MARVELL TECHNOLOGY GROUP LTD
Form 10-K
March 28, 2019

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549
Form 10-K
(Mark One)
x ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the fiscal year ended February 2, 2019
or
¨ TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the transition period from to
Commission file number 0-30877
Marvell Technology Group Ltd.
(Exact name of registrant as specified in its charter)

Bermuda	77-0481679
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)

Canon's Court, 22 Victoria Street, Hamilton HM 12, Bermuda
(Address of principal executive offices)
(441) 296-6395
(Registrant's telephone number, including area code)
Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Name of each exchange on which registered
Common shares, $0.002 par value per share	The NASDAQ Stock Market LLC

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 x No ¨
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 ¨ No x
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 x No ¨
Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§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 x No ¨
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. ¨

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

Act.

Large accelerated filer x	Accelerated filer ¨	Non-accelerated filer ¨	Smaller reporting company ¨	Emergin growth compan
		(Do not check if a smaller reporting company)		

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

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

The aggregate market value of the registrant’s common shares held by non-affiliates of the registrant was $13,935,080,448 based upon the closing price of $21.37 per share on the NASDAQ Global Select Market on August 3, 2018 (the last business day of the registrant’s most recently completed second quarter).

As of March 21, 2019, there were 659.1 million common shares of the registrant outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of Part III of this Form 10-K are incorporated by reference from the registrant's definitive proxy statement for its 2019 annual general meeting of shareholders, which proxy statement will be filed with the Securities and Exchange Commission within 120 days after the end of the fiscal year covered by this Form 10-K.

TRADEMARKS

Marvell®, the Marvell logo, and other trademarks listed at https://www.marvell.com/company/trademarks/ are trademarks of Marvell International Ltd. and/or its affiliates. These trademarks include the following trademarks that we recently acquired from Cavium including OCTEON®, OCTEON Fusion-M®, OCTEON XL®, OCTEON TX®, LiquidIO®, LiquidSecurity®, NITROX®, ThunderX®, ThunderX2®, Xpliant®, XPA®, QLogic® and FastLinQ®. Any other trademarks or trade names mentioned are the property of their respective owners. The information contained on any website referred to on this Cover Page to Form 10-K does not form any part of this Annual Report on Form 10-K and is not incorporated by reference herein unless expressly noted.

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MARVELL TECHNOLOGY GROUP LTD.

Forward-Looking Statements

This Annual Report on Form 10-K contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended (the "Securities Act"), and Section 21E of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), which are subject to the "safe harbor" created by those sections. These statements involve known and unknown risks, uncertainties and other factors, which may cause our actual results to differ materially from those implied by the forward-looking statements. Words such as "anticipates," "expects," "intends," "plans," "projects," "believes," "seeks," "estimates," "may," "can," "will," "would" and similar expressions identify such forward-looking statements. Forward-looking statements are subject to risks and uncertainties that could cause actual results to differ materially from those indicated in the forward-looking statements. Factors that could cause actual results to differ materially from those predicted include, but are not limited to:

- our ability to implement our plans, forecasts and other expectations with respect to the acquisition of Cavium Inc. and to fully realize the anticipated synergies and cost savings in the timeframe anticipated;
- our dependence on a small number of customers;
- severe financial hardship or bankruptcy of one or more of our major customers;
- the effects of any potential future acquisitions, strategic investments, divestitures, mergers or joint ventures;
- risks associated with acquisition and consolidation activity in the semiconductor industry;
- our ability and the ability of our customers to successfully compete in the markets in which we serve;
- our dependence upon the storage market, which is highly cyclical and intensely competitive;
- our ability and our customers' ability to develop new and enhanced products and the adoption of those products in the market;
- decreases in our gross margin and results of operations in the future due to a number of factors;
- our reliance on independent foundries and subcontractors for the manufacture, assembly and testing of our products;
- the risks associated with manufacturing and selling a majority of our products and our customers' products outside of the United States;
- the effects of transitioning to smaller geometry process technologies;
- our ability to scale our operations in response to changes in demand for existing or new products and services;
- our ability to limit costs related to defective products;
- our ability to recruit and retain experienced executive management as well as highly-skilled engineering and sales and marketing personnel;
- our ability to mitigate risks related to our information technology systems;
- our ability to protect our intellectual property;
- our ability to estimate customer demand and future sales accurately;
- our reliance on third-party distributors and manufacturers' representatives to sell our products;
- the impact of international conflict and continued economic volatility in either domestic or foreign markets;
- the impact and costs associated with changes in international financial and regulatory conditions;
- the impact of any change in our application of the United States federal income tax laws and the loss of any beneficial tax treatment that we currently enjoy;
- our maintenance of an effective system of internal controls; and
- the outcome of pending or future litigation and legal proceedings.

Additional factors that could cause actual results to differ materially include the risks discussed in Part I, Item 1A, "Risk Factors." These forward-looking statements speak only as of the date hereof. Unless required by law, we undertake no obligation to update publicly any forward-looking statements.

PART I

Item 1. Business

Overview

Marvell Technology Group Ltd., together with its consolidated subsidiaries ("Marvell," the "Company," "we," or "us") is a fabless semiconductor provider of high-performance application-specific standard products. Our core strength is developing highly integrated and complex System-on-a-Chip ("SoC") devices, leveraging our technology portfolio of intellectual property in the areas of analog, mixed-signal, digital signal processing, and embedded and standalone integrated circuits. We also develop integrated hardware platforms along with software that incorporates digital computing technologies designed and configured to provide an optimized computing solution. Our broad product portfolio includes devices for storage and networking. We were incorporated in Bermuda in January 1995.

On July 6, 2018, the Company completed the acquisition of Cavium (the "Cavium acquisition"). The Cavium acquisition was primarily intended to create an opportunity for the combined company to emerge as a leader in infrastructure solutions. In accordance with the terms of the Agreement and Plan of Merger, dated as of November 19, 2017, by and among the Company and Cavium (the "Cavium merger agreement"), the Company acquired all outstanding shares of common stock of Cavium (the "Cavium shares") for $40.00 per share in cash and 2.1757 shares of the Company's common stock exchanged for each share of Cavium stock. The merger consideration was funded with a combination of cash on hand, new debt financing and issuance of the Company's common shares. See "Note 5 - Business Combination" for discussion of the acquisition and "Note 12 - Debt" for discussion of the debt financing in the Notes to Consolidated Financial Statements set forth in Part II, Item 8 of the Annual Report on Form 10-K.

Our registered and mailing address is Canon's Court, 22 Victoria Street, Hamilton HM 12, Bermuda, and our telephone number there is (441) 296-6395. The address of our U.S. operating subsidiary is Marvell Semiconductor, Inc., 5488 Marvell Lane, Santa Clara, California 95054, and our telephone number there is (408) 222-2500. We also have operations in many countries, including China, India, Israel, Japan, Singapore, South Korea, Taiwan and Vietnam.

Our fiscal year ends on the Saturday nearest January 31.

Available Information

Our website address is www.marvell.com. The information contained on any website referred to in this Form 10-K does not form any part of this Annual Report on Form 10-K and is not incorporated by reference herein unless expressly noted. We make available free of charge through our website our annual reports on Form 10-K, our quarterly reports on Form 10-Q, our current reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), as soon as reasonably practicable after we electronically file this material with, or furnish it to, the U.S. Securities and Exchange Commission ("SEC"). In addition, the SEC's website, www.sec.gov, contains reports, proxy statements, and other information that we file electronically with the SEC.

Our Markets and Products

Over the last several years, we have transitioned from a supplier of stand-alone semiconductor components to a supplier of fully integrated platform solutions. We have been focusing our investment on infrastructure markets such as enterprise, datacenter and service provider networks and have reduced our investment in consumer markets such as personal computers. Infrastructure markets have a number of very attractive attributes including long product lifecycles, deep customer relationships and typically sole-sourced design wins. Our platform solutions contain multiple intellectual property components in integrated hardware, along with software that incorporates digital, analog and mixed-signal computing and communication technologies, designed and configured to provide an optimized solution. Our solutions have become increasingly integrated, with more and more components resulting in an all-in-one solution for a given customer's end product. The demand for such highly integrated platform solutions is generally driven by technological changes and anticipation of the future needs of device manufacturers and end users, including enterprises, campus and service provider networks and, to an increasing extent, data center providers.

A device manufacturer may require technologies leveraged from one end market product into products for other end markets, integrating components and technologies traditionally associated with one end market with components and technologies from another end market. The integration of these various technologies onto a single piece of silicon is

referred to as SoC.

In addition, software has become increasingly important to our business over the last several years and we believe software will become even more relevant as the market expects hardware and software to be delivered as an integrated solution. On-chip software, which acts as the "driver" for the functionality of the chip, has always been a critical part of our business. However, the software and application-level software that we deliver with our products have become significantly more complex as the range of uses and the needs have increased.

Our current product offerings are primarily in two broad product groups: storage and networking. In storage, we are a market leader in fibre channel products and data storage controller solutions spanning cloud, enterprise, edge and personal computing markets. Our networking products include ethernet solutions, embedded processors and WiFi connectivity solutions. These products address multiple end markets in cloud, consumer, enterprise, and service provider networks.

In connection with the November 2016 announcement of our plan to restructure our operations to refocus our research and development, increase operational efficiency and improve profitability, we divested three businesses in fiscal 2018. As required, we have retrospectively recast our consolidated statements of operations and balance sheets for all periods presented to reflect these businesses as discontinued operations. Unless noted otherwise, the following discussion refers to our continuing operations. As part of our restructuring initiated in July 2018, our former Networking and Connectivity product group was combined and named Networking. Prior years' amounts have been revised to conform to the current year's presentation. Our net revenue by product group for the last three fiscal years is as follows:

	Year Ended					
	February 2, 2019		February 3, 2018		January 28, 2017	
	(in millions, except for percentages)					
Storage	$1,377	48%	$ 1,254	52%	$1,158	50%
Networking	1,313	46%	962	40%	908	40%
Other	176	6 %	193	8 %	235	10%
Total	$2,866		$ 2,409		$2,301	

Storage

Storage Controllers

Hard disk drive ("HDD") controllers provide high-performance input/output ("I/O") interface control between the HDD and the host system. We support a variety of host system interfaces, including Serial Advanced Technology Attachment ("SATA") and Serial Attached SCSI ("SAS"), which support the complete range of cloud, enterprise, desktop and mobile HDDs.

We are a leading HDD controller supplier and currently supply products to all of the major hard drive manufacturers. Our HDD controllers provide a technological advantage that enables a higher level of data storage on smaller form factors and higher volumetric densities. Our advanced HDD controller SoCs incorporate the latest Marvell IPs, using leading advanced semiconductor process nodes.

Our solid-state-drive ("SSD") controller SoCs are targeted at the market for flash-based storage devices and systems for the cloud, enterprise, consumer and mobile computing markets. We support a variety of host system interfaces, including SAS, SATA, peripheral component interconnect express ("PCIe"), and non-volatile memory express ("NVMe"). We are a leading supplier of SSD controllers across a range of customers and market segments. Our advanced SSD controller SoCs incorporate the latest Marvell technology using leading advanced process nodes.

Our preamplifiers transmit the signal from the magnetic head reading and writing data to and from the HDD platter to the HDD controller SoC with minimal noise and distortion. Our preamplifiers typically support multiple signal paths or channels, and are designed into cloud, enterprise and client HDDs.

We develop software-enabled silicon solutions for enterprise, data centers and cloud computing businesses. The solutions include SATA port multipliers, bridges, SATA, SAS and NVMe redundant array of independent disk controllers and converged storage processors. Recently, we introduced three new products to enable innovative flash-based storage architectures in data centers. Our aggregators increase SSD densities to maximize throughput for new emerging SSD form factors and architectures. Our accelerators and converters reduce the need for additional servers while optimizing overall data storage utilization, performance and scalability.

Fibre Channel Products

The QLogic Fibre Channel product family includes both adapters for server connectivity as well as ASICs and adapters for storage system connectivity. These products accelerate enterprise applications, deliver a highly resilient infrastructure, enable greater virtualization density along with an advanced set of datacenter diagnostic, orchestration and Quality of Service capabilities to optimize IT staff productivity. Our latest high-performance, high port density, Fibre Channel products are particularly well-suited for use with all-flash arrays.

Networking

Ethernet Solutions

Ethernet connectivity is pervasive throughout networking infrastructures built for enterprises, small and medium businesses, home offices, service providers, data centers and now also entering the automotive market. Our Ethernet solutions address a wide variety of end-customer products for those markets, from small, cost-effective appliances to large, high-performance modular solutions.

We offer a broad selection of Ethernet switches with market-optimized innovative features, such as advanced tunneling and routing, high throughput forwarding, and packet processing that make networks more effective at delivering content. Our Ethernet switch product portfolio ranges from low-power, five-port switches to highly integrated, multi-terabit Ethernet SoC devices that can be interconnected to form massive network solutions.

We complement our Ethernet switch and embedded communication processors with a broad selection of Ethernet physical-layer transceivers for both fiber and copper interconnect with advanced power management, link security, and time synchronization features.

We also offer a family of Ethernet Adapters and controllers that serve the connectivity needs of both server and storage systems.

Embedded Processors

We offer highly integrated semiconductors that provide single or multiple cores of processors, along with intelligent Layer 2 through 7 processing for enterprise, datacenter, storage, broadband and consumer, and service provider markets. All of our products are compatible with standards-based operating systems and general purpose software to enable ease of programming, and are supported by our ecosystem partners.

Our OCTEON multi-core processor families provide integrated Layer 4 through 7 data and security processing with additional capabilities at Layers 2 and 3 at line speeds. These software-compatible processors integrate next-generation networking I/Os along with advanced security, storage, and application hardware acceleration, offering programmability for the Layer 2 through Layer 7 processing requirements of intelligent networks. The OCTEON processors are targeted for use in a wide variety of original equipment manufacturer, or OEM, networking and storage equipment, including routers, switches, security and UTM appliances, content-aware switches, application-aware gateways, triple-play gateways, WLAN, 3G/4G/5G wireless base stations, storage arrays, storage networking equipment, servers, and intelligent network interface controllers, NFV and SDN infrastructure and service provider CPE.

Our OCTEON Fusion-M family of wireless baseband processors is a highly scalable product family supporting enterprise small cells, high capacity outdoor picocells and microcells all the way up to multi-sector macrocells for multiple wireless protocols including 5G. The key features include highly optimized processor cores, a highly efficient caching subsystem, high memory bandwidth digital signal processing engines along with a host of hardware accelerators. Additionally, multiple OCTEON Fusion-M chips can be cascaded for even denser deployments or higher order multiple-input and multiple-output, or MIMO.

Our NITROX processor family offers stand-alone security processors that provide the functionality required for Layer 3 to Layer 5 secure communication in a single chip. This single chip, custom-designed processors provide complete security protocol processing, encryption, authentication and compression algorithms to reduce the load on the system processor and increase total system throughput. The LiquidSecurity product family is a high-performance hardware-based transaction security solution for cloud datacenters, enterprise, government organizations and ecommerce applications. It addresses the high-performance security requirements for private key management and administration. This family is available as an adapter with complete software or as a standalone appliance.

