

RAMBUS INC
Form 10-Q
May 03, 2019
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UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-Q

(Mark One)

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

For the quarterly period ended March 31, 2019

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

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

1050 Enterprise Way, Suite 700

94089

Sunnyvale, California

(Address of principal executive offices) (ZIP Code)

Registrant's telephone number, including area code:

(408) 462-8000

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

Title of Each Class	Trading Symbol	Name of Each Exchange on Which Registered
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Common Stock, \$.001 Par Value	RMBS	The NASDAQ Stock Market LLC (The NASDAQ Global Select Market)
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Securities registered pursuant to Section 12(g) of the Act:

None

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

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§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 ☒ No ☐

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

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Large accelerated filer ☒ Accelerated filer ☐

Non-accelerated filer ☐ Smaller reporting company ☐

Emerging growth company ☐

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

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

The number of shares outstanding of the registrant's Common Stock, par value \$.001 per share, was 110,396,011 as of March 31, 2019.

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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;
- 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 in 2019 of the new leasing 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;
- Issuances of debt or equity securities, which could involve restrictive covenants or be dilutive to our existing stockholders;

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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 negative 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)

	March 31, 2019	December 31, 2018
	(In thousands, except shares and par value)	
ASSETS		
Current assets:		
Cash and cash equivalents	\$ 143,016	\$ 115,924
Marketable securities	162,850	161,840
Accounts receivable	43,810	50,863
Unbilled receivables	170,287	176,613
Inventories	8,192	6,772
Prepays and other current assets	16,857	15,738
Total current assets	545,012	527,750
Intangible assets, net	55,507	59,936
Goodwill	207,828	207,178
Property, plant and equipment, net	22,637	57,028
Operating lease right-of-use assets	19,458	—
Deferred tax assets	4,411	4,435
Unbilled receivables, long-term	459,148	497,003
Other assets	7,419	7,825
Total assets	\$ 1,321,420	\$ 1,361,155
LIABILITIES & STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	\$ 8,274	\$ 7,392
Accrued salaries and benefits	13,666	16,938
Deferred revenue	15,774	19,374
Income taxes payable, short-term	16,364	16,390
Operating lease liabilities	9,351	—
Other current liabilities	5,847	9,191
Total current liabilities	69,276	69,285
Convertible notes, long-term	143,612	141,934
Long-term imputed financing obligation	—	36,297
Long-term operating lease liabilities	12,308	—
Long-term income taxes payable	73,365	77,280
Other long-term liabilities	22,972	24,247
Total liabilities	321,533	349,043
Commitments and contingencies (Notes 11 and 15)		
Stockholders' equity:		
Convertible preferred stock, \$.001 par value:		
Authorized: 5,000,000 shares		
Issued and outstanding: no shares at March 31, 2019 and December 31, 2018	—	—
Common stock, \$.001 par value:		
Authorized: 500,000,000 shares		
	110	109

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Issued and outstanding: 110,396,011 shares at March 31, 2019 and 109,017,708 shares at December 31, 2018

Additional paid-in capital	1,234,846	1,226,588
Accumulated deficit	(226,401)	(204,294)
Accumulated other comprehensive loss	(8,668)	(10,291)
Total stockholders' equity	999,887	1,012,112
Total liabilities and stockholders' equity	\$ 1,321,420	\$ 1,361,155

See Notes to Unaudited Condensed Consolidated Financial Statements

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RAMBUS INC.

CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS

(Unaudited)

	Three Months Ended March 31,	
	2019	2018
	(In thousands, except per share amounts)	
Revenue:		
Royalties	\$ 24,853	\$ 21,374
Product revenue	8,964	7,313
Contract and other revenue	14,567	17,739
Total revenue	48,384	46,426
Operating costs and expenses:		
Cost of product revenue*	4,427	4,357
Cost of contract and other revenue	6,771	12,122
Research and development*	40,619	40,117
Sales, general and administrative*	27,645	30,198
Restructuring charges	331	3,245
Total operating costs and expenses	79,793	90,039
Operating loss	(31,409)	(43,613)
Interest income and other income (expense), net	7,413	9,116
Interest expense	(2,271)	(4,421)
Interest and other income (expense), net	5,142	4,695
Loss before income taxes	(26,267)	(38,918)
Provision for (benefit from) income taxes	309	(3,229)
Net loss	\$ (26,576)	\$ (35,689)
Net loss per share:		
Basic	\$ (0.24)	\$ (0.33)
Diluted	\$ (0.24)	\$ (0.33)
Weighted average shares used in per share calculation:		
Basic	109,692	109,358
Diluted	109,692	109,358

* Includes stock-based compensation:

Cost of product revenue	\$1	\$3
Research and development	\$3,210	\$3,192
Sales, general and administrative	\$3,978	\$4,319

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 March 31,	
(In thousands)	2019	2018
Net loss	\$(26,576)	\$(35,689)
Other comprehensive income (loss):		
Foreign currency translation adjustment	1,575	2,889
Unrealized gain (loss) on marketable securities, net of tax	48	(804)
Total comprehensive loss	\$(24,953)	\$(33,604)

See Notes to Unaudited Condensed Consolidated Financial Statements

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RAMBUS INC.

CONDENSED CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY

(Unaudited)

	Common Stock		Additional Paid-in Capital	Accumulated Deficit	Accumulated Other Comprehensive Total	
	Shares	Amount			Gain (Loss)	
	(In thousands)					
Balances at December 31, 2018	109,018	\$ 109	\$ 1,226,588	\$ (204,294)	\$ (10,291)	\$ 1,012,112
Net loss	—	—	—	(26,576)	—	(26,576)
Foreign currency translation adjustment	—	—	—	—	1,575	1,575
Unrealized gain on marketable securities, net of tax	—	—	—	—	48	48
Issuance of common stock upon exercise of options, equity stock and employee stock purchase plan	1,378	1	1,069	—	—	1,070
Stock-based compensation	—	—	7,189	—	—	7,189
Cumulative effect adjustment from the adoption of ASC 842	—	—	—	4,469	—	4,469
Balances at March 31, 2019	110,396	\$ 110	\$ 1,234,846	\$ (226,401)	\$ (8,668)	\$ 999,887

	Common Stock		Additional Paid-in Capital	Accumulated Deficit	Accumulated Other Comprehensive Total	
	Shares	Amount			Gain (Loss)	
	(In thousands)					
Balances at December 31, 2017	109,764	\$ 110	\$ 1,212,798	\$ (636,227)	\$ (5,097)	\$ 571,584
Net loss	—	—	—	(35,689)	—	(35,689)
Foreign currency translation adjustment	—	—	—	—	2,889	2,889
Unrealized loss on marketable securities, net of tax	—	—	—	—	(804)	(804)
Issuance of common stock upon exercise of options, equity stock and employee stock purchase plan	839	—	(3,842)	—	—	(3,842)
Repurchase and retirement of common stock under repurchase plan	(3,118)	(3)	(20,312)	(29,685)	—	(50,000)
Stock-based compensation	—	—	7,514	—	—	7,514
Cumulative effect adjustment from adoption of ASU 2016-01	—	—	—	1,058	—	1,058
Cumulative effect adjustment from the adoption of ASC 606	—	—	—	626,288	—	626,288
Balances at March 31, 2018	107,485	\$ 107	\$ 1,196,158	\$ (74,255)	\$ (3,012)	\$ 1,118,998

See Notes to Unaudited Condensed Consolidated Financial Statements

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

	Three Months Ended March 31,	
	2019	2018
	(In thousands)	
Cash flows from operating activities:		
Net loss	\$ (26,576)	\$ (35,689)
Adjustments to reconcile net loss to net cash provided by operating activities:		
Stock-based compensation	7,189	7,514
Depreciation	4,809	2,942
Amortization of intangible assets	4,988	10,531
Non-cash interest expense and amortization of convertible debt issuance costs	1,678	2,680
Deferred income taxes	(214)	(8,834)
Non-cash restructuring	—	670
Loss on equity investment	81	—
Gain from sale of marketable equity security	—	(155)
(Gain) loss from disposal of property, plant and equipment	98	(45)
Change in operating assets and liabilities:		
Accounts receivable	7,372	(761)
Unbilled receivables	44,181	47,778
Prepaid expenses and other assets	(1,153)	(2,236)
Inventories	(1,370)	(595)
Accounts payable	2,171	(1,531)
Accrued salaries and benefits and other liabilities	(4,699)	(1,113)
Income taxes payable	(3,939)	(562)
Deferred revenue	(3,571)	(3,817)
Operating lease liabilities	(2,284)	—
Net cash provided by operating activities	28,761	16,777
Cash flows from investing activities:		
Purchases of property, plant and equipment	(664)	(1,688)
Purchases of marketable securities	(131,601)	(79,207)
Maturities of marketable securities	130,772	14,225
Proceeds from sale of property, plant and equipment	—	10
Net cash used in investing activities	(1,493)	(66,660)
Cash flows from financing activities:		
Proceeds received from issuance of common stock under employee stock plans	4,856	1,058
Principal payments against lease financing obligation	—	(241)
Payments of taxes on restricted stock units	(3,786)	(4,900)
Payments under installment payment arrangement	(1,240)	—
Repurchase and retirement of common stock, including prepayment under accelerated share repurchase program	—	(50,000)
Net cash used in financing activities	(170)	(54,083)
Effect of exchange rate changes on cash and cash equivalents	—	483
Net increase (decrease) in cash and cash equivalents	27,098	(103,483)
Cash and cash equivalents at beginning of period	116,252	225,844
Cash and cash equivalents at end of period	\$ 143,350	\$ 122,361

Non-cash investing and financing activities during the period:

Property, plant and equipment received and accrued in accounts payable and other liabilities	\$6,828	\$286
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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, 2018.

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.

For the three months ended March 31, 2019, 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 segment was shown under "Other."

Comparability

Effective January 1, 2019, Rambus adopted the new lease accounting standards. Prior periods were not retrospectively recast, so the consolidated balance sheet as of December 31, 2018 and results of operations for the three months ended March 31, 2018 were prepared using accounting standards that were different than those in effect as of and for the three months ended March 31, 2019. Therefore, the consolidated balance sheets as of March 31, 2019 and December 31, 2018 are not directly comparable, nor are the results of operations for the three months ended March 31, 2019 and 2018.

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 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

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amendments in ASU No. 2018-10 and ASU No. 2018-11 have the same effective and transition requirements as ASU 2016-02 (collectively referred to as the "New Leasing Standard").

The Company adopted the New Leasing Standard as of January 1, 2019 using the alternative transition method provided by ASU No. 2018-11 and did not recast comparative periods. The Company elected the package of practical expedients permitted under the transition guidance within the new standard, which among other things, allowed the Company to carry forward the historical lease classification. Additionally, the Company elected the practical expedient related to non-lease components in which the Company will not separate non-lease components from lease components. Finally, the Company made the policy election for the short-term leases exemptions, which allows the Company to not recognize lease assets and liabilities for leases having a term of 12 months or less. Upon adoption, the Company recognized \$21.4 million and \$23.9 million of lease assets and liabilities, respectively, on its unaudited condensed consolidated balance sheet. The difference between the lease assets and lease liabilities, net of the deferred tax impact which was not material, was recorded as an adjustment to the opening accumulated deficit. Additionally, in accordance with the New Leasing Standard, the Company was required to derecognize the Sunnyvale and Ohio facilities as imputed facility obligations (as accounted for under the previous leasing guidance) and recognize these facilities as operating leases on the unaudited condensed consolidated balance sheet. This change resulted in no longer recognizing interest expense associated with these imputed facility lease obligations, but instead, recognizing operating lease costs which will be included in operating costs and expenses on the unaudited condensed consolidated statement of operations. Furthermore, the Company derecognized \$37.6 million of imputed financing obligation related to these facilities and \$32.0 million of capitalized building property upon adoption of the New Leasing Standard. The adoption of the New Leasing Standard impacted the Company's opening accumulated deficit by \$4.5 million.

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 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.

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

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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.

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 ASU No. 2014-09, Revenue from Contracts with Customers in Accounting Standards Codification (ASC) Topic 606 ("ASC 606" or "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

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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 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 due 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 March 31, 2019. The contract assets are transferred to receivables when the billing occurs.

The Company's contract balances were as follows:

	As of	
(In thousands)	March 31, 2019	December 31, 2018
Unbilled receivables	\$629,435	\$673,616
Deferred revenue	15,995	19,566

During the three months ended March 31, 2019, the Company recognized \$8.0 million of revenue that was included in the contract balances as of December 31, 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 \$27.7 million as of March 31, 2019, 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	
	March 31,	
	2019	2018
	(In thousands, except per share amounts)	
Net loss per share:		
Numerator:		
Net loss	\$ (26,576)	\$ (35,689)
Denominator:		
Weighted-average shares outstanding - basic	109,692	109,358
Effect of potential dilutive common shares	—	—
Weighted-average shares outstanding - diluted	109,692	109,358
Basic net loss per share	\$ (0.24)	\$ (0.33)
Diluted net loss per share	\$ (0.24)	\$ (0.33)

For the three months ended March 31, 2019 and 2018, options to purchase approximately 1.7 million and 1.8 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 months ended March 31, 2019 and 2018, an additional 0.9 million and 3.6 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 three months ended March 31, 2019:

Reportable Segment:	As of December 31, 2018	Effect of Exchange Rates (1)	As of March 31, 2019
	(In thousands)		
MID	\$66,643	\$ —	\$66,643
RSD	140,535	650	141,185
Total	\$207,178	\$ 650	\$207,828

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

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Reportable Segment:	As of March 31, 2019		
	Gross Carrying Amount	Accumulated Impairment Losses	Net Carrying Amount
	(In thousands)		
MID	\$66,643	\$ —	\$66,643
RSD	141,185	—	141,185
Other	21,770	(21,770)	—
Total	\$229,598	\$ (21,770)	\$207,828

Intangible Assets

The components of the Company's intangible assets as of March 31, 2019 and December 31, 2018 were as follows:

		As of March 31, 2019		
	Useful Life	Gross Carrying Amount (1) (In thousands)	Accumulated Amortization (1)	Net Carrying Amount
Existing technology	3 to 10 years	\$259,389	\$ (217,734)	\$ 41,655
Customer contracts and contractual relationships	1 to 10 years	67,395	(55,143)	12,252
Non-compete agreements and trademarks	3 years	300	(300)	—
In-process research and development	Not applicable	1,600	—	1,600
Total intangible assets		\$328,684	\$ (273,177)	\$ 55,507
		As of December 31, 2018		
	Useful Life	Gross Carrying Amount (1) (In thousands)	Accumulated Amortization (1)	Net Carrying Amount
Existing technology	3 to 10 years	\$258,903	\$ (213,824)	\$ 45,079
Customer contracts and contractual relationships	1 to 10 years	67,667	(54,410)	13,257
Non-compete agreements and trademarks	3 years	300	(300)	—
In-process research and development	Not applicable	1,600	—	1,600
Total intangible assets		\$328,470	\$ (268,534)	\$ 59,936

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

During the three months ended March 31, 2019 and 2018, the Company did not purchase or sell any intangible assets.

