RAMBUS INC
Form 10-K
February 17, 2017
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UNITED STATES SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

Form 10-K

(Mark One)

þ	ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934 For the fiscal year ended December 31, 2016 or
o	TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934 For the transition period from to

Commission file number: 000-22339

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

Delaware	94-3112828
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification Number)
1050 Enterprise Way, Suite 700	
Sunnyvale, California	94089
(Address of principal executive offices)	(Zip Code)

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

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

Title of Each Class	Name of Each Exchange on Which Registered
Common Stock, $.001 Par Value	The NASDAQ Stock Market LLC (The NASDAQ Global Select Market)

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

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

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

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 þ No o

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes þ No o

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§229.405 of this chapter) is not contained herein, and will not be contained, to the best of the registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. þ

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

Large accelerated filer þ	Accelerated filer ¨	Non-accelerated filer ¨ (Do not check if a smaller reporting company)	Smaller reporting company ¨

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

The aggregate market value of the Registrant's Common Stock held by non-affiliates of the Registrant as of June 30, 2016 was approximately $1.0 billion based upon the closing price reported for such date on The NASDAQ Global Select Market. For purposes of this disclosure, shares of Common Stock held by officers and directors of the Registrant and persons that may be deemed to be affiliates under the Act have been excluded. This determination of affiliate status is not necessarily a conclusive determination for other purposes.

The number of outstanding shares of the Registrant's Common Stock, $.001 par value, was 111,176,433 as of January 31, 2017.

DOCUMENTS INCORPORATED BY REFERENCE

Certain information is incorporated into Part III of this report by reference to the Proxy Statement for the Registrant's annual meeting of stockholders to be held on or about April 20, 2017 to be filed with the Securities and Exchange Commission pursuant to Regulation 14A not later than 120 days after the end of the fiscal year covered by this Form 10-K.

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NOTE REGARDING FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K ("Annual Report on Form 10-K") 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. These forward-looking statements include, without limitation, predictions regarding the following aspects of our future:

- Success in the markets of our products and services or our customers' products;
- Sources of competition;
- Research and development costs and improvements in technology;
- Sources, amounts and concentration of revenue, including royalties;
- Success in signing and renewing license agreements;
- Terms of our licenses and amounts owed under license agreements;
- Technology product development;
- Dispositions, acquisitions, mergers or strategic transactions and our related integration efforts, including our recent acquisition of Smart Card Software Ltd., the assets of Semtech Corporation's Snowbush IP group and Inphi Corporation's Memory Interconnect Business;
- Impairment of goodwill and long-lived assets;
- Pricing policies of our customers;
- Changes in our strategy and business model, including the expansion of our portfolio of inventions, products, software, services and solutions to address additional markets in lighting, 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;
- Effective tax rates;
- 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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- Outcome and effect of potential future intellectual property litigation and other significant litigation; and
- Likelihood of paying dividends.

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

Actual results could differ materially from those anticipated in these forward-looking statements as a result of various factors, including those set forth under 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

Rambus, XDR™, CryptoFirewall™, CryptoMedia™, CryptoManager™, TruEdge™ and MicroLens® are trademarks, registered trademarks or copyrights of Rambus Inc. Other trademarks or copyrights that may be mentioned in this Annual Report on Form 10-K are the property of their respective owners.

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Item 1. Business

Rambus creates innovative hardware and software technologies, driving advancements from the data center to the mobile edge. Our chips, customizable IP cores, patent licenses, software, services, and other innovations improve the competitive advantage of our customers. We collaborate with the industry, partnering with leading ASIC and SoC designers, foundries, IP developers, processor companies, EDA companies and validation labs. Our innovations are integrated into a wide range of devices and systems, powering and securing diverse applications, including Big Data, Internet of Things, mobile, consumer and media platforms.

While we have historically focused our efforts on the development 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 provisioning of services, as well as our licensing business models. Key to our efforts continues to be hiring and retaining world-class inventors, scientists and engineers to lead the development and deployment of inventions and technology solutions for our fields of focus.

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. Royalties from patent licenses accounted for 73%, 84% and 88% of our consolidated revenue for the years ended December 31, 2016, 2015 and 2014, respectively.

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, we acquired four businesses in 2016 in the fields of mobile payments, smart ticketing, memory buffer chips and SerDes IP cores. On January 25, 2016, our Security division completed the acquisition of Smart Card Software, Ltd. (“SCS”), a privately-held company incorporated in the United Kingdom. Through this purchase we acquired two complementary businesses: Bell Identification Ltd., a leader in mobile payments, and Ecebs Ltd., a leading supplier of smart ticketing systems. We believe these businesses complement our security division by allowing us to extend its foundational security technology to offer differentiated, value-added security solutions to its customers.

On August 4, 2016, our Memory and Interfaces division completed the acquisition of all the assets of Inphi’s Memory Interconnect Business. The acquisition included product inventory, customer contracts, supply chain agreements and intellectual property. On August 5, 2016, our Memory and Interfaces division completed the acquisition of the assets of Semtech’s Snowbush IP group. Snowbush IP, formerly part of Semtech’s Systems Innovation Group, is a provider of silicon-proven, high-performance serial link solutions. We believe these acquisitions strengthen our market position for memory buffer chip products and bolster our SerDes and IP offerings enabling us to better address the needs of the server, networking and data center market.

Organization

We have organized our business into four operational units:

- Memory and Interfaces (MID)
- Security (RSD)
- Emerging Solutions (ESD)
- Lighting (RLD)

As of December 31, 2016, MID and RSD met quantitative thresholds for disclosure as reportable segments. Results for ESD and RLD are shown under “Other.” For additional information concerning segment reporting, see Note 6, “Segments and Major Customers,” of Notes to Consolidated Financial Statements of this Form 10-K.

Memory and Interfaces

There are four main areas of focus in our Memory and Interface Division: mobile memory, server-based memory, serial link designs, and custom solutions. The primary markets for these technologies include: (1) DRAM devices; (2) NAND devices; (3) System-on-Chip (SoC) devices; (4) silicon physical IP; and (5) memory buffer chips. In these markets, memory interfaces, serial link transitions, processor and SoC microarchitecture transitions or overall process technology node transitions provide opportunities. For plug-in systems, there is a strong desire to reduce power consumption for both economic and environmental reasons while still providing increased computing capability. At the chip level, it becomes increasingly difficult to maintain signal integrity and power efficiency as data transfer speeds rise to support more powerful, multi-core processors.

To address these challenges and enable the continued improvement of electronics systems, ongoing innovation is required. The many contributions and patented innovations developed by Rambus scientists and engineers have been, and continue to be, critical in addressing some of the most difficult chip and system challenges. The foundations of MID are world-class memory architectures and high-performance serial link technologies that are brought to market through three main business initiatives: (1) patent licensing; (2) silicon IP core licensing; and (3) chipsets.

Patent Licensing

Our traditional patent licensing program remains our primary source of revenue. Our patent licenses provide our customers a license to use a certain portion of our portfolio of patented inventions in the customer's own digital electronics products, systems or services. 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 periods ranging up to ten years. Leading consumer product, industrial, semiconductor and system companies such as AMD, Broadcom, Cisco, Freescale, Fujitsu, GE, IBM, Intel, LSI, Micron, Nanya, NVIDIA, Panasonic, Qualcomm, Renesas, Samsung, SK hynix, STMicroelectronics, Toshiba and Xilinx have licensed our patents for use in their own products. The vast majority of our patents were secured through our internal research and development efforts across all of our business units.

Silicon IP Core Licensing

Our IP core licensing program offers a suite of memory and SerDes PHY solutions that are applicable to a broad range of applications ranging from servers and networking to consumer and mobile. Due to the often complex nature of implementing our technologies, we provide engineering services under certain of these licenses to help our customers successfully integrate our technology solutions into their semiconductor and system products. Licensees may also receive, in addition to their license agreements, patent licenses as necessary to implement the technology in their products with specific rights and restrictions to the applicable patents elaborated in their individual contracts. Our solutions are designed into systems bought by OEMs. We license both directly to ASIC design houses and semiconductor foundries that, in turn, sell to OEMs, or to OEMs directly.

Chip Sets

In the second half of 2016, we began to ship our first chips as a result of our acquisition of the Memory Interconnect Business. Currently, we offer DDR2, DDR3 and DDR4 chipsets for RDIMM and LRDIMM server modules that support the data center and enterprise server infrastructure markets.

We sell our semiconductor products directly and indirectly to module manufacturers and OEMs worldwide through multiple channels, including our direct sales force and distributors. We operate direct sales offices in Japan, Korea, Taiwan, China, and the United States and employ sales personnel that cover our direct customers and manage our channel partners.

We operate a fabless business model and use third-party foundries and assembly and test manufacturing contractors to manufacture, assemble and test our semiconductor products. We also inspect and test parts in our U.S. based facilities. This outsourced manufacturing approach allows us to focus our resources on the design, sale and marketing of our products. Outsourcing also allows us the flexibility needed to respond to new market opportunities, simplifies our operations and significantly reduces our capital requirements.

Security

Security challenges are increasingly prevalent in a multitude of industries, including high-growth sectors such as mobile and the data center, providing a variety of opportunities for our security technologies and services. We believe robust security starts with the design of the SoC and continues through the manufacturing supply chain to end-user applications. In line with this thinking, RSD offers a suite of products and services from DPA countermeasures and cores to our CryptoManager™ solution, mobile payments and smart ticketing.

DPA Countermeasures and Cores

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We own a portfolio of patented inventions and technology solutions that are needed for creating secure tamper-resistant electronic devices and systems. These patented DPA countermeasures are critical in protecting devices against side channel attacks such as differential power analysis, which involve monitoring the variations in power consumption or electromagnetic emissions of a device. In addition, our hardware-based cores provide a robust hardware-based solution to protect electronics systems from side-channel attacks, counterfeiting, piracy, and other forms of attack.

For DPA countermeasures, our business model is to provide a combination of patent licenses, technology, consulting services (training, evaluation, and design), and test equipment as well as DPA resistant cores and software libraries. We are recognized worldwide for our expertise in this area, and our strategy is to strengthen our offering beyond stand-alone patent licensing. We discovered the existence of SPA and DPA vulnerabilities in the 1990s, and patented the fundamental techniques for preventing against this method of attack. DPA protections are a critical security ingredient in tamper-resistant products, and are important or required for a broad range of applications and devices (including smart cards, mobile devices, FPGAs, government/defense applications, consumer set-top boxes, postage meters and security tokens).

In addition to the DPA countermeasures portfolio, we have developed technologies, expertise, advanced designs, and development tools for building highly secure cryptographic semiconductor cores. We have successfully deployed our semiconductor cores in two primary application areas where effective security is valued and paid for by customers: content protection and anti-counterfeiting.

CryptoManager

As connected products, including mobile phones and IoT devices, have a fundamental need for security, a robust security system is critical. Robust security starts with the design of the SoC and continues with the manufacturing supply chain. The Rambus CryptoManager solution brings revolutionary security improvements to the semiconductor chips and supply chains that enable our mobile world.

The CryptoManager platform provides chip and device companies with an advanced hardware root-of-trust for their SoCs, as well as an Infrastructure Suite for end-to-end security throughout the SoC design and manufacturing process. The CryptoManager platform has been developed with a services-based architecture that enables a secure, two-way communication channel across the manufacturing stages. This fully integrated solution is built on a foundation that simplifies, automates, and reduces costs for global enterprise IT, manufacturing, and operations functions. The platform is designed to support the enablement of in-field provisioning and downstream services, such as media, ticketing and mobile payments.

Mobile Payments

NFC-based mobile payments offer many advantages to consumers, retailers and financial institutions alike. For consumers, mobile wallets provide a convenient, “tap and go” frictionless commerce experience, seamlessly integrating credit cards, loyalty points and gift cards, while leveraging enhanced security features like multi-factor authentication and biometrics. For retailers, mobile wallets offer businesses the ability to engage users with an immersive, in-app experience that bridges the gap from digital to physical with profile-based shopping to offer customized recommendations and coupons to customers. Finally for banks, mobile wallets enhance protection from fraud and greater customer engagement and loyalty.

