares	Weighted Average Exercise Price Per Share	Weighted Average Remaining Contractual Term (years)	Aggregate Intrinsic Value
	(In thousands, except per share amounts)			
Outstanding as of December 31, 2017	4,310,361	$ 9.78		
Options granted	711,479	$ 12.84		
Options exercised	(877,436)	$ 6.71		
Options forfeited	(875,417)	$ 13.73		
Outstanding as of September 30, 2018	3,268,987	$ 10.21	4.25	$ 6,220
Vested or expected to vest at September 30, 2018	3,232,308	$ 10.19	4.20	$ 6,220
Options exercisable at September 30, 2018	2,625,887	$ 9.61	3.11	$ 6,220

No stock options that contain a market condition were granted during the three and nine months ended September 30, 2018 and 2017. As of September 30, 2018 and December 31, 2017, there were no stock options outstanding that require the Company to achieve minimum market conditions in order for the options to become exercisable.

The aggregate intrinsic value in the table above represents the total pre-tax intrinsic value for in-the-money options at September 30, 2018, based on the $10.91 closing stock price of Rambus' common stock on September 28, 2018 on the NASDAQ Global Select Market, which would have been received by the option holders had all option holders exercised their options as of that date. The total number of in-the-money options outstanding and exercisable as of September 30, 2018 was 1,611,633 and 1,611,633, respectively.

Employee Stock Purchase Plan

Under the 2015 Employee Stock Purchase Plan ("2015 ESPP"), the Company issued 297,497 shares at a price of $11.66 per share during the nine months ended September 30, 2018. Under the 2015 ESPP, the Company issued 361,994 shares at a price of $10.33 per share during the nine months ended September 30, 2017. On April 26, 2018, the Company's stockholders

approved an additional 2,000,000 shares to be reserved for issuance under the 2015 ESPP. As of September 30, 2018, 2,538,776 shares under the 2015 ESPP remain available for issuance.

Stock-Based Compensation

For the nine months ended September 30, 2018 and 2017, the Company maintained stock plans covering a broad range of potential equity grants including stock options, nonvested equity stock and equity stock units and performance based instruments. During the second quarter of 2018, the Company's former chief executive officer was terminated which resulted in a reversal of stock-based compensation expense of $5.8 million during the period as he did not vest any of the awards, which were primarily related to performance unit awards and nonvested equity stock units. In addition, the Company sponsors the 2015 ESPP, whereby eligible employees are entitled to purchase common stock semi-annually, by means of limited payroll deductions, at a 15% discount from the fair market value of the common stock as of specific dates.

Stock Options

During the three months ended September 30, 2018, the Company granted 90,000 stock options with an estimated grant-date fair value of $0.4 million. During the nine months ended September 30, 2018, the Company granted 711,479 stock options with an estimated total grant-date fair value of $3.0 million. During the three and nine months ended September 30, 2018, the Company recorded stock-based compensation expense related to stock options of $0.4 million and $1.4 million, respectively.

During the three months ended September 30, 2017, the Company did not grant any stock options. During the nine months ended September 30, 2017, the Company granted 498,426 stock options with an estimated grant-date fair value of $2.1 million. During the three and nine months ended September 30, 2017, the Company recorded stock-based compensation expense related to stock options of $0.7 million and $2.1 million, respectively.

As of September 30, 2018, there was $4.4 million of total unrecognized compensation cost, net of expected forfeitures, related to non-vested stock-based compensation arrangements granted under the stock option plans. That cost is expected to be recognized over a weighted-average period of 2.9 years. The total fair value of shares vested as of September 30, 2018 was $12.8 million.

The total intrinsic value of options exercised was $3.2 million and $5.3 million for the three and nine months ended September 30, 2018, respectively. The total intrinsic value of options exercised was $1.9 million and $5.7 million for the three and nine months ended September 30, 2017, respectively. Intrinsic value is the total value of exercised shares based on the price of the Company’s common stock at the time of exercise less the cash received from the employees to exercise the options.

During the nine months ended September 30, 2018, net proceeds from employee stock option exercises totaled approximately $5.9 million.

Employee Stock Purchase Plan

For the three and nine months ended September 30, 2018, the Company recorded compensation expense related to the 2015 ESPP of $0.3 million and $1.1 million, respectively. For the three and nine months ended September 30, 2017, the Company recorded compensation expense related to the 2015 ESPP of $0.4 million and $1.3 million, respectively.

As of September 30, 2018, there was $0.1 million of total unrecognized compensation cost related to stock-based compensation arrangements granted under the 2015 ESPP. That cost is expected to be recognized over one month.

No tax benefits were realized as a result of employee stock option exercises, stock purchase plan purchases, and vesting of equity stock and stock units for the three months ended September 30, 2018 calculated in accordance with accounting for share-based payments due to the Company's full U.S. valuation allowance. For the nine months ended September 30, 2018, there were $0.3 million in tax benefits calculated in accordance with accounting for share-based payments which were realized as a result of employee stock option exercises, stock purchase plan purchases, and vesting of equity stock and stock units. Tax benefits realized as a result of employee stock option exercises, stock purchase plan purchases, and vesting of equity stock and stock units for the three and nine months ended September 30, 2017 were $0.2 million and $0.8 million, respectively.

Valuation Assumptions

The fair value of stock awards is estimated as of the grant date using the Black-Scholes-Merton (“BSM”) option-pricing model assuming a dividend yield of 0% and the additional weighted-average assumptions as listed in the table below.

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The following table presents the weighted-average assumptions used to estimate the fair value of stock options granted that contain only service conditions in the periods presented.

	Stock Option Plan		
	Three Months Ended	Nine Months Ended	
	September 30,	September 30,	
	2018	2018	2017
Stock Option Plan			
Expected stock price volatility	32 %	24% - 32%	32 %
Risk free interest rate	2.8 %	2.6% - 2.8%	1.8% - 1.9%
Expected term (in years)	5.8	5.8	5.3 - 5.4
Weighted-average fair value of stock options granted to employees	$4.34	$4.23	$4.12

There were no stock options granted during the three months ended September 30, 2017.