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 March 31, 2019 and 2018, the Company received \$0.5 million and \$0.9 million, respectively, related to the favorable contracts. As of March 31, 2019 and December 31, 2018, the net balance of the favorable contract intangible assets was \$0.5 million and \$0.9

million, respectively.

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Amortization expense for intangible assets for the three months ended March 31, 2019 and 2018 was \$5.0 million and \$10.5 million, respectively. The estimated future amortization of intangible assets as of March 31, 2019 was as follows (amounts in thousands):

Years Ending December 31:	Amount
2019 (remaining 9 months)	\$14,903
2020	20,023
2021	13,317
2022	2,062
2023	1,541
Thereafter	2,061
Total amortizable purchased intangible assets	\$53,907
In-process research and development	1,600
Total intangible assets	\$55,507

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 months ended March 31, 2019, 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 months ended March 31, 2019 and 2018, respectively.

	For the Three Months Ended March 31, 2019			
	MID	RSD	Other	Total
	(In thousands)			
Revenues	\$34,490	\$13,894	\$—	\$48,384
Segment operating expenses	23,979	14,221	2,483	40,683
Segment operating income (loss)	\$10,511	\$(327)	\$(2,483)	\$7,701
Reconciling items				(39,110)
Operating loss				\$(31,409)
Interest and other income (expense), net				5,142
Loss before income taxes				\$(26,267)

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	For the Three Months Ended March 31, 2018			
	MID	RSD	Other	Total
	(In thousands)			
Revenues	\$33,967	\$10,018	\$2,441	\$46,426
Segment operating expenses	22,949	12,786	5,630	41,365
Segment operating income (loss)	\$11,018	\$(2,768)	\$(3,189)	\$5,061
Reconciling items				(48,674)
Operating loss				\$(43,613)
Interest and other income (expense), net				4,695
Loss before income taxes				\$(38,918)

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 March 31, 2019 and December 31, 2018, respectively, was as follows:

	As of		
Customer	March 31, 2019	December 31, 2018	
Customer 1 (MID reportable segment)	* 12	%	
Customer 2 (MID reportable segment)	14 %	*	
Customer 3 (MID reportable segment)	36 %	39 %	

* 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 months ended March 31, 2019 and 2018, respectively, was as follows:

	Three Months Ended March 31,		
Customer	2019	2018	
Customer A (MID reportable segment)	* 34	%	
Customer B (MID reportable segment)	* 11	%	
Customer C (MID reportable segment)	19 %	*	
Customer D (MID reportable segment)	16 %	*	

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

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

	Three Months Ended March 31,	
(In thousands)	2019	2018
Taiwan	\$ 2,101	\$ 16,110
South Korea	1,281	8,601
USA	34,239	11,221
Japan	2,619	4,034
Europe	3,375	3,866
Canada	1,058	1,410
Singapore	1,884	92
Asia-Other	1,827	1,092
Total	\$ 48,384	\$ 46,426

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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 March 31, 2019 and December 31, 2018, 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:

(In thousands)	As of March 31, 2019				
	Fair Value	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Weighted Rate of Return
Money market funds	\$ 10,849	\$ 10,849	\$ —	\$ —	2.35 %
U.S. Government bonds and notes	41,479	41,482	—	(3)	2.36 %
Corporate notes, bonds, commercial paper and other	212,149	212,209	3	(63)	2.47 %
Total cash equivalents and marketable securities	264,477	264,540	3	(66)	
Cash	41,389	41,389	—	—	
Total cash, cash equivalents and marketable securities	\$ 305,866	\$ 305,929	\$ 3	\$ (66)	
(In thousands)	As of December 31, 2018				
	Fair Value	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Weighted Rate of Return
Money market funds	\$ 10,080	\$ 10,080	\$ —	\$ —	2.23 %
U.S. Government bonds and notes	32,630	32,634	—	(4)	2.28 %
Corporate notes, bonds, commercial paper and other	183,998	184,095	—	(97)	2.37 %
Total cash equivalents and marketable securities	226,708	226,809	—	(101)	
Cash	51,056	51,056	—	—	
Total cash, cash equivalents and marketable securities	\$ 277,764	\$ 277,865	\$ —	\$ (101)	

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

	As of	
	March 31, 2019	December 31, 2018
	(In thousands)	
Cash equivalents	\$ 101,627	\$ 64,868
Short term marketable securities	162,850	161,840
Total cash equivalents and marketable securities	264,477	226,708
Cash	41,389	51,056
Total cash, cash equivalents and marketable securities	\$ 305,866	\$ 277,764

The Company continues to invest in highly rated quality, highly liquid debt securities. As of March 31, 2019, 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.

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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 March 31, 2019 and December 31, 2018 are as follows:

	Fair Value		Gross Unrealized Loss	
	March 31, 2019	December 31, 2018	March 31, 2019	December 31, 2018
	(In thousands)			
Less than one year				
U.S. Government bonds and notes	\$36,490	\$ 32,630	\$ (3)	\$ (4)
Corporate notes, bonds and commercial paper	183,849	183,998	(63)	(97)
Total Corporate notes, bonds, and commercial paper and U.S. Government bonds and notes	\$220,339	\$ 216,628	\$ (66)	\$ (101)

The gross unrealized loss at March 31, 2019 and December 31, 2018 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.

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 March 31, 2019 and December 31, 2018:

As of March 31, 2019				
	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	\$10,849	\$ 10,849	\$ —	\$ —
U.S. Government bonds and notes	41,479	—	41,479	—
Corporate notes, bonds, commercial paper and other	212,149	—	212,149	—
Total available-for-sale securities	\$264,477	\$ 10,849	\$ 253,628	\$ —
As of December 31, 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	\$10,080	\$ 10,080	\$ —	\$ —
U.S. Government bonds and notes	32,630	—	32,630	—

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Corporate notes, bonds, commercial paper and other	183,998	—	183,998	—
Total available-for-sale securities	\$226,708	\$ 10,080	\$ 216,628	\$ —

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,

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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.

During the second half of 2018, the Company made an investment in a non-marketable equity security of a private company. This equity investment is accounted for under the equity method of accounting, and the Company accounts for its equity method share of the income (loss) on a quarterly basis. As of March 31, 2019, the Company's 27.7% ownership percentage amounts to a \$3.2 million equity interest in this equity investment and it is included in other assets on the accompanying consolidated balance sheets. The Company recorded an immaterial amount in its consolidated statements of operations representing its share of the investee's loss for the three months March 31, 2019. For the three months ended March 31, 2019 and 2018, 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 March 31, 2019 and December 31, 2018:

(In thousands)	As of March 31, 2019			As of December 31, 2018		
	Face Value	Carrying Value	Fair Value	Face Value	Carrying Value	Fair Value
1.375% Convertible Senior Notes due 2023 (the "2023 Notes")	\$172,500	\$143,612	\$162,952	\$172,500	\$141,934	\$150,075

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 10, "Convertible Notes," as of March 31, 2019, 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. Leases

The Company leases office space, domestically and internationally, under operating leases. The Company's leases have remaining lease terms between 1 and 4 years. Operating leases are included in operating lease right-of-use ("ROU") assets, operating lease liabilities, and long-term operating lease liabilities in the Company's unaudited condensed consolidated balance sheets. The Company does not have any finance leases. The Company determines if an arrangement is a lease, or contains a lease, at inception. The Company assesses all relevant facts and circumstances in making the determination of the existence of a lease. For leases with terms greater than 12 months, the Company records the related asset and obligation at the present value of lease payments over the term. Many of the Company's leases include rental escalation clauses, renewal options and/or termination options that are factored into the determination of lease payments when appropriate. Leases with an initial term of 12 months or less are not recorded on the balance sheet, and the Company does not separate non-lease components from lease components.

The Company used its incremental borrowing rate to measure the lease liabilities at the adoption date for its existing operating leases that commenced prior to January 1, 2019 which was based on the remaining lease term and remaining lease payments for such leases. On an ongoing basis, as most of the Company's leases do not provide an implicit rate, the Company will use its incremental borrowing rate based on the information available at commencement date in determining the present value of lease payments. The Company will use the implicit rate when readily determinable. The table below reconciles the undiscounted cash flows for the first five years and total of the remaining years to the operating lease liabilities recorded on the unaudited condensed consolidated balance sheet as of March 31, 2019 (in thousands):

Years ending December 31,	Amount
2019 (remaining 9 months)	\$7,788
2020	6,731
2021	4,860
2022	3,107
2023	643
Thereafter	—
Total minimum lease payments	\$23,129
Less: amount of lease payments representing interest	(1,470)
Present value of future minimum lease payments	\$21,659
Less: current obligations under leases	(9,351)
Long-term lease obligations	\$12,308

As of March 31, 2019, the weighted average remaining lease term for the Company's operating leases is 2.9 years, and the weighted average discount rate used to determine the present value of the Company's operating leases is 4.5%.

Operating lease costs are included in research and development and selling, general and administrative costs on the statement of operations, and were \$2.2 million for the three months ended March 31, 2019.

Cash paid for amounts included in the measurement of operating lease liabilities was \$2.6 million for the three months ended March 31, 2019.

10. Convertible Notes

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

(In thousands)	As of March 31, 2019	As of December 31, 2018
2023 Notes	\$172,500	\$172,500
Unamortized discount - 2023 Notes	(26,964)	(28,517)
Unamortized debt issuance costs - 2023 Notes	(1,924)	(2,049)
Total convertible notes	\$143,612	\$141,934
Less current portion	—	—
Total long-term convertible notes	\$143,612	\$141,934

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Interest expense related to the notes for the three months ended March 31, 2019 and 2018 was as follows:

	Three Months Ended March 31,	
	2019	2018
	(In thousands)	
2023 Notes coupon interest at a rate of 1.375%	\$ 593	\$ 593
2023 Notes amortization of discount and debt issuance costs at an additional effective interest rate of 4.9%	1,678	1,590
2018 Notes coupon interest at a rate of 1.125%	—	53
2018 Notes amortization of discount and debt issuance costs at an additional effective interest rate of 5.5%	—	1,090
Total interest expense on convertible notes	\$ 2,271	\$ 3,326

11. Commitments and Contingencies

As of March 31, 2019, the Company's material contractual obligations were as follows (in thousands):

	Total	Remainder of 2019	2020	2021	2022	2023
Contractual obligations (1) (2)						
Other contractual obligations	1,283	815	234	234	—	—
Software licenses (3)	8,489	3,997	2,995	1,497	—	—
Convertible notes	172,500	—	—	—	—	172,500
Interest payments related to convertible notes	9,494	1,186	2,372	2,372	2,372	1,192
Total	\$ 191,766	\$ 5,998	\$ 5,601	\$ 4,103	\$ 2,372	\$ 173,692

The above table does not reflect possible payments in connection with uncertain tax benefits of approximately \$24.5 million including \$22.2 million recorded as a reduction of long-term deferred tax assets and \$2.3 million in (1) long-term income taxes payable as of March 31, 2019. As noted below in Note 14, "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) For the Company's lease commitments, refer to Note 9, "Leases".

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

Refer to Note 2, "Recent Accounting Pronouncements" and Note 9, "Leases," for discussion related to the Company's facility leases due to the adoption of the New Leasing Standard on January 1, 2019.

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Additionally, the Company's lease-related obligations as of December 31, 2018 were as follows (in thousands):

	Total	2019	2020	2021	2022	2023
Lease-related obligations						
Imputed financing obligation (1)	\$8,081	\$5,677	\$2,404	\$—	\$—	\$—
Leases	19,415	5,333	4,883	4,960	3,271	968
Total	\$27,496	\$11,010	\$7,287	\$4,960	\$3,271	\$968

(1) With respect to the imputed financing obligation, the main components of the difference between the amount reflected in the table above and the amount reflected on the unaudited condensed consolidated balance sheet 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.

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 March 31, 2019 and December 31, 2018 is not material.

12. Equity Incentive Plans and Stock-Based Compensation

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

	Shares Available for Grant
Shares available as of December 31, 2018	10,074,046
Stock options granted	—
Stock options forfeited	33,967
Nonvested equity stock and stock units granted (1) (2)	(5,907,629)
Nonvested equity stock and stock units forfeited (1)	315,349
Total available for grant as of March 31, 2019	4,515,733

(1) For purposes of determining the number of shares available for grant under the 2015 Equity Incentive Plan (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 approximately 0.9 million shares that have been reserved for potential future issuance related to certain performance unit awards granted in the first quarter of 2019 and discussed under the section titled "Nonvested Equity Stock and Stock Units" below.