Our technology adapts to any mobile payments ecosystem - whether card credentials are stored on the device or in the cloud using host card emulation - and ensures security through tokenization. With our software, customers can fulfill the role of a token service provider, securing transactions by removing vulnerable card data from the payment network. Our mobile payment solutions are primarily offered to financial institutions through software license agreements.

Smart Ticketing

Smart ticketing is changing the way people travel by bringing greater convenience and security to travelers and transport operators alike. Through the use of smart cards and smart phones, travelers store their tickets electronically, eliminating the need for traditional paper tickets and enabling users to simply tap their smart card or device on a gate or validator to access their travel. Our smart ticketing technology combines back-office processing and analytics systems with web portals, mobile applications and smart cards to deliver comprehensive solutions to transport operators and local authorities. Data analytics enable improved profitability and optimization of smart transport schemes through access to real-world travel data, with easy management of transaction data to ensure accurate reimbursements. ITSO certified and interoperable with existing transport providers, our smart ticketing solutions are easy to integrate across multiple modes of travel, simplifying customer journeys at

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lower cost. Currently, our smart ticketing solutions are primarily offered to public transit authorities in the United Kingdom and we are working to expand our offerings into the broader European Union.

Emerging Solutions

ESD encompasses our long-term research and development efforts in emerging technologies, including our lensless smart sensor and smart data acceleration research programs as well as next-generation memory solutions and cryogenic computing. ESD programs are generally at the research and pre-commercial stages and may involve collaboration with government entities, universities and industry partners.

Lighting

The continued adoption of LED as a bright, reliable and energy-efficient light source creates significant market opportunities in the field of general lighting. We have pioneered a light guide-based design that enables a new level of styling, efficiency and control for LED lighting. Our innovations combine our TruEdge™ LED Coupling (maximizing the amount of light emitted from the LED to a light guide) with our MicroLens® optics (tiny 3D features that control how light is emitted from a light guide) to create efficient and cost-effective fixtures. Our light guides are available as off-the-shelf or customized designs that are optimized to specific customer and application requirements by varying the size, shape and density of the MicroLens optics. Manufactured by our global lighting partners or at our state-of-the-art facility in Brecksville, Ohio, our light guides can support both flat and curved designs in a broad range of high volume lighting applications. In addition, complete fixture prototype designs that combine our optical innovations, design engineering and manufacturing support services are also available to lighting system companies and fixture manufacturers worldwide.

Competition

Our industries are intensely competitive and have been impacted by rapid technological change, short product life cycles, cyclical market patterns, price erosion, increasing foreign and domestic competition and market consolidation. We believe the principal competition for our technologies may come from our prospective customers, some of whom 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 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 the past, litigation has been and in the future may be required to enforce and protect our intellectual property rights, as well as the substantial investments undertaken to research and develop our innovations and technologies.

Research, Development and Employees

Our growth strategy will be substantially dependent on our ability to develop key innovations that meet the future needs of a dynamic market. To this end, we continue to invest substantial funds in research and development and have assembled a team of highly skilled inventors, engineers and scientists whose activities are focused on continually developing new innovations within our chosen technology fields. Using this foundation of innovations, our technical teams develop new solutions that enable increased performance, greater power efficiency, increased levels of security, as well as other improvements and benefits. Our solution design and development process is a multi-disciplinary effort requiring expertise in multiple fields across all of our operational units.

As of December 31, 2016, we had approximately 540 employees in our engineering departments, representing 70% of our total number of 767 employees. None of our employees are covered by collective bargaining agreements. As noted, we believe our future success is dependent on our continued ability to identify, attract, motivate and retain qualified personnel. In order to attract qualified employees, we have created an environment and culture that encourages, fosters and supports research, development and innovation in breakthrough technologies with significant opportunities for broad industry adoption. To date, we believe we have been successful in recruiting qualified employees and that we have a good relationship with our employees.

A significant number of our scientists and engineers spend all or a portion of their time on research and development. For the years ended December 31, 2016, 2015 and 2014, research and development expenses were $129.8 million, $111.1 million and $110.0 million, respectively. We expect to continue to invest substantial funds in research and development activities. In addition, because our customer agreements often call for us to provide engineering support, a portion of our total engineering costs are allocated to the cost of contract revenue.

Intellectual Property

We maintain and support an active program to protect our intellectual property, primarily through the filing of patent applications and the defense of issued patents against infringement. As of December 31, 2016, our technologies are covered by 1,989 U.S. and foreign patents, having expiration dates ranging from 2017 to 2038. Additionally, we have 646 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 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.

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. In addition, we attempt to protect our trade secrets and other proprietary information through agreements with current and prospective customers, and confidentiality agreements with employees and consultants and other security measures. We also rely on copyright, trademarks and trade secret laws to protect our intellectual property.

Corporate and Other Information

Rambus Inc. was founded in 1990 and reincorporated in Delaware in March 1997. Our principal executive offices are located at 1050 Enterprise Way, Suite 700, Sunnyvale, California. Our website is www.rambus.com. The inclusion of our website address in this report does not include or incorporate by reference into this report any information on our website. You can obtain copies of our Forms 10-K, 10-Q, 8-K, and other filings with the SEC, and all amendments to these filings, free of charge, from our website as soon as reasonably practicable following our filing of any of these reports with the SEC. In addition, you may read and copy any material we file with the SEC at the SEC’s Public Reference Room at 100 F Street NE, Room 1580, Washington, D.C. 20549. You may obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. The SEC also maintains a website that contains reports, proxy, and information statements, and other information regarding registrants that file electronically with the SEC at www.sec.gov.

Information concerning our revenue, results of operations and revenue by geographic area is set forth in Item 6, “Selected Financial Data,” in Item 7, “Management’s Discussion and Analysis of Financial Condition and Results of Operations,” and in Note 6, “Segments and Major Customers,” of Notes to Consolidated Financial Statements of this Form 10-K, all of which are incorporated herein by reference. Information concerning identifiable assets and segment reporting is also set forth in Note 6, “Segments and Major Customers,” of Notes to Consolidated Financial Statements of this Form 10-K. Information on customers that comprise 10% or more of our consolidated revenue and risks attendant to our foreign operations is set forth below in Item 1A, “Risk Factors .”

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Item 1A. Risk Factors
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 without any degree of certainty. 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, general lighting, 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, other semiconductor intellectual property companies that provide security cores and non-edge lit LED lighting options that are available to the market. We believe the principal competition for our technologies may come from our prospective customers, some of whom 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 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, including our CryptoManager platform and new offerings that have resulted from our acquisition of SCS in the mobile payment and smart ticketing solution spaces, and our acquisitions of the assets of the Snowbush IP group and the Memory Interconnect Business, 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.

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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 represented approximately 63% and 65% of our revenues for the years ended December 31, 2016 and 2015, respectively. For both of the years ended December 31, 2016 and 2015, revenues from Micron, Samsung and SK hynix each accounted for 10% or more of our total revenue in each year. We extended our license agreement with Samsung in December 2013, and we expect Samsung to continue to account for a significant portion of our licensing revenue. We also entered into settlement agreements with each of SK hynix and Micron (which included Elpida, which Micron had acquired in July 2013) in June 2013 and December 2013, respectively. In June 2015, we also extended our license agreement with SK hynix. As a result of the renewal and such settlements, we expect each of Samsung, SK hynix and Micron to account for a significant portion of our licensing revenue in the future. 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.

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

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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 whom 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, lighting, 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 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. As a result, our actual results may differ substantially from analyst estimates or our forecasts in any given quarter.

Furthermore, 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.

We may not be successful in entering into new markets, and our new product offerings, such as our acquisitions of SCS, the assets of the Snowbush IP group and the Memory Interconnect Business, our CryptoManager platform and new offerings in the mobile credential and smart card solution spaces, may not be adopted by our customers or potential customers. 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.

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We provide guidance regarding our expected financial and business performance including our anticipated future revenues and operating expenses. Correctly identifying the key factors affecting business conditions and predicting future events is inherently an uncertain process.
Such guidance may not always be accurate or may vary from actual results due to our inability to meet our assumptions and the impact on our financial performance that could occur as a result of the various risks and uncertainties to our business as set forth in these risk factors. 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.
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 and strategic investments, such as our acquisitions of SCS, the assets of the Snowbush IP group and the Memory Interconnect Business. 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; 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.
From time to time, we may also divest certain assets, where we may be required to provide certain representations, warranties and covenants to their 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 years ended December 31, 2016 and 2015, revenues received from our international customers constituted approximately 64% and 60%, 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.

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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 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;
- 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 whom 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 or business relationships and could cause our business and operations to suffer.

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 the ability of RSD to license its data security technologies to the manufacturers and providers of such products and services in certain markets or may require RSD

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or its 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 of RSD's 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 individuals. Our failure to comply with export and use regulations concerning encryption technology of RSD 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. 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 who 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, our RLD product offerings 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 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 and product liability claims with regard to product performance and our services. We could incur 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

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reputation and on positive recommendations from our existing customers. Any failure to maintain high-quality technical 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, such as the restructuring and plan of termination that we undertook in the fourth quarter of 2015. 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.

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 of companies with business models or target markets different from our own;

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- 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; and
- issuance of additional securities by us, including in acquisitions.

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 $138.0 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 August 2013, we issued $138.0 million aggregate principal amount of our 2018 Notes which remain outstanding. The degree to which we are leveraged could have negative consequences, including, but not limited to, the following:

- 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 the principal amount of our existing indebtedness when it becomes due at maturity in August 2018; and
- we may be required to make cash payments upon any conversion of the 2018 Notes, which would reduce our cash on hand.

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 2018 Notes. Any required repurchase of the 2018 Notes as a result of a fundamental change or acceleration of the 2018 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.

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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 2018 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 2018 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 2018 Notes, all or a portion of their 2018 Notes. We may also be required to increase the conversion rate of such 2018 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 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

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 tend 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

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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 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;

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- 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 expiration dates ranging from 2017 to 2038. 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.

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

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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 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, lighting, 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 1B. Unresolved Staff Comments

None.

Item 2. Properties

As of December 31, 2016, we occupied offices in the leased facilities described below:

Number of Offices Under Lease	Location	Primary Use
6	United States	
	Sunnyvale, CA (Corporate Headquarters)	Executive and administrative offices, research and development, sales and marketing and service functions
	Chapel Hill, NC	Research and development
	Brecksville, OH (2)	Research and development, prototyping and light manufacturing facility
	San Francisco, CA	Research and development
	Richardson, TX	Research and development
	Westlake Village, CA	Research and development
1	Bangalore, India	Administrative offices, research and development and service functions
1	Tokyo, Japan	Business development
1	Seoul, Korea	Business development
1	Shanghai, China	Business development
1	Taipei, Taiwan	Business development
1	Melbourne, Australia	Business development
1	Rotterdam, The Netherlands	Administrative offices, research and development, sales and marketing and service functions
1	East Kilbride, United Kingdom	Administrative offices, research and development, sales and marketing and service functions
1	Toronto, Canada	Research and development
1	Espoo, Finland	Research and development

Item 3. 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 resources and other factors.

Item 4. Mine Safety Disclosures

Not applicable.

PART II

Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

Our Common Stock is listed on The NASDAQ Global Select Market under the symbol "RMBS." The following table sets forth for the periods indicated the high and low sales price per share of our common stock as reported on The NASDAQ Global Select Market.

	Year Ended December 31, 2016		Year Ended December 31, 2015	
	High	Low	High	Low
First Quarter	$13.99	$10.66	$12.88	$10.01
Second Quarter	$13.97	$11.13	$15.49	$12.44
Third Quarter	$14.50	$11.42	$14.80	$10.36
Fourth Quarter	$14.39	$11.44	$14.07	$9.86

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The graph below compares the cumulative 5-year total return of holders of Rambus Inc.'s common stock with the cumulative total returns of the NASDAQ Composite index and the RDG Semiconductor Composite index. The graph tracks the performance of a $100 investment in our common stock and in each index (with the reinvestment of all dividends) from December 31, 2011 to December 31, 2016.

Fiscal years ending:

	12/11	12/12	12/13	12/14	12/15	12/16
Rambus Inc.	100.00	64.50	125.43	146.89	153.51	182.38
NASDAQ Composite	100.00	116.41	165.47	188.69	200.32	216.54
RDG Semiconductor Composite	100.00	101.55	137.33	170.90	153.05	206.30

The stock price performance included in this graph is not necessarily indicative of future stock price performance.
Information regarding our securities authorized for issuance under equity compensation plans will be included in Item 12, “Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters,” of this report on Form 10-K.