	Employee Stock Purchase Plan	
	Nine Months Ended	
	September 30,	
	2018	2017
Employee Stock Purchase Plan		
Expected stock price volatility	27 %	27 %
Risk free interest rate	2.05 %	0.98 %
Expected term (in years)	0.5	0.5
Weighted-average fair value of purchase rights granted under the purchase plan	$3.14	$2.87

Nonvested Equity Stock and Stock Units

The Company grants nonvested equity stock units to officers, employees and directors. During the three and nine months ended September 30, 2018, the Company granted nonvested equity stock units totaling 333,909 and 2,736,212 shares under the 2015 Plan, respectively. During the three and nine months ended September 30, 2017, the Company granted nonvested equity stock units totaling 463,346 and 2,654,508 shares under the 2015 Plan. These awards have a service condition, generally a service period of four years, except in the case of grants to directors, for which the service period is 1 year. For the three and nine months ended September 30, 2018, the nonvested equity stock units were valued at the date of grant giving them a fair value of approximately $4.1 million and $35.6 million, respectively. For the three and nine months ended September 30, 2017, the nonvested equity stock units were valued at the date of grant giving them a fair value of approximately $6.0 million and $34.1 million, respectively. During the first quarters of 2018 and 2017, the Company granted performance unit awards to certain Company executive officers with vesting subject to the achievement of certain performance conditions. The ultimate number of performance units that can be earned can range from 0% to 200% of target depending on performance relative to target over the applicable period. The shares earned will vest on the third anniversary of the date of grant. The Company's shares available for grant have been reduced to reflect the shares that could be earned at the maximum target.

During the three and nine months ended September 30, 2018, the Company recorded expense of $0.5 million and a net reversal of $2.1 million, respectively, of stock-based compensation expense related to all outstanding nonvested performance unit awards. The net reversal was primarily due to the termination of the Company's former chief executive officer during the second quarter of 2018. During the three and nine months ended September 30, 2017, the Company recorded $1.2 million and $3.1 million, respectively, of stock-based compensation expense related to all outstanding nonvested performance unit awards.

For the three and nine months ended September 30, 2018, the Company recorded stock-based compensation expense of approximately $5.5 million and $13.0 million, respectively, related to all outstanding nonvested equity stock grants. For the three and nine months ended September 30, 2017, the Company recorded stock-based compensation expense of approximately $5.9 million and $16.7 million, respectively, related to all outstanding nonvested equity stock grants. Unrecognized stock-based compensation related to all nonvested equity stock grants, net of estimated forfeitures, was approximately $40.0 million at September 30, 2018. This amount is expected to be recognized over a weighted average period of 2.5 years.

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The following table reflects the activity related to nonvested equity stock and stock units for the nine months ended September 30, 2018:

Nonvested Equity Stock and Stock Units	Shares	Weighted-Average Grant-Date Fair Value
Nonvested at December 31, 2017	5,861,349	$ 12.68
Granted	2,736,212	$ 13.00
Vested	(1,381,795)	$ 12.36
Forfeited	(2,027,435)	$ 12.97
Nonvested at September 30, 2018	5,188,331	$ 12.83

12. Stockholders’ Equity

Share Repurchase Program

During the nine months ended September 30, 2018, the Company repurchased shares of its common stock under its share repurchase program as discussed below.

On January 21, 2015, the Company's Board approved a share repurchase program authorizing the repurchase of up to an aggregate of 20.0 million shares. Share repurchases under the plan may be made through the open market, established plans or privately negotiated transactions in accordance with all applicable securities laws, rules, and regulations. There is no expiration date applicable to the plan.

On March 5, 2018, the Company initiated an accelerated share repurchase program with Citibank N.A. The accelerated share repurchase program is part of the broader share repurchase program previously authorized by the Company's Board on January 21, 2015. Under the accelerated share repurchase program, the Company pre-paid to Citibank N.A., the $50.0 million purchase price for its common stock and, in turn, the Company received an initial delivery of approximately 3.1 million shares of its common stock from Citibank N.A., in the first quarter of 2018, which were retired and recorded as a $40.0 million reduction to stockholders' equity. The remaining $10.0 million of the initial payment was recorded as a reduction to stockholders’ equity as an unsettled forward contract indexed to the Company's stock. During the second quarter of 2018, the accelerated share repurchase program was completed and the Company received an additional 0.7 million shares of its common stock as the final settlement of the accelerated share repurchase program.

As of September 30, 2018, there remained an outstanding authorization to repurchase approximately 3.6 million shares of the Company's outstanding common stock under the current share repurchase program.

The Company records stock repurchases as a reduction to stockholders’ equity. The Company records a portion of the purchase price of the repurchased shares as an increase to accumulated deficit when the price of the shares repurchased exceeds the average original proceeds per share received from the issuance of common stock. During the nine months ended September 30, 2018, the cumulative price of $37.5 million was recorded as an increase to accumulated deficit.

13. Income Taxes

On December 22, 2017, the “Tax Cuts & Jobs Act” (hereafter referred to as “U.S. tax reform”) was signed into law and is effective for the Company starting in the quarter ended December 31, 2017. The TCJA provides for numerous significant tax law changes and modifications including the reduction of the U.S. federal corporate income tax rate from 35% to 21%, the requirement for companies to pay a one-time transition tax on earnings of certain foreign subsidiaries that were previously deferred and the creation of new taxes on certain foreign-sourced earnings. The impact on income taxes due to change in legislation is required under the authoritative guidance of Accounting Standards Codification (“ASC”) 740, Income Taxes, to be recognized in the period in which the law is enacted.

In December 2017, the SEC staff issued Staff Accounting Bulletin No. 118, Income Tax Accounting Implications of the Tax Cuts and Jobs Act (SAB 118), which allows the Company to record provisional amounts for the Tax Act during a measurement period not to extend beyond one year of the enactment date. The Company has recorded material provisional tax effects in the period of enactment due to the change in legislation. For the three months ended September 30, 2018, the Company did not have significant adjustments to its provisional amounts previously recognized. The Company expects that the provisions of the

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Tax Act will be clarified by additional analysis and regulatory guidance. The Company will continue its analysis of these provisional amounts, which are still subject to change during the measurement period, and the Company anticipates further guidance on accounting interpretations from the FASB and application of the law from the Department of the Treasury.

With respect to the GILTI provisions specific, the 2017 Tax Act allows companies to make an accounting policy election to either (i) account for GILTI as a component of tax expense in the period in which the entity is subject to the rules or (ii) account for GILTI in the entity's measurement of deferred taxes. The Company's selection of an accounting policy will depend, in part, on analyzing its global income to determine whether it expects to have future U.S. inclusions in taxable income related to GILTI and, if so, the impact that is expected. As there is still factual uncertainty around the future GILTI profile of the Company, the Company is not yet able to make its accounting policy election. Therefore, the Company has not recorded any deferred tax effects related to GILTI for the nine months ended September 30, 2018.

The Company recorded a provision for income taxes of $89.8 million and $6.2 million for the three months ended September 30, 2018 and 2017, respectively, and $85.5 million and $16.1 million for the nine months ended September 30, 2018 and 2017, respectively. The provision for income taxes for the three and nine months ended September 30, 2018 was primarily comprised of the valuation allowance recorded on U.S. deferred tax assets. The income taxes for the three and nine months ended September 30, 2017 was primarily comprised of the Company's U.S. federal, state and foreign taxes and income tax expense recognized from exercises and expiration of out-of-the-money fully vested shares from equity incentive plans.