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General Stock Option Information

The following table summarizes stock option activity under the 2015 Plan for the three months ended March 31, 2019 and information regarding stock options outstanding, exercisable, and vested and expected to vest as of March 31, 2019.

	Options Outstanding		Weighted	Aggregate
	Number of	Weighted	Average	Intrinsic
	Shares	Exercise Price	Remaining	Value
		Per Share	Contractual	
			Term (years)	
(In thousands, except per share amounts)				
Outstanding as of December 31, 2018	3,235,891	\$ 10.25		
Options granted	—	\$ —		
Options exercised	(704,851)	\$ 6.89		
Options forfeited	(33,967)	\$ 8.58		
Outstanding as of March 31, 2019	2,497,073	\$ 11.22	4.72	\$ 2,779
Vested or expected to vest at March 31, 2019	2,473,989	\$ 11.20	4.69	\$ 2,779
Options exercisable at March 31, 2019	1,972,769	\$ 10.82	3.70	\$ 2,779

Employee Stock Purchase Plan

No purchases were made under the 2015 Employee Stock Purchase Plan ("2015 ESPP") during the three months ended March 31, 2019 and 2018. As of March 31, 2019, approximately 2.3 million shares under the 2015 ESPP remain available for issuance.

Stock-Based Compensation

For the three months ended March 31, 2019 and 2018, 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. 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

There were no stock options granted during the three months ended March 31, 2019. During the three months ended March 31, 2019, the Company recorded stock-based compensation expense related to stock options of \$0.2 million. During the three months ended March 31, 2018, the Company granted approximately 0.6 million stock options with an estimated grant-date fair value of \$2.3 million. During the three months ended March 31, 2018, the Company recorded stock-based compensation expense related to stock options of \$0.6 million.

As of March 31, 2019, there was \$3.5 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 2.6 years.

Employee Stock Purchase Plan

For the three months ended March 31, 2019, the Company recorded compensation expense related to the 2015 ESPP of \$0.5 million. For the three months ended March 31, 2018, the Company recorded compensation expense related to the 2015 ESPP of \$0.5 million. As of March 31, 2019, there was \$0.2 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.

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 March 31, 2018	
Stock Option Plan		
Expected stock price volatility	29	%
Risk free interest rate	2.6	%
Expected term (in years)	5.8	
Weighted-average fair value of stock options granted to employees	\$ 4.24	

There were no stock options granted during the three months ended March 31, 2019.

No shares were issued under the 2015 ESPP during the three months ended March 31, 2019 and 2018, respectively.

Nonvested Equity Stock and Stock Units

The Company grants nonvested equity stock units to officers, employees and directors. During the three months ended March 31, 2019, the Company granted nonvested equity stock units totaling approximately 3.4 million shares under the 2015 Plan. During the three months ended March 31, 2018, the Company granted nonvested equity stock units totaling approximately 2.1 million 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 months ended March 31, 2019, the nonvested equity stock units were valued at the date of grant giving them a fair value of approximately \$32.2 million. For the three months ended March 31, 2018, the nonvested equity stock units were valued at the date of grant giving them a fair value of approximately \$26.8 million. During the first quarters of 2019 and 2018, 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.

For the three months ended March 31, 2019, the Company recorded stock-based compensation expense of approximately \$6.4 million related to all outstanding nonvested equity stock grants. For the three months ended March 31, 2018, the Company recorded stock-based compensation expense of approximately \$6.5 million 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 \$53.7 million at March 31, 2019. This amount is expected to be recognized over a weighted average period of 2.9 years.

The following table reflects the activity related to nonvested equity stock and stock units for the three months ended March 31, 2019:

Nonvested Equity Stock and Stock Units	Shares	Weighted-Average Grant-Date Fair Value
Nonvested at December 31, 2018	4,859,135	\$ 12.71
Granted	3,389,337	\$ 9.56
Vested	(1,076,198)	\$ 12.49
Forfeited	(170,752)	\$ 11.89
Nonvested at March 31, 2019	7,001,522	\$ 11.24

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13. Stockholders' Equity

Share Repurchase Program

During the three months ended March 31, 2019, the Company did not repurchase any shares of its common stock under its share repurchase program.

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.

As of March 31, 2019, 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.

14. Income Taxes

The Company recorded a provision for (benefit from) income taxes of \$0.3 million and \$(3.2) million for the three months ended March 31, 2019 and 2018, respectively. The provision for income taxes for the three months ended March 31, 2019 is driven by a combination of the valuation allowance recorded on U.S. deferred tax assets and the projected annual effective tax rate for the foreign jurisdictions for 2019. The benefit from income taxes for the three months ended March 31, 2018 is mainly due to projected pretax losses from which the company can benefit from.

During the three months ended March 31, 2019 and 2018, the Company paid withholding taxes of \$4.3 million and \$6.1 million, respectively.

As of March 31, 2019, the Company's unaudited condensed consolidated balance sheets included net deferred tax assets, before valuation allowance, of approximately \$165.6 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 set up and continues to maintain a full valuation allowance against its U.S. federal 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. 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 March 31, 2019, the Company has a total valuation allowance of \$179.9 million on U.S. federal, state and foreign deferred tax assets, resulting in net deferred tax liability of \$14.3 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.

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As of March 31, 2019, the Company had approximately \$24.5 million of unrecognized tax benefits, including \$22.2 million recorded as a reduction of long-term deferred tax assets and \$2.3 million in long-term income taxes payable. If recognized, approximately \$2.3 million would be recorded as an income tax benefit. As of December 31, 2018, the Company had \$23.5 million of unrecognized tax benefits, including \$21.4 million recorded as a reduction of long-term deferred tax assets and \$2.1 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.

The Company recognizes interest and penalties related to uncertain tax positions as a component of the income tax provision. At March 31, 2019 and December 31, 2018, 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 2015 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.

15. 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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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.

Rambus and CryptoManager™ are trademarks or registered trademarks of Rambus Inc. Other trademarks that may be mentioned in this quarterly report on Form 10-Q are the property of their respective owners.

Executive Summary

During the first quarter of 2019, our buffer chipset revenue increased from the same period last year. Additionally, we expanded our SerDes portfolio with a 32G SerDes PHY to enable 5G infrastructure and a 112G SerDes PHY to enable next-generation 400G and 800G communications systems. Key 2019 first quarter financial results included:

Revenue of \$48.4 million;

Total operating costs and expenses of \$79.8 million;

Diluted net loss per share of \$0.24;

Cash flows provided by operating activities of approximately \$28.8 million; and

Unbilled receivables of \$629.4 million as of March 31, 2019.

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.

As of March 31, 2019, MID and RSD met quantitative thresholds for disclosure as reportable segments. Results for the remaining operating segment was 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.

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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.

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 Topic 605, “Revenue Recognition” (“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 51% of our consolidated revenue for the three months ended March 31, 2019, as compared to 46% for the three months ended March 31, 2018.

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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 19% of our consolidated revenue for the three months ended March 31, 2019, as compared to 16% for the three months ended March 31, 2018. Contract and other revenue accounted for 30% of our consolidated revenue for the three months ended March 31, 2019, as compared to 38% for the three months ended March 31, 2018.

Expenses

Cost of product revenue for the three months ended March 31, 2019 increased approximately \$0.1 million as compared to the same period in 2018 primarily due to 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 March 31, 2019 decreased \$4.8 million as compared to the same period in 2018 primarily due to decreased amortization costs of \$4.8 million, headcount related expenses of \$0.9 million and prototyping costs of \$0.5 million, offset by increased consulting costs of \$0.7 million, depreciation expense of \$0.6 million and facilities costs of \$0.5 million

Sales, general and administrative expenses for the three months ended March 31, 2019 decreased \$2.6 million as compared to the same period in 2018 primarily due to decreased bonus accrual expense of \$0.9 million, headcount related expenses of \$0.6 million, sales and marketing costs of \$0.5 million, depreciation expense of \$0.5 million, consulting costs of \$0.4 million and stock-based compensation expense of \$0.3 million, offset by increased facilities costs of \$0.7 million.

The increase in facilities costs were primarily due to the adoption of ASU No. 2016-02, "Leases," ASU No. 2018-10, "Codification Improvements to Topic 842, Leases," and ASU No. 2018-11, "Leases (Topic 842)" (collectively referred to as the "New Leasing Standard") beginning in 2019 as discussed in "Results of Operations" of this Form 10-Q.

Intellectual Property

As of March 31, 2019, our semiconductor, security and other technologies are covered by 2,138 U.S. and foreign patents. Additionally, we have 551 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.

We have a high degree of revenue concentration. Our top five customers represented approximately 56% of our revenue for the three months ended March 31, 2019 as compared to 59% for the three months ended March 31, 2018.

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 29% of our total revenue for the three months ended March 31, 2019 as compared to 76% for the three months ended March 31, 2018. 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

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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 increased and as a percentage of revenue decreased during the three months ended March 31, 2019 as compared to the same period in the prior year. Engineering costs in the aggregate and as a percentage of revenue decreased during the three months ended March 31, 2019 as compared to the same period in the prior year. Sales, general and administrative expenses in the aggregate and as a percentage of revenue decreased during the three months ended March 31, 2019 as compared to the same period 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, 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 during 2016. Similarly, we evaluate our current businesses and technologies that are not aligned with our core business for potential divestiture.

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Results of Operations

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 March 31,			
	2019		2018	
Revenue:				
Royalties	51.4	%	46.0	%
Product revenue	18.5	%	15.8	%
Contract and other revenue	30.1	%	38.2	%
Total revenue	100.0	%	100.0	%
Operating costs and expenses:				
Cost of product revenue*	9.1	%	9.4	%
Cost of contract and other revenue	14.0	%	26.1	%
Research and development*	84.0	%	86.4	%
Sales, general and administrative*	57.1	%	65.0	%
Restructuring charges	0.7	%	7.0	%
Total operating costs and expenses	164.9	%	193.9	%
Operating loss	(64.9))%	(93.9))%
Interest income and other income (expense), net	15.3	%	19.6	%
Interest expense	(4.7))%	(9.5))%
Interest and other income (expense), net	10.6	%	10.1	%
Loss before income taxes	(54.3))%	(83.8))%
Provision for (benefit from) income taxes	0.6	%	(7.0))%
Net loss	(54.9))%	(76.9))%

* Includes stock-based compensation:

Cost of product revenue	0.0%	0.0%
Research and development	6.6%	6.9%
Sales, general and administrative	8.2%	9.3%

	Three Months Ended March 31,			
(Dollars in millions)	2019	2018	Change in Percentage	
Total Revenue				
Royalties	\$ 24.8	\$ 21.4	16.3	%
Product revenue	9.0	7.3	22.6	%
Contract and other revenue	14.6	17.7	(17.9))%
Total revenue	\$ 48.4	\$ 46.4	4.2	%

Royalty Revenue

Our royalty revenue, which includes patent and technology license royalties, increased approximately \$3.4 million to \$24.8 million for the three months ended March 31, 2019 from \$21.4 million for the same period in 2018. The increase was due primarily to increased royalties from various customers.

Additionally, on January 1, 2018, we adopted ASC 606. This accounting change will not impact billings or the cash flow from royalty 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.

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Furthermore, 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 decreased approximately \$0.1 million to \$19.4 million for the three months ended March 31, 2019 from \$19.5 million for the same period in 2018. The decrease was due to decreased royalties from various customers.

Royalty revenue from the RSD reportable segment increased approximately \$3.9 million to \$5.4 million for the three months ended March 31, 2019 from \$1.5 million for the same period in 2018. The increase was due primarily to increased royalties from various customers.

Royalty revenue from the Other segment was zero for the three months ended March 31, 2019 and immaterial for the three months ended March 31, 2018.

Product Revenue

Product revenue consists of revenue from the sale of memory and security products. Product revenue increased approximately \$1.7 million to \$9.0 million for the three months ended March 31, 2019 from \$7.3 million for the same period in 2018. The increase was primarily due to higher sales of memory products.

We believe that product revenue will increase in 2019, 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 \$2.5 million to \$8.8 million for the three months ended March 31, 2019 from \$6.3 million for the same period in 2018. The increase was due to higher volume of memory product sales.

Product revenue from the RSD reportable segment was immaterial for both the three months ended March 31, 2019 and 2018.

Product revenue from the Other segment was zero for the three months ended March 31, 2019 and immaterial for the three months ended March 31, 2018.

Contract and Other Revenue

Contract and other revenue consist of revenue from technology development projects. Contract and other revenue decreased approximately \$3.1 million to \$14.6 million for the three months ended March 31, 2019 from \$17.7 million for the same period in 2018. The decrease was primarily due to lower revenue from various memory and 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 \$1.9 million to \$6.3 million for the three months ended March 31, 2019 from \$8.2 million for the same period in 2018, due to lower revenue from various memory technology projects.

Contract and other revenue from the RSD reportable segment decreased approximately \$0.2 million to \$8.3 million for the three months ended March 31, 2019 from \$8.5 million for the same period in 2018, due to lower revenue from various security technology development projects.

Contract and other revenue from the Other segment was zero for the three months ended March 31, 2019 and immaterial for the three months ended March 31, 2018.

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Cost of product revenue:

(Dollars in millions)	Three Months Ended		Change in Percentage
	March 31, 2019	2018	
Cost of product revenue	\$ 4.4	\$ 4.3	1.6 %

Cost of product revenue increased approximately \$0.1 million to \$4.4 million for the three months ended March 31, 2019 from \$4.3 million for the same period in 2018 primarily due to 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 2019 as compared to 2018.