Our LiquidIO Server Adapter family is a high-performance, general-purpose programmable adapter platform that enables cloud service providers to offload any functionality in the datacenter. The LiquidIO Server Adapter family is supported by a feature rich software development kit that allows customers and partners to develop high-performance SDN (software defined networking) applications with packet processing, switching, security, tunneling, quality of service, and metering.

Our ThunderX processor family is a highly integrated, scalable family of multi-core SoC processors optimized for cloud and datacenter servers. These processors incorporate highly optimized, full custom cores based on 64-bit ARMv8 instruction set architecture targeting cloud compute, secure compute, cloud storage/big data and networking/network function virtualization workloads. ThunderX2 is the second-generation workload optimized ARMv8 processor built using FinFET process that targets high-performance volume servers deployed by public/private cloud and telco datacenters and high-performance computing applications.

WiFi Connectivity

We offer a broad portfolio of connectivity solutions, including Wi-Fi, and Wi-Fi/Bluetooth integrated SOCs. These products are integrated into a wide variety of end devices, such as enterprise access points, home gateways and voice assistants, multimedia devices, gaming, printers, automotive infotainment and telematics units, and smart industrial devices. Our products are well-positioned to deliver low-power and high-performance functionality with cutting-edge technologies, and to lead the fast-paced developments of Wi-Fi 802.11 and Bluetooth standards. Our connectivity product portfolio includes a single stream 1x1, as well as multi-stream 2x2, 4x4 and 8x8 multiple input multiple output devices. We deliver both the radio control and processing as well as the RF components for a complete customer solution.

Other Products

Our other products include printer SoC products and application processors. Our printer SoC products power many of today's laser and ink printers and multi-function peripherals.

Our application processors are targeted for non-mobile applications and deliver leading-edge performance for today's embedded and Internet of Things solutions.

Financial Information about Segments and Geographic Areas

We have determined that we operate in one reportable segment: the design, development and sale of integrated circuits. For information regarding our revenue by geographic area, and property and equipment by geographic area, please see "Note 18 — Segment and Geographic Information" in our Notes to the Consolidated Financial Statements set forth in Part II, Item 8 of this Annual Report on Form 10-K. See "Risk Factors" under Item 1A of this Annual Report on Form 10-K for a discussion of the risks associated with our international operations.

Customers, Sales and Marketing

Our target customers are original equipment manufacturers and original design manufacturers, both of which design and manufacture end market devices. Our sales force is strategically aligned along key customer lines in order to offer fully integrated platforms to our customers. In this way, we believe we can more effectively offer a broader set of content into our key customers' end products, without having multiple product groups separately engage the same customer. We complement and support our direct sales force with manufacturers' representatives for our products in North America, Europe and Asia. In addition, we have distributors who support our sales and marketing activities in the United States, Europe and Asia. We also use third-party logistics providers who maintain warehouses in close proximity to our customers' facilities. We expect that a significant percentage of our sales will continue to come from direct sales to key customers.

We use field application engineers to provide technical support and assistance to existing and potential customers in designing, testing and qualifying systems designs that incorporate our products. Our marketing team works in conjunction with our field sales and application engineering force, and is organized around our product groups.

Historically, a relatively small number of customers have accounted for a significant portion of our net revenue. Net revenue attributable to significant customers whose revenues as a percentage of net revenue was 10% or greater of total net revenues is presented in the following table:

	Year Ended		
	February 2, 2019	February 3, 2018	January 28, 2017
Customer:			
Western Digital	12%	20 %	21 %
Toshiba *	11%	14 %	14 %
Seagate	10%	11 %	9 %
Distributor:			
Wintech	**	10 %	10 %

* The percentage of net revenue reported for Toshiba for fiscal year 2019 excludes net revenue of Toshiba Memory Corporation after Toshiba divested Toshiba Memory Corporation during fiscal year 2019.
** Less than 10% of net revenue

Some of our products are being incorporated into consumer electronics products, including gaming devices and personal computers, which are subject to significant seasonality and fluctuations in demand. Seasonality, including holiday buying trends, may at times negatively impact our results in the first and fourth quarter, and positively impact our results in the second and third quarter of our fiscal years. In addition, the timing of new product introductions by our customers may cause variations in our quarterly revenues, which may not be indicative of future trends.

Inventory and Working Capital

We place firm orders for products with our suppliers generally up to 16 weeks prior to the anticipated delivery date and typically prior to an order for the product. These lead times typically change based on the current capacity at the foundries. We often maintain substantial inventories of our products because the semiconductor industry is characterized by short lead time orders and quick delivery schedules.

Backlog

We do not believe that backlog is a meaningful or reliable indicator for future demand, due to the following:

- an industry practice that allows customers to cancel or change orders prior to the scheduled shipment dates;
- a portion of our revenue comes from products shipped to customers using third-party logistics providers, or “hubs” wherein the product can be pulled at any time by the customer and is therefore never reflected in backlog

Research and Development

We believe that our future success depends on our ability to introduce improvements to our existing products and to develop new products that deliver cost-effective solutions for both existing and new markets. Our research and development efforts are directed largely to the development of high-performance analog, mixed-signal, digital signal processing and embedded microprocessor integrated circuits with the smallest die size and lowest power. We devote a significant portion of our resources to expanding our product portfolio based on a broad intellectual property portfolio with designs that enable high-performance, reliable communications over a variety of physical transmission media. We are also focused on incorporating functions currently provided by stand-alone integrated circuits into our integrated platform solutions to reduce our customers’ overall system costs.

We have assembled a core team of engineers who have experience in the areas of mixed-signal circuit design, digital signal processing, embedded microprocessors, complementary metal oxide semiconductor (“CMOS”) technology and system-level architectures. We have invested and will continue to invest a significant amount in research and development. See our discussion of research and development expenses in Item 7, Management’s Discussion and Analysis of Financial Condition and Results of Operations, of this Annual Report on Form 10-K for further information.

Manufacturing

Integrated Circuit Fabrication

The vast majority of our integrated circuits are fabricated using widely available CMOS processes, which provide greater flexibility to engage independent foundries to manufacture integrated circuits at lower costs. By outsourcing manufacturing, we are able to avoid the cost associated with owning and operating our own manufacturing facility. This allows us to focus our efforts on the design and marketing of our products. We work closely with our foundry partners to forecast on a monthly basis our manufacturing capacity requirements. We closely monitor foundry production to ensure consistent overall quality, reliability and yield levels. Our integrated circuits are currently fabricated in several advanced manufacturing processes. Because finer manufacturing processes lead to enhanced performance, smaller silicon chip size and lower power requirements, we continually evaluate the benefits and feasibility of migrating to smaller geometry process technology in order to reduce cost and improve performance.

Assembly and Test

We outsource all product packaging and testing requirements for our products in production to several assembly and test subcontractors primarily located in China, Korea, Singapore and Taiwan.

Environmental Management

We believe that our products comply with the current Restriction of Hazardous Substances Directive, the European legislation that restricts the use of a number of substances, including lead, and the Regulation, Evaluation and Authorization of Chemicals SVHC Substances Directive. In addition, each of our manufacturing subcontractors

complies with ISO 14001:2004, the international standard related to environmental management. We are also working to establish a "conflict-free" supply chain, including ethical sourcing of certain minerals for our products.

Intellectual Property

Our future revenue growth and overall success depend in large part on our ability to protect our intellectual property. We rely on a combination of patents, copyrights, trademarks, trade secrets, contractual provisions, confidentiality agreements and licenses to protect our intellectual property. As of February 2, 2019, we have approximately 10,000 U.S. and foreign patents issued and approximately 1600 U.S. and foreign patent applications pending on various aspects of our technology. While we believe the duration of our patents generally covers the expected lives of our products, our patents may not collectively or individually cover every feature on innovation in our product. In addition, our efforts may not be sufficient to protect our intellectual property from misappropriation or infringement. See “Risk Factors” under Item 1A of this Annual Report on Form 10-K for a discussion of the risks associated with our intellectual property.

We have expended and will continue to expend considerable resources in establishing a patent position designed to protect our intellectual property. While our ability to compete is enhanced by our ability to protect our intellectual property, we believe that in view of the rapid pace of technological change, the combination of the technical experience and innovative skills of our employees may be as important to our business as the legal protection of our patents and other proprietary information.

From time to time, we may desire or be required to renew or to obtain licenses from third parties in order to further develop and effectively market commercially viable products or in connection with a pending or future claim or action asserted against us. We cannot be sure that any necessary licenses will be available or will be available on commercially reasonable terms.

The integrated circuit industry is characterized by vigorous pursuit and protection of intellectual property rights, which has resulted in significant and often time consuming and expensive litigation. From time to time, we receive, and may continue to receive in the future, notices that claim we have infringed upon, misappropriated or misused the proprietary rights of other parties.

In addition, we have in the past and may in the future be sued by other parties who claim that we have infringed their patents or misappropriated or misused other intellectual property rights, or who may seek to invalidate one or more of our patents, trademarks, or other rights. Although we defend these claims vigorously, it is possible that we will not prevail in pending or future lawsuits. See “Risk Factors” under Item 1A of this Annual Report on Form 10-K and “Note 13 — Commitments and Contingencies” in our Notes to the Consolidated Financial Statements set forth in Part II, Item 8, of this Annual Report on Form 10-K for further discussion of the risks associated with patent litigation matters.

Competition

The markets for our products are intensely competitive, and are characterized by rapid technological change, evolving industry standards, frequent new product introductions and pricing pressures. Competition has intensified as a result of the increasing demand for higher levels of performance and integration and smaller process geometries. We expect competition to intensify as current competitors continue to strengthen the depth and breadth of their product offerings, either through in-house development or by acquiring existing technology. We believe that our ability to compete successfully in the rapidly evolving markets for our products depends on a number of factors, including, but not limited to:

- the performance, features, quality and price of our products;
- the timing and success of new product introductions by us, our customers and our competitors;
- emergence, rate of adoption and acceptance of new industry standards;
- our ability to obtain adequate foundry capacity with the appropriate technological capability; and
- the number and nature of our competitors in a given market.

Our major competitors for our products include Advanced Micro Devices Inc., Aquantia Corporation, Broadcom Limited, Cypress Semiconductor Corporation, Inphi Corporation, Intel Corporation, MediaTek Inc., Mellanox Technologies Limited, Microchip Technology Inc., NXP Semiconductors N.V., Phison Electronics Corporation, Qualcomm Inc., Quantenna Communications Inc. and Silicon Motion Technology Corporation. We expect increased competition in the future from emerging or established companies, or alliances among competitors, customers or other third parties, any of which could acquire significant market share. See “Risk Factors” under Item 1A of this Annual

Report on Form 10-K for a discussion of competitive risks associated with our business.

Historically, average unit selling prices in the integrated circuit industry in general, and for our products in particular, have decreased over the life of a particular product. We expect that the average unit selling prices of our products will continue to be subject to significant pricing pressures. In order to offset expected declines in the selling prices of our products, we will need to continue to introduce innovative new products and reduce the cost of our products. To accomplish this, we intend to continue to implement design changes that lower the cost of manufacturing, assembly and testing of our products. See "Risk Factors" under Item 1A of this Annual Report on Form 10-K for a discussion of pricing risks.

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Employees
As of February 2, 2019, we had a total of 5,275 employees.

Item 1A. Risk Factors
Investing in our common shares involves a high degree of risk. You should carefully consider the risks and uncertainties described below and all information contained in this report before you decide to purchase our common shares. Many of these risks and uncertainties are beyond our control, including business cycles and seasonal trends of the computing, infrastructure, semiconductor and related industries and end markets. If any of the possible adverse events described below actually occurs, we may be unable to conduct our business as currently planned and our financial condition and operating results could be harmed. In addition, the trading price of our common shares could decline due to the occurrence of any of these risks, and you could lose all or part of your investment.
Risks Related to Our Acquisition of Cavium
Our acquisition of Cavium involves a number of risks, including, among others, those associated with our use of a significant portion of our cash and our taking on substantial indebtedness, other financial risks, integration risks, and risk associated with the reactions of customers, suppliers and employees.
We used a significant portion of our cash and incurred substantial indebtedness in connection with the financing of our acquisition of Cavium (the "Cavium acquisition") that will reduce our liquidity and may (i) limit our flexibility in responding to other business opportunities and (ii) increase our vulnerability to adverse economic and industry conditions.
The benefits we expect to realize from the Cavium acquisition will depend, in part, on our ability to integrate the businesses successfully and efficiently. See also the Risk Factor entitled “Any potential future acquisitions, strategic investments, divestitures, mergers or joint ventures may subject us to significant risks, any of which could harm our business." If we are unable to successfully integrate the businesses of Cavium with that of the Company, the combined company’s business, results of operations, financial condition or cash flows could be harmed. The challenges in integrating the operations of the companies include, among others:

- difficulties in fully achieving anticipated cost savings, synergies, business opportunities and growth prospects from combining the businesses;
- difficulties entering new markets or manufacturing in new geographies where we have no or limited direct prior experience;
- difficulties in the integration of operations and systems;
- difficulties in the assimilation or retention of employees;
- difficulties in managing the expanded operations of a significantly larger and more complex company; and
- challenges in maintaining existing, and establishing new, business relationships.

Any of the above could harm the combined company and thus decrease the benefits we expect to receive from the acquisition.

We may not fully realize the benefits we expect to receive from the transaction, such as increasing revenue or profits, or receive them in the anticipated time frame. In addition, if we have not identified or accurately assessed the magnitude of Cavium’s liabilities, it could result in unexpected litigation or regulatory exposure, unfavorable accounting charges, unexpected increases in taxes due, a loss of anticipated tax benefits or other adverse effects on our business, results of operations, financial condition or cash flows. Moreover, the integration of the businesses and the employee compensation and benefits could result in increased employee voluntary attrition. Loss of key or skilled

personnel could adversely impact product development or other aspects of the Company's business and operations.

The occurrence of any of these risks could have a material adverse effect on the combined company's business, results of operations, financial condition or cash flows.

Factors That May Affect Our Future Results

Our financial condition and results of operations may vary from quarter to quarter, which may cause the price of our common shares to decline.

Our quarterly results of operations have fluctuated in the past and could do so in the future. Because our results of operations are difficult to predict, you should not rely on quarterly comparisons of our results of operations as an indication of our future performance.