During the three and nine months ended September 30, 2018, the Company paid withholding taxes of $5.1 million and $16.2 million, respectively. During the three and nine months ended September 30, 2017, the Company paid withholding taxes of $4.7 million and $15.6 million, respectively.

As of September 30, 2018, the Company's unaudited condensed consolidated balance sheets included net deferred tax assets, before valuation allowance, of approximately $152.3 million, which consists of net operating loss carryovers, tax credit carryovers, amortization, employee stock-based compensation expenses and certain liabilities.

The Company periodically evaluates the realizability of its net deferred tax assets based on all available evidence, both positive and negative. During the third quarter of 2018, the Company assessed the changes in its underlying facts and circumstances and evaluated the realizability of its existing deferred tax assets based on all available evidence, both positive and negative, and the weight accorded to each, and concluded a full valuation allowance associated with U.S. federal and state deferred tax assets was appropriate. The basis for this conclusion was derived primarily from the fact that the Company completed its forecasting process during the third quarter of 2018. At a domestic level, losses are expected in future periods in part due to the impact of the adoption of ASC 606. In addition, the decrease in the U.S. federal tax rate from 35% to 21% as a result of U.S. tax reform has further reduced the Company's ability to utilize its deferred tax assets. In light of the above factors, the Company concluded that it is not more likely than not that it can realize its U.S. deferred tax assets. As such, during the third quarter of 2018, the Company recorded an additional valuation allowance of $87.2 million through the consolidated financial statements, which represents a full valuation allowance against its U.S. federal and state deferred tax assets.

The Company has U.S. federal deferred tax assets related to research and development credits, foreign tax credits and other tax attributes that can be used to offset federal taxable income in future periods. These credit carryforwards will expire if they are not used within certain time periods. It is possible that some or all of these attributes could ultimately expire unused.

As of September 30, 2018, the Company has a total valuation allowance of $165.1 million on U.S. federal, state and foreign deferred tax assets, resulting in net deferred tax liability of $12.8 million.

The Company maintains liabilities for uncertain tax positions within its long-term income taxes payable accounts and as a reduction to existing deferred tax assets to the extent tax attributes are available to offset such liabilities. These

liabilities involve judgment and estimation and are monitored by management based on the best information available including changes in tax regulations, the outcome of relevant court cases and other information.
As of September 30, 2018, the Company had approximately $23.7 million of unrecognized tax benefits, including $21.6 million recorded as a reduction of long-term deferred tax assets and $2.1 million in long-term income taxes payable. If recognized, approximately $2.1 million would be recorded as an income tax benefit. As of December 31, 2017, the Company had $22.6 million of unrecognized tax benefits, including $20.4 million recorded as a reduction of long-term deferred tax assets and $2.2 million recorded in long-term income taxes payable.
Although it is possible that some of the unrecognized tax benefits could be settled within the next 12 months, the Company cannot reasonably estimate the outcome at this time.

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The Company recognizes interest and penalties related to uncertain tax positions as a component of the income tax provision. At September 30, 2018 and December 31, 2017, an immaterial amount of interest and penalties is included in long-term income taxes payable.

Rambus files income tax returns for the U.S., California, India, the U.K., the Netherlands and various other state and foreign jurisdictions. The U.S. federal returns are subject to examination from 2014 and forward. The California returns are subject to examination from 2010 and forward. In addition, any research and development credit carryforward or net operating loss carryforward generated in prior years and utilized in these or future years may also be subject to examination. The India returns are subject to examination from fiscal year ending March 2012 and forward. The Company is currently under examination by the IRS for the 2015 tax year and California for the 2010 and 2011 tax years. The Company’s India subsidiary is under examination by the Indian tax administration for tax years beginning with 2011, except for 2014, which was assessed in the Company's favor. The Company’s France subsidiary is under examination by the French tax agency for the 2013 to 2017 tax years. These examinations may result in proposed adjustments to the income taxes as filed during these periods. Management regularly assesses the likelihood of outcomes resulting from income tax examinations to determine the adequacy of their provision for income taxes and believes their provision for unrecognized tax benefits is adequate.

Additionally, the Company's future effective tax rates could be adversely affected by earnings being higher than anticipated in countries where the Company has higher statutory rates or lower than anticipated in countries where it has lower statutory rates, by changes in valuation of its deferred tax assets and liabilities or by changes in tax laws or interpretations of those laws.

14. Litigation and Asserted Claims

Rambus is not currently a party to any material pending legal proceeding; however, from time to time, Rambus may become involved in legal proceedings or be subject to claims arising in the ordinary course of its business. Although the results of litigation and claims cannot be predicted with certainty, the Company currently believes that the final outcome of these ordinary course matters will not have a material adverse effect on our business, operating results, financial position or cash flows. Regardless of the outcome, litigation can have an adverse impact on the Company because of defense and settlement costs, diversion of management attention and resources and other factors.

The Company records a contingent liability when it is probable that a loss has been incurred and the amount is reasonably estimable in accordance with accounting for contingencies.

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15. Restructuring Charges
The 2018 Plan
On January 30, 2018, the Company announced its plans to close its lighting division and manufacturing operations in Brecksville, Ohio ("the 2018 Plan"). The Company believes that such business is not core to its strategy and growth objectives. In connection therewith, the Company has terminated approximately fifty employees, and began the process to exit the facilities in Ohio and sell the related equipment. The Company expected to record restructuring charges of approximately $2 million to $5 million related to employee terminations and severance costs, and facility related costs. No additional charges were recorded by the Company during the three months ended September 30, 2018. During the nine months ended September 30, 2018, the Company recorded a net charge of $2.2 million, related primarily to the reduction in workforce, of which $2.0 million was related to the Other segment and $0.2 million was related to corporate support functions. The 2018 Plan is expected to be substantially completed by the end of 2018.

The following table summarizes the 2018 Plan restructuring activities during the nine months ended September 30, 2018:

	Employee Severance and Related Benefits	Facilities and Other	Total
	(In thousands)		
Balance at December 31, 2017	$—	$ —	$—
Charges	2,234	1,178	3,412
Payments	(2,055)	(217)	(2,272)
Non-cash settlements	—	(670) *	(670)
Balance at September 30, 2018	$179	$ 291	$470

*The non-cash charge of $0.7 million is primarily related to the write down of fixed assets and inventory related to the Other segment.
The Company concluded that the closure of its lighting division did not meet the criteria for reporting in discontinued operations in accordance with ASC 360, "Property, Plant, and Equipment". Consequently, the lighting division's long-lived assets were reclassified as held for sale. As of September 30, 2018, the Company sold all property, plant and equipment from its lighting division reclassified as held for sale on the condensed consolidated balance sheets of approximately $3.5 million and recognized a gain on the disposal of the held for sale assets of approximately $1.2 million included in restructuring charges on the condensed consolidated statements of operations.