Engineering costs:

(Dollars in millions)	Three Months Ended		Change in Percentage
	March 31, 2019	2018	
Engineering costs			
Cost of contract and other revenue	\$ 2.9	\$ 3.4	(14.1)%
Amortization of intangible assets	3.9	8.7	(55.8)%
Stock-based compensation	0.0	0.0	— %
Total cost of contract and other revenue	6.8	12.1	(44.1)%
Research and development	37.4	36.9	1.3 %
Stock-based compensation	3.2	3.2	0.6 %
Total research and development	40.6	40.1	1.3 %
Total engineering costs	\$ 47.4	\$ 52.2	(9.3)%

Total engineering costs decreased \$4.8 million for the three months ended March 31, 2019 as compared to the same period in 2018 primarily due to decreased amortization costs of \$4.8 million, headcount related expenses of \$0.9 million and prototyping costs of \$0.5 million, offset by increased consulting costs of \$0.7 million, depreciation expense of \$0.6 million and facilities costs of \$0.5 million as discussed below.

On January 1, 2019, we adopted the New Leasing Standard using the alternative transition method. In accordance with the New Leasing Standard, we were required to derecognize the Sunnyvale and Ohio facilities as imputed facility obligations (as accounted for under the previous leasing guidance) and recognize these facilities as operating leases. This change resulted in no longer recognizing interest expense associated with these imputed facility lease obligations, but instead, recognizing lease expense which would be included in operating costs and expenses. For additional information on the impact of the new accounting standard on our leases, see Note 2, "Recent Accounting Pronouncements" and Note 9, "Leases," of Notes to Unaudited Condensed Consolidated Financial Statements of this Form 10-Q.

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		Change in Percentage
	March 31, 2019	2018	
Sales, general and administrative costs			
Sales, general and administrative costs	\$ 23.6	\$ 25.9	(8.5)%
Stock-based compensation	4.0	4.3	(7.9)%
Total sales, general and administrative costs	\$ 27.6	\$ 30.2	(8.5)%

Total sales, general and administrative costs decreased \$2.6 million for the three months ended March 31, 2019 as compared to the same period in 2018 primarily due to decreased bonus accrual expense of \$0.9 million, headcount related expenses of

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\$0.6 million, sales and marketing costs of \$0.5 million, depreciation expense of \$0.5 million, consulting costs of \$0.4 million and stock-based compensation expense of \$0.3 million, offset by increased facilities costs of \$0.7 million primarily due to the adoption of the New Leasing Standard beginning in 2019 as discussed above.

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.

Restructuring charges:

	Three Months Ended		
	March 31,		Change in
(Dollars in millions)	2019	2018	Percentage
Restructuring charges	\$ 0.3	\$ 3.2	(89.8)%

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 first quarter of 2019, we recorded additional restructuring charges of \$0.3 million related to the facility due to a change in the estimated costs to close the facility.

Interest and other income (expense), net:

	Three Months Ended		
	March 31,		Change in
(Dollars in millions)	2019	2018	Percentage
Interest income and other income (expense), net	\$ 7.4	\$ 9.1	(18.7)%
Interest expense	(2.3)	(4.4)	(48.6)%
Interest and other income (expense), net	\$ 5.1	\$ 4.7	9.5 %

Interest income and other income (expense), net, consists primarily of interest income related to the interest income of \$5.7 million for the three months ended March 31, 2019, 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.

Beginning January 1, 2019, interest expense primarily consists of interest expense associated with the 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.

Prior to 2019, interest expense also included the interest expense associated with our imputed facility lease obligations on the Sunnyvale and Ohio facilities. In accordance with the New Leasing Standard, we were required to derecognize the Sunnyvale and Ohio facilities as imputed facility obligations (as accounted for under the previous leasing standard) and recognize these facilities as operating leases. This change resulted in no longer recognizing interest expense associated with these imputed facility lease obligations, but instead, recognizing lease expense which would be included in operating costs and expenses. For additional information on the impact of the new accounting standard on our leases, see Note 2, “Recent Accounting Pronouncements” and Note 9, “Leases,” of the Notes to Unaudited Condensed Consolidated Financial Statements of this Form 10-Q.

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Provision for (benefit from) income taxes:

(Dollars in millions)	Three Months Ended		Change in Percentage
	March 31, 2019	2018	
Provision for (benefit from) income taxes	\$ 0.3	\$ (3.2)	NM*
Effective tax rate	(1.2)%	8.3 %	

*NM — percentage is not meaningful

The provision for income taxes reported for the three months ended March 31, 2019 is driven by a combination of the valuation allowance recorded on U.S. deferred tax assets and the projected annual effective tax rate for the foreign jurisdictions for 2019. Our income tax benefit and provision for the three months ended March 31, 2019 and 2018 reflects an effective tax rate of (1.2)% and 8.3% respectively. Our effective tax rate for the three months ended March 31, 2019 differed from the statutory rate primarily due to U.S. and foreign current taxes payable and no benefit for current losses due to the full valuation allowance against U.S. deferred tax assets. Our effective tax rate for the three months ended March 31, 2018 was different from the U.S. statutory tax rate primarily due to projected pretax losses from which we can benefit from.

We recorded a provision for income taxes of \$0.3 million for the three months ended March 31, 2019. We recorded a benefit from income taxes of \$(3.2) million for the three months ended March 31, 2018. During the three months ended March 31, 2019 and 2018, we paid withholding taxes of \$4.3 million and \$6.1 million, respectively.

We periodically evaluate the realizability of our net deferred tax assets based on all available evidence, both positive and negative. During the third quarter of 2018, we assessed the changes in our underlying facts and circumstances and evaluated the realizability of our 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 California deferred tax assets was appropriate at that time. The basis for the conclusion was derived primarily from the fact that we completed our forecasting process during the third quarter of 2018. At a domestic level, losses were 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 had further reduced our ability to utilize our deferred tax assets. In light of the above factors, we concluded that it was not more likely than not that we could realize our U.S. deferred tax assets. As such, during the third quarter of 2018, we set up and continue to maintain a full valuation allowance against our U.S. federal deferred tax assets.

We have 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 U.S. 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 March 31, 2019, we have a total valuation allowance of \$179.9 million on U.S. federal, state and foreign deferred tax assets, resulting in net deferred tax liability of \$14.3 million.

Liquidity and Capital Resources

	As of	
	March 31, 2019	December 31, 2018
	(In millions)	
Cash and cash equivalents	\$ 143.0	\$ 115.9
Marketable securities	162.9	161.9
Total cash, cash equivalents, and marketable securities	\$ 305.9	\$ 277.8
	Three Months Ended March 31,	

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	2019	2018
	(In millions)	
Net cash provided by operating activities	\$28.8	\$16.8
Net cash used in investing activities	\$(1.5)	\$(66.7)
Net cash used in financing activities	\$(0.2)	\$(54.1)

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Liquidity

We currently anticipate that existing cash, cash equivalents and marketable securities balances and cash flows from operations will be adequate to meet our cash needs for at least the next 12 months. Additionally, the majority of our cash and cash equivalents is in the United States. Our cash needs for the three months ended March 31, 2019 were funded primarily from cash collected from our customers.

We do not anticipate any liquidity constraints as a result of either the current credit environment or investment fair value fluctuations. Additionally, we have the intent and ability to hold our debt investments that have unrealized losses in accumulated other comprehensive gain (loss) for a sufficient period of time to allow for recovery of the principal amounts invested. Further, we have no significant exposure to European sovereign debt. We continually monitor the credit risk in our portfolio and mitigate our credit risk exposures in accordance with our policies.

As a part of our overall business strategy, from time to time, we evaluate businesses and technologies for potential acquisitions that are aligned with our core business and designed to supplement our growth.

To provide us with more flexibility in returning capital to our stockholders, on January 21, 2015, our Board authorized a share repurchase program authorizing the repurchase of up to an aggregate of 20.0 million shares. During the three months ended March 31, 2019, we did not repurchase any shares of our common stock under our share repurchase program.

As of March 31, 2019, there remained an outstanding authorization to repurchase approximately 3.6 million shares of our outstanding common stock under the current share repurchase program. See “Share Repurchase Program” below.

Operating Activities

Cash provided by operating activities of \$28.8 million for the three months ended March 31, 2019 was primarily attributable to the cash generated from customer licensing, software license and related implementation, support and maintenance fees, product sales and engineering services fees. Changes in operating assets and liabilities for the three months ended March 31, 2019 primarily included increases in inventory and prepaids and other current assets, offset by decreases in accounts receivable, unbilled receivables, deferred revenue, and accrued salaries and benefits and other liabilities mainly due to the payout of the Corporate Incentive Plan.

Cash provided by operating activities of \$16.8 million for the three months ended March 31, 2018 was primarily attributable to the cash generated from customer licensing, software license and related implementation, support and maintenance fees, product sales and engineering services fees. Changes in operating assets and liabilities for the three months ended March 31, 2018 primarily included increases in unbilled receivables and prepaids and other current assets, offset by decreases in accounts payable, deferred revenue, and accrued salaries and benefits and other liabilities mainly due to the payout of the Corporate Incentive Plan.

Investing Activities

Cash used in investing activities of \$1.5 million for the three months ended March 31, 2019 primarily consisted of purchases of available-for-sale marketable securities of \$131.6 million and \$0.7 million paid to acquire property, plant and equipment, offset by proceeds from the maturities of available-for-sale marketable securities of \$130.8 million. Cash used in investing activities of \$66.7 million for the three months ended March 31, 2018 primarily consisted of purchases of available-for-sale marketable securities of \$79.2 million and \$1.7 million paid to acquire property, plant and equipment, offset by proceeds from the maturities of available-for-sale marketable securities of \$14.2 million.

Financing Activities

Cash used in financing activities of \$0.2 million for the three months ended March 31, 2019 was primarily due to \$3.8 million in payments of taxes on restricted stock units and \$1.2 million in payments under installment payment arrangements to acquire fixed assets, offset by \$4.9 million proceeds from the issuance of common stock under equity incentive plans.

Cash used in financing activities of \$54.1 million for the three months ended March 31, 2018 was primarily due to an aggregate payment of \$50.0 million to Citibank N.A., as part of our accelerated share repurchase program, and \$4.9 million in payments of taxes on restricted stock units, offset by \$1.1 million proceeds from the issuance of common stock under equity incentive plans.

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Contractual Obligations

As of March 31, 2019, our material contractual obligations were (in thousands):

	Total	Remainder of 2019	2020	2021	2022	2023
Contractual obligations (1) (2)						
Other contractual obligations	1,283	815	234	234	—	—
Software licenses (3)	8,489	3,997	2,995	1,497	—	—
Convertible notes	172,500	—	—	—	—	172,500
Interest payments related to convertible notes	9,494	1,186	2,372	2,372	2,372	1,192
Total	\$191,766	\$ 5,998	\$5,601	\$4,103	\$2,372	\$173,692

(1) The above table does not reflect possible payments in connection with uncertain tax benefits of approximately \$24.5 million including \$22.2 million recorded as a reduction of long-term deferred tax assets and \$2.3 million in long-term income taxes payable as of March 31, 2019. As noted in Note 14, "Income Taxes," of Notes to Unaudited Condensed Consolidated Financial Statements of this Form 10-Q, although it is possible that some of the unrecognized tax benefits could be settled within the next 12 months, we cannot reasonably estimate the outcome at this time.

(2) For our lease commitments, refer to Note 9, "Leases," of Notes to Unaudited Condensed Consolidated Financial Statements of this Form 10-Q.

(3) We have commitments with various software vendors for agreements generally having terms longer than one year.

Share Repurchase Program

During the three months ended March 31, 2019, we did not repurchase any shares of our common stock under our share repurchase program.

On January 21, 2015, our 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.

As of March 31, 2019, there remained an outstanding authorization to repurchase approximately 3.6 million shares of our outstanding common stock under the current share repurchase program.

We record stock repurchases as a reduction to stockholders' equity. We record 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.

Critical Accounting Policies and Estimates

The discussion and analysis of our financial condition and results of operations are based upon our condensed consolidated financial statements, which have been prepared in accordance with accounting principles generally accepted in the United States. The preparation of these financial statements requires us to make estimates and judgments that affect the reported amounts of assets, liabilities, revenue and expenses, and related disclosure of contingent assets and liabilities. On an ongoing basis, we evaluate our estimates, including those related to revenue recognition, investments, income taxes, litigation and other contingencies. We base our estimates on historical experience and on various other assumptions that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions. Our critical accounting estimates include those regarding (1) revenue recognition, (2) goodwill, (3) intangible assets, (4) income taxes and (5) stock-based compensation. For a discussion of our critical accounting estimates, see "Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations — Critical Accounting Policies and Estimates" in our Annual Report on Form 10-K for the year ended December 31, 2018.

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Recent Accounting Pronouncements

See Note 2, “Recent Accounting Pronouncements,” of Notes to Unaudited Condensed Consolidated Financial Statements of this Form 10-Q for discussion of recent accounting pronouncements including the respective expected dates of adoption.

Item 3. Quantitative and Qualitative Disclosures about Market Risk

We are exposed to financial market risks, primarily arising from the effect of interest rate fluctuations on our investment portfolio. Interest rate fluctuation may arise from changes in the market’s view of the quality of the security issuer, the overall economic outlook, and the time to maturity of our portfolio. We mitigate this risk by investing only in high quality, highly liquid instruments. Securities with original maturities of one year or less must be rated by two of the three industry standard rating agencies as follows: A1 by Standard & Poor’s, P1 by Moody’s and/or F-1 by Fitch. Securities with original maturities of greater than one year must be rated by two of the following industry standard rating agencies as follows: AA- by Standard & Poor’s, Aa3 by Moody’s and/or AA- by Fitch. By corporate investment policy, we limit the amount of exposure to \$15.0 million or 10% of the portfolio, whichever is lower, for any single non-U.S. Government issuer. A single U.S. Agency can represent up to 25% of the portfolio. No more than 20% of the total portfolio may be invested in the securities of an industry sector, with money market fund investments evaluated separately. Our policy requires that at least 10% of the portfolio be in securities with a maturity of 90 days or less. We may make investments in U.S. Treasuries, U.S. Agencies, corporate bonds and municipal bonds and notes with maturities up to 36 months. However, the bias of our investment portfolio is shorter maturities. All investments must be U.S. dollar denominated. Additionally, we have no significant exposure to European sovereign debt.