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As of January 31, 2017, there were 521 holders of record of our common stock. Since many of the shares of our common stock are held by brokers and other institutions on behalf of stockholders, we are unable to estimate the total number of beneficial stockholders represented by these record holders.

We have never paid or declared any cash dividends on our common stock or other securities.

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. After giving effect to the accelerated share repurchase program detailed in the table below, we had remaining authorization to repurchase approximately 11.5 million shares.

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.

Period	Total Number of Shares Purchased	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs	Maximum Number of Shares that May Yet be Purchased Under the Plans or Programs
Cumulative shares repurchased as of December 31, 2015 (1)	7,812,500	$11.70	7,812,500	12,187,500
April 1, 2016 - April 30, 2016 (1)	735,861	$11.70	735,861	11,451,639
Cumulative shares repurchased as of December 31, 2016	8,548,361		8,548,361	

(1) In the fourth quarter of 2015, we entered into an accelerated share repurchase program with a financial institution to repurchase an aggregate of $100.0 million of our common stock. We made an upfront payment of $100.0 million pursuant to the accelerated share repurchase program and received an initial delivery of 7.8 million shares which were retired. During the second quarter of 2016, the accelerated share repurchase program was completed and we received an additional 0.7 million shares of our common stock, which were retired, as the final settlement of the accelerated share repurchase program. The total shares of our common stock received and retired under the terms of the accelerated share repurchase program were 8.5 million, with an average price paid per share of $11.70. See Note 13, "Stockholders' Equity," of Notes to Consolidated Financial Statements of this Form 10-K for further discussion.

Item 6. Selected Financial Data

The following selected consolidated financial data as of and for the years ended December 31, 2016, 2015, 2014, 2013 and 2012 was derived from our consolidated financial statements. The following selected consolidated financial data should be read in conjunction with Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations," and Item 8, "Financial Statements and Supplementary Data," and other financial data included elsewhere in this report. Our historical results of operations are not necessarily indicative of results of operations to be expected for any future period.

	Years Ended December 31,				
	2016 (1) (2)	2015 (2) (3) (4)	2014 (2)	2013 (1) (2)	2012 (1)
	(In thousands, except per share amounts)				
Total revenue	$336,597	$296,278	$296,558	$271,501	$234,051
Net income (loss)	$6,820	$211,388	$26,201	$(33,748)	$(134,336)
Net income (loss) per share:					
Basic	$0.06	$1.84	$0.23	$(0.30)	$(1.21)
Diluted	$0.06	$1.80	$0.22	$(0.30)	$(1.21)
Consolidated Balance Sheet Data:					
Cash, cash equivalents and marketable securities	$172,182	$287,706	$300,109	$387,662	$203,330
Total assets	$783,496	$718,021	$586,235	$710,485	$586,886
Convertible notes	$126,167	$119,418	$113,045	$270,782	$146,630
Stockholders' equity	$552,782	$526,533	$391,622	$340,229	$321,594

(1) The net income for the year ended December 31, 2016 included $18.3 million of impairment of in-process research and development intangible asset and a reduction of operating expenses due to the change in our contingent consideration liability of $6.8 million. The net loss for the years ended December 31, 2013 and 2012 included $17.8 million and $35.5 million, respectively, of impairment of goodwill and long-lived assets.

(2) The net income (loss) for the years ended December 31, 2016, 2015, 2014 and 2013 included $0.6 million, $2.0 million, $2.0 million, and $0.5 million, respectively, of gain from settlement which was reflected as a reduction of operating costs and expenses.

(3) The net income for the year ended December 31, 2015 included $174.5 million related to the reversal of the deferred tax asset valuation allowance.

(4) Stockholders' equity includes $100.0 million paid under the accelerated share repurchase program as well as the $174.5 million net impact of the reversal of the deferred tax asset valuation allowance.

Item 7. 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.

The following discussion and analysis should be read in conjunction with the consolidated financial statements and related notes that are included elsewhere in this report.

Executive Summary

In 2016, we continued our transition from a pure IP licensing model to one that delivers increasing value to the market through chips, customizable IP cores, software and services. In line with our growth strategy, we acquired four businesses in 2016 in the fields of mobile payments, smart ticketing, memory buffer chips and SerDes IP cores. We also continued to execute on our traditional patent licensing business by signing key license agreements with AMD, Xilinx and others. Key 2016 financial results included:

- Revenue of $336.6 million;
- Total Operating Costs and Expenses of $303.0 million

- Annual GAAP diluted net income per share of $0.06; and

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- Operating cash flows of $92.5 million

Business Overview

Rambus creates innovative hardware and software technologies, driving advancements from the data center to the mobile edge. Our chips, customizable IP cores, patent licenses, software, services, and other innovations improve the competitive advantage of our customers. We collaborate with the industry, partnering with leading ASIC and SoC designers, foundries, IP developers, processor companies, EDA companies and validation labs. Our innovations are integrated into a wide range of devices and systems, powering and securing diverse applications, including Big Data, Internet of Things, mobile, consumer and media platforms.

While we have historically focused our efforts on the development 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 provisioning of services, as well as our licensing business models. Key to our efforts continues to be hiring and retaining 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, we acquired four businesses in 2016 in the fields of mobile payments, smart ticketing, memory buffer chips and SerDes IP cores. On January 25, 2016, our Security division completed the acquisition of Smart Card Software, Ltd. (“SCS”), a privately-held company incorporated in the United Kingdom, for a pound sterling equivalent of $104.7 million in cash. Through this purchase we acquired two complementary businesses: Bell Identification Ltd., a leader in mobile payments, and Ecebs Ltd., a leading supplier of smart ticketing systems. We believe these businesses complement our security division by allowing us to extend our foundational security technology to offer differentiated, value-added security solutions to its customers.

On August 4, 2016, our Memory and Interfaces division completed the acquisition of all the assets of Inphi’s Memory Interconnect Business for $90 million in cash. The acquisition included product inventory, customer contracts, supply chain agreements and intellectual property. On August 5, 2016, our Memory and Interfaces division completed the acquisition of the assets of Semtech’s Snowbush IP group for $32 million in cash. Snowbush IP, formerly part of Semtech’s Systems Innovation Group, is a provider of silicon-proven, high-performance serial link solutions. We believe these acquisitions strengthen our market position for memory buffer chip products and bolster our SerDes and IP offerings enabling us to better address the needs of the server, networking and data center market.

Organization

We have organized the business into four 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) 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; (3) Emerging Solutions, or ESD, which encompasses our long-term research and development efforts in the area of emerging technologies; and (4) Lighting, or RLD, which focuses on the design, development and licensing of technologies for advanced LED-based lighting solutions. As of December 31, 2016, MID and RSD met quantitative thresholds for disclosure as reportable segments. Results for ESD and RLD are shown under “Other.” For additional information concerning segment reporting, see Note 6, “Segments and Major Customers,” of Notes to Consolidated Financial Statements of this Form 10-K.

Revenue Sources

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, GE, IBM, Intel, LSI, Micron, Nanya, NVIDIA, Panasonic, Qualcomm, Renesas, Samsung, SK hynix, STMicroelectronics, Toshiba and Xilinx have licensed our patents, the majority of which we have produced organically, for use in their own products. Royalties from patent licenses accounted for 73%, 84% and 88% of our consolidated revenue for the years ended December 31, 2016, 2015 and 2014, respectively.

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 Eaton, GE, 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. Royalties from technology licenses accounted for 6%, 5% and 4% of our consolidated revenue for the years ended December 31, 2016, 2015 and 2014, respectively.

The remainder of our revenue is 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. Contract and other revenue accounted for 21%, 11% and 8% of our consolidated revenue for the years ended December 31, 2016, 2015 and 2014, respectively.

Expenses

Engineering expenses continue to play a key role in our efforts to maintain product innovations. Our engineering expenses for 2016 increased $40.5 million as compared to the same period in 2015 primarily due to the business acquisitions during 2016. This includes increased headcount related expenses of $12.9 million, increased cost of sales associated with sales of memory and security products and engineering services of $10.3 million (which includes $2.3 million related to the purchase accounting adjustment for inventory fair value step-up from the acquisition of the Memory Interconnect Business), increased amortization costs of $7.0 million, increased expenses related to software design tools of $3.7 million, increased stock-based compensation expense of $2.4 million, increased consulting costs of $2.5 million offset by decreased prototyping costs of $0.5 million.

Sales, general and administrative expenses for 2016 increased $24.6 million as compared to the same period in 2015 primarily due to the business acquisitions during 2016. This includes increased headcount related expenses of $6.1 million, increased amortization costs of $5.0 million, various acquisition related costs of $3.1 million, increased stock-based compensation expense of $3.5 million, increased consulting costs of $2.8 million, increased facilities costs of $1.4 million and increased travel costs of $1.3 million.

Intellectual Property

As of December 31, 2016, our semiconductor, lighting, security and other technologies are covered by 1,989 U.S. and foreign patents. Additionally, we have 646 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, adoption of LEDs in edge-lit general lighting, 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 for each reporting period represented approximately 63% of our revenue for 2016 as compared to 65% in 2015 and 62% in 2014. For 2016, 2015 and 2014, revenue from Micron, Samsung and SK hynix each accounted for 10% or more of our total revenue. While we expect Samsung, SK hynix and Micron to account for a significant portion of our ongoing licensing revenue, 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 64% in 2016 as compared to 60% in 2015 and 63% in 2014. We expect that revenue derived from international customers will continue to represent a significant portion of our total revenue in the future. To date, the majority of the revenue from international customers has been denominated in U.S. dollars. However, to the extent that such customers' sales to their customers are not denominated in U.S. dollars, any revenue that we receive as a result of such sales could be subject to fluctuations in currency exchange rates. In addition, if the effective price of licensed products sold by our foreign customers were to increase as a result of fluctuations in the exchange rate of the relevant currencies, demand for licensed products could fall, which in turn would reduce our revenue. We do not use financial instruments to hedge foreign exchange rate risk. For additional information concerning international revenue, see Note 6, "Segments and Major Customers," of Notes to Consolidated Financial Statements of this Form 10-K.

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, CryptoMedia™, CryptoFirewall™ and 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.

Engineering costs as well as sales, general and administrative expenses in the aggregate and as a percentage of revenue increased in 2016 as compared to 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, including costs related to the various acquisitions. In addition, while we have not been involved in material litigation since 2014, to the extent litigation is again necessary, our expectations on the amount and timing of any future general and administrative costs is uncertain.

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

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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 consolidated statements of operations:

	Years Ended December 31,		
	2016	2015	2014
Revenue:			
Royalties	78.6 %	88.6 %	91.6 %
Contract and other revenue	21.4 %	11.4 %	8.4 %
Total revenue	100.0 %	100.0 %	100.0 %
Operating costs and expenses:			
Cost of revenue*	19.9 %	15.3 %	14.1 %
Research and development*	38.6 %	37.5 %	37.1 %
Sales, general and administrative*	28.3 %	23.8 %	25.2 %
Restructuring charges	— %	1.2 %	0.0 %
Impairment of in-process research and development intangible asset	5.4 %	— %	— %
Change in contingent consideration liability	(2.0)%	— %	— %
Gain from sale of intellectual property	— %	(1.2)%	(1.2)%
Gain from settlement	(0.2)%	(0.7)%	(0.6)%
Total operating costs and expenses	90.0 %	75.9 %	74.6 %
Operating income	10.0 %	24.1 %	25.4 %
Interest income and other income, net	0.5 %	0.3 %	(0.1)%
Interest expense	(3.8)%	(4.2)%	(8.4)%
Interest and other income (expense), net	(3.3)%	(3.9)%	(8.5)%
Income before income taxes	6.7 %	20.2 %	16.9 %
Provision for (benefit from) income taxes	4.7 %	(51.0)%	8.1 %
Net income	2.0 %	71.2 %	8.8 %

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* Includes stock-based compensation:			
Cost of revenue	0.0%	0.0%	0.0%
Research and development	2.7%	2.3%	2.4%
Sales, general and administrative	3.5%	2.8%	2.5%

Segment Results

Revenue from the MID reportable segment increased approximately $17.8 million to $239.8 million for the year ended December 31, 2016 from $222.0 million for the year ended December 31, 2015. The increase was primarily due to sales of memory products, including revenue from the Memory and Interfaces Business and various new development projects, higher royalty revenue recognized from SK hynix and Xilinx, offset by lower royalty revenue from AMD, IBM and Renesas.