Item 2. Management’s Discussion and Analysis of Financial Condition and Results of Operations
This report contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934 as described in more detail under “Note Regarding Forward-Looking Statements." Our forward-looking statements are based on current expectations, forecasts and assumptions and are subject to risks, uncertainties and changes in condition, significance, value and effect. As a result of the factors described herein, and in the documents incorporated herein by reference, including, in particular, those factors described under “Risk Factors,” we undertake no obligation to publicly disclose any revisions to these forward-looking statements to reflect events or circumstances occurring subsequent to filing this report with the Securities and Exchange Commission.
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Executive Summary

During the third quarter of 2018, we had new and renewed licenses closed with Socionext, Phison, Infineon and Nvidia. We also continued commercial traction with new customers and partners including Coles, ScotRail, Visa, American Express and Riscure. Key 2018 third quarter financial results included:

- Revenue of $59.8 million;
- Total operating costs and expenses of $78.9 million;
- Diluted net loss per share of $0.97;
- Cash flows provided by operating activities of approximately $31.6 million; and
- Unbilled receivables of $699.9 million as of September 30, 2018.

Business Overview

Dedicated to making data faster and safer, Rambus creates innovative hardware, software and services that drive technology advancements from the data center to the mobile edge. Our architecture licenses, IP cores, chips, software, and services span memory and interfaces, security, and emerging technologies to positively impact the modern world. We collaborate with the industry, partnering with leading chip and system designers, foundries, and service providers. Integrated into a wide array of devices and systems, our products power and secure diverse applications, including Big Data, Internet of Things (IoT) security, mobile payments, and smart ticketing.

Building upon the foundation of technologies for memory, SerDes and other chip interfaces, we have expanded our portfolio of inventions and solutions to address chip and system security, mobile payments and smart ticketing. We intend to continue our growth into new technology fields, consistent with our mission to create value through our innovations and to make those technologies available through the shipment of products, the delivery of services, and licensing business models. Key to our efforts is continuing to hire and retain world-class inventors, scientists and engineers to lead the development and deployment of inventions and technology solutions for our fields of focus.

Our strategy is to continue to augment our patent license business model to provide additional technology, products and services while creating and leveraging strategic synergies to increase revenue. In support of our strategy, Rambus has transitioned to focus on two key high-growth markets - the data center and the mobile edge - with an approach and product roadmap that leverage our core competencies and supplement with ingredient components to both differentiate and accelerate our position in complementary markets.

Organization

We have organized the business into three operational units: (1) Memory and Interfaces, or MID, which focuses on the design, development, manufacturing through partnerships and licensing of technology and solutions that is related to memory and interfaces; (2) Rambus Security, or RSD, which focuses on the design, development, deployment and licensing of technologies for chip, system and in-field application security, anti-counterfeiting, smart ticketing and mobile payments; and (3) Emerging Solutions, or ESD, which includes the Rambus Labs team and the development efforts in the area of emerging technologies.

On January 30, 2018, we announced our plans to close our lighting division (RLD) including related manufacturing operations in Brecksville, Ohio. We believe that such business is not core to our strategy and growth objectives. Refer to Note 15, “Restructuring Charges” of Notes to Unaudited Condensed Consolidated Financial Statements of this Form 10-Q for additional details.

As of September 30, 2018, MID and RSD met quantitative thresholds for disclosure as reportable segments. Results for the remaining operating segments were shown under “Other.” For additional information concerning segment reporting, see Note 6, “Segments and Major Customers,” of Notes to Unaudited Condensed Consolidated Financial

Statements of this Form 10-Q.

Revenue Sources

On January 1, 2018, we adopted ASU No. 2014-09, Revenue from Contracts with Customers in Accounting Standards Codification (ASC) Topic 606 (“ASC 606”, “the New Revenue Standard”) and all the related amendments using the modified retrospective method. We recognized the cumulative effect of initially applying the New Revenue Standard of $626 million as an adjustment to the opening balance of accumulated deficit as of January 1, 2018. The prior period comparative information

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has not been restated and continues to be reported under ASC Topic 605, “Revenue Recognition” (“ASC 605”) which was the accounting standards in effect for those periods.

The most significant impacts of the New Revenue Standard relate to the following:

- Revenue recognized for certain patent and technology licensing arrangements has changed under the New Revenue Standard. Revenue for (i) fixed-fee arrangements (including arrangements that include minimum guaranteed amounts), (ii) variable royalty arrangements that we have concluded are fixed in substance and (iii) the fixed portion of hybrid fixed/variable arrangements is recognized upon control over the underlying intellectual property (“IP”) use right transferring to the licensee rather than upon billing under ASC 605, net of the effect of significant financing components calculated using customer-specific, risk-adjusted lending rates and recognized over time on an effective rate basis. As a consequence of the acceleration of revenue recognition and for matching purposes, all withholding taxes to be paid over the term of these licensing arrangements were expensed on the date the licensing revenue was recognized.

- Adoption of the New Revenue Standard resulted in revenue recognition being accelerated for variable royalties and the variable portion of hybrid fixed/variable patent and technology licensing arrangements. Under the New Revenue Standard, royalty revenue is being recognized on the basis of management’s estimates of sales or usage, as applicable, of the licensed IP in the period of reference, with a true-up being recorded in subsequent periods based on actual sales or usage as reported by licensees (rather than upon receiving royalty reports from licensees as was the case under ASC 605).

- Adoption of the New Revenue Standard also resulted in revenue recognition being accelerated for certain professional services arrangements, including arrangements consisting of significant software customization or modification and development arrangements. Under the New Revenue Standard, such arrangements are accounted for based on man-days incurred during the reporting period as compared to estimated total man-days necessary for contract completion, as the customer either controls the asset as it is created or enhanced by us or, where the asset has no alternative use to us, we are entitled to payment for performance to date and expect to fulfill the contract. Revenue recognition is no longer capped to the lesser of inputs in the period or accepted billable project milestones as was the case under ASC 605.

Our inventions and technology solutions are offered to our customers through patent, technology, software and IP core licenses, as well as product sales and services. Today, our primary source of revenue is derived from patent licenses, through which we provide our customers a license to use a certain portion of our broad portfolio of patented inventions. The license provides our customers with a defined right to use our innovations in the customer’s own digital electronics products, systems or services, as applicable. The licenses may also define the specific field of use where our customers may use or employ our inventions in their products. License agreements are structured with fixed, variable or a hybrid of fixed and variable royalty payments over certain defined periods ranging for periods of up to ten years. Leading consumer product, industrial, semiconductor and system companies such as AMD, Broadcom, Cisco, Freescale, Fujitsu, IBM, Intel, Micron, Nanya, NVIDIA, Panasonic, Qualcomm, Renesas, Samsung, SK hynix, STMicroelectronics, Toshiba and Xilinx have licensed our patents. The vast majority of our patents were secured through our internal research and development efforts across all of our business units.