Fluctuations in our results of operations may be due to a number of factors, including, but not limited to, those listed below and those identified throughout this “Risk Factors” section:

- our ability to realize anticipated synergies in connection with the Cavium acquisition;
- changes in general economic and political conditions and specific conditions in the end markets we address, including the continuing volatility in the technology sector and semiconductor industry;
- the effects of any acquisitions, divestitures or significant investments, including the Cavium acquisition;
- the highly competitive nature of the end markets we serve, particularly within the semiconductor industry;
- our dependence on a few customers for a significant portion of our revenue;
- severe financial hardship or bankruptcy of one or more of our major customers;
- our ability to maintain a competitive cost structure for our manufacturing and assembly and test processes and our reliance on third parties to produce our products;
- any current and future litigation that could result in substantial costs and a diversion of management’s attention and resources that are needed to successfully maintain and grow our business;
- cancellations, rescheduling or deferrals of significant customer orders or shipments, as well as the ability of our customers to manage inventory;
- gain or loss of a design win or key customer;
- seasonality in sales of consumer devices in which our products are incorporated;
- failure to qualify our products or our suppliers’ manufacturing lines;
- our ability to develop and introduce new and enhanced products in a timely and effective manner, as well as our ability to anticipate and adapt to changes in technology;
- failure to protect our intellectual property;
- impact of a significant natural disaster, including earthquakes, floods and tsunamis, particularly in certain regions in which we operate or own buildings, such as Santa Clara, California, and where our third party suppliers operate, such as Taiwan and elsewhere in the Pacific Rim; and
- our ability to attract, retain and motivate a highly skilled workforce, especially managerial, engineering, sales and marketing personnel.

Due to fluctuations in our quarterly results of operations and other factors, the price at which our common shares will trade is likely to continue to be volatile. Accordingly, you may not be able to resell your common shares at or above the price you paid. In future periods, our stock price could decline if, amongst other factors, our revenue or operating results are below our estimates or the estimates or expectations of securities analysts and investors. Our stock is traded on the NASDAQ stock exchange under the ticker symbol "MRVL". As a result of stock price volatility, we may be subject to securities class action litigation. Any litigation could result in substantial costs and a diversion of management’s attention and resources that are needed to successfully maintain and grow our business.

Our sales are concentrated in a few large customers. If we are unable to increase the number of large customers in key markets, or if we lose or experience a significant reduction in sales to these key customers, if these key customers experience a significant decline in market share, or if these customers experience significant financial difficulties, our revenue may decrease substantially and our results of operations and financial condition may be harmed.

We receive a significant amount of our revenue from a limited number of customers. Net revenue from our two largest customers represented 23% and 34% of our net revenue for the year ended February 2, 2019 and February 3, 2018, respectively. Sales to our largest customers have fluctuated significantly from period to period and year to year and will likely continue to fluctuate in the future, primarily due to the timing and number of design wins with each customer, the continued diversification of our customer base as we expand into new markets, global economic

conditions, natural disasters or other issues that may impact a customer’s operations. The loss of any of our large customers or a significant reduction in sales we make to them would likely harm our financial condition and results of operations. To the extent one or more of our large customers experience significant financial difficulty, bankruptcy or insolvency, this could have a material adverse effect on our sales and our ability to collect on receivables, which could harm our financial condition and results of operations.

If we are unable to increase the number of large customers in key markets, then our operating results in the foreseeable future will continue to depend on sales to a relatively small number of customers, as well as the ability of these customers to sell products that incorporate our products. In the future, these customers may decide not to purchase our products at all, purchase fewer products than they did in the past, or alter their purchasing patterns in some other way, particularly because:

- a significant portion of our sales are made on a purchase order basis, which allows our customers to cancel, change or delay product purchase with relatively short notice to us;
- customers may purchase integrated circuits from our competitors;
- customers may discontinue sales or lose market share in the markets for which they purchase our products;
- customers may develop their own solutions or acquire fully developed solutions from third-parties;
- customers may be subject to severe business disruptions, including, but not limited to, those driven by financial instability; or
- customers may consolidate (for example, Western Digital acquired SanDisk in 2017, and Toshiba Corporation sold control of a portion of its semiconductor business in 2018), which could lead to changing demand for our products, replacement of our products by the merged entity with those of our competitors and cancellation of orders.

In addition, if regulatory activity, such as enforcement of U.S. export control and sanctions laws, or the imposition of new tariffs, were to materially limit our ability to makes sales to any of our significant customers, it could harm our results of operations, reputation and financial condition.

Any potential future acquisitions, strategic investments, divestitures, mergers or joint ventures may subject us to significant risks, any of which could harm our business.

Our long-term strategy may include identifying and acquiring, investing in or merging with suitable candidates on acceptable terms, or divesting of certain business lines or activities. In particular, over time, we may acquire, make investments in, or merge with providers of product offerings that complement our business or may terminate such activities. Mergers, acquisitions and divestitures include a number of risks and present financial, managerial and operational challenges, including but not limited to:

- diversion of management attention from running our existing business;
- increased expenses, including, but not limited to, legal, administrative and compensation expenses related to newly hired or terminated employees;
- key personnel of an acquired company may decide not to work for us;
- increased costs to integrate or, in the case of a divestiture, separate the technology, personnel, customer base and business practices of the acquired or divested business or assets;
- assuming the legal obligations of the acquired company, including potential exposure to material liabilities not discovered in the due diligence process;
- ineffective or inadequate control, procedures and policies at the acquired company may negatively impact our results of operations;
- potential adverse effects on reported operating results due to possible write-down of goodwill and other intangible assets associated with acquisitions;
- potential damage to customer relationships or loss of synergies in the case of divestitures; and
- unavailability of acquisition financing on reasonable terms or at all.

Any acquired business, technology, service or product could significantly under-perform relative to our expectations and may not achieve the benefits we expect from possible acquisitions. Given that our resources are limited, our decision to pursue a transaction has opportunity costs; accordingly, if we pursue a particular transaction, we may need to forgo the prospect of entering into other transactions that could help us achieve our strategic objectives.

When we decide to sell assets or a business, we may have difficulty selling on acceptable terms in a timely manner. These circumstances could delay the achievement of our strategic objectives or cause us to incur additional expense, or we may sell a business at a price or on terms that are less favorable than we had anticipated, resulting in a loss on the transaction.

If we do enter into agreements with respect to acquisitions, divestitures, or other transactions, we may fail to complete them due to factors such as:

- failure to obtain regulatory or other approvals;
- IP disputes or other litigation; or
- difficulties obtaining financing for the transaction.

For all these reasons, our pursuit of an acquisition, investment, divestiture, merger or joint venture could cause our actual results to differ materially from those anticipated.

We operate in intensely competitive markets. Our failure to compete effectively would harm our results of operations.
The semiconductor industry, and specifically the storage and networking markets, is extremely competitive. We currently compete with a number of large domestic and international companies in the business of designing integrated circuits and related applications, some of which have greater financial, technical and management resources than us. Our efforts to introduce new products into markets with entrenched competitors exposes us to additional competitive pressures. For example, we are facing, and expect we will continue to face, significant competition in the infrastructure, networking and SSD storage markets. Additionally, customer expectations and requirements have been evolving rapidly. For example, customers expect us to provide turnkey solutions and commit to future roadmaps that have technical risks.
Some of our competitors may be better situated to meet changing customer needs and secure design wins. Increasing competition in the markets in which we operate may negatively impact our revenue and gross margins. For example, competitors with greater financial resources may be able to offer lower prices than us, or they may offer additional products, services or other incentives that we may not be able to match, such as bundling multiple products and pricing. In addition, many of our competitors operate and maintain their own fabrication facilities and have longer operating histories, greater name recognition, larger customer bases, and greater sales, marketing and distribution resources than we do.
In addition, the semiconductor industry has experienced increased consolidation over the past several years. For example, Microchip Technology acquired Microsemi in May 2018; Avago Technologies Limited (now Broadcom Limited ("Broadcom")) acquired Broadcom Corporation in February 2016 and LSI Corporation in May 2014; Intel acquired Altera Corporation in December 2015; and NXP Semiconductors acquired Freescale Semiconductor, Ltd. in December 2015. Consolidation among our competitors could lead to a changing competitive landscape, capabilities and market share, which could put us at a competitive disadvantage and harm our results of operations.
We rely on our customers to design our products into their systems, and the nature of the design process requires us to incur expenses prior to customer commitments to use our products or recognizing revenues associated with those expenses which may adversely affect our financial results.
One of our primary focuses is on winning competitive bid selection processes, known as "design wins," to develop products for use in our customers' products. We devote significant time and resources in working with our customers' system designers to understand their future needs and to provide products that we believe will meet those needs and these bid selection processes can be lengthy. If a customer's system designer initially chooses a competitor's product, it becomes significantly more difficult for us to sell our products for use in that system because changing suppliers can involve significant cost, time, effort and risk for our customers. Thus, our failure to win a competitive bid can result in our foregoing revenues from a given customer's product line for the life of that product. In addition, design opportunities may be infrequent or may be delayed. Our ability to compete in the future will depend, in large part, on our ability to design products to ensure compliance with our customers' and potential customers' specifications. We expect to invest significant time and resources and to incur significant expenses to design our products to ensure compliance with relevant specifications.
We often incur significant expenditures in the development of a new product without any assurance that our customers' system designers will select our product for use in their applications. We often are required to anticipate which product designs will generate demand in advance of our customers expressly indicating a need for that particular design. Even if our customers' system designers select our products, a substantial period of time will elapse before we generate revenues related to the significant expenses we have incurred.
The reasons for this delay generally include the following elements of our product sales and development cycle timeline and related influences:

- our customers usually require a comprehensive technical evaluation of our products before they incorporate them into their designs.
- it can take from six months to three years from the time our products are selected to commence commercial shipments; and

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our customers may experience changed market conditions or product development issues. The resources devoted to product development and sales and marketing may not generate material revenue for us, and from time to time, we may need to write off excess and obsolete inventory if we have produced product in anticipation of expected demand.

- We may spend resources on the development of products that our customers may not adopt. If we incur significant expenses and investments in inventory in the future that we are not able to recover, and we are not able to compensate for those expenses, our operating results could be adversely affected. In addition, if we sell our products at reduced prices in anticipation of cost reductions but still hold higher cost products in inventory, our operating results would be harmed.

Additionally, even if system designers use our products in their systems, we cannot assure you that these systems will be commercially successful or that we will receive significant revenue from the sales of our products for those systems. As a result, we may be unable to accurately forecast the volume and timing of our orders and revenues associated with any new product introductions.

A significant portion of our revenue comes from the storage industry, which is highly cyclical, experiences rapid technological change, is subject to industry consolidation and is facing increased competition from alternative technologies.

The HDD and SSD storage industry is intensely competitive and technology inflections are happening rapidly. As a result, the average selling price of each of our products usually declines as individual products mature and competitors enter the market.

This industry has historically been cyclical, with periods of increased demand and rapid growth followed by periods of oversupply and subsequent contraction. These cycles may affect us because some of our largest customers participate in this industry.

Manufacturers tend to order more components than they may need during growth periods, and sharply reduce orders for components during periods of contraction. Rapid technological changes in the industry often result in shifts in market share among the industry’s participants. If the HDD and SSD manufacturers using our products do not retain or increase their market share, our sales may decrease.

In addition, the storage industry has experienced significant consolidation. Consolidation among our customers will lead to changing demand for our products, replacement of our products by the merged entity with those of our competitors and cancellation of orders, each of which could harm our results of operations. If we are unable to leverage our technology and customer relationships, we may not capitalize on the increased opportunities for our products within the combined company.

Furthermore, future changes in the nature of information storage products and personal computing devices could reduce demand for traditional HDDs. For example, products using alternative technologies, such as SSD and other storage technologies are a source of competition to manufacturers of HDDs. Although we offer SSD controllers, leveraging our technology in hard drives, we cannot ensure that our overall business will not be adversely affected if demand for traditional HDDs decreases.

We depend on a few customers for our SSD controllers and as such, the loss of any SSD controller customer or a significant reduction in sales we make to them may harm our financial condition and results of operations. SSD customers have, and may in the future develop their own controllers, which could pose a challenge to our market share in the SSD space and adversely affect our revenues in the storage business.

If we are unable to develop and introduce new and enhanced products that achieve market acceptance in a timely and cost-effective manner, our results of operations and competitive position will be harmed.

Our future success will depend on our ability to develop and introduce new products and enhancements to our existing products that address customer requirements, in a timely and cost-effective manner and are competitive as to a variety of factors. For example, for our products addressing the 5G market, we must successfully identify customer requirements and design, develop and produce products on time that compete effectively as to price, functionality and performance. We sell products in markets that are characterized by rapid technological change, evolving industry standards, frequent new product introductions, and increasing demand for higher levels of integration and smaller process geometries. In addition, the development of new silicon devices is highly complex, and due to supply chain

cross-dependencies and other issues, we may experience delays in completing the development, production and introduction of our new products. See also, “We may be unable to protect our intellectual property, which would negatively affect our ability to compete.”

Our ability to adapt to changes and to anticipate future standards, and the rate of adoption and acceptance of those standards, will be a significant factor in maintaining or improving our competitive position and prospects for growth. We may also have to incur substantial unanticipated costs to comply with these new standards. Our success will also depend on the ability of our customers to develop new products and enhance existing products for the markets they serve and to introduce and promote those products successfully and in a timely manner. Even if we and our customers introduce new and enhanced products to the market, those products may not achieve market acceptance.

Unfavorable or uncertain conditions in the 5G infrastructure market may cause fluctuations in our rate of revenue growth or financial results.
Markets for 5G infrastructure may not develop in the manner or in the time periods we anticipate. If domestic and global economic conditions worsen, overall spending on 5G infrastructure may be reduced, which would adversely impact demand for our products in these markets. In addition, unfavorable developments with evolving laws and regulations worldwide related to 5G may limit global adoption, impede our strategy, and negatively impact our long-term expectations in this area. Even if the 5G infrastructure market develops in the manner or in the time periods we anticipate, if we do not have timely, competitively priced, market-accepted products available to meet our customers' planned roll-out of 5G wireless communications systems, we may miss a significant opportunity and our business, financial condition, results of operations and cash flows could be materially and adversely affected.
Our indebtedness could adversely affect our financial condition and our ability to raise additional capital to fund our operations and limit our ability to react to changes in the economy or our industry.

On July 6, 2018, in connection with our acquisition of Cavium, we incurred substantial indebtedness pursuant to a Credit Agreement. The Credit Agreement provides for a $900.0 million Term Loan. The Term Loan will mature on July 6, 2021. As of February 2, 2019, the outstanding principal balance of the Term Loan amounted to $750.0 million. See "Note 12 - Debt" for discussion of the debt financing in the Notes to Consolidated Financial Statements set forth in Part II, Item 8 of the Annual Report on Form 10-K.

In addition to the Term Loan under the Credit Agreement, on June 22, 2018, we completed a public offering of (i) $500.0 million aggregate principal amount of the Company's 4.200% Senior Notes due 2023 (the "2023 Notes") and (ii) $500.0 million aggregate principal amount of the Company's 4.875% Senior Notes due 2028 (the "2028 Notes" and, together with the 2023 Notes, the "Senior Notes"). We are obligated to pay interest on the Senior Notes on June 22 and December 22 of each year, beginning on December 22, 2018. The 2023 Notes will mature on June 22, 2023 and the 2028 Notes will mature on June 22, 2028.