Segment operating income from the MID reportable segment decreased approximately $2.8 million to $171.4 million for the year ended December 31, 2016 from $174.2 million for the year ended December 31, 2015. The decrease was primarily due to an increase in cost of sales related to sales of memory products and increased headcount related costs due to higher number of employees in 2016 primarily due to the acquisition of the assets of the Snowbush IP group and Memory Interconnect Business.

Revenue from the RSD reportable segment increased approximately $25.7 million to $76.2 million for the year ended December 31, 2016 from $50.5 million for the year ended December 31, 2015. The increase was primarily due to higher revenue from security technology development projects, including revenue from the acquisition of SCS, and higher royalty revenue from Qualcomm, Xilinx and various other customers, offset by lower royalty revenue from Nagravision, Renesas and STMicroelectronics.

Segment operating income from the RSD reportable segment increased approximately $2.9 million to $24.3 million for the year ended December 31, 2016 from $21.4 million for the year ended December 31, 2015. The increase was primarily due to increase in revenue as discussed above, partially offset by increased headcount related costs due to higher number of employees in 2016 primarily due to the SCS acquisition.

Revenue from the Other segment decreased approximately $3.2 million to $20.6 million for the year ended December 31, 2016 from $23.8 million for the year ended December 31, 2015. The decrease was primarily due to decreased sales of light guides and decreased revenue from lighting technology development projects.

Segment operating loss from the Other segment increased approximately $1.5 million to $9.8 million for the year ended December 31, 2016 from $8.3 million for the year ended December 31, 2015. The increase was primarily due to decreased revenue as discussed above and lack of gain from sale of intellectual property in 2016.

Revenue from the MID reportable segment decreased approximately $4.3 million to $222.0 million for the year ended December 31, 2015 from $226.3 million for the year ended December 31, 2014. The decrease was primarily due to lower royalty revenue from AMD, Nanya, NVIDIA, Renesas and STMicroelectronics, offset by higher royalty revenue from IBM and SK hynix.

Segment operating income from the MID reportable segment decreased approximately $11.3 million to $174.2 million for the year ended December 31, 2015 from $185.5 million for the year ended December 31, 2014. The decrease was primarily due to decrease in revenue as discussed above and increased expenses related to software design tools and increased prototyping costs.

Revenue from the RSD reportable segment increased approximately $1.2 million to $50.5 million for the year ended December 31, 2015 from $49.3 million for the year ended December 31, 2014. The increase was primarily due to higher revenue from security products, offset by lower royalty revenue from Qualcomm, STMicroelectronics and a smartphone and tablet manufacturer.

Segment operating income from the RSD reportable segment remained relatively flat at $21.4 million for the year ended December 31, 2015 as compared to $21.7 million for the year ended December 31, 2014.

Revenue from the Other segment increased approximately $2.9 million to $23.8 million for the year ended December 31, 2015 from $20.9 million for the year ended December 31, 2014. The increase was primarily due to increased lighting technology development projects and sales of light guides.

Segment operating loss from the Other segment decreased approximately $4.9 million to $8.3 million for the year ended December 31, 2015 from $13.2 million for the year ended December 31, 2014. The decrease was primarily due to increase in revenue as discussed above and lower prototyping costs.

	Years Ended December 31,			2015 to 2016	2014 to 2015
	2016	2015	2014	Change	Change
	(Dollars in millions)				
Total Revenue					
Royalties	$264.6	$262.4	$271.5	0.8 %	(3.4)%
Contract and other revenue	72.0	33.9	25.1	112.6%	35.3 %
Total revenue	$336.6	$296.3	$296.6	13.6 %	(0.1)%

Royalty Revenue

Patent Licenses

Our patent royalties decreased approximately $4.5 million to $244.4 million for the year ended December 31, 2016 from $248.9 million for the same period in 2015. The decrease was primarily due to lower royalty revenue from AMD, IBM, Renesas and STMicroelectronics, offset by higher royalty revenue recognized from Qualcomm, SK hynix and Xilinx. Of the $244.4 million patent royalties for the year ended December 31, 2016, $21.2 million is related to past royalty revenue from settlement of past legal proceedings with SK Hynix and Micron.

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Our patent royalties decreased approximately $12.0 million to $248.9 million for the year ended December 31, 2015 from $260.9 million for the same period in 2014. The decrease in 2015 was primarily due to lower royalty revenue recognized from AMD, NVIDIA, Renesas, STMicroelectronics and a smartphone and tablet manufacturer, offset by higher royalty revenue from IBM and SK hynix. Of the $248.9 million patent royalties for the year ended December 31, 2015, $86.0 million is related to past royalty revenue from settlement of past legal proceedings with SK hynix and Micron.

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.

Technology Licenses

Royalties from technology licenses increased approximately $6.7 million to $20.2 million for the year ended December 31, 2016 from $13.5 million for the same period in 2015. The increase was primarily due to higher royalties from Eaton and various security technology license revenue, offset by lower royalties from Nagravision.

Royalties from technology licenses increased approximately $2.9 million to $13.5 million for the year ended December 31, 2015 from $10.6 million for the same period in 2014. The increase was primarily due to higher royalties from security and lighting technology license revenue, offset by lower royalties from XDR™ DRAM associated with decreased shipments of the Sony PlayStation®3 product.

In the future, we expect 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 Segment

Royalty revenue from the MID reportable segment, which includes patent and technology license royalties, decreased approximately $5.0 million to $212.7 million for the year ended December 31, 2016 from $217.7 million for the same period in 2015. The decrease was primarily due to lower royalty revenue from AMD, IBM and Renesas, offset by higher royalty revenue recognized from SK hynix and Xilinx.

Royalty revenue from the RSD reportable segment, which includes patent and technology license royalties, increased $5.5 million to $46.9 million for the year ended December 31, 2016 from $41.4 million for the same period in 2015. The increase was primarily due to higher royalty revenue from Qualcomm, Xilinx and various other customers, offset by lower royalty revenue from Nagravision, Renesas and STMicroelectronics.

Royalty revenue from the Other segment increased $1.8 million to $5.1 million for the year ended December 31, 2016 from $3.3 million for the same period in 2015. The increase was due to increased royalties from technology licenses associated with increased shipments of lighting products.

Royalty revenue from the MID reportable segment decreased approximately $5.8 million to $217.7 million for the year ended December 31, 2015 from $223.5 million for the same period in 2014. The decrease was primarily due to lower royalty revenue from AMD, Nanya, NVIDIA, Renesas and STMicroelectronics, offset by higher royalty revenue from IBM and SK hynix.

Royalty revenue from the RSD reportable segment decreased approximately $4.3 million to $41.4 million for the year ended December 31, 2015 from $45.7 million for the same period in 2014. The decrease was primarily due to lower royalty revenue from Qualcomm, STMicroelectronics and a smartphone and tablet manufacturer.

Royalty revenue from the Other segment increased $1.0 million to $3.3 million for the year ended December 31, 2015 from $2.3 million for the same period in 2014. The increase was due to increased royalties from technology licenses associated with increased shipments of lighting products.

Contract and Other Revenue

Contract and other revenue consists of revenue from technology development and sale of memory, security and lighting products. Contract and other revenue increased approximately $38.2 million to $72.0 million for the year ended December 31, 2016 from $33.8 million for the same period in 2015. The increase was primarily due to sales of memory products, including revenue from the Snowbush IP group and the Memory Interconnect Business, and increased security technology development projects, including revenue from the acquisition of SCS, offset by decreased sales of light guides.

Contract and other revenue increased approximately $8.8 million to $33.8 million for the year ended December 31, 2015 from $25.0 million for the same period in 2014. The increase was primarily due to increased revenue from security technology development projects and products as well as lighting technology development projects and sales of light guides, offset by lower revenue from the sale of selected intellectual property.

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, new technology development contracts booked in the future and product sales.

Contract and Other Revenue by Reportable Segments

Contract and other revenue from the MID reportable segment increased $22.9 million to $27.2 million for the year ended December 31, 2016 from $4.3 million for the same period in 2015, primarily due to sales of memory products, including revenue from the Snowbush IP group and the Memory Interconnect Business, and various new development projects. Contract and other revenue from the RSD reportable segment increased approximately $20.2 million to $29.3 million for the year ended December 31, 2016 from $9.1 million for the same period in 2015, primarily due to higher revenue from security technology development projects, including revenue from the acquisition of SCS. Contract and other revenue from the Other segment decreased approximately $5.0 million for the year ended December 31, 2016 from $20.5 million for the same period in 2015, primarily due to decreased sales of light guides and decreased revenue from lighting technology development projects.

Contract and other revenue from the MID reportable segment increased approximately $1.4 million to $4.3 million for the year ended December 31, 2015 from $2.9 million for the same period in 2014, primarily due to new technology development contracts in 2015. Contract and other revenue from the RSD reportable segment increased approximately $5.5 million to $9.1 million for the year ended December 31, 2015 from $3.6 million for the same period in 2014, primarily due to higher revenue from security products. Contract and other revenue from the Other segment increased approximately $1.9 million to $20.5 million for the year ended December 31, 2015 from $18.6 million for the same period in 2014, primarily due to increased lighting technology development projects and sales of light guides.

Engineering costs:

	Years Ended December 31,			2015 to 2016	2014 to 2015
	2016	2015	2014	Change	Change
	(Dollars in millions)				
Engineering costs					
Cost of revenue	$37.4	$22.7	$19.1	64.8 %	19.0 %
Amortization of intangible assets	29.7	22.6	22.9	31.2 %	(1.1)%
Total cost of revenue	67.1	45.3	42.0	48.0 %	8.1 %
Research and development	120.6	104.3	102.8	15.7 %	1.5 %
Stock-based compensation	9.2	6.8	7.2	35.5 %	(6.3)%
Total research and development	129.8	111.1	110.0	16.9 %	1.0 %
Total engineering costs	$196.9	$156.4	$152.0	25.9 %	2.9 %

Engineering costs are allocated between cost of revenue and research and development expenses. Cost of revenue reflects the portion of the total engineering costs which are specifically devoted to individual customer development and support services, costs of memory, security and lighting products sold as well as amortization expense related to various acquired intellectual property for patent licensing. The balance of engineering costs, incurred for the development of applicable technologies, is charged to research and development. In a given period, the allocation of engineering costs between these two components is a function of the timing of the development and implementation schedules of individual customer contracts.

For the year ended December 31, 2016 as compared to the same period in 2015, total engineering costs increased 25.9% primarily due to the business acquisitions during 2016. This includes increased headcount related expenses of $12.9 million, increased cost of sales associated with sales of memory and security products and engineering services of $10.3 million (which includes $2.3 million related to the purchase accounting adjustment for inventory fair value step-up from the acquisition of the Memory Interconnect Business), increased amortization costs of $7.0 million,

increased expenses related to software design tools of $3.7 million, increased stock-based compensation expense of $2.4 million, increased consulting costs of $2.5 million offset by decreased prototyping costs of $0.5 million.
For the year ended December 31, 2015 as compared to the same period in 2014, total engineering costs increased 2.9% primarily due to increased expenses related to software design tools of $3.5 million, increased headcount related expenses of

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$2.1 million, increased bonus accrual expense of $1.5 million and increased cost of sales associated with increased sales of light guides and security products and engineering services of $1.5 million, offset by decreased accrual of retention bonuses of $1.5 million, decreased amortization costs of $1.5 million and decreased equipment and software maintenance costs of $0.7 million.