We also offer our customers technology licenses to support the implementation and adoption of our technology in their products or services. Our customers include leading companies such as IBM, Panasonic, Qualcomm, Samsung, Sony and Toshiba. Our technology license offerings include a range of technologies for incorporation into our customers’ products and systems. We also offer a range of services as part of our technology licenses which can include know-how and technology transfer, product design and development, system integration, and other services. These technology license agreements may have both a fixed price (non-recurring) component and ongoing use fees and in some cases, royalties. Further, under technology licenses, our customers typically receive licenses to our patents necessary to implement these solutions in their products with specific rights and restrictions to the applicable patents elaborated in their individual contracts with us.

Revenues from royalties accounted for 56% and 52% of our consolidated revenue for the three and nine months ended September 30, 2018, respectively, as compared to 73% for both the three and nine months ended September 30, 2017, respectively.

The remainder of our revenue is product revenue, contract services and other revenue, which includes our product sales, IP core licenses, software licenses and related implementation, support and maintenance fees, and engineering services fees. The timing and amounts invoiced to customers can vary significantly depending on specific contract terms and can therefore have a significant impact on deferred revenue or account receivables in any given period. Product revenue accounted for 20% and 17% of our consolidated revenue for the three and nine months ended September 30, 2018, respectively, as compared to 9% and 10% for the three and nine months ended September 30, 2017, respectively. Contract and other revenue accounted for 24% and 31% of our consolidated revenue for the three and nine months ended September 30, 2018, respectively, as compared to 18% for both the three and nine months ended September 30, 2017.

Expenses

Cost of product revenue for the three months ended September 30, 2018 increased approximately $0.2 million as compared to the same period in 2017 primarily due to increased cost of sales associated with higher sales of memory products, offset by decreased cost of sales associated with the closure of the lighting division announced in the first quarter of 2018. Cost of product revenue for the nine months ended September 30, 2018 decreased approximately $4.0 million as compared to the same period in 2017 primarily due to decreased cost of sales associated with the closure of the lighting division announced in the first quarter of 2018, offset by increased cost of sales associated with higher sales of memory products.

Engineering expenses continue to play a key role in our efforts to maintain product innovations. Our engineering expenses for the three months ended September 30, 2018 decreased $1.6 million as compared to the same period in 2017 primarily due to decreased amortization costs of $4.8 million, offset by increased consulting costs of $1.2 million, headcount related expenses of $0.5 million, engineering development tool costs of $0.5 million, equipment maintenance costs of $0.3 million and stock-based compensation expense of $0.2 million. Engineering expenses for the nine months ended September 30, 2018 decreased $2.9 million as compared to the same period in 2017 primarily due to decreased amortization costs of $6.5 million and depreciation expense of $1.3 million, offset by increased headcount related expenses of $1.4 million, allocated information technology costs of $0.9 million, consulting expenses of $0.7 million, engineering development tool costs of $0.7 million, stock-based compensation expense of $0.6 million and bonus accrual expense of $0.5 million.

Sales, general and administrative expenses for the three months ended September 30, 2018 decreased $2.3 million as compared to the same period in 2017 primarily due to decreased stock-based compensation expense of $1.0 million primarily due to the termination of our former chief executive officer at the end of June 2018, consulting costs of $0.6 million, bonus accrual expense of $0.5 million, headcount related expenses of $0.4 million and sales and marketing costs of $0.3 million, offset by increased recruiting costs of $0.4 million and facilities costs of $0.2 million. Sales, general and administrative expenses for the nine months ended September 30, 2018 decreased $3.0 million as compared to the same period in 2017 primarily due to decreased stock-based compensation expense of $5.1 million primarily due to the termination of our former chief executive officer at the end of June 2018, consulting costs of $0.7 million, sales and marketing costs of $0.7 million and bonus accrual expense of $0.4 million, offset by increased headcount related expenses of $1.6 million, recruiting costs of $0.8 million, facilities costs of $0.7 million and accounting costs of $0.5 million.

Intellectual Property

As of September 30, 2018, our semiconductor, lighting, security and other technologies are covered by 2,117 U.S. and foreign patents. Additionally, we have 543 patent applications pending. Some of the patents and pending patent applications are derived from a common parent patent application or are foreign counterpart patent applications. We have a program to file applications for and obtain patents in the United States and in selected foreign countries where we believe filing for such protection is appropriate and would further our overall business strategy and objectives. In some instances, obtaining appropriate levels of protection may involve prosecuting continuation and counterpart patent applications based on a common parent application. We believe our patented innovations provide our customers with the ability to achieve improved performance, lower risk, greater cost-effectiveness and other benefits in their products and services.

Trends

There are a number of trends that may have a material impact on us in the future, including but not limited to, the evolution of memory and SerDes technology, adoption of mobile payment, smart ticketing and security solutions, the use and adoption of our inventions or technologies generally, industry consolidation, and global economic conditions with the resulting impact on sales of consumer electronic systems. In addition, as discussed under "Results of Operations" below, our adoption of the New Revenue Standard will have a significant impact on our revenue trends as compared to prior periods in which we reported revenue under ASC 605.

We have a high degree of revenue concentration. Our top five customers for each reporting period represented approximately 64% and 50% of our revenue for the three and nine months ended September 30, 2018, respectively, as compared to 57% and 56% for the three and nine months ended September 30, 2017, respectively. The particular customers which account for revenue concentration have varied from period-to-period as a result of the addition of new contracts, expiration of existing contracts, renewals of existing contracts, industry consolidation and the volumes and prices at which the customers have recently sold to their customers. These variations are expected to continue in the foreseeable future.

Our revenue from companies headquartered outside of the United States accounted for approximately 37% and 51% of our total revenue for the three and nine months ended September 30, 2018, respectively, as compared to 56% and 58% for the three and nine months ended September 30, 2017, respectively. We expect that revenue derived from international customers will continue to represent a significant portion of our total revenue in the future. To date, the majority of the revenue from international customers has been denominated in U.S. dollars. However, to the extent that such customers' sales to their customers are not denominated in U.S. dollars, any revenue that we receive as a result of such sales could be subject to fluctuations in currency exchange rates. In addition, if the effective price of licensed products sold by our foreign customers were to increase as a result of fluctuations in the exchange rate of the relevant currencies, demand for licensed products could fall, which in turn would reduce our revenue. We do not use financial instruments to hedge foreign exchange rate risk. For additional information concerning international revenue, see Note 6, "Segments and Major Customers," of Notes to Unaudited Condensed Consolidated Financial Statements of this Form 10-Q.