Our indebtedness could have important consequences to us including:

- increasing our vulnerability to adverse general economic and industry conditions;
- requiring us to dedicate a substantial portion of our cash flow from operations to payments on our indebtedness, thereby reducing the availability of our cash flow to fund working capital, capital expenditures, research and development efforts, execution of our business strategy, acquisitions and other general corporate purposes;
- limiting our flexibility in planning for, or reacting to, changes in the economy and the semiconductor industry;
- placing us at a competitive disadvantage compared to our competitors with less indebtedness;
- exposing us to interest rate risk to the extent of our variable rate indebtedness; and
- making it more difficult to borrow additional funds in the future to fund growth, acquisitions, working capital, capital expenditures and other purposes.

Although the Credit Agreement contains restrictions on the incurrence of additional indebtedness and the indenture under which the Senior Notes were issued contains restrictions on creating liens and entering into certain sale-leaseback transactions, these restrictions are subject to a number of qualifications and exceptions, and the additional indebtedness, liens or sale-leaseback transactions incurred in compliance with these restrictions could be substantial.

The Credit Agreement and the Senior Notes contain customary events of default upon the occurrence of which, after any applicable grace period, the lenders would have the ability to immediately declare the loans due and payable in whole or in part. In such event, we may not have sufficient available cash to repay such debt at the time it becomes due, or be able to refinance such debt on acceptable terms or at all. Any of the foregoing could materially and adversely affect our financial condition and results of operations.

Adverse changes to our debt ratings could negatively affect our ability to raise additional capital.

We receive debt ratings from the major credit rating agencies in the United States. Factors that may impact our credit ratings include debt levels, planned asset purchases or sales and near-term and long-term production growth opportunities. Liquidity, asset quality, cost structure, reserve mix and commodity pricing levels could also be considered by the rating agencies. The applicable margins with respect to interest incurred on the Term Loan will vary based on the applicable public ratings assigned to the collateralized, long-term indebtedness for borrowed money by Moody's Investors Service, Inc., Standard & Poor's Financial Services LLC, Fitch’s and any successor to each such rating agency business. A ratings downgrade could adversely impact our ability to access debt markets in the future and increase the cost of current or future debt and may adversely affect our share price.

The Credit Agreement and the indenture under which the Senior Notes were issued impose restrictions on our business.

The Credit Agreement and the indenture for the Senior Notes each contains a number of covenants imposing restrictions on our business. These restrictions may affect our ability to operate our business and may limit our ability to take advantage of potential business opportunities as they arise. The restrictions, among other things, restrict our ability and our subsidiaries’ ability to create or incur certain liens, incur or guarantee additional indebtedness, merge or consolidate with other companies, pay dividends, transfer or sell assets and make restricted payments. These restrictions are subject to a number of limitations and exceptions set forth in the Credit Agreement and the indenture for the Senior Notes. Our ability to meet the liquidity covenant set forth in the Credit Agreement may be affected by events beyond our control.

The foregoing restrictions could limit our ability to plan for, or react to, changes in market conditions or our capital needs. We do not know whether we will be granted waivers under, or amendments to, our Credit Agreement or to the Senior Notes if for any reason we are unable to meet these requirements, or whether we will be able to refinance our indebtedness on terms acceptable to us, or at all.

We may be unable to generate the cash flow to service our debt obligations.

We may not be able to generate sufficient cash flow to enable us to service our indebtedness, including the Senior Notes, or to make anticipated capital expenditures. Our ability to pay our expenses and satisfy our debt obligations, refinance our debt obligations and fund planned capital expenditures will depend on our future performance, which will be affected by general economic, financial competitive, legislative, regulatory and other factors beyond our control. If we are unable to generate sufficient cash flow from operations or to borrow sufficient funds in the future to service our debt, we may be required to sell assets, reduce capital expenditures, refinance all or a portion of our existing debt (including the Senior Notes) or obtain additional financing. We cannot assure you that we will be able to refinance our debt, sell assets or borrow more money on terms acceptable to us, if at all. If we cannot make scheduled payments on our debt, we will be in default and holders of our debt could declare all outstanding principal and interest to be due and payable, and we could be forced into bankruptcy or liquidation. In addition, a material default on our indebtedness could suspend our eligibility to register securities using certain registration statement forms under SEC guidelines that permit incorporation by reference of substantial information regarding our business and operations, potentially hindering our ability to raise capital through the issuance of our securities and increasing our costs of registration.

We may, under certain circumstances, be required to repurchase the Senior Notes at the option of the holder.

We will be required to repurchase the Senior Notes at the option of each holder upon the occurrence of a change of control repurchase event as defined in the indenture for the Senior Notes. However, we may not have sufficient funds to repurchase the notes in cash at the time of any change of control repurchase event. Our failure to repurchase the Senior Notes upon a change of control repurchase event would be an event of default under the indenture for the Senior Notes and could cause a cross-default or acceleration under certain future agreements governing our other indebtedness. The repayment obligations under the Senior Notes may have the effect of discouraging, delaying or preventing a takeover of our company. If we were required to pay the Senior Notes prior to their scheduled maturity, it could have a significant negative impact on our cash and liquidity and could impact our ability to invest financial resources in other strategic initiatives.

Our gross margin and results of operations may be adversely affected in the future by a number of factors, including decreases in average selling prices of products over time and shifts in our product mix.

The products we develop and sell are primarily used for high-volume applications. As a result, the prices of those products have historically decreased rapidly. In addition, our more recently introduced products tend to have higher associated costs because of initial overall development and production expenses. Therefore, over time, we may not be able to maintain or improve our gross margins. Our financial results could suffer if we are unable to offset any reductions in our average selling prices by other cost reductions through efficiencies, introduction of higher margin products and other means.

To attract new customers or retain existing customers, we may offer certain price concessions to certain customers, which could cause our average selling prices and gross margins to decline. In the past, we have reduced the average selling prices of our products in anticipation of future competitive pricing pressures, new product introductions by us or by our competitors and other factors. We expect that we will continue to have to reduce prices of existing products in the future. Moreover, because of the wide price differences across the markets we serve, the mix and types of performance capabilities of our products sold may affect the average selling prices of our products and have a substantial impact on our revenue and gross margin. We may enter new markets in which a significant amount of competition exists, and this may require us to sell our products with lower gross margins than we earn in our established businesses. If we are successful in growing revenue in these markets, our overall gross margin may decline. Fluctuations in the mix and types of our products may also affect the extent to which we are able to recover the fixed costs and investments associated with a particular product, and as a result may harm our financial results.

Additionally, because we do not operate our own manufacturing, assembly or testing facilities, we may not be able to reduce our costs as rapidly as companies that operate their own facilities and our costs may even increase, which could also reduce our gross margins.

We rely on independent foundries and subcontractors for the manufacture, assembly and testing of our integrated circuit products, and the failure of any of these third-party vendors to deliver products or otherwise perform as requested could damage our relationships with our customers, decrease our sales and limit our ability to grow our business.

We do not have our own manufacturing or assembly facilities and have very limited in-house testing facilities. Therefore, we currently rely on several third-party foundries to produce our integrated circuit products. We also currently rely on several third-party assembly and test subcontractors to assemble, package and test our products. This exposes us to a variety of risks, including the following:

Regional Concentration

Substantially all of our products are manufactured by third-party foundries located in Taiwan, and other sources are located in China, Germany, South Korea, Singapore and the United States. In addition, substantially all of our third-party assembly and testing facilities are located in China, Malaysia, Singapore and Taiwan. Because of the geographic concentration of these third-party foundries, as well as our assembly and test subcontractors, we are exposed to the risk that their operations may be disrupted by regional disasters including, for example, earthquakes (particularly in Taiwan and elsewhere in the Pacific Rim close to fault lines), tsunamis or typhoons, or by political,

social or economic instability. In the case of such an event, our revenue, cost of goods sold and results of operations would be negatively impacted. In addition, there are limited numbers of alternative foundries and identifying and implementing alternative manufacturing facilities would be time consuming. As a result, if we needed to implement alternate manufacturing facilities, we could experience significant expenses and delays in product shipments, which could harm our results of operations.

No Guarantee of Capacity or Supply

The ability of each foundry to provide us with semiconductor devices is limited by its available capacity and existing obligations. When demand is strong, availability of foundry capacity may be constrained or not available, and with limited exceptions, our vendors are not obligated to perform services or supply products to us for any specific period, in any specific quantities, or at any specific price, except as may be provided in a particular purchase order. We place our orders on the basis of our customers' purchase orders or our forecast of customer demand, and the foundries can allocate capacity to the production of other companies' products and reduce deliveries to us on short notice. It is possible that foundry customers that are larger and better financed than we are or that have long-term agreements with our main foundries may induce our foundries to reallocate capacity to those customers. This reallocation could impair our ability to secure the supply of components that we need. In particular, as we and others in our industry transition to smaller geometries, our manufacturing partners may be supply constrained or may charge premiums for these advanced technologies, which may harm our business or results of operations. See also, "We may experience difficulties in transitioning to smaller geometry process technologies or in achieving higher levels of design integration, which may result in reduced manufacturing yields, delays in product deliveries and increased expenses." Moreover, if any of our third-party foundry suppliers are unable to secure necessary raw materials from their suppliers, lose benefits under material agreements, experience power outages, lack sufficient capacity to manufacture our products, encounter financial difficulties or suffer any other disruption or reduction in efficiency, we may encounter supply delays or disruptions, which could harm our business or results of operations.

While we attempt to create multiple sources for our products, most of our products are not manufactured at more than one foundry at any given time, and our products typically are designed to be manufactured in a specific process at only one of these foundries. Accordingly, if one of our foundries is unable to provide us with components as needed, it would be difficult for us to transition the manufacture of our products to other foundries, and we could experience significant delays in securing sufficient supplies of those components. This could result in a material decline in our revenue, net income and cash flow.

In order to secure sufficient foundry capacity when demand is high and to mitigate the risks described in the foregoing paragraph, we may enter into various arrangements with suppliers that could be costly and harm our results of operations, such as nonrefundable deposits with or loans to foundries in exchange for capacity commitments, or contracts that commit us to purchase specified quantities of integrated circuits over extended periods. We may not be able to make any such arrangement in a timely fashion or at all, and any arrangements may be costly, reduce our financial flexibility, and not be on terms favorable to us. Moreover, if we are able to secure foundry capacity, we may be obligated to use all of that capacity or incur penalties. These penalties may be expensive and could harm our financial results.

Uncertain Yields and Quality

The fabrication of integrated circuits is a complex and technically demanding process. Our technology is transitioning from planar to FINFET transistors. This transition may result in longer qualification cycles and lower yields. Our foundries have from time to time experienced manufacturing defects and lower manufacturing yields, which are difficult to detect at an early stage of the manufacturing process and may be time consuming and expensive to correct. Changes in manufacturing processes or the inadvertent use of defective or contaminated materials by our foundries could result in lower than anticipated manufacturing yields or unacceptable performance. In addition, we may face lower manufacturing yields and reduced quality in the process of ramping up and diversifying our manufacturing partners. Poor yields from our foundries, or defects, integration issues or other performance problems with our products could cause us significant customer relations and business reputation problems, harm our financial performance and result in financial or other damages to our customers. Our customers could also seek damages in connection with product liability claims, which would likely be time consuming and costly to defend. In addition, defects could result in significant costs. See also, "Costs related to defective products could have a material adverse effect on us."

To the extent that we rely on outside suppliers to manufacture or assemble and test our products, we may have a reduced ability to directly control product delivery schedules and quality assurance, which could result in product

shortages or quality assurance problems that could delay shipments or increase costs.

Commodity Prices

We are also subject to risk from fluctuating market prices of certain commodity raw materials, including gold and copper, which are incorporated into our end products or used by our suppliers to manufacture our end products. Supplies for such commodities may from time to time become restricted, or general market factors and conditions may affect pricing of such commodities.

We may experience difficulties in transitioning to smaller geometry process technologies or in achieving higher levels of design integration, which may result in reduced manufacturing yields, delays in product deliveries and increased expenses.
In order to remain competitive, we expect to continue to transition our semiconductor products to increasingly smaller line width geometries. This transition requires us to modify the manufacturing processes for our products and to redesign some products. In addition, the cost of developing products with increasingly smaller line width geometries requires significantly higher investment and risk. We periodically evaluate the benefits, on a product-by-product basis, of migrating to smaller geometry process technologies to reduce our costs. In the past, we have experienced some difficulties in shifting to smaller geometry process technologies or new manufacturing processes, which resulted in reduced manufacturing yields, delays in product deliveries and increased expenses. We may face similar difficulties, delays and expenses as we continue to transition our products to smaller geometry processes.
We are dependent on our relationships with our foundry subcontractors to transition to smaller geometry processes successfully. We cannot ensure that the foundries we use will be able to effectively manage the transition or that we will be able to maintain our existing foundry relationships or develop new ones. If we or any of our foundry subcontractors experience significant delays in this transition or fail to efficiently implement this transition, we could experience reduced manufacturing yields, delays in product deliveries and increased expenses, all of which could harm our relationships with our customers and our results of operations.
As smaller geometry processes become more prevalent, we expect to continue to integrate greater levels of functionality, as well as customer and third-party intellectual property, into our products. However, we may not be able to achieve higher levels of design integration or deliver new integrated products on a timely basis, if at all. Moreover, even if we are able to achieve higher levels of design integration, such integration may have a short-term adverse impact on our results of operations, as we may reduce our revenue by integrating the functionality of multiple chips into a single chip.
Our indemnification obligations and limitations of our director and officer liability insurance may have a material adverse effect on our financial condition, results of operations and cash flows.
Under Bermuda law, our articles of association and bye-laws and certain indemnification agreements to which we are a party, we have an obligation to indemnify, or we have otherwise agreed to indemnify, certain of our current and former directors and officers with respect to past, current and future investigations and litigation. For example, we have incurred significant indemnification expenses in connection with the Audit Committee's independent investigation completed in March 2016 and related shareholder litigation and pending government investigations. In connection with some of these pending matters, we are required to, or we have otherwise agreed to, advance, and have advanced, legal fees and related expenses to certain of our current and former directors and officers and expect to continue to do so while these matters are pending.
Indemnification obligations may not be "covered matters" under our directors' and officers' liability insurance, or there may be insufficient coverage available. Further, in the event the directors and officers are ultimately determined not to be entitled to indemnification, we may not be able to recover any amounts we previously advanced to them.
We cannot provide any assurances that future indemnification claims , including the cost of fees, penalties or other expenses, will not exceed the limits of our insurance policies, that such claims are covered by the terms of our insurance policies or that our insurance carrier will be able to cover our claims. Additionally, to the extent there is coverage of these claims, the insurers also may seek to deny or limit coverage in some or all of these matters. Furthermore, the insurers could become insolvent and unable to fulfill their obligation to defend, pay or reimburse us for insured claims. Accordingly, we cannot be sure that claims will not arise that are in excess of the limits of our insurance or that are not covered by the terms of our insurance policy. Due to these coverage limitations, we may incur significant unreimbursed costs to satisfy our indemnification obligations, which may have a material adverse effect on our financial condition, results of operations or cash flows.