We invest our cash equivalents and marketable securities in a variety of U.S. dollar financial instruments such as U.S. Treasuries, U.S. Government Agencies, commercial paper and corporate notes. Our policy specifically prohibits trading securities for the sole purposes of realizing trading profits. However, we may liquidate a portion of our portfolio if we experience unforeseen liquidity requirements. In such a case, if the environment has been one of rising interest rates we may experience a realized loss, similarly, if the environment has been one of declining interest rates we may experience a realized gain. As of March 31, 2019, we had an investment portfolio of fixed income marketable securities of \$264.5 million including cash equivalents. If market interest rates were to increase immediately and uniformly by 1.0% from the levels as of March 31, 2019, the fair value of the portfolio would decline by approximately \$0.4 million. Actual results may differ materially from this sensitivity analysis.

The fair value of our convertible notes is subject to interest rate risk, market risk and other factors due to the convertible feature. The fair value of the convertible notes will generally increase as interest rates fall and decrease as interest rates rise. In addition, the fair value of the convertible notes will generally increase as our common stock price increases and will generally decrease as our common stock price declines in value. The interest and market value changes affect the fair value of our convertible notes but do not impact our financial position, cash flows or results of operations due to the fixed nature of the debt obligation.

We invoice the majority of our customers in U.S. dollars. Although the fluctuation of currency exchange rates may impact our customers, and thus indirectly impact us, we do not attempt to hedge this indirect and speculative risk. Our overseas operations consist primarily of international business operations in the Netherlands and the United Kingdom, design centers in Canada, India and Finland and small business development offices in Australia, China, Japan, Korea, Singapore and Taiwan. We monitor our foreign currency exposure; however, as of March 31, 2019, we believe our foreign currency exposure is not material enough to warrant foreign currency hedging.

Item 4. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

We maintain disclosure controls and procedures designed to ensure that information required to be disclosed in the reports we file or submit pursuant to the Securities and Exchange Act of 1934, as amended (the “Exchange Act”), is recorded, processed, summarized and reported within the time periods specified in the rules and forms of the Securities and Exchange Commission, and that such information is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer, as appropriate, to allow timely

decisions regarding required disclosure.

Management, with the participation of the Chief Executive Officer and Chief Financial Officer, evaluated the effectiveness of the design and operation of our disclosure controls and procedures as defined in Rules 13a-15(e) and 15d-15(e) of the Exchange Act as of the end of the period covered by this report. Based on this evaluation, our Chief Executive Officer and Chief Financial Officer have concluded that, as of March 31, 2019, our disclosure controls and procedures were effective.

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Changes in Internal Control Over Financial Reporting

There were no changes in internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) of the Exchange Act) during the quarter ended March 31, 2019, that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

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PART II—OTHER INFORMATION

Item 1. Legal Proceedings

We are not currently a party to any material pending legal proceeding; however, from time to time, we may become involved in legal proceedings or be subject to claims arising in the ordinary course of our business. Although the results of litigation and claims cannot be predicted with certainty, we currently believe 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 us because of defense and settlement costs, diversion of management attention and resources and other factors.

Item 1A. Risk Factors

Because of the following factors, as well as other variables affecting our operating results, past financial performance may not be a reliable indicator of future performance, and historical trends should not be used to anticipate results or trends in future periods. See also “Note Regarding Forward-Looking Statements” at the beginning of this report.

Risks Associated with Our Business, Industry and Market Conditions

The success of our business depends on sustaining or growing our licensing revenue and the failure to achieve such revenue would lead to a material decline in our results of operations.

Our revenue consists mainly of patent and technology license fees paid for access to our patents, developed technology and development and support services provided to our customers. Our ability to secure and renew the licenses from which our revenues are derived depends on our customers adopting our technology and using it in the products they sell. Once secured, license revenue may be negatively affected by factors within and outside our control, including reductions in our customers’ sales prices, sales volumes, our failure to timely complete engineering deliverables, and the terms of such licenses. In addition, our licensing cycle for new licensees as well as renewals for existing licensees is lengthy, costly and unpredictable. We cannot provide any assurance that we will be successful in signing new license agreements or renewing existing license agreements on equal or favorable terms or at all. If we do not achieve our revenue goals, our results of operations could decline.

We have traditionally operated in, and may enter other, industries that are highly cyclical and competitive.

Our target customers are companies that develop and market high volume business and consumer products in semiconductors, computing, data centers, networks, tablets, handheld devices, mobile applications, gaming and graphics, high-definition televisions, cryptography and data security. The electronics industry is intensely competitive and has been impacted by rapid technological change, short product life cycles, cyclical market patterns, price erosion and increasing foreign and domestic competition. We are subject to many risks beyond our control that influence whether or not we are successful in winning target customers or retaining existing customers, including, primarily, competition in a particular industry, market acceptance of such customers’ products and the financial resources of such customers. In particular, DRAM manufacturers, which make up a significant part of our revenue, are prone to significant business cycles and have suffered material losses and other adverse effects to their businesses, leading to industry consolidation from time-to-time that may result in loss of revenues under our existing license agreements or loss of target customers. As a result of ongoing competition in the industries in which we operate and volatility in various economies around the world, we may achieve a reduced number of licenses or may experience tightening of customers’ operating budgets, difficulty or inability of our customers to pay our licensing fees, lengthening of the approval process for new licenses and consolidation among our customers. All of these factors may adversely affect the demand for our technology and may cause us to experience substantial fluctuations in our operating results.

We face competition from semiconductor and digital electronics products and systems companies, and other semiconductor intellectual property companies that provide security cores that are available to the market. We believe the principal competition for our technologies may come from our prospective customers, some of which are

evaluating and developing products based on technologies that they contend or may contend will not require a license from us. Some of our competitors use a system-level design approach similar to ours, including activities such as board and package design, power and signal integrity analysis, and thermal management. Many of these companies are larger and may have better access to financial, technical and other resources than we possess.

To the extent that alternatives might provide comparable system performance at lower or similar cost to our technologies, or are perceived to require the payment of no or lower royalties, or to the extent other factors influence the industry, our customers and prospective customers may adopt and promote alternative technologies. Even to the extent we determine that such

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alternative technologies infringe our patents, there can be no assurance that we would be able to negotiate agreements that would result in royalties being paid to us without litigation, which could be costly and the results of which would be uncertain.

In addition, our expansion into new markets subjects us to additional risks. We may have limited or no experience in new products and markets, and our customers may not adopt our new offerings. These and other new offerings may present new and difficult challenges, which could negatively affect our operating results.

We may have to invest more resources in research and development than anticipated, which could increase our operating expenses and negatively impact our operating results.

If new competitors, technological advances by existing competitors, and/or development of new technologies or other competitive factors require us to invest significantly greater resources than anticipated in our research and development efforts, our operating expenses could increase. If we are required to invest significantly greater resources than anticipated in research and development efforts without an increase in revenue, our operating results would decline. We expect these expenses to increase in the foreseeable future as our technology development efforts continue.

Our revenue is concentrated in a few customers, and if we lose any of these customers through contract terminations or acquisitions, our revenue may decrease substantially.

We have a high degree of revenue concentration. Our top five customers for each reporting period represented approximately 56% and 59% of our revenue for the three months ended March 31, 2019 and 2018, respectively. Additionally, our top five customers represented approximately 49% and 55% of our revenues for the years ended December 31, 2018 and 2017, respectively. We expect to continue to experience significant revenue concentration for the foreseeable future.

In addition, our license agreements are complex and some contain terms that require us to provide certain customers with the lowest royalty rate that we provide to other customers for similar technologies, volumes and schedules. These clauses may limit our ability to effectively price differently among our customers, to respond quickly to market forces, or otherwise to compete on the basis of price. These clauses may also require us to reduce royalties payable by existing customers when we enter into or amend agreements with other customers. Any adjustment that reduces royalties from current customers or licensees may have a material adverse effect on our operating results and financial condition.

We continue to negotiate with customers and prospective customers to enter into license agreements. Any future agreement may trigger our obligation to offer comparable terms or modifications to agreements with our existing customers, which may be less favorable to us than the existing license terms. We expect licensing fees will continue to vary based on our success in renewing existing license agreements and adding new customers, 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. In particular, under our license agreement with Samsung, the license fees payable by Samsung are subject to certain adjustments and conditions, and we therefore cannot provide assurances that the revenues generated by this license will not decline in the future. In addition, some of our material license agreements may contain rights by the customer to terminate for convenience, or upon certain other events, such as change of control, material breach, insolvency or bankruptcy proceedings. If we are unsuccessful in entering into license agreements with new customers or renewing license agreements with existing customers, on favorable terms or at all, or if they are terminated, our results of operations may decline significantly.

Our business and operations could suffer in the event of security breaches.

Attempts by others to gain unauthorized access to our information technology systems are becoming more sophisticated. These attempts, which might be related to industrial or other espionage, include covertly introducing malware to our computers and networks and impersonating authorized users, among others. We seek to detect and investigate all security incidents and to prevent their recurrence, but in some cases, we might be unaware of an incident or its magnitude and effects. While we have not identified any material incidents of unauthorized access to date, the theft, unauthorized use or publication of our intellectual property and/or confidential business information could harm our competitive position and reputation, reduce the value of our investment in research and development and other strategic initiatives or otherwise adversely affect our business. To the extent that any future security breach results in inappropriate disclosure of our customers' confidential information, we may incur liability.

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Failures in our products and services or in the products of our customers, including those resulting from security vulnerabilities, defects, bugs or errors, could harm our business.

Our products and services are highly technical and complex, and among our various businesses our products and services are crucial to providing security, payment and other critical functions for our customers' operations. Our products and services have from time to time contained and may in the future contain undetected errors, bugs defects or other security vulnerabilities. Some errors in our products and services may only be discovered after a product or service has been deployed and used by customers, and may in some cases only be detected under certain circumstances or after extended use. In addition, because the techniques used by hackers to access or sabotage our products and services and other technologies change and evolve frequently and generally are not recognized until launched against a target, we may be unable to anticipate, detect or prevent these techniques and may not address them in our data security technologies. Any errors, bugs, defects or security vulnerabilities discovered in our solutions after commercial release could adversely affect our revenue, our customer relationships and the market's perception of our products and services. We may not be able to correct any errors, bugs, defects, security flaws or vulnerabilities promptly, or at all. Any breaches, defects, errors or vulnerabilities in our products and services could result in:

- expenditure of significant financial and research and development resources in efforts to analyze, correct, eliminate or work around breaches, errors, bugs or defects or to address and eliminate vulnerabilities;
- financial liability to customers for breach of certain contract provisions, including indemnification obligations;
- loss of existing or potential customers;
- delayed or lost revenue;
- delay or failure to attain market acceptance;
- negative publicity, which would harm our reputation; and
- litigation, regulatory inquiries or investigations that would be costly and harm our reputation.

Some of our revenue is subject to the pricing policies of our customers over which we have no control.

We have no control over our customers' pricing of their products and there can be no assurance that licensed products will be competitively priced or will sell in significant volumes. Any premium charged by our customers in the price of memory and controller chips or other products over alternatives must be reasonable. If the benefits of our technology do not match the price premium charged by our customers, the resulting decline in sales of products incorporating our technology could harm our operating results.

Our licensing cycle is lengthy and costly, and our marketing and licensing efforts may be unsuccessful.

The process of persuading customers to adopt and license our chip interface, data security, and other technologies can be lengthy. Even if successful, there can be no assurance that our technologies will be used in a product that is ultimately brought to market, achieves commercial acceptance or results in significant royalties to us. We generally incur significant marketing and sales expenses prior to entering into our license agreements, generating a license fee and establishing a royalty stream from each customer. The length of time it takes to establish a new licensing relationship can take many months or even years. We may incur costs in any particular period before any associated revenue stream begins, if at all. If our marketing and sales efforts are very lengthy or unsuccessful, then we may face a material adverse effect on our business and results of operations as a result of failure to obtain or an undue delay in obtaining royalties.

Future revenue is difficult to predict for several reasons, and our failure to predict revenue accurately may result in our stock price declining.

Our lengthy license negotiation cycles could make our future revenue difficult to predict because we may not be successful in entering into or renewing licenses with our customers on our anticipated timelines.

In addition, while some of our license agreements provide for fixed, quarterly royalty payments, many of our license agreements provide for volume-based royalties, and may also be subject to caps on royalties in a given period. The sales volume and prices of our customers' products in any given period can be difficult to predict. In addition, we began applying the new revenue recognition standard (ASC 606) during the first quarter of 2018, as required, and we anticipate that our revenue will vary greatly from quarter to quarter. As a result of the foregoing items, our actual results may differ substantially from analyst estimates or our forecasts in any given quarter.

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Also, a portion of our revenue comes from development and support services provided to our customers. Depending upon the nature of the services, a portion of the related revenue may be recognized ratably over the support period, or may be recognized according to contract revenue accounting. Contract revenue accounting may result in deferral of the service fees to the completion of the contract, or may result in the recognition of service fees over the period in which services are performed on a percentage-of-completion basis.

In addition, once we commercially launch our products, the sales volume of and resulting revenue from such products in any given period will be difficult to predict.

We may fail to meet our publicly announced guidance or other expectations about our business, which would likely cause our stock price to decline.