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

Sales, general and administrative costs:

	Years Ended December 31,			2015 to 2016	2014 to 2015
	2016	2015	2014	Change	Change
	(Dollars in millions)				
Sales, general and administrative costs					
Sales, general and administrative costs	$83.3	$62.3	$67.3	33.8 %	(7.5)%
Stock-based compensation	11.8	8.3	7.5	42.6 %	10.7 %
Total sales, general and administrative costs	$95.1	$70.6	$74.8	34.9 %	(5.6)%

Sales, general and administrative expenses include expenses and costs associated with trade shows, public relations, advertising, litigation, general legal, insurance and other sales, marketing and administrative efforts. Litigation expenses have historically been a significant portion of our sales, general and administrative expenses. Consistent with our business model, our licensing, sales and marketing activities aim to develop or strengthen relationships with potential new and current customers. In addition, we work with current customers through marketing, sales and technical efforts to drive adoption of their products that use our innovations and solutions, by system companies. Due to the long business development cycles we face and the semi-fixed nature of sales, general and administrative expenses in a given period, these expenses generally do not correlate to the level of revenue in that period or in recent or future periods.

For the year ended December 31, 2016 as compared to 2015, total sales, general and administrative costs increased 34.9% primarily due to the business acquisitions during 2016. This includes increased headcount related expenses of $6.1 million, increased amortization costs of $5.0 million, various acquisition related costs of $3.1 million, increased stock-based compensation expense of $3.5 million, increased consulting costs of $2.8 million, increased facilities costs of $1.4 million and increased travel costs of $1.3 million.

For the year ended December 31, 2015 as compared to 2014, total sales, general and administrative costs decreased 5.6% primarily due to decreased consulting costs of $3.1 million, decreased depreciation expense of $1.3 million, decreased software and equipment maintenance costs of $0.9 million and decreased litigation costs of $0.5 million, offset by increased headcount related expenses of $0.9 million and increased stock-based compensation expense of $0.8 million.

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

Restructuring charges:

	Years Ended December 31,			2015 to 2016	2014 to 2015
	2016	2015	2014	Change	Change
	(Dollars in millions)				
Restructuring charges	$ —	$ 3.6	$ 0.0	(100.0)%	NM*

*NM — percentage is not meaningful

During 2016, we did not initiate any restructuring programs.

During 2015, we initiated a restructuring program to reduce overall corporate expenses which is expected to improve future profitability by reducing spending on sales, general and administrative programs and refining some of our research and development efforts. As a result of the restructuring program, we recorded a charge of $3.6 million during 2015 related primarily to the reduction in workforce.

Refer to Note 15, “Restructuring Charges,” of Notes to Consolidated Financial Statements of this Form 10-K for further discussion.

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Impairment of in-process research and development intangible asset:

	Years Ended December 31,			2015 to 2016	2014 to 2015
	2016	2015	2014	Change	Change
	(Dollars in millions)				
Impairment of in-process research and development intangible asset	$ 18.3	$ —	$ —	100.0 %	0.0 %

During the fourth quarter of 2016, we recorded a charge of $18.3 million related the impairment of in-process research and development intangible asset acquired in the acquisition of Snowbush IP. The impairment of this intangible asset resulted from a delay in the market served by this initiative. This delay will not impact the short-term revenue expectations but will impact our revenue expectations several years into the future. This impairment was partially offset by a $6.8 million reduction of acquisition purchased consideration related to this product line.

During 2015 and 2014, we did not record a charge for the impairment of any intangible assets or goodwill.

Refer to Note 5 “Intangible Assets and Goodwill,” of Notes to Consolidated Financial Statements of this Form 10-K for further discussion.

Change in contingent consideration liability:

	Years Ended December 31,			2015 to 2016	2014 to 2015
	2016	2015	2014	Change	Change
	(Dollars in millions)				
Change in contingent consideration liability	$ (6.8)	$ —	$ —	100.0 %	0.0 %

During the fourth quarter of 2016, we recorded a reduction in our contingent consideration liability of $6.8 million resulting in a gain in our Consolidated Statements of Operations of this Form 10-K. See the “Impairment of in-process research and development intangible asset” section discussed above for further details.

Gain from sale of intellectual property:

	Years Ended December 31,			2015 to 2016	2014 to 2015
	2016	2015	2014	Change	Change
	(Dollars in millions)				
Gain from sale of intellectual property	$ —	$ 3.7	$ 3.5	(100.0)%	4.4 %

During 2016, we did not sell any of our patent assets.

During 2013, we sold portfolios of our patent assets covering lighting technologies. As part of these transactions, we received an initial upfront payment and expect to receive subsequent payments when the purchaser of the patents is successful in licensing that portfolio. During 2015 and 2014, we received $3.7 million and $3.4 million, respectively, from the purchaser of the patents related to this transaction which was recorded as gain from sale of intellectual property. During 2016, we did not receive any payment from the purchaser of the patents related to this transaction.

During 2014, we sold portfolios of our patent assets covering wireless and other technologies.

Gain from settlement:

	Years Ended December 31,			2015 to 2016	2014 to 2015
	2016	2015	2014	Change	Change
	(Dollars in millions)				
Gain from settlement	$ 0.6	$ 2.0	$ 2.0	(71.6)%	0.0 %

The settlements with SK hynix and Micron are multiple element arrangements for accounting purposes. For a multiple element arrangement, we are required to determine the fair value of the elements. We considered several factors in determining the accounting fair value of the elements of the settlement with SK hynix and the settlement with Micron which included a third party valuation using an income approach (the “SK hynix Fair Value” and "Micron Fair Value", respectively). The total gain from settlement related to the settlements with SK hynix and Micron was $1.9 million and $3.3 million, respectively. As of the end of the second quarter of 2016, the total gain from settlement related to the settlements with SK hynix and Micron has been fully recognized. During the years ended December 31, 2016, 2015 and 2014, we recognized $0.6 million, $2.0 million and

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$2.0 million as gain from settlement, which represents the portion of the SK hynix Fair Value and Micron Fair Value of the cash consideration allocated to the resolution of the antitrust litigation settlements. Refer to Note 18, "Agreements with SK hynix and Micron," of Notes to Consolidated Financial Statements of this Form 10-K for further discussion.

Interest and other income (expense), net:

	Years Ended December 31,			2015 to 2016 Change	2014 to 2015 Change
	2016	2015	2014		
	(Dollars in millions)				
Interest income and other income (expense), net	$1.7	$1.2	$(0.3)	42.2 %	NM*
Interest expense	(12.7)	(12.4)	(24.8)	2.7 %	(50.0)%
Interest and other income (expense), net	$(11.0)	$(11.2)	$(25.1)	(1.6)%	(55.4)%

*NM — percentage is not meaningful

Interest income and other income (expense), net, consists primarily of 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. Additionally, in 2014, during our review of the remaining fair value of our $0.6 million investment in the non-marketable equity security of a private company, based on the information provided by the private company, we determined that there was a decrease in the security's fair value. The fair value of the non-marketable equity security was determined based on an income approach, using level 3 fair value inputs, as it was deemed to be the most indicative of the security's fair value. Accordingly, we recorded an impairment charge for the entire remaining amount of $0.6 million related to our investment in the non-marketable equity security in 2014.

Interest expense consists of interest expense associated with our imputed facility lease obligations on the Sunnyvale and Ohio facilities and non-cash interest expense related to the amortization of the debt discount and issuance costs on the 5% convertible senior notes due 2014 (the "2014 Notes") and the 1.125% convertible senior notes due 2018 (the "2018 Notes"), as well as the coupon interest related to these notes. Interest expense increased in 2016 as compared to the same period in 2015 primarily due to the maturing of the 2018 Notes. Interest expense decreased in 2015 as compared to the same period in 2014 primarily due to the repayment of the 2014 Notes in the second quarter of 2014. For the years ended December 31, 2016, 2015, and 2014, we recognized $4.4 million, $4.5 million and $4.5 million, respectively, of interest expense in connection with the imputed financing obligations in our statements of operations. We expect our non-cash interest expense to increase steadily as the notes reach maturity. See Note 10, "Convertible Notes," of Notes to Consolidated Financial Statements of this Form 10-K for additional details.

Provision for (benefit from) income taxes:

	Years Ended December 31,			2015 to 2016 Change	2014 to 2015 Change
	2016	2015	2014		
	(Dollars in millions)				
Provision for (benefit from) income taxes	$15.8	$(151.2)	$24.0	NM*	NM*
Effective tax rate	69.9 %	(251.0)%	47.9 %		

*NM — percentage is not meaningful

Our effective tax rate for the year ended December 31, 2016 was different from the U.S. statutory tax rate primarily due to income tax expense recognized from exercises and expiration of out-of-the-money fully vested shares from our equity incentive plans. Our effective tax rates for the year ended December 31, 2015 was different from the U.S. statutory tax primarily due to the release of the valuation allowance on our U.S. federal and state deferred tax assets, offset by federal, state, and foreign taxes. Our effective tax rates for the years ended December 31, 2014 were different from the U.S. statutory tax rate primarily due to the valuation allowance on our U.S. deferred tax assets and foreign withholding and income taxes.

We recorded a provision for income taxes of $15.8 million for the year ended December 31, 2016, which was primarily comprised of withholding taxes, other foreign taxes and current state taxes. For the year ended December 31, 2016, we paid withholding taxes of $22.0 million. We recorded a benefit from income taxes of $151.2 million for the year ended December 31, 2015, which was primarily comprised of tax benefit from the release of the valuation allowance on U.S. deferred taxes offset by federal state and foreign taxes. For the year ended December 31, 2015, we paid withholding taxes of $20.4 million.

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We recorded a provision for income taxes of $24.0 million for the year ended December 31, 2014, which was primarily comprised of withholding taxes, other foreign taxes and current state taxes. For the year ended December 31, 2014, we paid withholding taxes of $19.4 million.

We periodically evaluate the realizability of our net deferred tax assets based on all available evidence, both positive and negative. The realizability of our net deferred tax assets is dependent on our ability to generate sufficient future taxable income during periods prior to the expiration of tax attributes to fully utilize these assets. During the third quarter of 2015, we evaluated the realizability of our net deferred tax assets based on all available evidence, both positive and negative, and determined that it was appropriate to release the valuation allowance for our U.S. federal and other state deferred tax assets, in accordance with FASB ASC 740-10-30-16 to 25.

We emerged from a cumulative loss position over the previous three years during the first quarter of 2015. The cumulative three-year pre-tax income is considered positive evidence which is objective and verifiable, and thus, received significant weighting. The continued stability in our operations along with the increased visibility into the adoption of our security technology in the third quarter of 2015 provided additional evidence to our belief that we will generate sufficient taxable income in the future. Additional positive evidence considered by us in our assessment included a lack of unused operating loss carryforwards in our history as well as anticipated future benefits from our cost management. Negative evidence we considered included economic uncertainties such as volatility of the semiconductor industry and uncertainties associated with the development of new products that could impact our ability to generate a sustained level of future profits.

Liquidity and Capital Resources

	December 31, 2016	December 31, 2015
	(In millions)	
Cash and cash equivalents	$135.3	$ 143.8
Marketable securities	36.9	143.9
Total cash, cash equivalents, and marketable securities	$172.2	$ 287.7

	Years Ended December 31,		
	2016	2015	2014
	(In millions)		
Net cash provided by operating activities	$92.5	$76.4	$76.5
Net cash provided by (used in) investing activities	$(105.2)	$1.1	$(97.9)
Net cash provided by (used in) financing activities	$5.8	$(87.8)	$(163.0)

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 are in the United States. Our cash needs for the year ended December 31, 2016 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. Additionally, 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 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.

To provide us with more flexibility in returning capital back to our shareholders, on January 21, 2015, our Board authorized a share repurchase program authorizing the repurchase of up to an aggregate of 20.0 million shares. In the fourth quarter of 2015, we entered into an accelerated share repurchase program to repurchase an aggregate of $100.0 million of our common stock and received an initial delivery of 7.8 million shares. During the second quarter of 2016, the accelerated share repurchase program was completed and we received an additional 0.7 million shares of our common stock as the final settlement of the accelerated share repurchase program. We may continue to tactically execute the share repurchase program from time to time.

As of December 31, 2016, there remained an outstanding authorization to repurchase approximately 11.5 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 $92.5 million for the year ended December 31, 2016 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 year ended December 31, 2016 primarily included a decrease in accrued salaries and benefits and other liabilities mainly due to the payout of the Corporate Incentive Plan and increases in deferred revenue and inventory.