Costs related to defective products could have a material adverse effect on us.

From time to time, we have experienced hardware and software defects and bugs associated with the introduction of our highly complex products. Despite our testing procedures, we cannot ensure that errors will not be found in new products or releases after commencement of commercial shipments in the future. Such errors could result in:

- loss of or delay in market acceptance of our products;
- material recall and replacement costs;
- delay in revenue recognition or loss of revenue;
- writing down the inventory of defective products;
- the diversion of the attention of our engineering personnel from product development efforts;
- our having to defend against litigation related to defective products or related property damage or personal injury; and
- damage to our reputation in the industry that could adversely affect our relationships with our customers.

In addition, the process of identifying a recalled product in devices that have been widely distributed may be lengthy and require significant resources. We may have difficulty identifying the end customers of the defective products in the field, which may cause us to incur significant replacement costs, contract damage claims from our customers and further reputational harm. Any of these problems could materially and adversely affect our results of operations.

Despite our best efforts, security vulnerabilities may exist with respect to our products. Mitigation techniques designed to address such security vulnerabilities, including software and firmware updates or other preventative measures, may not operate as intended or effectively resolve such vulnerabilities. Software and firmware updates and/or other mitigation efforts may result in performance issues, system instability, data loss or corruption, unpredictable system behavior, or the theft of data by third parties, any of which could significantly harm our business and reputation. For example, we were made aware of a potential vulnerability (CVE-2019-6496) with regard to our 88W8897 device in fiscal year 2019 and implemented a fix shortly thereafter.

We depend on highly skilled executive, managerial, engineering and sales and marketing personnel to support our business operations. If we are unable to retain and motivate our current personnel or attract additional qualified personnel, our ability to develop and successfully market our products could be harmed.

We believe our future success will depend in large part upon our ability to attract and retain highly skilled executive, managerial, engineering, sales and marketing personnel. The competition for qualified technical personnel with significant experience in the design, development, manufacturing, marketing and sales of integrated circuits is intense, both in the Silicon Valley where our U.S. operations are based and in global markets in which we operate. Our inability to attract qualified personnel, including hardware and software engineers and sales and marketing personnel, could delay the development and introduction of, and harm our ability to sell, our products. Changes to United States immigration policies that restrict our ability to attract and retain technical personnel may negatively affect our research and development efforts.

We typically do not enter into employment agreements with any of our key technical personnel and the loss of such personnel could harm our business, as their knowledge of our business and industry would be extremely difficult to replace. The impact on employee morale experienced in connection with our restructuring efforts in fiscal 2017 and 2018, which eliminated approximately 900 jobs worldwide, could make it more difficult for us to add to our workforce when needed due to speculation regarding our future restructuring activities. In addition, as a result of the Cavium acquisition our current and prospective employees may experience uncertainty about their futures that may impair our ability to retain, recruit or motivate key management, engineering, technical and other personnel.

Cybersecurity risks could adversely affect our business and disrupt our operations.

We depend heavily on our technology infrastructure and maintain and rely upon certain critical information systems for the effective operation of our business. We routinely collect and store sensitive data in our information systems, including intellectual property and other proprietary information about our business and that of our customers, suppliers and business partners. These information technology systems are subject to damage or interruption from a number of potential sources, including, but not limited to, natural disasters, destructive or inadequate code, malware, power failures, cyber-attacks, internal malfeasance or other events. Cyber-attacks on us may include viruses and worms, phishing attacks, and denial-of-service attacks. In addition, we may be the target of email scams that attempt to acquire personal information or company assets.

We have implemented processes for systems under our control intended to mitigate risks; however, we can provide no guarantee that those risk mitigation measures will be effective. Given the frequency of cyber-attacks and resulting breaches reported by other businesses and governments, it is likely we will experience one or more breaches of some extent in the future. We may incur significant costs in order to implement, maintain and/or update security systems we feel are necessary to protect our information systems, or we may miscalculate the level of investment necessary to protect our systems adequately. Since the techniques used to obtain unauthorized access or to sabotage systems change frequently and are often not recognized until launched against a target, we may be unable to anticipate these techniques or to implement adequate preventive measures.

The Company’s business also requires it to share confidential information with suppliers and other third parties. Although the Company takes steps to secure confidential information that is provided to third parties, such measures may not always be effective and data breaches, losses or other unauthorized access to or releases of confidential information may occur and could materially adversely affect the Company’s reputation, financial condition and operating results.

To the extent that any system failure, accident or security breach results in material disruptions or interruptions to our operations or the theft, loss or disclosure of, or damage to our data or confidential information, including our intellectual property, our reputation, business, results of operations and/or financial condition could be materially adversely affected.

We may be unable to protect our intellectual property, which would negatively affect our ability to compete.

We believe one of our key competitive advantages results from the collection of proprietary technologies we have developed and acquired since our inception, and the protection of our intellectual property rights is, and will continue to be, important to the success of our business. If we fail to protect these intellectual property rights, competitors could sell products based on technology that we have developed, which could harm our competitive position and decrease our revenue.

We rely on a combination of patents, copyrights, trademarks, trade secret laws, contractual provisions, confidentiality agreements, licenses and other methods, to protect our proprietary technologies. We also enter into confidentiality or license agreements with our employees, consultants and business partners, and control access to and distribution of our documentation and other proprietary information. Notwithstanding these agreements, we have experienced disputes with employees and third parties regarding ownership of intellectual property in the past. To the extent that any third party has a claim to ownership of any relevant technologies used in our products, we may not be able to recognize the full revenue stream from such relevant technologies.

We have been issued a significant number of U.S. and foreign patents and have a significant number of pending U.S. and foreign patent applications. However, a patent may not be issued as a result of any applications or, if issued, claims allowed may not be sufficiently broad to protect our technology. In addition, it is possible that existing or future patents may be challenged, invalidated or circumvented. We may also be required to license some of our patents to others including competitors as a result of our participation in and contribution to development of industry standards. Despite our efforts, unauthorized parties may attempt to copy or otherwise obtain and use our products or proprietary technology. Monitoring unauthorized use of our technology is difficult, and the steps that we have taken may not prevent unauthorized use of our technology, particularly in jurisdictions where the laws may not protect our proprietary rights as fully as in the United States or other developed countries. If our patents do not adequately protect

our technology, our competitors may be able to offer products similar to ours, which would adversely impact our business and results of operations.

We have implemented security systems with the intent of maintaining the physical security of our facilities and protecting our confidential information including our intellectual property. Despite our efforts, we may be subject to breach of these security systems and controls which may result in unauthorized access to our facilities and labs and/or unauthorized use or theft of the confidential information and intellectual property we are trying to protect. If we fail to protect these intellectual property rights, competitors could sell products based on technology that we have developed, which could harm our competitive position and decrease our revenue.

Certain of our software, as well as that of our customers, may be derived from so-called "open source" software that is generally made available to the public by its authors and/or other third parties. Open source software is made available under licenses that impose certain obligations on us in the event we were to distribute derivative works of the open source software. These obligations may require us to make source code for the derivative works available to the public and/or license such derivative works under a particular type of license, rather than the forms of license we customarily use to protect our intellectual property. While we believe we have complied with our obligations under the various applicable licenses for open source software, in the event that the copyright holder of any open source software were to successfully establish in court that we had not complied with the terms of a license for a particular work, we could be required to release the source code of that work to the public and/or stop distribution of that work if the license is terminated which could adversely impact our business and results of operations.

We are subject to order and shipment uncertainties. If we are unable to accurately predict customer demand, we may hold excess or obsolete inventory, which would reduce our gross margin. Conversely, we may have insufficient inventory, which would result in lost revenue opportunities and potential loss of market share as well as damaged customer relationships.

We typically sell products pursuant to purchase orders rather than long-term purchase commitments. Customers can generally cancel or defer purchase orders on short notice without incurring a significant penalty. Due to their inability to predict demand or other reasons, some of our customers may accumulate excess inventories and, as a consequence, defer purchase of our products. We cannot accurately predict what or how many products our customers will need in the future. Anticipating demand is difficult because our customers face unpredictable demand for their own products and are increasingly focused more on cash preservation and tighter inventory management. In addition, as an increasing number of our chips are being incorporated into consumer products, we anticipate greater fluctuations in demand for our products, which makes it more difficult to forecast customer demand.

We place orders with our suppliers based on forecasts of customer demand and, in some instances, may establish buffer inventories to accommodate anticipated demand. Our forecasts are based on multiple assumptions, each of which may introduce error into our estimates. For example, our ability to accurately forecast customer demand may be impaired by the delays inherent in our customer's product development processes, which may include extensive qualification and testing of components included in their products, including ours. In many cases, they design their products to use components from multiple suppliers. This creates the risk that our customers may decide to cancel or change product plans for products incorporating our integrated circuits prior to completion, which makes it even more difficult to forecast customer demand.

Our products are incorporated into complex devices and systems, which may create supply chain cross-dependencies. Due to such cross dependencies, supply chain disruptions that are unrelated to our products could negatively impact the demand for our products in the short term. We have a limited ability to predict the timing of a supply chain correction. In addition, the market share of our customers could be adversely impacted on a long-term basis due to any continued supply chain disruption, which could negatively affect our results of operations.

If we overestimate customer demand, our excess or obsolete inventory may increase significantly, which would reduce our gross margin and adversely affect our financial results. The risk of obsolescence and/or excess inventory is heightened for devices designed for consumer electronics due to the rapidly changing market for these types of products. Conversely, if we underestimate customer demand or if insufficient manufacturing capacity is available, we would miss revenue opportunities and potentially lose market share and damage our customer relationships. In addition, any future significant cancellations or deferrals of product orders or the return of previously sold products could materially and adversely affect our profit margins, increase product obsolescence and restrict our ability to fund our operations.

We rely on third-party distributors and manufacturers' representatives and the failure of these distributors and manufacturers' representatives to perform as expected could reduce our future sales.

From time to time, we enter into relationships with distributors and manufacturers' representatives to sell our products, and we are unable to predict the extent to which these partners will be successful in marketing and selling our products. Moreover, many of our distributors and manufacturers' representatives also market and sell competing

products, and may terminate their relationships with us at any time. Our future performance will also depend, in part, on our ability to attract additional distributors or manufacturers' representatives that will be able to market and support our products effectively, especially in markets in which we have not previously distributed our products. If we cannot retain or attract quality distributors or manufacturers' representatives, our sales and results of operations will be harmed.

We face additional risks due to the extent of our global operations since a majority of our products, and those of our customers, are manufactured and sold outside of the United States. The occurrence of any or a combination of the additional risks described below would significantly and negatively impact our business and results of operations.
A substantial portion of our business is conducted outside of the United States and, as a result, we are subject to foreign business, political and economic risks. All of our products are manufactured outside of the United States. Our current qualified integrated circuit foundries are located in the same region within Taiwan, and our primary assembly and test subcontractors are located in the Pacific Rim region. In addition, many of our customers are located outside of the United States, primarily in Asia, which further exposes us to foreign risks. Sales shipped to customers with operations in Asia represented approximately 85% of our net revenue in fiscal 2019, 95% of our net revenue in fiscal 2018 and 94% of net revenue in fiscal 2017.
We also have substantial operations outside of the United States. These operations are directly influenced by the political and economic conditions of the region in which they are located and, with respect to Israel, possible military hostilities periodically affecting the region that could affect our operations there. We anticipate that our manufacturing, assembly, testing and sales outside of the United States will continue to account for a substantial portion of our operations and revenue in future periods.
Accordingly, we are subject to risks associated with international operations, including:

- political, social and economic instability, including wars, terrorism, political unrest, boycotts, curtailment of trade and other business restrictions;
- volatile global economic conditions, including downturns in which some competitors may become more aggressive in their pricing practices, which would adversely impact our gross margin;
- compliance with domestic and foreign export and import regulations, including pending changes thereto, and difficulties in obtaining and complying with domestic and foreign export, import and other governmental approvals, permits and licenses;
- local laws and practices that favor local companies, including business practices in which we are prohibited from engaging by the Foreign Corrupt Practices Act and other anti-corruption laws and regulations;
- difficulties in staffing and managing foreign operations;
- natural disasters, including earthquakes, tsunamis and floods;
- trade restrictions, higher tariffs, worsening trade relationship between the United States and China, or changes in cross border taxation, particularly in light of the tariffs announced by the Trump administration;
- transportation delays;
- difficulties of managing distributors;
- less effective protection of intellectual property than is afforded to us in the United States or other developed countries;
- inadequate local infrastructure; and
- exposure to local banking, currency control and other financial-related risks.

As a result of having global operations, the sudden disruption of the supply chain and/or disruption of the manufacture of our customer’s products caused by events outside of our control could impact our results of operations by impairing our ability to timely and efficiently deliver our products.
Moreover, the international nature of our business subjects us to risk associated with the fluctuation of the U.S. dollar versus foreign currencies. Decreases in the value of the U.S. dollar versus currencies in jurisdictions where we have large fixed costs, or where our third-party manufacturers have significant costs, will increase the cost of such operations which could harm our results of operations.

We must comply with a variety of existing and future laws and regulations that could impose substantial costs on us and may adversely affect our business.

We are subject to laws and regulations worldwide, which may differ among jurisdictions, affecting our operations in areas including, but not limited to: intellectual property ownership and infringement; tax; import and export requirements; anti-corruption such as the Foreign Corrupt Practices Act and the UK Bribery Act; foreign exchange controls and cash repatriation restrictions; data privacy requirements such as the European Economic Area Privacy Regulation, the General Data Protection Regulation ("GDPR"); competition; advertising; employment; product regulations; health and safety requirements; and consumer laws. For example, government export regulations apply to the encryption or other features contained in some of our products. If we fail to continue to receive licenses or otherwise comply with these regulations, we may be unable to manufacture the affected products at foreign foundries or ship these products to certain customers, or we may incur penalties or fines. In addition, we are subject to various industry requirements restricting the presence of certain substances in electronic products. Although our management systems are designed to maintain compliance, we cannot assure you that we have been or will be at all times in compliance with such laws and regulations. If we violate or fail to comply with any of them, a range of consequences could result, including fines, import/export restrictions, sales limitations, criminal and civil liabilities or other sanctions. The costs of complying with these laws (including the costs of any investigations, auditing and monitoring) could adversely affect our current or future business.

Our product or manufacturing standards could also be impacted by new or revised environmental rules and regulations or other social initiatives. For instance, the SEC requires disclosures relating to the sourcing of certain minerals from the Democratic Republic of Congo and adjoining countries. Those rules, or similar rules that may be adopted in other jurisdictions, could adversely affect our costs, the availability of minerals used in our products and our relationships with customers and suppliers.