Our licensing cycle for new licensees as well as renewals for existing licensees is lengthy, costly and unpredictable without any degree of certainty. We may incur costs in any particular period before any associated revenue stream begins, if at all. Our lengthy license negotiation cycles could make our future revenue difficult to predict because we may not be successful in entering into licenses with our customers in the amounts projected, or on our anticipated timelines.

The semiconductor industry is intensely competitive and highly cyclical, limiting our visibility with respect to future sales. To the extent that macroeconomic fluctuations negatively affect our principal customers, the demand for our products and technology may be significantly and adversely impacted and we may experience substantial period-to-period fluctuations in our operating results.

The royalties we receive from our semiconductor customers are partly a function of the adoption of our technologies by system companies. Many system companies purchase semiconductors containing our technologies from our customers and do not have a direct contractual relationship with us. Our customers generally do not provide us with details as to the identity or volume of licensed semiconductors purchased by particular system companies. As a result, we face difficulty in analyzing the extent to which our future revenue will be dependent upon particular system companies.

Global demand for effective security technologies continues to increase. In particular, highly integrated devices such as smart phones are increasingly used for applications requiring security such as mobile payments, corporate information and user data. Our RSD operating segment is primarily focused on positioning its DPA countermeasures, security cores, CryptoManager™ technology solutions, and the introduction of in-field applications mobile payments and smart ticketing solutions to our offerings to capitalize on these trends and growing adoption among technology partners and customers.

Cost of product revenue in the aggregate and as a percentage of revenue increased in the third quarter of 2018 as compared to the same period in the prior year. Cost of product revenue in the aggregate decreased and as a percentage of revenue increased during the nine months ended September 30, 2018 as compared to the same period in the prior year. Engineering costs in the aggregate decreased and as a percentage of revenue increased for both the three and nine months ended September 30, 2018 as compared to the same periods in the prior year. Sales, general and administrative expenses in the aggregate decreased and as a percentage of revenue increased for both the three and nine months ended September 30, 2018 as compared to the same periods in the prior year. In the near term, we expect these costs in the aggregate to be higher as we intend to continue to make investments in the infrastructure and technologies required to increase our product innovation in semiconductor, security, mobile payments, smart cards and other technologies. In addition, while we have not been involved in material litigation since 2014, to the extent litigation is again necessary, our expectations on the amount and timing of any future general and administrative costs are uncertain.

As a part of our overall business strategy, from time to time, we evaluate businesses and technologies for potential acquisition that are aligned with our core business and designed to supplement our growth, including the acquisitions of SCS, the assets of the Snowbush IP group and the Memory Interconnect Business. Similarly, we evaluate our current businesses and technologies that are not aligned with our core business for potential divestiture.

Results of Operations

On January 1, 2018, we adopted ASC 606. Consistent with the modified retrospective adoption method, our results of operations for periods prior to our adoption of ASC 606 remain unchanged as revenue for the three and nine months ended September 30, 2017 was recognized under ASC 605. Therefore, the periods are not directly comparable.

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The adoption of ASC 606 limits the comparability of revenue and certain expenses presented in the results of operations for the three and nine months ended September 30, 2018, when compared to the three and nine months ended September 30, 2017. For additional information on the impact of the new accounting standard on our revenue, see Note 2, "Recent Accounting Pronouncements," of Notes to Unaudited Condensed Consolidated Financial Statements of this Form 10-Q.

The following table sets forth, for the periods indicated, the percentage of total revenue represented by certain items reflected in our unaudited condensed consolidated statements of operations:

	Three Months Ended September 30, 2018	Three Months Ended September 30, 2017	Nine Months Ended September 30, 2018	Nine Months Ended September 30, 2017
Revenue:				
Royalties	56.2 %	73.4 %	52.3 %	72.7 %
Product revenue	19.7 %	8.7 %	16.7 %	9.6 %
Contract and other revenue	24.1 %	17.9 %	31.0 %	17.7 %
Total revenue	100.0 %	100.0 %	100.0 %	100.0 %
Operating costs and expenses:				
Cost of product revenue*	9.0 %	5.2 %	8.6 %	6.1 %
Cost of contract and other revenue	10.0 %	14.6 %	17.9 %	14.9 %
Research and development*	72.2 %	36.5 %	74.4 %	37.7 %
Sales, general and administrative*	40.9 %	27.0 %	48.7 %	28.2 %
Gain from sale of intellectual property	— %	(0.5)%	— %	(0.2)%
Restructuring charges	— %	— %	1.4 %	— %
Total operating costs and expenses	132.1 %	82.8 %	151.0 %	86.7 %
Operating income (loss)	(32.1)%	17.2 %	(51.0)%	13.3 %
Interest income and other income (expense), net	13.4 %	0.2 %	15.6 %	0.2 %
Interest expense	(6.7)%	(3.3)%	(8.0)%	(3.4)%
Interest and other income (expense), net	6.7 %	(3.1)%	7.6 %	(3.2)%
Income (loss) before income taxes	(25.4)%	14.1 %	(43.4)%	10.1 %
Provision for income taxes	150.2 %	6.3 %	52.6 %	5.5 %
Net income (loss)	(175.6)%	7.8 %	(96.0)%	4.6 %

* Includes stock-based compensation:

Cost of product revenue	0.0%	0.0%	0.0%	0.0%
Research and development	5.3%	3.0%	5.9%	3.1%
Sales, general and administrative	5.0%	4.0%	3.6%	3.8%

(Dollars in millions)	Three Months Ended September 30, 2018	Three Months Ended September 30, 2017	Change in Percentage	Nine Months Ended September 30, 2018	Nine Months Ended September 30, 2017	Change in Percentage
Total Revenue						
Royalties	$33.6	$72.8	(53.8)%	$85.0	$211.7	(59.8)%
Product revenue	11.8	8.6	35.7 %	27.1	28.0	(2.9)%
Contract and other revenue	14.4	17.7	(18.6)%	50.5	51.5	(2.0)%
Total revenue	$59.8	$99.1	(39.7)%	$162.6	$291.2	(44.1)%

Royalty Revenue

Our royalty revenue, which includes patent and technology license royalties, decreased approximately $39.2 million to $33.6 million for the three months ended September 30, 2018 from $72.8 million for the same period in 2017. Royalty revenue decreased approximately $126.7 million to $85.0 million for the nine months ended September 30, 2018 from $211.7 million for the same period in 2017. The decreases for both periods were due primarily to the change in revenue recognition whereby

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we no longer recognize revenue at the time billings become due and collectable. Upon adoption of ASC 606 in the first quarter of 2018, we now recognize revenue at the inception of certain fixed-fee licensing arrangements when our performance obligations are met. Under the previous revenue recognition standard (ASC 605), our revenue for the three and nine months ended September 30, 2018 would have been higher as discussed under Note 2, "Recent Accounting Pronouncements," of Notes to Unaudited Condensed Consolidated Financial Statements of this Form 10-Q.