Cash provided by operating activities of $76.4 million for the year ended December 31, 2015 was primarily attributable to the cash generated from customer licensing. Additionally, there was a non-cash deferred tax adjustment to reconcile net income to net cash provided by operating activities due to the release of the valuation allowance on our U.S. deferred tax assets of approximately $174.5 million during the third quarter of 2015. Changes in operating assets and liabilities for the year ended December 31, 2015 primarily included an increase in accounts receivable arising from a renewal of a license agreement with a technology licensing customer in the fourth quarter of 2015, an increase in prepaids and other current assets, and decrease in accrued salaries and benefits and other liabilities.

Cash provided by operating activities of $76.5 million for the year ended December 31, 2014 was primarily attributable to the cash generated from customer licensing. Changes in operating assets and liabilities for the year ended December 31, 2014 primarily included a decrease in accrued salaries and benefits and other accrued liabilities primarily due to the payment of retention bonuses and an increase in accounts receivable, offset by increases in income taxes payable and deferred revenue.

Investing Activities

Cash used in investing activities of $105.2 million for the year ended December 31, 2016 primarily consisted of cash paid for the acquisition of SCS of $92.6 million, net of cash acquired of $12.1 million, cash paid for the acquisition of the Memory Interconnect Business of $90.0 million, cash paid for the acquisition of the assets of the Snowbush IP group assets of $32.0 million, cash paid for purchases of available-for-sale marketable securities of $54.9 million, $8.6 million paid to acquire property, plant and equipment, offset by proceeds from the maturities and sales of available-for-sale marketable securities of $110.1 million and $50.5 million, respectively.

Cash provided by investing activities of $1.1 million for the year ended December 31, 2015 primarily consisted of proceeds from the maturities and sales of available-for-sale marketable securities of $112.7 million and $48.4 million, respectively. This was partially offset by cash paid for purchases of available-for-sale marketable securities of $157.8 million and $6.1 million paid to acquire property, plant and equipment. In addition, we received $3.9 million from the sale of intellectual property and the sale of property, plant and equipment.

Cash used in investing activities of $97.9 million for the year ended December 31, 2014 primarily consisted of cash paid for purchases of available-for-sale marketable securities of $240.3 million, offset by proceeds from the maturities and sales of available-for-sale marketable securities of $118.7 million and $25.0 million, respectively. In addition, we paid $7.2 million to acquire property, plant and equipment. We also received $5.9 million from the sale of intellectual property.

Financing Activities

Cash provided by financing activities was $5.8 million for the year ended December 31, 2016. We received proceeds of $15.4 million from the issuance of common stock under equity incentive plans, offset by the payment of the additional purchase consideration from the SCS acquisition of $10.2 million and $0.6 million in principal payments made against the lease financing obligation.

Cash used in financing activities was $87.8 million for the year ended December 31, 2015 and was primarily due to an aggregate payment of $100.0 million to Citibank, N.A., as part of our accelerated share repurchase program. We also paid $0.1 million in fees related to the accelerated share repurchase program. We received proceeds of $13.8 million from the issuance of common stock under equity incentive plans, paid $1.7 million due to payments under installment payment arrangements to acquire fixed assets and paid $0.5 million related to the principal payments against the lease financing obligation.

Cash used in financing activities was $163.0 million for the year ended December 31, 2014. We repaid the principal of the 2014 convertible senior notes amounting to $172.5 million, which became due in June 2014. We also received proceeds of

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$11.1 million from the issuance of common stock under equity incentive plans, paid $1.8 million due to payments under installment payment arrangements to acquire fixed assets and paid $0.3 million related to the principal payments against the lease financing obligation.

Contractual Obligations

On December 15, 2009, we entered into a lease agreement for approximately 125,000 square feet of office space located at 1050 Enterprise Way in Sunnyvale, California commencing on July 1, 2010 and expiring on June 30, 2020. The office space is used for our corporate headquarters, as well as engineering, sales, marketing and administrative operations and activities. We have two options to extend the lease for a period of 60 months each and a one-time option to terminate the lease after 84 months in exchange for an early termination fee. Pursuant to the terms of the lease, the landlord agreed to reimburse us approximately $9.1 million, which was received by the year ended December 31, 2011. We recognized the reimbursement as an additional imputed financing obligation as such payment from the landlord is deemed to be an imputed financing obligation. On November 4, 2011, to better plan for future expansion, we entered into an amended lease for our Sunnyvale facility for approximately an additional 31,000 square feet of space commencing on March 1, 2012 and expiring on June 30, 2020. Additionally, a tenant improvement allowance to be provided by the landlord was approximately $1.7 million. On September 29, 2012, we entered into a second amended Sunnyvale lease to reduce the tenant improvement allowance to approximately $1.5 million. On January 31, 2013, we entered into a third amendment to the Sunnyvale lease to surrender the 31,000 square-foot space from the first amendment back to the landlord and recorded a total charge of $2.0 million related to the surrender of the amended lease.

On March 8, 2010, we entered into a lease agreement for approximately 25,000 square feet of office and manufacturing areas, located in Brecksville, Ohio. The office space is used for RLD's engineering activities while the manufacturing space is used for the manufacturer of prototypes. This lease was amended on September 29, 2011 to expand the facility to approximately 51,000 total square feet and the amended lease will expire on July 31, 2019. We have an option to extend the lease for a period of 60 months.

We undertook a series of structural improvements to ready the Sunnyvale and Brecksville facilities for our use. Since certain improvements to be constructed by us were considered structural in nature and we were responsible for any cost overruns, for accounting purposes, we were treated in substance as the owner of the construction project during the construction period. At the completion of each construction, we concluded that we retained sufficient continuing involvement to preclude de-recognition of the building under the FASB authoritative guidance applicable to the sale leasebacks of real estate. As such, we continue to account for the building as owned real estate and to record an imputed financing obligation for our obligation to the legal owners.

Monthly lease payments on the facility are allocated between the land element of the lease (which is accounted for as an operating lease) and the imputed financing obligation. The imputed financing obligation is amortized using the effective interest method and the interest rate was determined in accordance with the requirements of sale leaseback accounting. For the years ended December 31, 2016, 2015 and 2014, we recognized in our Consolidated Statements of Operations $4.4 million, $4.5 million and $4.5 million, respectively, of interest expense in connection with the imputed financing obligation on these facilities. At December 31, 2016 and 2015, the imputed financing obligation balance in connection with these facilities was $38.9 million and $39.3 million, respectively, which was primarily classified under long-term imputed financing obligation.

On June 29, 2009, we entered into an Indenture with U.S. Bank, National Association, as trustee, relating to the issuance by us of $150.0 million aggregate principal amount of the 2014 Notes. On July 10, 2009, an additional $22.5 million in aggregate principal amount of 2014 Notes were issued as a result of the underwriters exercising their overallotment option. During the second quarter of 2014, we paid upon maturity the entire $172.5 million in aggregate principal amount of the 2014 Notes. See Note 10, "Convertible Notes," of Notes to Consolidated Financial Statements of this Form 10-K for additional details.

On August 16, 2013, we entered into an Indenture with U.S. Bank, National Association, as trustee, relating to the issuance by us of $138.0 million aggregate principal amount of the 2018 Notes. The aggregate principal amount of the 2018 Notes as of December 31, 2016 and 2015 was $138.0 million, offset by unamortized debt discount of and unamortized debt issuance costs of $10.9 million and $0.9 million, respectively, and $17.1 million and $1.5 million, respectively, on the accompanying consolidated balance sheets. The unamortized discount related to the 2018 Notes is being amortized to interest expense using the effective interest method over the remaining 20 months until maturity of the 2018 Notes on August 15, 2018. See Note 10, “Convertible Notes,” of Notes to Consolidated Financial Statements of this Form 10-K for additional details.

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As of December 31, 2016, our material contractual obligations are as follows (in thousands):

	Total	2017	2018	2019	2020	2021	Thereafter
Contractual obligations (1)							
Imputed financing obligation (2)	$22,220	$6,302	$6,447	$6,602	$2,869	$—	$ —
Leases and other contractual obligations	10,837	5,649	2,606	1,432	603	543	4
Software licenses (3)	24,255	10,497	10,226	3,532	—	—	—
Convertible notes	138,000	—	138,000	—	—	—	—
Interest payments related to convertible notes	3,105	1,553	1,552	—	—	—	—
Total	$198,417	$24,001	$158,831	$11,566	$3,472	$543	$ 4

(1) The above table does not reflect possible payments in connection with uncertain tax benefits of approximately $21.9 million including $19.7 million recorded as a reduction of long-term deferred tax assets and $2.2 million in long-term income taxes payable, as of December 31, 2016. As noted in Note 16, “Income Taxes,” of Notes to Consolidated Financial Statements of this Form 10-K, 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) With respect to the imputed financing obligation, the main components of the difference between the amount reflected in the contractual obligations table and the amount reflected on the Consolidated Balance Sheets are the interest on the imputed financing obligation and the estimated common area expenses over the future periods. The amount includes the amended Ohio lease and the amended Sunnyvale lease.

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

Share Repurchase Program

During the year ended December 31, 2016, we repurchased and retired 0.7 million 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.

On October 26, 2015, we initiated an accelerated share repurchase program with Citibank, N.A. The accelerated share repurchase program is part of the broader share repurchase program previously authorized by our Board on January 21, 2015. Under the accelerated share repurchase program, we pre-paid to Citibank, N.A., the $100.0 million purchase price for our common stock and, in turn, we received an initial delivery of approximately 7.8 million shares of our common stock from Citibank, N.A, in the fourth quarter of 2015, which were retired and recorded as a $80.0 million reduction to stockholders' equity. The remaining $20.0 million of the initial payment was recorded as a reduction to stockholders’ equity as an unsettled forward contract indexed to our stock. The number of shares to be ultimately purchased by us was determined based on the volume weighted average price of the common stock during the terms of the transaction, minus an agreed upon discount between the parties. During the second quarter of 2016, the accelerated share repurchase program was completed and we received an additional 0.7 million shares of our common stock as the final settlement of the accelerated share repurchase program.

As of December 31, 2016, there remained an outstanding authorization to repurchase approximately 11.5 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 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.
We believe the following critical accounting policies affect our more significant judgments and estimates used in the preparation of our consolidated financial statements.
Revenue Recognition
Overview
We recognize revenue when persuasive evidence of an arrangement exists, we have delivered the product or performed the service, the fee is fixed or determinable and collection is reasonably assured. If any of these criteria are not met, we defer recognizing the revenue until such time as all criteria are met. Determination of whether or not these criteria have been met may require us to make judgments, assumptions and estimates based upon current information and historical experience.
For arrangements that involve the delivery of more than one element, each license, service or product is evaluated to determine whether it qualifies as a separate unit of accounting. This determination is based on whether the deliverable has “stand-alone value” to the customer. The consideration that is fixed or determinable is then allocated to each separate unit of accounting based on the relative selling price of each deliverable. We determine the relative selling price for a deliverable based on its best estimate of selling price (“BESP”). Except for some revenue associated to the acquisition of Bell Identification Ltd., we have determined that vendor-specific objective evidence of selling price for each deliverable is not available as it lacks a consistent number of standalone sales and third-party evidence is not a practical alternative due to differences in its service offerings compared to other parties and the availability of relevant third-party pricing information. We determined BESP by considering our overall pricing objectives and market conditions. Significant pricing practices taken into consideration include discounting practices, the size and volume of transactions, the customer demographic, the geographic area where services are sold, price lists, go-to-market strategy, historical standalone sales and contract prices. The determination of BESP is made through consultation with and approval by our management, taking into consideration the go-to-market strategy. As the go-to-market strategies evolve, we may modify our pricing practices in the future, which could result in changes in relative selling prices. In most cases, the relative values of the undelivered components are not material to the overall arrangement and are typically delivered within twelve months after the core product has been delivered. In such agreements, selling price is determined for each component and any difference between the total of the separate BESP and total contract consideration (i.e. discount) is allocated pro-rata across each of the components in the arrangement.
During the first quarter of 2016, we acquired Smart Card Software Ltd., which included Bell Identification Ltd. and Ecebs Ltd., which transact mostly in software and hosted services (SaaS) arrangements, respectively. For software arrangements that include multiple elements, including software licenses, professional services and maintenance services, we allocate and defer revenue for the undelivered items (typically only the maintenance services) based on the fair value using vendor specific objective evidence (“VSOE”), and recognize the difference between the total arrangement fee and the amount deferred for the undelivered item(s) as revenue. VSOE of fair value of each maintenance element is based on the contractual stated renewal rate for that maintenance element. When VSOE of fair value does not exist for undelivered items, the entire arrangement fee is recognized ratably over the performance period. For hosted services arrangements, we recognize the arrangements over the service obligation period.
Our revenue consists of royalty revenue and contract and other revenue derived from MID, RSD and RLD operating segments. Royalty revenue consists of patent license and technology license royalties. Contract and other revenue consists of software license fees, engineering fees associated with integration of our technology solutions into our

customers' related support and maintenance, as well as sale of products.
During 2013, we expanded our business strategy of monetizing our patent portfolio to include the sale of selected intellectual property. Our MID business continues to grow its patent portfolio and actively engages with various external parties to monetize the patent portfolio and explore new revenue opportunities. As the sales of such patents developed by our MID business unit under this expanded strategy represents a component of our ongoing major or central operations, we record the

related proceeds as revenue. We will recognize the revenue when there is persuasive evidence of a sales arrangement, fees are fixed or determinable, delivery has occurred and collectibility is reasonably assured. These requirements are generally fulfilled upon closing of the patent sale transaction.