In connection with the Cavium acquisition, we have been subject to regulatory conditions imposed by the Committee on Foreign Investment in the United States (CFIUS) pursuant to a Letter of Assurance (LA) where we have agreed to implement certain cyber security, physical security and training measures to protect national security, which may materially and adversely affect our operating results due to the increased cost of compliance with these measures. If we fail to comply with our obligations under the LA, our ability to operate our business may be adversely affected.

Changes in existing taxation benefits, rules or practices may adversely affect our financial results.

Changes in existing taxation benefits, rules or practices may also have a significant effect on our reported results. Both the U.S. Congress and the G-20 (Group of Twenty Finance Ministers and Central Bank Governors) may consider legislation affecting the taxation of foreign corporations and such legislation if enacted might adversely affect our future tax liabilities and have a material impact on our results of operations. For example, the Tax Cuts and Jobs Act ("2017 Tax Act") was signed into law on December 22, 2017. The 2017 Tax Act significantly revises the U.S. corporate income tax by, among other things, lowering the statutory corporate tax rate from 35% to 21%, eliminating certain deductions, imposing a mandatory one-time tax on accumulated earnings of foreign subsidiaries, introducing new tax regimes, and changing how foreign earnings are subject to U.S. tax. Please see "Provision for Income Taxes" set forth in Part II, Item 7 of this Annual Report on Form 10-K for more information on the impact of the 2017 Tax Act on the Company.

In addition, in prior years, we have entered into agreements in certain foreign jurisdictions that if certain criteria are met, the foreign jurisdiction will provide a more favorable tax rate than their current statutory rate. For example, we have obtained an undertaking from the Minister of Finance of Bermuda that in the event Bermuda enacts legislation imposing tax computed on profits, income, or capital asset, gain or appreciation, then the imposition of any such taxes will not apply to us until March 31, 2035. Additionally, our Singapore subsidiary qualified for Pioneer status until it expired in June 2014. However, we re-negotiated with the Singapore government and in fiscal 2015, they extended the Development and Expansion Incentive until June 2019. Furthermore, under the Israeli Encouragement law of "approved or benefited enterprise," our subsidiary in Israel, Marvell Israel (M.I.S.L) Ltd., is entitled to, and has certain existing programs that qualify as, approved and benefited tax programs that include reduced tax rates and exemption of certain income through fiscal 2027. Moreover, receipt of past and future benefits under tax agreements may depend

on our ability to fulfill commitments regarding employment of personnel or performance of specified activities in the applicable jurisdiction. Changes in our business plans, including divestitures, could result in termination of an agreement or loss of benefits thereunder. If any of our tax agreements in any of these foreign jurisdictions were terminated, our results of operations would be harmed.

The Organization for Economic Cooperation and Development has been working on a Base Erosion and Profit Sharing Project, and issued in 2015, and is expected to continue to issue, guidelines and proposals that may change various aspects of the existing framework under which our tax obligations are determined in some of the countries in which we do business. We can provide no assurance that changes in tax laws and additional investigations as a result of this project would not have an adverse tax impact on our international operations. In addition, the European Union ("EU") has initiated its own measures along similar lines. In December 2017, the EU identified certain jurisdictions (including Bermuda and Cayman Islands) which it considered had a tax system that facilitated offshore structuring by attracting profits without commensurate economic activity. In order to avoid EU "blacklisting", both Bermuda and Cayman Islands introduced new legislation in December 2018, which came into force on January 1, 2019. These new laws require Bermuda and Cayman companies carrying on one or more "relevant activity" (including: banking, insurance, fund management, financing, leasing, headquarters, shipping, distribution and service center, intellectual property or holding company) to maintain a substantial economic presence in Bermuda in order to comply with the economic substance requirements. There is no experience yet as to how the Bermuda and Cayman Islands authorities will interpret and enforce these new rules and, accordingly, we are not able to predict their impact on our operations and net income. In addition, to the extent that we are required to maintain more of a presence in Bermuda or the Cayman Islands, such requirements will increase our costs either directly in those locations or indirectly as a result of increased costs related to moving our operations to other jurisdictions.

Matters relating to or arising from our Audit Committee investigation, including regulatory proceedings, litigation matters and potential additional expenses, may adversely affect our business and results of operations.

As previously disclosed in our public filings, in March 2016, the Audit Committee of our Board of Directors completed an investigation that generally included a review of certain revenue recognized in the first and second quarters of fiscal 2016 and the fourth quarter of fiscal 2015, including transactions that would have, in the normal course of events and but for action by certain Marvell employees, been completed and recognized in a subsequent quarter (referred to internally as "pull-ins"), the accrual of a litigation reserve in the second quarter of fiscal 2016, and the stated belief by Marvell's former Chairman and Chief Executive Officer of ownership of certain patent rights related to the Final-Level Cache invention and his later assignment of associated patent rights to Marvell. We are also the subject of investigations by the Securities and Exchange Commission and the U.S. Attorney related to these matters. We are fully cooperating with the SEC and the U.S. Attorney with respect to those investigations.

We incurred significant expenses related to legal, accounting, and other professional services in connection with the investigations and related matters and related remediation efforts. In addition, we incurred significant legal expenses in connection with the litigation and settlement of securities class actions or other lawsuits that were filed against us, our directors and officers. The expenses incurred, the impact of our delay in fiscal 2016 and the beginning of fiscal 2017 in meeting our periodic reports on the confidence of investors, employees and customers, and the diversion of the attention of the management team that occurred adversely affected our business, financial condition and results of operations or cash flows.

The pending investigations or any future additional lawsuits could also result in significant expenses, distraction and may adversely affect our business, financial condition, results of operations and cash flows.

We have been named as a party to several legal proceedings and may be named in additional ones in the future, including litigation involving our patents and other intellectual property, which could subject us to liability, require us to indemnify our customers, require us to obtain or renew licenses, require us to stop selling our products or force us to redesign our products.

We have been named as a party to several lawsuits, government inquiries or investigations and other legal proceedings (referred to as "litigation"), and we may be named in additional ones in the future. Please see "Note 13 - Commitments and Contingencies" of our Notes to the Consolidated Financial Statements set forth in Part II, Item 8 of this Annual Report on Form 10-K for a more detailed description of material litigation matters in which we are currently engaged. In particular, litigation involving patents and other intellectual property is widespread in the high-technology industry and is particularly prevalent in the semiconductor industry, where a number of companies and other entities aggressively bring numerous infringement claims to assert their patent portfolios. The amount of damages alleged in

intellectual property infringement claims can often be very significant. See also, “We may be unable to protect our intellectual property, which would negatively affect our ability to compete.”

From time to time, our subsidiaries and customers receive, and may continue to receive in the future, standards-based infringement claims, as well as claims against us and our subsidiaries’ proprietary technologies. Our subsidiaries and customers could face claims of infringement for certain patent licenses that have not been renewed. These claims could result in litigation and/or claims for indemnification, which, in turn, could subject us to significant liability for damages, attorneys’ fees and costs. Any potential intellectual property litigation also could force us to do one or more of the following:

- stop selling, offering for sale, making, having made or exporting products or using technology that contains the allegedly infringing intellectual property;
- limit or restrict the type of work that employees involved in such litigation may perform for us;
- pay substantial damages and/or license fees and/or royalties to the party claiming infringement or other license violations that could adversely impact our liquidity or operating results;
- attempt to obtain or renew licenses to the relevant intellectual property, which licenses may not be available on reasonable terms or at all; and
- attempt to redesign those products that contain the allegedly infringing intellectual property.

Under certain circumstances, we have contractual and other legal obligations to indemnify and to incur legal expenses for current and former directors and officers. Additionally, from time to time, we have agreed to indemnify select customers for claims alleging infringement of third-party intellectual property rights, including, but not limited to, patents, registered trademarks and/or copyrights. If we are required to make a significant payment under any of our indemnification obligations, our results of operations may be harmed.

The ultimate outcome of litigation could have a material adverse effect on our business and the trading price for our securities. Litigation may be time consuming, expensive, and disruptive to normal business operations, and the outcome of litigation is difficult to predict. Litigation, regardless of the outcome, may result in significant expenditures, diversion of our management's time and attention from the operation of our business and damage to our reputation or relationship with third parties, which could materially and adversely affect our business, financial condition, results of operations, cash flows and stock price.

We are exposed to potential impairment charges on certain assets.

We had approximately $5.5 billion of goodwill and $2.6 billion of acquired intangible assets on our consolidated balance sheet as of February 2, 2019. Under generally accepted accounting principles in the United States, we are required to review our long-lived assets, other than goodwill, for impairment whenever events or changes in circumstances indicate that the carrying value of these assets may not be recoverable. We perform an assessment of goodwill for impairment annually on the last business day of our fiscal fourth quarter and whenever events or changes in circumstances indicate the carrying amount of goodwill may not be recoverable.

We have identified that our business operates as a single operating segment with two primary components (Storage, and Networking), which we have concluded can be aggregated into a single reporting unit for purposes of testing goodwill impairment. The fair value of the reporting unit is determined by taking our market capitalization as determined through quoted market prices and as adjusted for a control premium and other relevant factors. If our fair value declines to below our carrying value, we could incur significant goodwill impairment charges, which could negatively impact our financial results. If in the future a change in our organizational structure results in more than one reporting unit, we will be required to allocate our goodwill and perform an assessment of goodwill for impairment in each reporting unit. As a result, we could have an impairment of goodwill in one or more of such future reporting units.

In addition, from time to time, we have made investments in private companies. If the companies that we invest in are unable to execute their plans and succeed in their respective markets, we may not benefit from such investments, and we could potentially lose the amounts we invest. We evaluate our investment portfolio on a regular basis to determine if impairments have occurred. If the operations of any businesses that we have acquired declines significantly, we could incur significant intangible asset impairment charges. Impairment charges could have a material impact on our results of operations in any period.

If we were classified as a passive foreign investment company, there would be adverse tax consequences to U.S. holders of our ordinary shares.

If we were classified as a "passive foreign investment company" or "PFIC" under section 1297 of the Internal Revenue Code, of 1986, as amended (the "Code"), for any taxable year during which a U.S. holder holds ordinary shares, such U.S. holder generally would be taxed at ordinary income tax rates on any gain realized on the sale or exchange of the ordinary shares and on any "excess distributions" (including constructive distributions) received on the ordinary shares. Such U.S. holder could also be subject to a special interest charge with respect to any such gain or excess distribution.

We would be classified as a PFIC for U.S. federal income tax purposes in any taxable year in which either (i) at least 75% of our gross income is passive income or (ii) on average, the percentage of our assets that produce passive income or are held for the production of passive income is at least 50% (determined on an average gross value basis). We were not classified as a PFIC for fiscal year 2019 or in any prior taxable year. Whether we will, in fact, be classified as a PFIC for any subsequent taxable year depends on our assets and income over the course of the relevant taxable year and, as a result, cannot be predicted with certainty. In particular, because the total value of our assets for purposes of the asset test will be calculated based upon the market price of our ordinary shares, a significant and sustained decline in the market price of our ordinary shares and corresponding market capitalization relative to our passive assets could result in our being classified as a PFIC. There can be no assurance that we will not be classified as a PFIC in the future or the Internal Revenue Service will not challenge our determination concerning PFIC status for any prior period.

As we carry only limited insurance coverage, any incurred liability resulting from uncovered claims could adversely affect our financial condition and results of operations.

Our insurance policies may not be adequate to fully offset losses from covered incidents, and we do not have coverage for certain losses. For example, there is very limited coverage available with respect to the services provided by our third-party foundries and assembly and test subcontractors. In the event of a natural disaster (such as an earthquake or tsunami), political or military turmoil, widespread health issues or other significant disruptions to their operations, insurance may not adequately protect us from this exposure. We believe our existing insurance coverage is consistent with common practice, economic considerations and availability considerations. If our insurance coverage is insufficient to protect us against unforeseen catastrophic losses, any uncovered losses could adversely affect our financial condition and results of operations.

We are subject to the risks of owning real property.

Our buildings in Santa Clara, California and Shanghai, China subject us to the risks of owning real property, which include, but are not limited to:

- the possibility of environmental contamination and the costs associated with remediating any environmental problems;
- adverse changes in the value of these properties due to interest rate changes, changes in the neighborhood in which the property is located, or other factors;
- the possible need for structural improvements in order to comply with zoning, seismic and other legal or regulatory requirements;
- the potential disruption of our business and operations arising from or connected with a relocation due to moving to or renovating the facility;
- increased cash commitments for improvements to the buildings or the property, or both;
- increased operating expenses for the buildings or the property, or both;
- possible disputes with tenants or other third parties related to the buildings or the property, or both;
- failure to achieve expected cost savings due to extended non-occupancy of a vacated property intended to be leased; and
- the risk of financial loss in excess of amounts covered by insurance, or uninsured risks, such as the loss caused by damage to the buildings as a result of earthquakes, floods and/or other natural disasters.

Risks Related to Owning Marvell Common Shares

There can be no assurance that we will continue to declare cash dividends or effect share repurchases in any particular amount or at all, and statutory requirements under Bermuda Law may require us to defer payment of declared dividends or suspend share repurchases.

In May 2012, we declared our first quarterly cash dividend. On November 17, 2016, we announced a $1 billion share repurchase plan. On October 16, 2018, we announced a $700 million addition to the balance of our existing share repurchase plan. Our existing share repurchase program had approximately $304 million of repurchase authority remaining as of October 16, 2018 prior to the approved addition. An aggregate of $746 million of shares have been repurchased under that program as of February 2, 2019. Future payment of a regular quarterly cash dividend on our

common shares and future share repurchases will be subject to, among other things: the best interests of our company and our shareholders; our results of operations, cash balances and future cash requirements; financial condition; developments in ongoing litigation; statutory requirements under Bermuda law; market conditions; and other factors that the board of directors may deem relevant. Our dividend payments or share repurchases may change from time to time, and we cannot provide assurance that we will continue to declare dividends or repurchase shares in any particular amounts or at all. A reduction in, a delay of, or elimination of our dividend payments or share repurchases could have a negative effect on our share price.

We are incorporated in Bermuda and, as a result, it may not be possible for our shareholders to enforce civil liability provisions of the securities laws of the United States. In addition, our Bye-Laws contain a waiver of claims or rights of action by our shareholders against our officers and directors, which will severely limit our shareholders' right to assert a claim against our officers and directors under Bermuda law.

We are organized under the laws of Bermuda. As a result, it may not be possible for our shareholders to affect service of process within the United States upon us, or to enforce against us in U.S. courts judgments based on the civil liability provisions of the securities laws of the United States. There is significant doubt as to whether the courts of Bermuda would recognize or enforce judgments of U.S. courts obtained against us or our directors or officers based on the civil liability provisions of the securities laws of the United States or any state, or hear actions brought in Bermuda against us or those persons based on those laws. The United States and Bermuda do not currently have a treaty providing for the reciprocal recognition and enforcement of judgments in civil and commercial matters. Therefore, a final judgment for the payment of money rendered by any federal or state court in the United States based on civil liability, whether or not based solely on U.S. federal or state securities laws, would not be automatically enforceable in Bermuda.