We provide guidance regarding our expected financial and business performance including our anticipated future revenues, operating expenses and other financial and operation metrics. We enhanced our guidance following implementation of Accounting Standards Update (ASU) No. 2014-09, Revenue from Contracts with Customers in Accounting Standards Codification (ASC) Topic 606 (“ASC 606”, “the New Revenue Standard”) in the first quarter of 2018.

Correctly identifying the key factors affecting business conditions and predicting future events is an inherently uncertain process. Any guidance that we provide may not always be accurate, or may vary from actual results, due to our inability to correctly identify and quantify risks and uncertainties to our business and to quantify their impact on our financial performance. We offer no assurance that such guidance will ultimately be accurate, and investors should treat any such guidance with appropriate caution. If we fail to meet our guidance or if we find it necessary to revise such guidance, even if such failure or revision is seemingly insignificant, investors and analysts may lose confidence in us and the market value of our common stock could be materially adversely affected.

Changes in accounting principles and guidance could result in unfavorable accounting charges or effects.

We prepare our financial statements in accordance with accounting principles generally accepted in the United States and these principles are subject to interpretation by the SEC and various bodies. A change in these principles or application guidance, or in their interpretations, may have a material effect on our reported results, as well as our processes and related controls, and may retroactively affect previously reported results. For instance, we adopted ASC 842, the New Leasing Standard, effective for us on January 1, 2019, using the alternative transition method and recognized a cumulative-effect adjustment to the opening balance of accumulated deficit on January 1, 2019. We also adopted ASC 606, the New Revenue Standard, effective for us on January 1, 2018, on a modified retrospective basis, with a cumulative-effect adjustment to the opening balance of accumulated deficit on January 1, 2018. The New Revenue Standard materially impacted the timing of revenue recognition for our fixed-fee intellectual property (IP) licensing arrangements (including certain fixed-fee agreements that license our existing IP portfolio as well as IP added to our portfolio during the license term) as a majority of such revenue would be recognized at inception of the license term, as opposed to over time as is the case under prior U.S. GAAP, and we are required to compute and recognize interest income over time for certain licensing arrangements as control over the IP generally transfers significantly in advance of cash being received from customers. The impact of the adoption of the New Revenue Standard did not have a material impact on our other revenue streams. We have also enhanced the form and content of some of our guidance metrics that we provide following implementation of the New Revenue Standard. We expect that any change to current revenue recognition practices may significantly increase volatility in our quarterly revenue, financial results and trends, and may impact our stock price.

We have in the past made and may in the future make acquisitions or enter into mergers, strategic investments, sales of assets or other arrangements that may not produce expected operating and financial results.

From time to time, we engage in acquisitions, strategic transactions, strategic investments and potential discussions with respect thereto. Many of our acquisitions or strategic investments entail a high degree of risk, including those involving new areas of technology and such investments may not become liquid for several years after the date of the investment, if at all. Our acquisitions or strategic investments may not provide the advantages that we anticipated or generate the financial returns we expect, including if we are unable to close any pending acquisitions. For example, for any pending or completed acquisitions, we may discover unidentified issues not discovered in due diligence, and we may be subject to liabilities that are not covered by indemnification protection or become subject to litigation. Achieving the anticipated benefits of business acquisitions depends in part upon our ability to integrate the acquired businesses in an efficient and effective manner. The integration of companies that have previously operated independently may result in significant challenges, including, among others: retaining key employees; successfully integrating new employees, business systems and technology; retaining customers of the acquired business; minimizing the diversion of management's and other employees' attention from ongoing business matters;

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coordinating geographically separate organizations; consolidating research and development operations; and consolidating corporate and administrative infrastructures.

Our strategic investments in new areas of technology may involve significant risks and uncertainties, including distraction of management from current operations, greater than expected liabilities and expenses, inadequate return of capital, and unidentified issues not discovered in due diligence. These investments are inherently risky and may not be successful.

In addition, we may record impairment charges related to our acquisitions or strategic investments. Any losses or impairment charges that we incur related to acquisitions, strategic investments or sales of assets will have a negative impact on our financial results and the market value of our common stock, and we may continue to incur new or additional losses related to acquisitions or strategic investments.

We may have to incur debt or issue equity securities to pay for any future acquisition, which debt could involve restrictive covenants or which equity security issuance could be dilutive to our existing stockholders. We may also use cash to pay for any future acquisitions which will reduce our cash balance.

From time to time, we may also divest certain assets. These divestitures or proposed divestitures may involve the loss of revenue and/or potential customers, and the market for the associated assets may dictate that we sell such assets for less than what we paid. In addition, in connection with any asset sales or divestitures, we may be required to provide certain representations, warranties and covenants to buyers. While we would seek to ensure the accuracy of such representations and warranties and fulfillment of any ongoing obligations, we may not be completely successful and consequently may be subject to claims by a purchaser of such assets.

A substantial portion of our revenue is derived from sources outside of the United States and this revenue and our business generally are subject to risks related to international operations that are often beyond our control.

For the three months ended March 31, 2019 and 2018, revenues received from our international customers constituted approximately 29% and 76%, respectively, of our total revenue. Additionally, for the years ended December 31, 2018 and 2017, revenues received from our international customers constituted approximately 44% and 58%, respectively, of our total revenue. We expect that future revenue derived from international sources will continue to represent a significant portion of our total revenue.

To the extent that customer sales are not denominated in U.S. dollars, any royalties which are based on a percentage of the customers' sales 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 royalties. We do not use financial instruments to hedge foreign exchange rate risk.

We currently have international business operations in the United Kingdom and the Netherlands, international design operations in Canada, India, Finland and France, and business development operations in Australia, China, Japan, Korea, Singapore and Taiwan. Our international operations and revenue are subject to a variety of risks which are beyond our control, including:

- hiring, maintaining and managing a workforce and facilities remotely and under various legal systems, including compliance with local labor and employment laws;
- non-compliance with our code of conduct or other corporate policies;
- natural disasters, acts of war, terrorism, widespread illness or security breaches;
- export controls, tariffs, import and licensing restrictions and other trade barriers;

profits, if any, earned abroad being subject to local tax laws and not being repatriated to the United States or, if repatriation is possible, limited in amount;

adverse tax treatment of revenue from international sources and changes to tax codes, including being subject to foreign tax laws and being liable for paying withholding, income or other taxes in foreign jurisdictions;

unanticipated changes in foreign government laws and regulations;

increased financial accounting and reporting burdens and complexities;

- lack of protection of our intellectual property and other contract rights by jurisdictions in which we may do business to the same extent as the laws of the United States;
- potential vulnerability to computer system, internet or other systemic attacks, such as denial of service, viruses or other malware which may be caused by criminals, terrorists or other sophisticated organizations;

social, political and economic instability;

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geopolitical issues, including changes in diplomatic and trade relationships; and cultural differences in the conduct of business both with customers and in conducting business in our international facilities and international sales offices.

We and our customers are subject to many of the risks described above with respect to companies which are located in different countries. There can be no assurance that one or more of the risks associated with our international operations will not result in a material adverse effect on our business, financial condition or results of operations.

Weak global economic conditions may adversely affect demand for the products and services of our customers.

Our operations and performance depend significantly on worldwide economic conditions. Uncertainty about global or regional economic and political conditions poses a risk as consumers and businesses may postpone spending in response to tighter credit, negative financial news and declines in income or asset values, which could have a material negative effect on the demand for the products of our customers in the foreseeable future. If our customers experience reduced demand for their products as a result of global or regional economic conditions or otherwise, this could result in reduced royalty revenue and our business and results of operations could be harmed.

If our counterparties are unable to fulfill their financial and other obligations to us, our business and results of operations may be affected adversely.

Any downturn in economic conditions or other business factors could threaten the financial health of our counterparties, including companies with which we have entered into licensing and/or settlement agreements, and their ability to fulfill their financial and other obligations to us. Such financial pressures on our counterparties may eventually lead to bankruptcy proceedings or other attempts to avoid financial obligations that are due to us. Because bankruptcy courts have the power to modify or cancel contracts of the petitioner which remain subject to future performance and alter or discharge payment obligations related to pre-petition debts, we may receive less than all of the payments that we would otherwise be entitled to receive from any such counterparty as a result of bankruptcy proceedings.

If we are unable to attract and retain qualified personnel, our business and operations could suffer.

Our success is dependent upon our ability to identify, attract, compensate, motivate and retain qualified personnel, especially engineers, senior management and other key personnel. The loss of the services of any key employees could be disruptive to our development efforts, business relationships and strategy, and could cause our business and operations to suffer.

Recently, we have experienced significant changes in our management team, including in the role of chief executive officer and other senior executives. Our future success depends in large part upon the continued service and enhancement of our management team and our employees. If there are further changes in management, such changes could be disruptive and could negatively affect our sales, operations, culture, future recruiting efforts and strategic direction. Competition for qualified executives is intense and if we are unable to compensate our key talent appropriately and continue expanding our management team, or successfully integrate new additions to our management team in a manner that enables us to scale our business and operations effectively, our ability to operate effectively and efficiently could be limited or negatively impacted. In addition, changes in key management positions may temporarily affect our financial performance and results of operations as new management becomes familiar with our business, processes and strategy. The loss of any of our key personnel, or our inability to attract, integrate and retain qualified employees, could require us to dedicate significant financial and other resources to such personnel matters, disrupt our operations and seriously harm our operations and business.

We are subject to various government restrictions and regulations, including on the sale of products and services that use encryption technology and those related to privacy and other consumer protection matters.

Various countries have adopted controls, license requirements and restrictions on the export, import and use of products or services that contain encryption technology. In addition, governmental agencies have proposed additional requirements for encryption technology, such as requiring the escrow and governmental recovery of private encryption keys. Restrictions on the sale or distribution of products or services containing encryption technology may impact our ability to license data security technologies to the manufacturers and providers of such products and services in certain markets or may require us or our customers to make changes to the licensed data security technology that is embedded in such products to comply with such restrictions. Government restrictions, or changes to the products or services our customers to comply with such restrictions, could delay or prevent the acceptance and use of such customers' products and services. In addition, the United States and other countries have imposed export controls that prohibit the export of encryption technology to certain countries, entities and

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individuals. Our failure to comply with export and use regulations concerning encryption technology could subject us to sanctions and penalties, including fines, and suspension or revocation of export or import privileges.

We are subject to a variety of laws and regulations in the United States, the European Union and other countries that involve, for example, user privacy, data protection and security, content and consumer protection. A number of proposals are pending before federal, state, and foreign legislative and regulatory bodies that could significantly affect our business. For example, in 2016, a new EU data protection regime, the General Data Protection Regulation (“GDPR”) was adopted, with it fully effective on May 25, 2018. The GDPR may require us to modify our existing practices with respect to the collection, use, and disclosure of data. The GDPR provides for significant penalties in the case of non-compliance of up to €20 million or four percent of worldwide annual revenues, whichever is greater. The GDPR and other existing and proposed laws and regulations can be costly to comply with and can delay or impede the development of new products, result in negative publicity, increase our operating costs and subject us to claims or other remedies.

In accordance with the Dodd-Frank Wall Street Reform and Consumer Protection Act, the SEC established new disclosure and reporting requirements for those companies that use “conflict” minerals mined from the Democratic Republic of Congo and adjoining countries in their products, whether or not these products are manufactured by third parties. These requirements could affect the sourcing and availability of minerals that are used in the manufacture of our products. We have to date incurred costs and expect to incur significant additional costs associated with complying with the disclosure requirements, including for example, due diligence in regard to the sources of any conflict minerals used in our products, in addition to the cost of remediation and other changes to products, processes, or sources of supply as a consequence of such verification activities. Additionally, we may face reputational challenges with our customers and other stakeholders if we are unable to sufficiently verify the origins of all minerals used in our products through the due diligence procedures that we implement. We may also face challenges with government regulators and our customers and suppliers if we are unable to sufficiently verify that the metals used in our products are conflict free.

Our operations are subject to risks of natural disasters, acts of war, terrorism, widespread illness or security breach at our domestic and international locations, any one of which could result in a business stoppage and negatively affect our operating results.

Our business operations depend on our ability to maintain and protect our facilities, computer systems and personnel, which are primarily located in the San Francisco Bay Area in the United States, the United Kingdom, the Netherlands, India and Australia. The San Francisco Bay Area is in close proximity to known earthquake fault zones. Our facilities and transportation for our employees are susceptible to damage from earthquakes and other natural disasters such as fires, floods and similar events. Should a catastrophe disable our facilities, we do not have readily available alternative facilities from which we could conduct our business, so any resultant work stoppage could have a negative effect on our operating results. We also rely on our network infrastructure and technology systems for operational support and business activities which are subject to physical and cyber damage, and also susceptible to other related vulnerabilities common to networks and computer systems. Acts of terrorism, widespread illness, war and any event that causes failures or interruption in our network infrastructure and technology systems could have a negative effect at our international and domestic facilities and could harm our business, financial condition, and operating results.

We do not have extensive experience in manufacturing and marketing products and, as a result, may be unable to sustain and grow a profitable commercial market for new and existing products.

We do not have extensive experience in creating, manufacturing and marketing products, including our CryptoManager platform and new offerings that have resulted from our acquisition of SCS in the mobile credential and smart card solution spaces, and our acquisitions of the assets of the Snowbush IP group and the Memory

Interconnect Business. These and other new offerings may present new and difficult challenges, and we may be subject to claims if customers of these offerings experience delays, failures, non-performance or other quality issues. In particular, we may experience difficulties with product design, qualification, manufacturing, marketing or certification that could delay or prevent our development, introduction or marketing of new products. Although we intend to design our products to be fully compliant with applicable industry standards, proprietary enhancements may not in the future result in full conformance with existing industry standards under all circumstances.

If we fail to introduce products that meet the demand of our customers or penetrate new markets in which we expend significant resources, our revenues will decrease over time and our financial condition could suffer. Additionally, if we concentrate resources on a new market that does not prove profitable or sustainable, it could damage our reputation and limit our growth, and our financial condition could decline.