Royalty Revenue

We generally recognize royalty revenue upon notification by our customers and when deemed collectible. The terms of the royalty agreements generally either require customers to give us notification and to pay the royalties within a specified period or are based on a fixed royalty that is due within a specified period. Many of our customers have the right to cancel their licenses. In such arrangements, revenue is only recognized to the extent that is consistent with the cancellation provisions. Cancellation provisions within such contracts generally provide for a prospective cancellation with no refund of fees already remitted by customers for products provided and payment for services rendered prior to the date of cancellation. We have two types of royalty revenue: (1) patent license royalties and (2) technology license royalties.

Patent licenses - We license our broad portfolio of patented inventions to companies who use these inventions in the development and manufacture of their own products. Such licensing agreements may cover the license of part, or all, of our patent portfolio. The contractual terms of the agreements generally provide for payments over an extended period of time. For the licensing agreements with fixed royalty payments, we generally recognize revenue from these arrangements as amounts become due. For the licensing agreements with variable royalty payments which can be based on either a percentage of sales or number of units sold, we earn royalties at the time that the customers' sales occur. Our customers, however, do not report and pay royalties owed for sales in any given quarter until after the conclusion of that quarter. As we are unable to estimate the customers' sales in any given quarter to determine the royalties due to us, we recognize royalty revenues based on royalties reported by customers during the quarter and when other revenue recognition criteria are met.

In addition, we may enter into certain settlements of patent infringement disputes. The amount of consideration received upon any settlement (including but not limited to past royalty payments, future royalty payments and punitive damages) is allocated to each element of the settlement based on the fair value of each element. In addition, revenues related to past royalties are recognized upon execution of the agreement by both parties, provided that the amounts are fixed or determinable, there are no significant undelivered obligations and collectability is reasonably assured. We do not recognize any revenues prior to execution of the agreement since there is no reliable basis on which we can estimate the amounts for royalties related to previous periods or assess collectability. Elements that are related to royalty revenue in nature (including but not limited to past royalty payments and future royalty payments) will be recorded as royalty revenue in the consolidated statements of operations. Elements that are not related to royalty revenue in nature (including but not limited to punitive damage and settlement) will be recorded as gain from settlement which is reflected as a separate line item within the operating expenses section in the consolidated statements of operations.

Technology licenses - We develop proprietary and industry-standard products that we provide to our customers under technology license agreements. These arrangements include royalties, which can be based on either a percentage of sales or number of units sold. We earn royalties on such licensed products sold worldwide by our customers at the time that the customers' sales occur. Our customers, however, do not report and pay royalties owed for sales in any given quarter until after the conclusion of that quarter. As we are unable to estimate the customers' sales in any given quarter to determine the royalties due to us, we recognize royalty revenues based on royalties reported by customers during the quarter and when other revenue recognition criteria are met.

Contract and Other Revenue

We recognize revenue from the sale of products upon shipment of the product to our customers, net of accruals for estimated sales returns and allowances, which to date, have not been significant. However, some of our sales are made through distributors under arrangements that allow for price protection or rights of return on product unsold by the distributors. Product revenue on sales made through distributors with rights of return or price protection is deferred until the distributors sell the product to end customers. Sales to distributors are included in deferred revenue and we defer the related costs until sale to the end customers occurs. Price protection rights allow distributors the right to a credit in the event of declines in the price of our product that they hold prior to the sale to an end customer. In the event that we reduce the selling price of products held by distributors, deferred revenue related to distributors with price protection rights is reduced upon notification to the customer of the price change. Our sales to direct customers are made primarily pursuant to standard purchase orders for delivery of products. We generally allow customers to cancel or change purchase orders within limited notice periods prior to the scheduled shipment.

For software arrangements that include multiple elements, including software licenses, professional services and maintenance services, we allocate and defer revenue for the undelivered items (typically only the maintenance services) based on the fair value using vendor specific objective evidence (“VSOE”), and recognize the difference between the total

arrangement fee and the amount deferred for the undelivered item(s) as revenue. VSOE of fair value of each maintenance element is based on the contractual stated renewal rate for that maintenance element. When VSOE of fair value does not exist for undelivered items, the entire arrangement fee is recognized ratably over the performance period.
For software arrangements, we use the percentage-of-completion method for contracts that involve the implementation of software solutions and that qualify for percentage-of-completion revenue accounting (e.g. software arrangements that contain a PCS element that has VSOE of fair value established and that have no refund rights that would allow a customer refunds of fees paid under the arrangement). Revenue is recognized based on man-days incurred during the reporting period as compared to the estimated total man-days necessary for each contract, not to exceed the billable project acceptances received, with deferral of corresponding contract costs, if applicable. Should a loss be anticipated on a contract, the full amount of the loss would be recorded when the loss is determinable. Maintenance and support revenue includes post-implementation customer support and the right to unspecified software updates and enhancements on a when and if available basis. We recognize revenue from maintenance arrangements ratably over the period in which the services are provided.

For development contracts related to licenses of our solutions that involve significant engineering and integration services, we use the proportional performance method. The measurement of progress to completion is based on actual man-months incurred during the reporting period, not to exceed the billable project acceptances received. Contract costs are recognized as incurred. Maintenance and support revenue includes minimal hours of post-implementation customer support that is recognized ratably over the support period.

Goodwill
Goodwill represents the excess of the purchase price over the fair value of the net tangible and identifiable intangible assets acquired in each business combination. Goodwill is not subject to amortization, but is subject to at least an annual assessment for impairment, applying a fair-value based test. We perform our impairment analysis of goodwill on an annual basis during the fourth quarter of the year unless conditions arise that warrant a more frequent evaluation.
Goodwill is allocated to the various reporting units which are generally operating segments. The goodwill impairment test involves a two-step process. In the first step, we compare the fair value of each reporting unit to its carrying value. The fair values of the reporting units are estimated using an income or discounted cash flows approach.
Under the income approach, we measure fair value of the reporting unit based on a projected cash flow method using a discount rate determined by our management which is commensurate with the risk inherent in our current business model. Our discounted cash flow projections are based on our annual financial forecasts developed internally by management for use in managing our business. If the fair value of the reporting unit exceeds its carrying value, goodwill is not impaired and no further testing is required. If the fair value of the reporting unit is less than the carrying value, we must perform the second step of the impairment test to measure the amount of impairment loss. In the second step, the reporting unit's fair value is allocated to all of the assets and liabilities of the reporting unit, including any unrecognized intangible assets, in a hypothetical analysis that calculates the implied fair value of goodwill in the same manner as if the reporting unit was being acquired by a market participant in a business combination. If the implied fair value of the reporting unit's goodwill is less than the carrying value, the difference is recorded as an impairment loss.
As of December 31, 2016, the fair value of the MID reporting unit, with $66.6 million of goodwill, exceeded the carrying value of its net assets by approximately 299% and the fair value of the RSD reporting unit, with $138.2 million of goodwill, exceeded the carrying value of its net assets by approximately 89%. Key assumptions used to determine the fair value of the MID and RSD reporting units at December 31, 2016, were the revenue growth rates for the forecast period and terminal year, terminal growth rates and discount rates. Certain estimates used in the income approach involve information for new product lines with limited financial history and developing revenue models which increase the risk of differences between the projected and actual performance. The discount rate of 12% for MID and 16.5% for RSD is based on the reporting units’ overall risk profile relative to other guideline companies,

market adoption of our technology, the reporting units' respective industry as well as the visibility of future expected cash flows. The terminal growth rate applied to determine fair value for both reporting units was 3%, which was based on historical experience as well as anticipated economic conditions, industry data and long term outlook for the business. These assumptions are inherently uncertain.

Given the current economic environment and the uncertainties regarding the impact on our business, there can be no assurance that the estimates and assumptions made for purposes of our goodwill impairment testing in the fourth quarter of 2016 will prove to be accurate predictions of the future. If our assumptions regarding forecasted revenues or operating margin rates are not achieved, we may be required to record goodwill impairment charges in future periods, whether in connection with the next annual impairment testing or prior to that if any change constitutes a triggering event outside of the period when the annual goodwill impairment test is performed. It is not possible at this time to determine if any such future impairment charge

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would result or, if it does, whether such charge would be material. We believe that the assumptions and rates used in our impairment test are reasonable. However, they are judgmental, and variations in any of the assumptions or rates could result in materially different calculations of impairment amounts.

Intangible Assets

Intangible assets are comprised of existing technology, customer contracts and contractual relationships, and other definite-lived and indefinite-lived intangible assets. Identifiable intangible assets resulting from the acquisitions of entities accounted for using the purchase method of accounting are estimated by management based on the fair value of assets received. Identifiable definite-lived intangible assets are being amortized over the period of estimated benefit using the straight-line method and estimated useful lives ranging from 1 to 10 years.

We amortize definite-lived assets over their estimated useful lives. We evaluate definite-lived and indefinite-lived assets for impairment whenever events or changes in circumstances indicate the carrying value of an asset may not be recoverable. The carrying value is not recoverable if it exceeds the undiscounted cash flows resulting from the use of the asset and its eventual disposition. Our estimates of future cash flows attributable to our assets require significant judgment based on our historical and anticipated results and are subject to many factors. Factors we consider important which could trigger an impairment review include significant negative industry or economic trends, significant loss of clients, and significant changes in the manner of our use of the acquired assets or the strategy for our overall business.

When we determine that the carrying value of the assets may not be recoverable based upon the existence of one or more of the above indicators of impairment, we measure the potential impairment based on a projected discounted cash flow method using a discount rate determined by our management to be commensurate with the risk inherent in our current business model. An impairment loss is recognized only if the carrying amount of the asset is not recoverable and exceeds its fair value. Different assumptions and judgments could materially affect the calculation of the fair value of our assets.

Acquired indefinite-lived intangible assets related to our in-process research and development ("IPR&D") are capitalized and subject to impairment testing until completion or abandonment of the projects. Upon successful completion of each project, we make a separate determination of useful life of the acquired indefinite-lived intangible assets and the related amortization is recorded as an expense over the estimated useful life of the specific projects.

Indefinite-lived intangible assets are subject to at least an annual assessment for impairment, applying a fair-value based test. Under the income approach, we measure fair value of the indefinite-lived intangible assets based on a projected cash flow method using a discount rate determined by our management which is commensurate with the risk inherent in our current business model. Our discounted cash flow projections are based on our annual financial forecasts developed internally by our management for use in managing our business. If the fair value of the indefinite-lived intangible assets exceeds its carrying value, the indefinite-lived intangible assets are not impaired and no further testing is required. If the implied fair value of the indefinite-lived intangible assets is less than the carrying value, the difference is recorded as an impairment loss.

Income Taxes

As part of preparing our consolidated financial statements, we are required to calculate the income tax expense or benefit which relates to the pretax income or loss for the period. In addition, we are required to assess the realization of the deferred tax asset or liability to be included on the consolidated balance sheet as of the reporting dates.