Our Bye-Laws contain a broad waiver by our shareholders of any claim or right of action, both individually and on our behalf, against any of our officers and directors. The waiver applies to any action taken by an officer or director, or the failure of an officer or director to take any action, in the performance of his or her duties with or for us, other than with respect to any matter involving any fraud or dishonesty on the part of the officer or director or to any matter arising under U.S. federal securities laws. This waiver will limit the rights of our shareholders to assert claims against our officers and directors unless the act complained of involves fraud or dishonesty or arises as a result of a breach of U.S. federal securities laws. Therefore, so long as acts of business judgment do not involve fraud or dishonesty or arise as a result of a breach of U.S. federal securities laws, they will not be subject to shareholder claims under Bermuda law. For example, shareholders will not have claims against officers and directors for a breach of trust, unless the breach rises to the level of fraud or dishonesty, or arises as a result of a breach of U.S. federal securities laws.

Our Bye-Laws contain provisions that could delay or prevent a change in corporate control, even if the change in corporate control would benefit our shareholders.

Our Bye-Laws contain change in corporate control provisions, which include authorizing the issuance of preferred shares without shareholder approval. This provision could make it more difficult for a third party to acquire us, even if doing so would benefit our shareholders.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

The following table presents the approximate square footage of our significant owned and leased facilities as of February 2, 2019:

		(Square feet)	
Locations	Primary Use	Owned Facilities	Leased Facilities (1)
United States	Headquarters in Santa Clara, California: Research and design, sales and marketing, administration and operations	993,000	280,000
China	Research and design, and sales and marketing	115,000	46,000
Singapore	Operations, and research and design	—	55,000
India	Research and design	—	252,000
Israel	Research and design	—	212,000
	Total	1,108,000	845,000

(1)Lease terms expire in various years from 2019 through 2025. The square footage of leased facilities does not include leased facilities that have been impacted by our restructuring actions and we have ceased use. Leased facilities impacted by our restructuring actions and we have ceased use include approximately 400,000 square feet of leased facilities in the United States, 11,000 square feet of leased facilities in China, 9,000 square feet of leased facilities in Singapore and 37,000 square feet of leased facilities in India.

We also lease smaller facilities in Denmark, Germany, India, Indonesia, Japan, Singapore, South Korea, Taiwan, the Netherlands and Vietnam, which are occupied by administrative, sales, design and field application personnel. Based upon our estimates of future hiring, we believe that our current facilities in most locations will be adequate to meet our requirements at least through the next fiscal year.

Item 3. Legal Proceedings

The information set forth under "Note 13 — Commitments and Contingencies" in our Notes to the Consolidated Financial Statements set forth in Part II, Item 8 of this Annual Report on Form 10-K is incorporated herein by reference. For a discussion of certain risks associated with legal proceedings, please see Part I, Item 1A, "Risk Factors" above.

Item 4. Mine Safety Disclosures

Not Applicable.

PART II

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

Market Information

Our common shares are traded on the NASDAQ Global Select Market under the symbol “MRVL.” Our common shares began trading on June 27, 2000, upon completion of our initial public offering.

As of March 21, 2019, the approximate number of record holders of our common shares was 467 (not including beneficial owners of stock held in street name).

Stock Price Performance Graph

This performance graph shall not be deemed “filed” for purposes of Section 18 of the Exchange Act or incorporated by reference into any filings under the Securities Act or the Exchange Act, except as shall be expressly set forth by specific reference in such filing.

The graph below compares the cumulative total shareholder return of our common shares with the cumulative total return of the S&P 500 Index and the Philadelphia Semiconductor Index since February 1, 2014 through February 2, 2019. The graph compares a $100 investment on February 1, 2014 in our common shares with a $100 investment on February 2, 2019 in each index and assumes that any dividends were reinvested. Shareholder returns over the indicated periods should not be considered indicative of future stock prices or shareholder returns.

	2/1/2014	1/31/2015	1/30/2016	1/28/2017	2/3/2018	2/2/2019
Marvell Technology Group Ltd.	100.00	105.44	61.56	107.18	161.50	134.28
S&P 500	100.00	114.22	113.46	137.14	168.46	168.36
PHLX Semiconductor	100.00	125.55	120.19	192.16	267.60	266.43

Dividends

Our board of directors declared quarterly cash dividends of $0.06 per share payable to holders of our common shares in each quarter of fiscal 2019, 2018 and 2017. As a result, we paid total cash dividends of $148.1 million in fiscal 2019, $119.3 million in fiscal 2018, and $122.3 million in fiscal 2017.

Future payment of a regular quarterly cash dividend on the Company's common shares will be subject to, among other things, the best interests of the Company and its shareholders, the Company's results of operations, cash balances and future cash requirements, financial condition, developments in ongoing litigation, statutory requirements under Bermuda law and other factors that the Company's board of directors may deem relevant. The Company's dividend payments may change from time to time, and we cannot provide assurance that we will continue to declare dividends at all or in any particular amounts.

Recent Sales of Unregistered Securities

None.

Issuer Purchases of Equity Securities

The following table presents details of our share repurchases during the three months ended February 2, 2019 (in thousands, except per share data):

Period (1)	Total Number of Shares Purchased	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs	Approximate Dollar Value of Shares that May Yet Be Purchased Under the Plans or Programs (2)
November 4 – December 1, 2018	—	$ —	—	$ 1,003,987
December 2 – December 29, 2018	1,617	$ 15.46	1,617	$ 978,978
December 30 – February 2, 2019	1,529	$ 16.35	1,529	$ 953,982
Total	3,146	$ 15.89	3,146	$ 953,982

(1) The monthly periods presented above for the three months ended February 2, 2019, are based on our fiscal accounting periods which follow a quarterly 4-4-5 week fiscal accounting period.

(2) On November 17, 2016, we announced that our Board of Directors had authorized a $1 billion share repurchase plan. On October 16, 2018, we announced that our Board of Directors authorized a $700 million addition to the balance of our existing share repurchase plan. Our existing share repurchase program had approximately $304 million of repurchase authority remaining as of October 16, 2018 prior to the approved addition. We intend to effect share repurchases in accordance with the conditions of Rule 10b-18 under the Exchange Act, but may also make repurchases in the open market outside of Rule 10b-18 or in privately negotiated transactions. The share repurchase program will be subject to market conditions and other factors and does not obligate us to repurchase any dollar amount or number of our common shares and the repurchase program may be extended, modified, suspended or discontinued at any time.

From August 2010 when our Board of Directors initially authorized a share repurchase program through February 2, 2019, a total of 292.4 million shares have been repurchased to date under the Company's share repurchase program for a total $3.9 billion in cash and $954.0 million was available for future share repurchases.

Item 6. Selected Financial Data

The following selected consolidated financial data should be read together with Part II, Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations" and Part II, Item 8, "Financial Statements and Supplementary Data" contained elsewhere in this Annual Report on Form 10-K. In connection with the November 2016 announcement of our plan to restructure our operations to refocus our research and development, increase

operational efficiency and improve profitability, we had divested three businesses during fiscal 2018. As required, we have retrospectively recast our consolidated statements of operations and balance sheets for all periods presented to reflect these businesses as discontinued operations.

	February 2, 2019 (1)	February 3, 2018 (2)	January 28, 2017 (3)	January 30, 2016 (4)	January 31, 2015
	(in thousands, except per share amounts and number of employees)				
Consolidated Statements of Operations Data:					
Net revenue	$2,865,791	$2,409,170	$2,300,992	$2,602,497	$3,585,226
Cost of goods sold	$1,407,399	$947,230	$1,017,564	$1,406,121	$1,766,126
Research and development	$914,009	$714,444	$805,029	$954,653	$1,040,838
Operating income (loss) from continuing operations	$43,270	$429,695	$130,407	$(745,410)	$488,745
Income (loss) from continuing operations, net of tax	$(179,094)	$433,142	$74,821	$(738,441)	$516,801
Income (loss) from discontinued operations, net of tax	$—	$87,689	$(53,670)	$(72,959)	$(81,455)
Net income (loss)	$(179,094)	$520,831	$21,151	$(811,400)	$435,346
Income (loss) from continuing operations per share:					
Basic	$(0.30)	$0.87	$0.15	$(1.45)	$1.01
Diluted	$(0.30)	$0.85	$0.14	$(1.45)	$1.00
Income (loss) from discontinued operations per share:					
Basic	$—	$0.18	$(0.11)	$(0.14)	$(0.16)
Diluted	$—	$0.17	$(0.10)	$(0.14)	$(0.16)
Net income (loss) per share:					
Basic	$(0.30)	$1.05	$0.04	$(1.59)	$0.85
Diluted	$(0.30)	$1.02	$0.04	$(1.59)	$0.84
Weighted average shares:					
Basic	591,232	498,008	509,738	510,945	511,089
Diluted	591,232	509,667	517,513	510,945	520,760
Consolidated Balance Sheet Data:					
Cash, cash equivalents and short-term investments	$582,410	$1,841,272	$1,668,360	$2,282,749	$2,529,555
Working capital	$758,462	$1,942,813	$1,794,018	$1,751,295	$2,765,908
Total assets	$10,016,752	$4,708,287	$4,648,650	$5,442,127	$5,884,387
Long-term debt	$1,732,699	$—	$—	$—	$—
Total shareholders' equity	$7,306,410	$4,141,413	$4,027,651	$4,140,123	$5,146,089
Other Data:					
Cash dividends declared per share	$0.24	$0.24	$0.24	$0.24	$0.24
Number of employees	5,275	3,749	4,617	5,437	7,163

(1) Fiscal 2019 financial data includes the effect of the adoption of the new revenue recognition standard, restructuring related charges from our July 2018 restructuring plan, and from the acquisition of Cavium, including its effect on income taxes. Refer to “Note 3 — Revenue”, “Note 4 — Restructuring and Other Related Charges”, “Note 5 — Business Combination,” and “Note 16 — Income Taxes” respectively, in our Notes to the Consolidated Financial Statements set forth in Part II, Item 8 of this Annual Report on Form 10-K for further details.

(2) Fiscal 2018 includes a $74.4 million charge related to the Luna litigation settlement and related costs.

(3) Fiscal 2017 includes $96.8 million of restructuring and other related charges that include $52.6 million for impairment of a nonrefundable deposit due to the non-utilization of the related contract and for impairment of certain equipment and technology licenses. Fiscal 2017 also included $68.0 million of tax expense related to restructuring actions taken.

(4)

Fiscal 2016 includes $751.4 million of charges for litigation matters recognized by the Company including a $736.0 million charge related to the $750 million settlement reached with CMU, as well as certain other pending litigation. In addition, fiscal 2016 included $63.5 million of restructuring and other related charges that include $8.0 million for impairment of certain equipment and technology licenses, and $8.0 million for the write down of inventory due to the restructuring of the mobile platform business, a charge for a cash payment authorized by our Board of Directors of $15.4 million to our former CEO Dr. Sehat Sutardja and $11.4 million of costs for the surety bonds related to the litigation with CMU.

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

The following discussion of our financial condition and results of operations should be read in conjunction with the financial statements and related notes included in this Annual Report on Form 10-K. This discussion may contain forward-looking statements based upon current expectations that involve risks and uncertainties, including those discussed under Part I, Item 1A, "Risk Factors." These risks and uncertainties may cause actual results to differ materially from those discussed in the forward-looking statements.

Overview

On July 6, 2018, we completed our acquisition of Cavium. Cavium is a provider of highly integrated semiconductor processors that enable intelligent processing for wired and wireless infrastructure and cloud for networking, communications, storage and security applications. Cavium designs, develops and markets semiconductor processors for intelligent and secure networks. Cavium's operating results from the acquisition date through our year ended February 2, 2019 have been included in our consolidated financial statements. See "Note 5 - Business Combination" in the Notes to Consolidated Financial Statements set forth in Part II, Item 8 of the Annual Report on Form 10-K for further information regarding our acquisition of Cavium.

Net revenue in fiscal 2019 was $2.9 billion and was 19% higher than net revenue of $2.4 billion in fiscal 2018. The increase was primarily due to a 37% increase in sales of our networking products and 10% increase in sales of our storage products, mainly due to the addition to revenue from our Cavium businesses, offset by a 9% decrease in sales of our other products.

Our fiscal year is the 52- or 53-week period ending on the Saturday closest to January 31. Accordingly, every fifth or sixth fiscal year will have a 53-week period. The additional week in a 53-week year is added to the fourth quarter, making such quarter consist of 14 weeks. Fiscal 2018 was a 53-week year. Fiscal 2019 and 2017 each had a 52-week period.

Restructuring. We continuously evaluate our existing operations to increase operational efficiency, decrease costs and increase profitability. In July 2018, as part of the integration of the acquired Cavium business, we initiated a restructuring plan intended to achieve these goals. As part of this restructuring plan, revenue from our former Networking and Connectivity product groups were combined into one group named Networking.

During fiscal 2019, we recorded restructuring and other related charges of $76.8 million. See "Note 4 - Restructuring and Other Related Charges" in the Notes to the Consolidated Financial Statements for further information.

In November 2016, we announced a restructuring plan intended to refocus our research and development, increase operational efficiency and improve profitability. In connection with this restructuring plan, we divested three businesses during fiscal 2018. During the year ended February 3, 2018, we received cash proceeds of $165.9 million and recognized a gain on sale of $88.4 million from the sale of our Multimedia, LTE thin-modem, and Broadband businesses. These businesses are classified as discontinued operations for all periods presented in our accompanying consolidated financial statements. See "Note 4 - Restructuring and Other Related Charges" and "Note 6 - Discontinued Operations" in the Notes to the Consolidated Financial Statements for further information. Unless noted otherwise, our discussion under Part II, Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations refers to our continuing operations.

Capital Return Program. We remain committed to delivering shareholder value through our share repurchase and dividend programs. On October 16, 2018, we announced that our Board of Directors authorized a $700 million addition to the balance of our existing share repurchase plan. Under the program authorized by our Board of Directors, we may repurchase shares in the open-market or through privately negotiated transactions. The extent to which we repurchase our shares and the timing of such repurchases will depend upon market conditions and other corporate considerations, as determined by our management team. The repurchase program may be suspended or discontinued at any time.

We returned $252.1 million to stockholders in fiscal 2019, including $104.0 million through repurchases of common stock and $148.1 million of cash dividends.

Cash and Short Term Investments. Our cash, cash equivalents and short-term investments were $582.4 million at February 2, 2019. We had cash flow provided by operations of $596.7 million during fiscal 2019.