With changes in revenue recognition due to the adoption of ASC 606 in 2018, we anticipate our royalty revenue for 2018 will be significantly lower than that for 2017 primarily due to the change from the adoption of ASC 606 as noted above. This accounting change will not impact billings or the cash flow from these arrangements. Furthermore, we may experience greater variability in quarterly and annual revenue in future periods as a result of the revenue accounting treatment applied to future fixed-fee licensing arrangements.

Additionally, we are continuously in negotiations for licenses with prospective customers. We expect patent royalties will continue to vary from period to period based on our success in adding new customers, renewing or extending existing agreements, as well as the level of variation in our customers' reported shipment volumes, sales price and mix, offset in part by the proportion of customer payments that are fixed or hybrid in nature. We also expect that our technology royalties will continue to vary from period to period based on our customers’ shipment volumes, sales prices, and product mix.

Royalty Revenue by Reportable Segments

Royalty revenue from the MID reportable segment, which includes patent and technology license royalties, decreased approximately $29.4 million to $27.2 million for the three months ended September 30, 2018 from $56.6 million for the same period in 2017. Royalty revenue from the MID reportable segment decreased approximately $103.1 million to $65.0 million for the nine months ended September 30, 2018 from $168.1 million for the same period in 2017. The decreases for both periods were due to the adoption of ASC 606 in 2018 as discussed above.

Royalty revenue from the RSD reportable segment, which includes patent and technology license royalties, decreased approximately $9.2 million to $6.3 million for the three months ended September 30, 2018 from $15.5 million for the same period in 2017. Royalty revenue from the RSD reportable segment decreased approximately $22.8 million to $19.5 million for the nine months ended September 30, 2018 from $42.3 million for the same period in 2017. The decreases for both periods were due to the adoption of ASC 606 in 2018 as discussed above.

Royalty revenue from the Other segment was immaterial for both the three and nine months ended September 30, 2018 and 2017.

Product Revenue

Product revenue consists of revenue from the sale of memory, security and lighting products. Product revenue increased approximately $3.2 million to $11.8 million for the three months ended September 30, 2018 from $8.6 million for the same period in 2017. The increase was primarily due to higher sales of memory products, offset by lower sales of security products and lighting products, as a result of the plan to close our lighting division in the first quarter of 2018. Product revenue decreased approximately $0.9 million to $27.1 million for the nine months ended September 30, 2018 from $28.0 million for the same period in 2017. The decrease was primarily due to lower sales of security products and lighting products, as a result of the plan to close our lighting division in the first quarter of 2018, partially offset by higher sales of memory products.

We believe that product revenue will increase in 2018, mainly from the sale of our memory products. Our ability to continue to grow product revenue is dependent on, among other things, our ability to continue to obtain orders from customers and our ability to meet our customers' demands.

Product Revenue by Reportable Segments

Product revenue from the MID reportable segment increased approximately $6.2 million to $11.3 million for the three months ended September 30, 2018 from $5.1 million for the same period in 2017. Product revenue from the MID reportable segment increased approximately $10.1 million to $25.2 million for the nine months ended September 30, 2018 from $15.1 million for the same period in 2017. The increases for both periods were due to higher volume of memory product sales.

Product revenue from the RSD reportable segment was immaterial for both the three months ended September 30, 2018 and 2017, and decreased period over period. Product revenue from the RSD reportable segment decreased $4.0 million to $1.0 million for the nine months ended September 30, 2018 from $5.0 million for the same period in 2017. The decreases for both periods were due to lower sales of security products.

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Product revenue from the Other segment was zero for the three months ended September 30, 2018 as compared to $2.7 million for the same period in 2017. Product revenue from the Other segment decreased approximately $6.9 million to $0.9 million for the nine months ended September 30, 2018 from $7.8 million for the same period in 2017. These decreases for both periods were due to lower sales of light guide products as a result of closing our lighting division in the first quarter of 2018.

Contract and Other Revenue

Contract and other revenue consist of revenue from technology development projects. Contract and other revenue decreased approximately $3.3 million to $14.4 million for the three months ended September 30, 2018 from $17.7 million for the same period in 2017. The decrease was primarily due to lower revenue from various memory, security and lighting technology development projects. Contract and other revenue decreased approximately $1.0 million to $50.5 million for the nine months ended September 30, 2018 from $51.5 million for the same period in 2017. The decrease was primarily due to lower revenue from various memory and lighting technology development projects, offset by higher revenue from various security technology development projects.

We believe that contract and other revenue will fluctuate over time based on our ongoing technology development contractual requirements, the amount of work performed, the timing of completing engineering deliverables, and the changes to work required, as well as new technology development contracts booked in the future.

Contract and Other Revenue by Reportable Segments

Contract and other revenue from the MID reportable segment decreased approximately $1.7 million to $5.3 million for the three months ended September 30, 2018 from $7.0 million for the same period in 2017. Contract and other revenue decreased approximately $0.9 million to $22.6 million for the nine months ended September 30, 2018 from $23.5 million for the same period in 2017. The decreases for both periods were due to lower revenue from various memory technology projects.

Contract and other revenue from the RSD reportable segment decreased approximately $0.9 million to $9.0 million for the three months ended September 30, 2018 from $9.9 million for the same period in 2017, due to lower revenue from various security technology development projects. Contract and other revenue from the RSD reportable segment increased approximately $1.2 million to $26.7 million for the nine months ended September 30, 2018 from $25.5 million for the same period in 2017, due to higher revenue from various security technology development projects.

Contract and other revenue from the Other segment was immaterial for both the three months ended September 30, 2018 and 2017, and decreased period over period. Contract and other revenue from the Other reportable segment decreased approximately $1.3 million to $1.1 million for the nine months ended September 30, 2018 from $2.4 million for the same period in 2017. The decreases for both periods were due to lower revenue from our lighting technology development projects as a result of closing our lighting division in the first quarter of 2018.

Cost of product revenue:

	Three Months Ended			Nine Months Ended		
	September 30,		Change in	September 30,		Change in
(Dollars in millions)	2018	2017	Percentage	2018	2017	Percentage
Cost of product revenue	$ 5.4	$ 5.2	4.3 %	$ 13.9	$ 17.9	(22.1)%

Cost of product revenue increased approximately $0.2 million to $5.4 million for the three months ended September 30, 2018 from $5.2 million for the same period in 2017 primarily due to increased cost of sales associated with higher sales of memory products, offset by decreased cost of sales associated with the closure of the lighting division announced in the first quarter of 2018.