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We rely on a number of third-party providers for data center hosting facilities, equipment, maintenance and other services, and the loss of, or problems with, one or more of these providers may impede our growth or cause us to lose customers.

We rely on third-party providers to supply data center hosting facilities, equipment, maintenance and other services in order to provide some of our services, including in our offerings of our advanced mobile payment platform and smart ticketing platform, and have entered into various agreements for such services. The continuous availability of our service depends on the operations of those facilities, on a variety of network service providers and on third-party vendors. In addition, we depend on our third-party facility providers' ability to protect these facilities against damage or interruption from natural disasters, power or telecommunications failures, criminal acts, cyber-attacks and similar events. If there are any lapses of service or damage to a facility, we could experience lengthy interruptions in our service as well as delays and additional expenses in arranging new facilities and services. Even with current and planned disaster recovery arrangements, our business could be harmed. Any interruptions or delays in our service, whether as a result of third-party error, our own error, natural disasters, criminal acts, security breaches or other causes, whether accidental or willful, could harm our relationships with customers, harm our reputation and cause our revenue to decrease and/or our expenses to increase. Also, in the event of damage or interruption, our insurance policies may not adequately compensate us for any losses that we may incur. These factors in turn could further reduce our revenue, subject us to liability and cause us to issue credits or cause us to lose customers, any of which could materially adversely affect our business.

We rely on third parties for a variety of services, including manufacturing, and these third parties' failure to perform these services adequately could materially and adversely affect our business.

We rely on third parties for a variety of services, including our manufacturing supply chain partners and third parties within our sales and distribution channels. Certain of these third parties are, and may be, our sole manufacturer or sole source of production materials. If we fail to manage our relationship with these manufacturers and suppliers effectively, or if they experience delays, disruptions, capacity constraints or quality control problems in their operations, our ability to ship products to our customers could be impaired and our competitive position and reputation could be harmed. In addition, any adverse change in any of our manufacturers and suppliers' financial or business condition could disrupt our ability to supply quality products to our customers. If we are required to change our manufacturers, we may lose revenue, incur increased costs and damage our end-customer relationships. In addition, qualifying a new manufacturer and commencing production can be an expensive and lengthy process. If our third party manufacturers or suppliers are unable to provide us with adequate supplies of high-quality products for any other reason, we could experience a delay in our order fulfillment, and our business, operating results and financial condition would be adversely affected. In the event these and other third parties we rely on fail to provide their services adequately, including as a result of errors in their systems or events beyond their control, or refuse to provide these services on terms acceptable to us or at all, and we are not able to find suitable alternatives, our business may be materially and adversely affected. In addition, our orders may represent a relatively small percentage of the overall orders received by our manufacturers from their customers. As a result, fulfilling our orders may not be considered a priority in the event our manufacturers are constrained in their ability to fulfill all of their customer obligations in a timely manner. If our manufacturers are unable to provide us with adequate supplies of high-quality products, or if we or our manufacturers are unable to obtain adequate quantities of components, it could cause a delay in our order fulfillment, in which case our business, operating results and financial condition could be adversely affected.

Warranty, service level agreement and product liability claims brought against us could cause us to incur significant costs and adversely affect our operating results as well as our reputation and relationships with customers.

We may from time to time be subject to warranty, service level agreement and product liability claims with regard to product performance and our services. We could incur material losses as a result of warranty, support, repair or

replacement costs in response to customer complaints or in connection with the resolution of contemplated or actual legal proceedings relating to such claims. In addition to potential losses arising from claims and related legal proceedings, warranty and product liability claims could affect our reputation and our relationship with customers. We generally attempt to limit the maximum amount of indemnification or liability that we could be exposed to under our contracts, however, this is not always possible.

Any failure in our delivery of high-quality technical support services may adversely affect our relationships with our customers and our financial results.

Our customers depend on our support organization to resolve technical issues and provide ongoing maintenance relating to our products and services. We may be unable to respond quickly enough to accommodate short-term increases in customer demand for support services. Increased customer demand for these services, without corresponding revenues, could increase costs and adversely affect our operating results. In addition, our sales process is highly dependent on our offerings and business reputation and on positive recommendations from our existing customers. Any failure to maintain high-quality technical

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support, or a market perception that we do not maintain high-quality support, could adversely affect our reputation, our ability to sell our solutions to existing and prospective customers, and our business, operating results and financial position.

Certain software that we use in certain of our products is licensed from third parties and, for that reason, may not be available to us in the future, which has the potential to delay product development and production or cause us to incur additional expense, which could materially adversely affect our business, financial condition, operating results and cash flow.

Some of our products and services contain software licensed from third parties. Some of these licenses may not be available to us in the future on terms that are acceptable to us or allow our products to remain competitive. The loss of these licenses or the inability to maintain any of them on commercially acceptable terms could delay development of future offerings or the enhancement of existing products and services. We may also choose to pay a premium price for such a license in certain circumstances where continuity of the licensed product would outweigh the premium cost of the license. The unavailability of these licenses or the necessity of agreeing to commercially unreasonable terms for such licenses could materially adversely affect our business, financial condition, operating results and cash flow.

Certain software we use is from open source code sources, which, under certain circumstances, may lead to unintended consequences and, therefore, could materially adversely affect our business, financial condition, operating results and cash flow.

We use open source software in our services, including our advanced mobile payment platform and smart ticketing platform, and we intend to continue to use open source software in the future. From time to time, there have been claims challenging the ownership of open source software against companies that incorporate open source software into their products or alleging that these companies have violated the terms of an open source license. As a result, we could be subject to lawsuits by parties claiming ownership of what we believe to be open source software or alleging that we have violated the terms of an open source license. Litigation could be costly for us to defend, have a negative effect on our operating results and financial condition or require us to devote additional research and development resources to change our solutions. In addition, if we were to combine our proprietary software solutions with open source software in certain manners, we could, under certain open source licenses, be required to publicly release the source code of our proprietary software solutions. If we inappropriately use open source software, we may be required to re-engineer our solutions, discontinue the sale of our solutions, release the source code of our proprietary software to the public at no cost or take other remedial actions. There is a risk that open source licenses could be construed in a way that could impose unanticipated conditions or restrictions on our ability to commercialize our solutions, which could adversely affect our business, operating results and financial condition.

Our business and operating results could be harmed if we undertake any restructuring activities.

From time to time, we may undertake restructurings of our business, including discontinuing certain products, services and technologies and planned reductions in force. There are several factors that could cause restructurings to have adverse effects on our business, financial condition and results of operations. These include potential disruption of our operations, the development of our technology, the deliveries to our customers and other aspects of our business. Loss of sales, service and engineering talent, in particular, could damage our business. Any restructuring would require substantial management time and attention and may divert management from other important work. Employee reductions or other restructuring activities also would cause us to incur restructuring and related expenses such as severance expenses. Moreover, we could encounter delays in executing any restructuring plans, which could cause further disruption and additional unanticipated expense.

Problems with our information systems could interfere with our business and could adversely impact our operations.

We rely on our information systems and those of third parties for fulfilling licensing and contractual obligations, processing customer orders, delivering products, providing services and support to our customers, billing and tracking our customer orders, performing accounting operations and otherwise running our business. If our systems fail, our disaster and data recovery planning and capacity may prove insufficient to enable timely recovery of important functions and business records. Any disruption in our information systems and those of the third parties upon whom we rely could have a significant impact on our business. Additionally, our information systems may not support new business models and initiatives and significant investments could be required in order to upgrade them. For example, in connection with our adoption of the New Revenue Standard, we plan to augment our systems with new revenue accounting software, utilizing internal and third party resources. Delays in adapting our information systems to address new business models and accounting standards could limit the success or result in the failure of such initiatives and impair the effectiveness of our internal controls. Even if we do not encounter these adverse effects, the implementation of these enhancements may be much more costly than we anticipated. If we are unable to successfully implement the information systems enhancements as planned, our operating results could be negatively impacted.

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Risks Related to Capitalization Matters and Corporate Governance

The price of our common stock may continue to fluctuate.

Our common stock is listed on The NASDAQ Global Select Market under the symbol “RMBS.” The trading price of our common stock has at times experienced price volatility and may continue to fluctuate significantly in response to various factors, some of which are beyond our control. Some of these factors include:

- any progress, or lack of progress, real or perceived, in the development of products that incorporate our innovations and technology companies' acceptance of our products, including the results of our efforts to expand into new target markets;
- our signing or not signing new licenses and the loss of strategic relationships with any customer;
- announcements of technological innovations or new products by us, our customers or our competitors;
- changes in our strategies, including changes in our licensing focus and/or acquisitions or dispositions of companies or businesses with business models or target markets different from our core;
- positive or negative reports by securities analysts as to our expected financial results and business developments;
- developments with respect to patents or proprietary rights and other events or factors;
- new litigation and the unpredictability of litigation results or settlements;
- repurchases of our common stock on the open market;
- issuance of additional securities by us, including in acquisitions, or large cash payments, including in acquisitions; and
- changes in accounting pronouncements, including the effects of ASC 606 and ASC 842.

In addition, the stock market in general, and prices for companies in our industry in particular, have experienced extreme volatility that often has been unrelated to the operating performance of such companies. These broad market and industry fluctuations may adversely affect the price of our common stock, regardless of our operating performance.

We have outstanding senior convertible notes in an aggregate principal amount totaling \$172.5 million. Because these notes are convertible into shares of our common stock, volatility or depressed prices of our common stock could have a similar effect on the trading price of such notes. In addition, the existence of these notes may encourage short selling in our common stock by market participants because the conversion of the notes could depress the price of our common stock.

We have been party to, and may in the future be subject to, lawsuits relating to securities law matters which may result in unfavorable outcomes and significant judgments, settlements and legal expenses which could cause our business, financial condition and results of operations to suffer.

We and certain of our current and former officers and directors, as well as our current auditors, were subject from 2006 to 2011 to several stockholder derivative actions, securities fraud class actions and/or individual lawsuits filed in federal court against us and certain of our current and former officers and directors. The complaints generally alleged that the defendants violated the federal and state securities laws and stated state law claims for fraud and breach of fiduciary duty. Although to date these complaints have either been settled or dismissed, the amount of time to resolve any future lawsuits is uncertain, and these matters could require significant management and financial resources. Unfavorable outcomes and significant judgments, settlements and legal expenses in litigation related to any future securities law claims could have material adverse impacts on our business, financial condition, results of operations, cash flows and the trading price of our common stock.

We are leveraged financially, which could adversely affect our ability to adjust our business to respond to competitive pressures and to obtain sufficient funds to satisfy our future research and development needs, to protect and enforce our intellectual property, and to meet other needs.

We have material indebtedness. In November 2017, we issued \$172.5 million aggregate principal amount of our 2023 Notes, the entire amount of which remains outstanding. The degree to which we are leveraged could have negative consequences, including, but not limited to, the following:

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we may be more vulnerable to economic downturns, less able to withstand competitive pressures and less flexible in responding to changing business and economic conditions;

- our ability to obtain additional financing in the future for working capital, capital expenditures, acquisitions, litigation, general corporate or other purposes may be limited;

• a substantial portion of our cash flows from operations in the future may be required for the payment of interest and principal when due at maturity in February 2023; and

• we may be required to make cash payments upon any conversion of the 2023 Notes, which would reduce our cash on hand.

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A failure to comply with the covenants and other provisions of our debt instruments could result in events of default under such instruments, which could permit acceleration of all of our outstanding 2023 Notes. Any required repurchase of the 2023 Notes as a result of a fundamental change or acceleration of the 2023 Notes would reduce our cash on hand such that we would not have those funds available for use in our business.

If we are at any time unable to generate sufficient cash flows from operations to service our indebtedness when payment is due, we may be required to attempt to renegotiate the terms of the instruments relating to the indebtedness, seek to refinance all or a portion of the indebtedness or obtain additional financing. There can be no assurance that we will be able to successfully renegotiate such terms, that any such refinancing would be possible or that any additional financing could be obtained on terms that are favorable or acceptable to us.

Compliance with changing regulation of corporate governance and public disclosure may result in additional expenses.

Changing laws, regulations and standards relating to corporate governance and public disclosure have historically created uncertainty for companies such as ours. Any new or changed laws, regulations and standards are subject to varying interpretations due to their lack of specificity, and as a result, their application in practice may evolve over time as new guidance is provided by regulatory and governing bodies. This could result in continuing uncertainty regarding compliance matters and higher costs necessitated by ongoing revisions to disclosure and governance practices.

Our certificate of incorporation and bylaws, Delaware law, our outstanding convertible notes and certain other agreements contain provisions that could discourage transactions resulting in a change in control, which may negatively affect the market price of our common stock.

Our certificate of incorporation, our bylaws and Delaware law contain provisions that might enable our management to discourage, delay or prevent a change in control. In addition, these provisions could limit the price that investors would be willing to pay in the future for shares of our common stock. Pursuant to such provisions:

- our board of directors is authorized, without prior stockholder approval, to create and issue preferred stock, commonly referred to as “blank check” preferred stock, with rights senior to those of common stock, which means that a stockholder rights plan could be implemented by our board;
- our board of directors is staggered into two classes, only one of which is elected at each annual meeting;
- stockholder action by written consent is prohibited;
- nominations for election to our board of directors and the submission of matters to be acted upon by stockholders at a meeting are subject to advance notice requirements;
- certain provisions in our bylaws and certificate of incorporation such as notice to stockholders, the ability to call a stockholder meeting, advance notice requirements and action of stockholders by written consent may only be amended with the approval of stockholders holding 66 2/3% of our outstanding voting stock;
- our stockholders have no authority to call special meetings of stockholders; and
- our board of directors is expressly authorized to make, alter or repeal our bylaws.