As of December 31, 2016, our consolidated balance sheet included net deferred tax assets, before valuation allowance, of approximately $180.2 million, which consists of net operating loss carryovers, tax credit carryovers, amortization, employee stock-based compensation expenses and certain liabilities, partially reduced by deferred tax liabilities associated with the convertible debt instruments. As of December 31, 2016, we have a valuation allowance of $23.5 million resulting in net deferred tax assets of $156.7 million.

We periodically evaluate the realizability of our net deferred tax assets based on all available evidence, both positive and negative. The realizability of our net deferred tax assets is dependent on our ability to generate sufficient future taxable income during periods prior to the expiration of tax attributes to fully utilize these assets.

We emerged from a cumulative loss position over the previous three years during the first quarter of 2015. The cumulative three-year pre-tax income is considered positive evidence which is objective and verifiable, and thus, received significant weighting. The continued stability in our operations along with the increased visibility into the adoption of our security technology in the third quarter of 2015 provided additional evidence to our belief that we will generate sufficient taxable income in the future. Additional positive evidence considered by us in our assessment included a lack of unused operating loss carryforwards in our history as well as anticipated future benefits from our cost management. Negative evidence we considered included economic uncertainties such as volatility of the semiconductor industry and uncertainties associated with the development of new products that could impact our ability to generate a sustained level of future profits.

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We maintain liabilities for uncertain tax positions within our 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 us based on the best information available including changes in tax regulations, the outcome of relevant court cases and other information.

Tax attributes related to stock option windfall deductions are not to be recognized until they result in a reduction of cash taxes payable. The benefit of these excess tax benefits will be recorded to equity when they reduce cash taxes payable. We will only recognize a tax benefit from stock-based awards in additional paid-in capital if an incremental tax benefit is realized after all other tax attributes currently available have been utilized. In addition, we have elected to account for the indirect effects of stock-based awards on other tax attributes, such as the research tax credits, through the consolidated statement of operations as part of the tax effect of stock-based compensation.

The calculation of our tax liabilities involves uncertainties in the application of complex tax law and regulations in a multitude of jurisdictions. Although ASC 740 Income Taxes, provides further clarification on the accounting for uncertainty in income taxes, significant judgment is required by us. If the ultimate resolution of tax uncertainties is different from what is currently estimated, it could materially affect income tax expense.

Stock-Based Compensation

We 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, we sponsor an Employee Stock Purchase Plan (“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.

The accounting guidance for share-based payments requires the measurement and recognition of compensation expense in our statement of operations for all share-based payment awards made to our employees, directors and consultants including employee stock options, nonvested equity stock and equity stock units, and employee stock purchase grants. Stock-based compensation expense is measured at grant date, based on the estimated fair value of the award, reduced by an estimate of the annualized rate of expected forfeitures, and is recognized as expense over the employees’ expected requisite service period, generally using the straight-line method. In addition, the accounting guidance for share-based payments requires the benefits of tax deductions in excess of recognized compensation expense to be reported as a financing cash flow, rather than as an operating cash flow as prescribed under previous accounting rules. Our forfeiture rate represents the historical rate at which our stock-based awards were surrendered prior to vesting. The accounting guidance for share-based payments requires forfeitures to be estimated at the time of grant and revised on a cumulative basis, if necessary, in subsequent periods if actual forfeitures differ from those estimates. See Note 12, “Equity Incentive Plans and Stock-Based Compensation,” of Notes to Consolidated Financial Statements of this Form 10-K for more information regarding the valuation of stock-based compensation.

Recent Accounting Pronouncements

See Note 3, “Recent Accounting Pronouncements,” of Notes to Consolidated Financial Statements of this Form 10-K for a full description of recent accounting pronouncements including the respective expected dates of adoption.

Item 7A. 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 December 31, 2016, we had an investment portfolio of fixed income marketable securities of $121.2 million including cash equivalents. If market interest rates were to increase immediately and uniformly by 1.0% from the levels as of December 31, 2016, the fair value of the portfolio would decline by approximately $0.1 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, Finland and France and small business development offices in Australia, Japan, Korea and Taiwan. We monitor our foreign currency exposure; however, as of December 31, 2016, we believe our foreign currency exposure is not material enough to warrant foreign currency hedging.

Item 8. Financial Statements and Supplementary Data

See Item 15 “Exhibits and Financial Statement Schedules” of this Form 10-K for required financial statements and supplementary data.

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

None.

Item 9A. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

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 (“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 December 31, 2016, our disclosure controls and procedures were effective.

Management’s Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act. Our internal control over financial reporting is the process designed by, or under the supervision of, our Chief Executive Officer and Chief Financial Officer, and effected by our board of directors, management and other personnel, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles, and includes those policies and procedures that:

(i) pertain to the maintenance of records that in reasonable detail accurately and fairly reflect our transactions and dispositions of assets;

(ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that our receipts and expenditures are being made only in accordance with the authorization of our management and directors; and

(iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material effect on the financial statements.

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

Under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer, we conducted an assessment of the effectiveness of our internal control over financial reporting as of December 31, 2016. In making this assessment, our management used the criteria set forth in Internal Control — Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO"). Based on the results of this assessment, management has concluded that, as of December 31, 2016, our internal control over financial reporting was effective based on the criteria in Internal Control — Integrated Framework (2013) issued by the COSO.

The Company's management has excluded SCS and the Memory Interconnect Business from its assessment of internal control over financial reporting as of December 31, 2016, because they were acquired by the Company in purchase business combinations during 2016. Combined total assets and revenues of these acquisitions represent approximately 4% and 10%, respectively, of the related consolidated financial statement amounts as of and for the year ended December 31, 2016.

The effectiveness of our internal control over financial reporting as of December 31, 2016 has been audited by PricewaterhouseCoopers, LLP, an independent registered public accounting firm, as stated in their report which appears herein.

Changes in Internal Control Over Financial Reporting

There was no change in internal control over financial reporting during the last fiscal quarter that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. Other Information

None.

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PART III

Item 10. Directors, Executive Officers and Corporate Governance

The information responsive to this item is incorporated herein by reference to our Proxy Statement for our 2017 annual meeting of stockholders to be filed with the Securities and Exchange Commission pursuant to Regulation 14A not later than 120 days after the end of the fiscal year covered by this Annual Report on Form 10-K. The information under the heading “Our Executive Officers” in Part I, Item 1 of this Annual Report on Form 10-K is also incorporated herein by reference.

We have a Code of Business Conduct and Ethics for all of our directors, officers and employees. Our Code of Business Conduct and Ethics is available on our website at http://investor.rambus.com/corporate-governance-document.cfm?DocumentID=8379. To date, there have been no waivers under our Code of Business Conduct and Ethics. We will post any amendments or waivers, if and when granted, of our Code of Business Conduct and Ethics on our website.

Item 11. Executive Compensation

The information responsive to this item is incorporated herein by reference to our Proxy Statement for our 2017 annual meeting of stockholders to be filed with the Securities and Exchange Commission pursuant to Regulation 14A not later than 120 days after the end of the fiscal year covered by this Annual Report on Form 10-K.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

The information responsive to this item is incorporated herein by reference to our Proxy Statement for our 2017 annual meeting of stockholders to be filed with the Securities and Exchange Commission pursuant to Regulation 14A not later than 120 days after the end of the fiscal year covered by this Annual Report on Form 10-K.

Item 13. Certain Relationships and Related Transactions, and Director Independence

The information responsive to this item is incorporated herein by reference to our Proxy Statement for our 2017 annual meeting of stockholders to be filed with the Securities and Exchange Commission pursuant to Regulation 14A not later than 120 days after the end of the fiscal year covered by this Annual Report on Form 10-K.

Item 14. Principal Accountant Fees and Services

The information responsive to this item is incorporated herein by reference to our Proxy Statement for our 2017 annual meeting of stockholders to be filed with the Securities and Exchange Commission pursuant to Regulation 14A not later than 120 days after the end of the fiscal year covered by this Annual Report on Form 10-K.

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PART IV

Item 15. Exhibits and Financial Statement Schedules

(a) (1) Financial Statements

The following consolidated financial statements of the Registrant and Report of PricewaterhouseCoopers LLP, Independent Registered Public Accounting Firm, are included herewith:

(a) (2) Financial Statement Schedule

All schedules are omitted because they are not applicable or the required information is shown in the Consolidated Financial Statements or the notes thereto.

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Report of Independent Registered Public Accounting Firm

To the Board of Directors and Stockholders of Rambus Inc.:

In our opinion, the accompanying consolidated financial statements listed in the index appearing under Item 15(a)(1) present fairly, in all material respects, the financial position of Rambus Inc. and its subsidiaries at December 31, 2016 and December 31, 2015, and the results of their operations and their cash flows for each of the three years in the period ended December 31, 2016 in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2016, based on criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). The Company's management is responsible for these financial statements, for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in Management's Report on Internal Control over Financial Reporting under Item 9A. Our responsibility is to express opinions on these financial statements and on the Company's internal control over financial reporting based on our integrated audits. We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free of material misstatement and whether effective internal control over financial reporting was maintained in all material respects. Our audits of the financial statements included examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

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

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

As described in Management’s Report on Internal Control over Financial Reporting, management has excluded Smart Card Software Limited (“SCS”) and the Memory Interconnect Business from its assessment of internal control over financial reporting as of December 31, 2016 because they were acquired by the Company in separate purchase business combinations during the fiscal year ended December 31, 2016. We have also excluded SCS and the Memory Interconnect Business from our audit of internal control over financial reporting. SCS and the Memory Interconnect Business are wholly owned subsidiaries, whose total assets and total revenues represent 4% and 10%, respectively, of the related consolidated financial statement amounts as of and for the year ended December 31, 2016.

/s/ PricewaterhouseCoopers LLP
San Jose, California
February 17, 2017

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RAMBUS INC.
CONSOLIDATED BALANCE SHEETS

	December 31, 2016	2015
	(In thousands, except shares and per share amounts)	
ASSETS		
Current assets:		
Cash and cash equivalents	$135,294	$143,764
Marketable securities	36,888	143,942
Accounts receivable	21,099	16,408
Prepaids and other current assets	17,867	10,396
Inventories	5,633	1,080
Total current assets	216,781	315,590
Intangible assets, net	132,388	64,266
Goodwill	204,794	116,899
Property, plant and equipment, net	58,442	56,616
Deferred tax assets	168,342	162,485
Other assets	2,749	2,165
Total assets	$783,496	$718,021
LIABILITIES & STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$9,793	$4,096
Accrued salaries and benefits	14,177	12,278
Deferred revenue	16,932	5,780
Other current liabilities	10,399	6,212
Total current liabilities	51,301	28,366
Convertible notes, long-term	126,167	119,418
Long-term imputed financing obligation	38,029	38,625
Deferred tax liabilities	11,600	—
Other long-term liabilities	3,617	5,079
Total liabilities	230,714	191,488
Commitments and contingencies (Notes 11 and 17)		
Stockholders' equity:		
Convertible preferred stock, $.001 par value:		
Authorized: 5,000,000 shares; Issued and outstanding: no shares at December 31, 2016 and December 31, 2015	—	—
Common Stock, $.001 par value:		
Authorized: 500,000,000 shares; Issued and outstanding: 111,053,734 shares at December 31, 2016 and 109,287,591 shares at December 31, 2015	111	109
Additional paid in capital	1,181,230	1,130,368
Accumulated deficit	(615,051)	(604,317)
Accumulated other comprehensive income (loss)	(13,508)	373
Total stockholders' equity	552,782	526,533
Total liabilities and stockholders' equity	$783,496	$718,021

See Notes to Consolidated Financial Statements

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RAMBUS INC.
CONSOLIDATED STATEMENTS OF OPERATIONS

	Years Ended December 31,		
	2016	2015	2014
	(In thousands, except per share amounts)		
Revenue:			
Royalties	$264,614	$262,415	$271,521
Contract and other revenue	71,983	33,863	25,037
Total revenue	336,597	296,278	296,558
Operating costs and expenses:			
Cost of revenue*	67,090	45,344	41,947
Research and development*	129,844	111,110	110,025
Sales, general and administrative*	95,145	70,554	74,770
Restructuring charges	—	3,576	39
Impairment of in-process research and development intangible asset	18,300	—	