Cost of product revenue decreased approximately $4.0 million to $13.9 million for the nine months ended September 30, 2018 from $17.9 million for the same period in 2017 primarily due to decreased cost of sales associated with the closure of the lighting division announced in the first quarter of 2018, offset by increased cost of sales associated with higher sales of memory products.

In the near term, we expect costs of product revenue to be higher as we expect higher sales of our various products in 2018 as compared to 2017.

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Engineering costs:

(Dollars in millions)	Three Months Ended September 30, 2018	Three Months Ended September 30, 2017	Change in Percentage	Nine Months Ended September 30, 2018	Nine Months Ended September 30, 2017	Change in Percentage
Engineering costs						
Cost of contract and other revenue	$ 2.1	$ 5.7	(64.7)%	$ 9.4	$ 17.0	(44.8)%
Amortization of intangible assets	3.9	8.8	(54.9)%	19.8	26.3	(24.6)%
Stock-based compensation	0.0	0.0	— %	0.0	0.0	— %
Total cost of contract and other revenue	6.0	14.5	(58.8)%	29.2	43.3	(32.6)%
Research and development	39.9	33.2	20.2 %	111.2	100.7	10.5 %
Stock-based compensation	3.2	3.0	7.2 %	9.7	9.0	6.8 %
Total research and development	43.1	36.2	19.2 %	120.9	109.7	10.2 %
Total engineering costs	$ 49.1	$ 50.7	(3.1)%	$ 150.1	$ 153.0	(1.9)%

Total engineering costs decreased $1.6 million for the three months ended September 30, 2018 as compared to the same period in 2017 primarily due to decreased amortization costs of $4.8 million, offset by increased consulting costs of $1.2 million, headcount related expenses of $0.5 million, engineering development tool costs of $0.5 million, equipment maintenance costs of $0.3 million and stock-based compensation expense of $0.2 million.

Total engineering costs decreased $2.9 million for the nine months ended September 30, 2018 as compared to the same period in 2017 primarily due to decreased amortization costs of $6.5 million and depreciation expense of $1.3 million, offset by increased headcount related expenses of $1.4 million, allocated information technology costs of $0.9 million, consulting expenses of $0.7 million, engineering development tool costs of $0.7 million, stock-based compensation expense of $0.6 million and bonus accrual expense of $0.5 million.

In the near term, we expect engineering costs to be higher as we continue to make investments in the infrastructure and technologies required to maintain our product innovation in semiconductor, security and other technologies.

Sales, general and administrative costs:

(Dollars in millions)	Three Months Ended September 30, 2018	Three Months Ended September 30, 2017	Change in Percentage	Nine Months Ended September 30, 2018	Nine Months Ended September 30, 2017	Change in Percentage
Sales, general and administrative costs						
Sales, general and administrative costs	$ 21.5	$ 22.8	(6.0)%	$ 73.2	$ 71.0	3.0 %
Stock-based compensation	3.0	4.0	(24.5)%	5.9	11.1	(46.5)%
Total sales, general and administrative costs	$ 24.5	$ 26.8	(8.7)%	$ 79.1	$ 82.1	(3.6)%

Total sales, general and administrative costs decreased $2.3 million for the three months ended September 30, 2018 as compared to the same period in 2017 primarily due to decreased stock-based compensation expense of $1.0 million primarily due to the termination of our former chief executive officer at the end of June 2018, consulting costs of $0.6 million, bonus accrual expense of $0.5 million, headcount related expenses of $0.4 million and sales and marketing costs of $0.3 million, offset by increased recruiting costs of $0.4 million and facilities costs of $0.2 million.

Total sales, general and administrative costs decreased $3.0 million for the nine months ended September 30, 2018 as compared to the same period in 2017 primarily due to decreased stock-based compensation expense of $5.1 million primarily due to the termination of our former chief executive officer at the end of June 2018, consulting costs of $0.7 million, sales and marketing costs of $0.7 million and bonus accrual expense of $0.4 million, offset by increased headcount related expenses of $1.6 million, recruiting costs of $0.8 million, facilities costs of $0.7 million and accounting costs of $0.5 million.

In the future, sales, general and administrative costs will vary from period to period based on the trade shows, advertising, legal, acquisition and other sales, marketing and administrative activities undertaken, and the change in sales, marketing and administrative headcount in any given period. In the near term, we expect our sales, general and administrative costs to remain relatively flat.

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Restructuring charges:

	Three Months Ended September 30,		Change in	Nine Months Ended September 30,		Change in
(Dollars in millions)	2018	2017	Percentage	2018	2017	Percentage
Restructuring charges	$ —	$ —	—%	$ 2.2	$ —	100.0 %

During the first quarter of 2018, we announced our plans to close our lighting division and manufacturing operations in Brecksville, Ohio. We believed that such business was not core to our strategy and growth objectives. During the third quarter of 2018, we did not record any restructuring charges.

Refer to Note 15, "Restructuring Charges," of Notes to Unaudited Condensed Consolidated Financial Statements of this Form 10-Q for further discussion.

Interest and other income (expense), net:

	Three Months Ended September 30,		Change in	Nine Months Ended September 30,		Change in
(Dollars in millions)	2018	2017	Percentage	2018	2017	Percentage
Interest income and other income (expense), net	$ 8.0	$ 0.2	NM*	$ 25.3	$ 0.5	NM*
Interest expense	(4.0)	(3.3)	21.0 %	(13.0)	(9.8)	33.6 %
Interest and other income (expense), net	$ 4.0	$ (3.1)	NM*	$ 12.3	$ (9.3)	NM*

*NM — percentage is not meaningful

Interest income and other income (expense), net, consists primarily of interest income related to the interest income of $6.5 million and $21.1 million for the three and nine months ended September 30, 2018, respectively, due to the significant financing component of licensing agreements as a result of the adoption of the New Revenue Standard as of January 1, 2018 as well as interest income generated from investments in high quality fixed income securities and any gains or losses from the re-measurement of our monetary assets or liabilities denominated in foreign currencies. Interest expense primarily consists of interest expense associated with our imputed facility lease obligations on the Sunnyvale and Ohio facilities and non-cash interest expense related to the amortization of the debt discount and issuance costs on the 1.375% convertible senior notes due 2023 (the "2023 Notes") and the 1.125% convertible senior notes due 2018 (the "2018 Notes"), as well as the coupon interest related to these notes. We expect our non-cash interest expense to increase steadily as the notes reach maturity.

Provision for income taxes:

	Three Months Ended September 30,	Change in	Nine Months Ended September 30,	Change in
(Dollars in millions)	2018			