We are also subject to Section 203 of the Delaware General Corporation Law, which provides, subject to enumerated exceptions, that if a person acquires 15% or more of our outstanding voting stock, the person is an “interested stockholder” and may not engage in any “business combination” with us for a period of three years from the time the person acquired 15% or more of our outstanding voting stock.

Certain provisions of our outstanding Notes could make it more difficult or more expensive for a third party to acquire us. Upon the occurrence of certain transactions constituting a fundamental change, holders of such Notes will have the right, at their option, to require us to repurchase, at a cash repurchase price equal to 100% of the principal amount plus accrued and unpaid interest on such Notes, all or a portion of their Notes. We may also be required to increase the conversion rate of such Notes in the event of certain fundamental changes.

Unanticipated changes in our tax rates or in the tax laws and regulations could expose us to additional income tax liabilities which could affect our operating results and financial condition.

We are subject to income taxes in both the United States and various foreign jurisdictions. Significant judgment is required in determining our worldwide provision for income taxes and, in the ordinary course of business, there are

many transactions and calculations where the ultimate tax determination is uncertain. Our effective tax rate could be adversely affected by changes in the mix of earnings in countries with differing statutory tax rates, changes in the valuation of deferred tax assets and liabilities, changes in tax laws and regulations as well as other factors. Our tax determinations are regularly subject to audit by tax authorities and developments in those audits could adversely affect our income tax provision, and we are currently undergoing such audits of certain of our tax returns. Although we believe that our tax estimates are reasonable, the final

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determination of tax audits or tax disputes may be different from what is reflected in our historical income tax provisions which could affect our operating results.

Litigation, Regulation and Business Risks Related to our Intellectual Property

Adverse litigation results could affect our business.

We may be subject to legal claims or regulatory matters involving consumer, stockholder, employment, competition, intellectual property and other issues on a global basis. Litigation can be lengthy, expensive and disruptive to our operations, and results cannot be predicted with certainty. An adverse decision could include monetary damages or, in cases for which injunctive relief is sought, an injunction prohibiting us from manufacturing or selling one or more of our products or technologies. If we were to receive an unfavorable ruling on a matter, our business, operating results or financial condition could be materially harmed.

We have in the past, and may in the future, become engaged in litigation stemming from our efforts to protect and enforce our patents and intellectual property and make other claims, which could adversely affect our intellectual property rights, distract our management and cause substantial expenses and declines in our revenue and stock price. We seek to diligently protect our intellectual property rights and will continue to do so. While we are not currently involved in intellectual property litigation, any future litigation, whether or not determined in our favor or settled by us, would be expected to be costly, may cause delays applicable to our business (including delays in negotiating licenses with other actual or potential customers), would be expected to discourage future design partners, would tend to impair adoption of our existing technologies and would divert the efforts and attention of our management and technical personnel from other business operations. In addition, we may be unsuccessful in any litigation if we have difficulty obtaining the cooperation of former employees and agents who were involved in our business during the relevant periods related to our litigation and are now needed to assist in cases or testify on our behalf. Furthermore, any adverse determination or other resolution in litigation could result in our losing certain rights beyond the rights at issue in a particular case, including, among other things: our being effectively barred from suing others for violating certain or all of our intellectual property rights; our patents being held invalid or unenforceable or not infringed; our being subjected to significant liabilities; our being required to seek licenses from third parties; our being prevented from licensing our patented technology; or our being required to renegotiate with current customers on a temporary or permanent basis.

From time to time, we are subject to proceedings by government agencies that may result in adverse determinations against us and could cause our revenue to decline substantially.

An adverse resolution by or with a governmental agency could result in severe limitations on our ability to protect and license our intellectual property, and could cause our revenue to decline substantially. Third parties have and may attempt to use adverse findings by a government agency to limit our ability to enforce or license our patents in private litigations, to challenge or otherwise act against us with respect to such government agency proceedings.

Further, third parties have sought and may seek review and reconsideration of the patentability of inventions claimed in certain of our patents by the U.S. Patent and Trademark Office (“USPTO”) and/or the European Patent Office (the “EPO”). Any re-examination proceedings may be reviewed by the USPTO's Patent Trial and Appeal Board (“PTAB”). The PTAB and the related former Board of Patent Appeals and Interferences have previously issued decisions in a few cases, finding some challenged claims of Rambus' patents to be valid, and others to be invalid. Decisions of the PTAB are subject to further USPTO proceedings and/or appeal to the Court of Appeals for the Federal Circuit. A final adverse decision, not subject to further review and/or appeal, could invalidate some or all of the challenged patent claims and could also result in additional adverse consequences affecting other related U.S. or European patents, including in any intellectual property litigation. If a sufficient number of such patents are impaired, our ability to enforce or license our intellectual property would be significantly weakened and could cause our revenue to decline substantially.

The pendency of any governmental agency acting as described above may impair our ability to enforce or license our patents or collect royalties from existing or potential customers, as any litigation opponents may attempt to use such proceedings to delay or otherwise impair any pending cases and our existing or potential customers may await the final outcome of any proceedings before agreeing to new licenses or to paying royalties.

Litigation or other third-party claims of intellectual property infringement could require us to expend substantial resources and could prevent us from developing or licensing our technology on a cost-effective basis.

Our research and development programs are in highly competitive fields in which numerous third parties have issued patents and patent applications with claims closely related to the subject matter of our programs. We have also been named in the past, and may in the future be named, as a defendant in lawsuits claiming that our technology infringes upon the intellectual

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property rights of third parties. As we develop additional products and technology, we may face claims of infringement of various patents and other intellectual property rights by third parties. In the event of a third-party claim or a successful infringement action against us, we may be required to pay substantial damages, to stop developing and licensing our infringing technology, to develop non-infringing technology, and to obtain licenses, which could result in our paying substantial royalties or our granting of cross licenses to our technologies. We may not be able to obtain licenses from other parties at a reasonable cost, or at all, which could cause us to expend substantial resources, or result in delays in, or the cancellation of, new products. Moreover, customers and/or suppliers of our products may seek indemnification for alleged infringement of intellectual property rights. We could be liable for direct and consequential damages and expenses including attorneys' fees. A future obligation to indemnify our customers and/or suppliers may harm our business, financial condition and operating results.

If we are unable to protect our inventions successfully through the issuance and enforcement of patents, our operating results could be adversely affected.

We have an active program to protect our proprietary inventions through the filing of patents. There can be no assurance, however, that:

- any current or future U.S. or foreign patent applications will be approved and not be challenged by third parties;
- our issued patents will protect our intellectual property and not be challenged by third parties;
- the validity of our patents will be upheld;
- our patents will not be declared unenforceable;
- the patents of others will not have an adverse effect on our ability to do business;
- Congress or the U.S. courts or foreign countries will not change the nature or scope of rights afforded patents or patent owners or alter in an adverse way the process for seeking or enforcing patents;
- changes in law will not be implemented, or changes in interpretation of such laws will occur, that will affect our ability to protect and enforce our patents and other intellectual property;
- new legal theories and strategies utilized by our competitors will not be successful;

• others will not independently develop similar or competing chip interfaces or design around any patents that may be issued to us; or

factors such as difficulty in obtaining cooperation from inventors, pre-existing challenges or litigation, or license or other contract issues will not present additional challenges in securing protection with respect to patents and other intellectual property that we acquire.

If any of the above were to occur, our operating results could be adversely affected.

Furthermore, recent patent reform legislation, such as the Leahy-Smith America Invents Act, could increase the uncertainties and costs surrounding the prosecution of any patent applications and the enforcement or defense of our licensed patents. The federal courts, the USPTO, the Federal Trade Commission, and the U.S. International Trade Commission have also recently taken certain actions and issued rulings that have been viewed as unfavorable to patentees. While we cannot predict what form any new patent reform laws or regulations may ultimately take, or what impact recent or future reforms may have on our business, any laws or regulations that restrict or negatively impact our ability to enforce our patent rights against third parties could have a material adverse effect on our business.

In addition, our patents will continue to expire according to their terms, with expected expiration dates ranging from 2019 to 2037. Our failure to continuously develop or acquire successful innovations and obtain patents on those innovations could significantly harm our business, financial condition, results of operations, or cash flows.

Our inability to protect and own the intellectual property we create would cause our business to suffer.

We rely primarily on a combination of license, development and nondisclosure agreements, trademark, trade secret and copyright law and contractual provisions to protect our non-patentable intellectual property rights. If we fail to protect these intellectual property rights, our customers and others may seek to use our technology without the payment of license fees and royalties, which could weaken our competitive position, reduce our operating results and increase the likelihood of costly litigation. The growth of our business depends in part on the use of our intellectual property in the products of third party manufacturers, and our ability to enforce intellectual property rights against

them to obtain appropriate compensation. In addition, effective trade secret protection may be unavailable or limited in certain foreign countries. Although we intend to protect our rights vigorously, if we fail to do so, our business will suffer.

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Effective protection of trademarks, copyrights, domain names, patent rights, and other intellectual property rights is expensive and difficult to maintain, both in terms of application and maintenance costs, as well as the costs of defending and enforcing those rights. The efforts we have taken to protect our intellectual property rights may not be sufficient or effective. Our intellectual property rights may be infringed, misappropriated, or challenged, which could result in them being narrowed in scope or declared invalid or unenforceable. In addition, the laws or practices of certain countries do not protect our proprietary rights to the same extent as do the laws of the United States.

Significant impairments of our intellectual property rights, and limitations on our ability to assert our intellectual property rights against others, could have a material and adverse effect on our business.

Third parties may claim that our products or services infringe on their intellectual property rights, exposing us to litigation that, regardless of merit, may be costly to defend.

Our success and ability to compete are also dependent upon our ability to operate without infringing upon the patent, trademark and other intellectual property rights of others. Third parties may claim that our current or future products or services infringe upon their intellectual property rights. Any such claim, with or without merit, could be time consuming, divert management's attention from our business operations and result in significant expenses. We cannot assure you that we would be successful in defending against any such claims. In addition, parties making these claims may be able to obtain injunctive or other equitable relief affecting our ability to license the products that incorporate the challenged intellectual property. As a result of such claims, we may be required to obtain licenses from third parties, develop alternative technology or redesign our products. We cannot be sure that such licenses would be available on terms acceptable to us, if at all. If a successful claim is made against us and we are unable to develop or license alternative technology, our business, financial condition, operating results and cash flows could be materially adversely affected.

We rely upon the accuracy of our customers' recordkeeping, and any inaccuracies or payment disputes for amounts owed to us under our licensing agreements may harm our results of operations.

Many of our license agreements require our customers to document the manufacture and sale of products that incorporate our technology and report this data to us on a quarterly basis. While licenses with such terms give us the right to audit books and records of our customers to verify this information, audits rarely are undertaken because they can be expensive, time consuming, and potentially detrimental to our ongoing business relationship with our customers. Therefore, we typically rely on the accuracy of the reports from customers without independently verifying the information in them. Our failure to audit our customers' books and records may result in our receiving more or less royalty revenue than we are entitled to under the terms of our license agreements. If we conduct royalty audits in the future, such audits may trigger disagreements over contract terms with our customers and such disagreements could hamper customer relations, divert the efforts and attention of our management from normal operations and impact our business operations and financial condition.

Any dispute regarding our intellectual property may require us to indemnify certain customers, the cost of which could severely hamper our business operations and financial condition.

In any potential dispute involving our patents or other intellectual property, our customers could also become the target of litigation. While we generally do not indemnify our customers, some of our agreements provide for indemnification, and some require us to provide technical support and information to a customer that is involved in litigation involving use of our technology. In addition, we may be exposed to indemnification obligations, risks and liabilities that were unknown at the time of acquisitions, including with respect to our acquisitions of SCS, the assets of the Snowbush IP group and the Memory Interconnect Business, and we may agree to indemnify others in the future. Any of these indemnification and support obligations could result in substantial and material expenses. In addition to the time and expense required for us to indemnify or supply such support to our customers, a customer's development, marketing and sales of licensed semiconductors, mobile communications and data security technologies could be severely disrupted or shut down as a result of litigation, which in turn could severely hamper our business operations and financial condition as a result of lower or no royalty payments.

Item 2. Unregistered Sales of Equity Securities and Use of Proceeds

None.

Item 3. Defaults Upon Senior Securities
None.

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Item 4. Mine Safety Disclosures

Not Applicable.

Item 5. Other Information

None.

Item 6. Exhibits

INDEX TO EXHIBITS

Exhibit Number	Description of Document
<u>31.1</u>	Certification of Principal Executive Officer, pursuant to Rule 13a-14(a) and Rule 15d-14(a) of the Securities Exchange Act of 1934, as amended, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
<u>31.2</u>	Certification of Principal Financial Officer, pursuant to Rule 13a-14(a) and Rule 15d-14(a) of the Securities Exchange Act of 1934, as amended, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
<u>32.1*</u>	Certification of Principal Executive Officer, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
<u>32.2*</u>	Certification of Principal Financial Officer, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101.INS	XBRL Instance Document
101.SCH	XBRL Taxonomy Extension Schema Document
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document
101.LAB	XBRL Taxonomy Extension Label Linkbase Document
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document

The certifications furnished in Exhibit 32.1 and 32.2 hereto are deemed to accompany this Quarterly Report on Form 10-Q and will not be deemed “filed” for purposes of Section 18 of the Securities Exchange Act of 1934, as

* amended. Such certifications will not be deemed to be incorporated by reference into any filings under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended, except to the extent that the registrant specifically incorporates it by reference.

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SIGNATURE

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

RAMBUS INC.

Date: May 3, 2019 By: /s/ Rahul Mathur

Rahul Mathur

Senior Vice President, Finance and Chief Financial Officer
(Principal Financial Officer and Duly Authorized Officer)