Sales and Customer Composition.
Historically, a relatively small number of customers have accounted for a significant portion of our net revenue. See the table in our discussion of “Customers, Sales and Marketing” in Item 1 of this Annual Report on Form 10-K for further information. We continuously monitor the creditworthiness of our distributors and believe these distributors’ sales to diverse end customers and geographies further serve to mitigate our exposure to credit risk.
Most of our sales are made to customers located outside of the United States, primarily in Asia, and substantially all of our products are manufactured outside the United States. Sales shipped to customers with operations in Asia represented approximately 85% of our net revenues in fiscal 2019, 95% of our net revenue in fiscal 2018 and 94% of our net revenue in fiscal 2017. Because many manufacturers and manufacturing subcontractors of our customers are located in Asia, we expect that most of our net revenue will continue to be represented by sales to our customers in that region. However, the end customers for either our products or for the end products into which our products are incorporated, are frequently located in countries throughout the world and are not limited to Asia. As a result, we believe that a substantially smaller percentage of our net revenue is ultimately dependent on sales of either our product or our customers' product incorporating our product, to end customers located in Asia. For risks related to our global operations, see Part I, Item 1A, "Risk Factors," including but not limited to the risk detailed under the caption "We face additional risks due to the extent of our global operations since a majority of our products, and those of our customers, are manufactured and sold outside of the United States. The occurrence of any or a combination of the additional risks described below would significantly and negatively impact our business and results of operations."
Historically, a relatively large portion of our sales have been made on the basis of purchase orders rather than long-term agreements. Customers can generally cancel or defer purchase orders on short notice without incurring a significant penalty. In addition, the development process for our products is long, which may cause us to experience a delay between the time we incur expenses and the time revenue is generated from these expenditures. We anticipate that the rate of new orders may vary significantly from quarter to quarter. For risks related to our sales cycle, see Part I, Item 1A, "Risk Factors," including but not limited to the risk detailed under the caption, "We are subject to order and shipment uncertainties. If we are unable to accurately predict customer demand, we may hold excess or obsolete inventory, which would reduce our gross margin. Conversely, we may have insufficient inventory, which would result in lost revenue opportunities and potential loss of market share as well as damaged customer relationships."
Critical Accounting Policies and Estimates
The preparation of consolidated financial statements in conformity with generally accepted accounting principles in the United States (“GAAP”) requires management to make estimates, judgments and assumptions that affect the reported amounts of assets, liabilities, revenues and expenses, and related disclosure of contingent assets and liabilities. On an ongoing basis, we evaluate our estimates, including those related to revenue recognition, income taxes, goodwill and other intangible assets, and business combinations. We base our estimates of the carrying value of certain assets and liabilities on historical experience and on various other assumptions that are believed to be reasonable under the circumstances when these carrying values are not readily available from other sources. Actual results could differ from these estimates, and such differences could affect the results of operations reported in future periods. We believe the following critical accounting policies affect our more significant judgments and estimates used in the preparation of our consolidated financial statements. For further information on our significant accounting policies, see “Note 2 - Significant Accounting Policies” in the Notes to Consolidated Financial Statements.
Revenue Recognition.   Through the fiscal year ended February 3, 2018, in accordance with ASC 605, Revenue Recognition, we recognized revenue when there was persuasive evidence of an arrangement, delivery had occurred, the fee was fixed or determinable, and collection was reasonably assured. If we granted extended payment terms greater than its standard terms for a customer such that collectability was not assured, the revenue was deferred upon shipment and would be recognized when the payment became due provided all other revenue recognition criteria had been satisfied.

Product revenue was generally recognized upon shipment of product to customers, net of accruals for estimated sales returns and rebates. However, some of our sales were made through distributors under agreements allowing for price

protection and limited rights of stock rotation on products unsold by the distributors. Product revenue on sales made through distributors were deferred until the distributors sold the product to end customers. Deferred revenue less the related cost of the inventories was reported as deferred income. We do not believe that there was any significant exposure related to impairment of deferred cost of sales, as our historical returns had been minimal and inventory turnover for our distributors generally ranged from 60 to 90 days. Our sales to direct customers were made primarily pursuant to standard purchase orders for delivery of products.

As a result of the adoption of the new revenue standard on February 4, 2018, at the beginning of the first quarter of fiscal year 2019, we revised our revenue recognition policy. We now recognize revenue upon transfer of control of promised products or services to customers in an amount that reflects the consideration we expect to receive in exchange for those products or services. Under the new revenue recognition standard, we apply the following five step approach: (1) identify the contract with a customer, (2) identify the performance obligations in the contract, (3) determine the transaction price, (4) allocate the transaction price to the performance obligations in the contract, and (5) recognize revenue when a performance obligation is satisfied.

We enter into contracts that may include various combinations of products and services that are capable of being distinct and accounted for as separate performance obligations. To date, the majority of the revenue has been generated by sales associated with storage and networking products. Revenue from services has been insignificant. Performance obligations associated with product sales transactions are generally satisfied when control passes to customers upon shipment. Accordingly, product revenue is recognized at a point in time when control of the asset is transferred to the customer. We recognize revenue when we satisfy a performance obligation by transferring control of a product to a customer in an amount that reflects the consideration to which we expect to be entitled in exchange for those goods or services. For product revenue, the performance obligation is deemed to be the delivery of the product and therefore, the revenue is generally recognized upon shipment to customers, net of accruals for estimated sales returns and rebates. These estimates are based on historical returns, analysis of credit memo data and other known factors. Actual returns could differ from these estimates. We account for rebates by recording reductions to revenue for rebates in the same period that the related revenue is recorded. The amount of these reductions is based upon the terms agreed to with the customer. Some of our sales are made to distributors under agreements allowing for price protection, price discounts and limited rights of stock rotation on products unsold by the distributors. Control passes to the distributor upon shipment, and terms and payment by our distributors is not contingent on resale of the product. Product revenue on sales made to distributors with price protection and stock rotation rights is recognized upon shipment to distributors, with an accrual for the variable consideration aspect of sales to distributors, estimated based on historical experience, including estimates for price discounts, price protection, rebates, and stock rotation programs. Actual variable consideration could differ from these estimates.

A portion of our net revenue is derived from sales through third-party logistics providers who maintain warehouses in close proximity to our customer’s facilities. Revenue from sales through these third-party logistics providers is not recognized until the product is pulled from stock by the customer.

Our products are generally subject to warranty, which provides for the estimated future costs of replacement upon shipment of the product. Our products carry a standard one-year warranty, with certain exceptions in which the warranty period can extend to more than one year based on contractual agreements. The warranty accrual is estimated primarily based on historical claims compared to historical revenues and assumes that we will have to replace products subject to a claim. From time to time, we become aware of specific warranty situations, and we record specific accruals to cover these exposures. Warranty expenses were not material for the periods presented.

Accounting for Income Taxes.   We estimate our income taxes in each of the jurisdictions in which we operate. This process involves estimating our actual tax exposure together with assessing temporary differences resulting from the differing treatment of certain items for tax return and financial statement purposes. These differences result in deferred tax assets and liabilities, which are included in our consolidated balance sheets.

We recognize income taxes using an asset and liability approach. This approach requires the recognition of taxes payable or refundable for the current year, and deferred tax liabilities and assets for the future tax consequences of events that have been recognized in our consolidated financial statements or tax returns. The measurement of current and deferred taxes is based on provisions of the enacted tax law and the effects of future changes in tax laws or rates are not anticipated.

Evaluating the need for an amount of a valuation allowance for deferred tax assets often requires judgment and analysis of all the positive and negative evidence available, including cumulative losses in recent years and projected future taxable income, to determine whether all or some portion of the deferred tax assets will not be realized. Using

available evidence and judgment, we establish a valuation allowance for deferred tax assets, when it is determined that it is more likely than not that they will not be realized. Valuation allowances have been provided primarily against the U.S. research and development credits. Valuation allowances have also been provided against certain acquired operating losses and the deferred tax assets of foreign subsidiaries. A change in the assessment of the realization of deferred tax assets may materially impact our tax provision in the period in which a change of assessment occurs.

As a multinational corporation, we conduct our business in many countries and are subject to taxation in many jurisdictions. The taxation of our business is subject to the application of various and sometimes conflicting tax laws and regulations as well as multinational tax conventions. Our effective tax rate is highly dependent upon the geographic distribution of our worldwide earnings or losses, the tax regulations and tax holidays in each geographic region, the availability of tax credits and carryforwards, and the effectiveness of our tax planning strategies. The application of tax laws and regulations is subject to legal and factual interpretation, judgment and uncertainty. Tax laws themselves are subject to change as a result of changes in fiscal policy, changes in legislation, and the evolution of regulations and court rulings. Consequently, taxing authorities may impose tax assessments or judgments against us that could materially impact our tax liability and/or our effective income tax rate.

We are subject to income tax audits by the respective tax authorities in all of the jurisdictions in which we operate. We recognize the effect of income tax positions only if these positions are more likely than not of being sustained. Recognized income tax positions are measured at the largest amount that is more than 50% likely of being realized. Changes in recognition or measurement are reflected in the period in which the change in judgment occurs. We record interest and penalties related to unrecognized tax benefits in income tax expense. The calculation of our tax liabilities involves the inherent uncertainty associated with the application of GAAP and complex tax laws. We believe we have adequately provided for in our financial statements additional taxes that we estimate may be required to be paid as a result of such examinations. While we believe that we have adequately provided for all tax positions, amounts asserted by tax authorities could be greater or less than our accrued position. These tax liabilities, including the interest and penalties, are released pursuant to a settlement with tax authorities, completion of audit or expiration of various statutes of limitation. The material jurisdictions in which we may be subject to potential examination by tax authorities throughout the world include China, Israel, Singapore, Switzerland and the United States.

The recognition and measurement of current taxes payable or refundable, and deferred tax assets and liabilities require that we make certain estimates and judgments. Changes to these estimates or a change in judgment may have a material impact on our tax provision in a future period.

Long-lived Assets and Intangible Assets. We assess the impairment of long-lived assets and intangible assets whenever events or changes in circumstances indicate that the carrying value of such assets may not be recoverable. Circumstances which could trigger a review include, but are not limited to the following:

- significant decreases in the market price of the asset;
- significant adverse changes in the business climate or legal factors;
- accumulation of costs significantly in excess of the amount originally expected for the acquisition or construction of the asset;
- current period cash flow or operating losses combined with a history of losses or a forecast of continuing losses associated with the use of the asset; and
- current expectation that the asset will more likely than not be sold or disposed of significantly before the end of its estimated useful life.

Whenever events or changes in circumstances suggest that the carrying amount of long-lived assets and intangible assets may not be recoverable, we estimate the future cash flows expected to be generated by the asset from its use or eventual disposition. If the sum of the expected future cash flows is less than the carrying amount of those assets, we recognize an impairment loss based on the excess of the carrying amount over the fair value of the assets. Significant management judgment is required in the forecasts of future operating results that are used in the discounted cash flow method of valuation. These significant judgments may include future expected revenue, expenses, capital expenditures and other costs, and discount rates.

Goodwill. We record goodwill when the consideration paid for a business acquisition exceeds the fair value of net tangible and intangible assets acquired. We review goodwill for impairment annually on the last business day of our fiscal fourth quarter, and more frequently, if an event occurs or circumstances change that indicate the fair value of the reporting unit may be below its carrying amount. We have identified that our business operates as a single operating segment which can further be divided into two components; Storage and Networking. Management concluded that goodwill is recoverable from these two components working jointly due to a fact pattern demonstrating significant

sharing of assets, corporate resources, and benefits from common research and development. The two components also exhibit similar economic characteristics. Accordingly, management concluded that these two components should be aggregated into a single reporting unit for purposes of testing goodwill impairment. As part of our restructuring announced in November 2016, our former Smart Networked Devices and Solutions product group was changed to Networking and Connectivity. As part of our restructuring initiated in July 2018, our former Networking and Connectivity product group was combined and named Networking.

When testing goodwill for impairment, we first assess qualitative factors to determine whether it is more likely than not that the fair value of a reporting unit is less than its carrying value or we may determine to proceed directly to the quantitative impairment test.

Factors we consider important in the qualitative assessment which could trigger a goodwill impairment review include;

- significant underperformance relative to historical or projected future operating results;
- significant changes in the manner of our use of the acquired assets or the strategy for our overall business;
- significant negative industry or economic trends;
- a significant decline in our stock price for a sustained period; and
- a significant change in our market capitalization relative to our net book value.

If we assess qualitative factors and conclude that it is more likely than not that the fair value of a reporting unit is less than its carrying amount, or if we determine not to use qualitative assessment, then a quantitative impairment test is performed. The quantitative impairment test requires comparing the fair value of the reporting unit to its carrying value, including goodwill. An impairment exists if the fair value of the reporting unit is lower than its carrying value. We would record an impairment loss in the fiscal quarter in which an impairment determination is made. Determining the fair value of a reporting unit involves the use of significant estimates and assumptions.

In connection with the restructuring plan we announced in November 2016 (see "Note 4 - Restructuring and Other Related Charges"), our Board of Directors approved a plan to sell certain businesses that are classified and reported in the consolidated statement of operations as discontinued operations. As a result, goodwill was allocated to these businesses based on relative fair value since each represents a portion of our reporting unit. We obtained an independent valuation to determine the fair value of these businesses for purposes of allocating the goodwill. Although we engaged an independent valuation specialist to provide the fair value calculations, management provided the necessary estimates used in the specialists calculations. Significant management judgment is required in determining the estimations of future cash flows, which is dependent on internal forecasts, the long-term rate of growth for our business, the life over which cash flows will occur, and the weighted average cost of capital. Management assumes full responsibility for the valuation results and the accuracy and completeness of the underlying financial data and corresponding assumptions.

As of the last day of the fourth quarter of fiscal 2019, we performed our annual impairment assessment for testing goodwill. A step one assessment was performed. Based on our assessment, we determined there was no goodwill impairment.

Business Combination. We allocate the fair value of the purchase consideration of a business acquisition to the tangible assets, liabilities, and intangible assets acquired, including in-process research and development ("IPR&D"), based on their estimated fair values. The excess of the fair value of purchase consideration over the fair values of these identifiable assets and liabilities is recorded as goodwill. IPR&D is initially capitalized at fair value as an intangible asset with an indefinite life and assessed for impairment thereafter. When an IPR&D project is completed, the IPR&D is reclassified as an amortizable purchased intangible asset and amortized over the asset's estimated useful life. Our valuation of acquired assets and assumed liabilities requires significant estimates, especially with respect to intangible assets. The valuation of intangible assets, in particular, requires that we use valuation techniques such as the income approach. The income approach includes the use of a discounted cash flow model, which includes discounted cash flow scenarios and requires the following significant estimates: future expected revenue, expenses, capital expenditures and other costs, and discount rates. We estimate the fair value based upon assumptions we believe to be reasonable, but which are inherently uncertain and unpredictable and, as a result, actual results may differ from estimates. Estimates associated with the accounting for acquisitions may change as additional information becomes available regarding the assets acquired and liabilities assumed. Acquisition-related expenses and related restructuring costs are recognized separately from the business combination and are expensed as incurred.

Results of Operations - Continuing Operations

The following table sets forth information derived from our consolidated statements of operations expressed as a percentage of net revenue:

	Year Ended		
	February 2, 2019	February 3, 2018	January 28, 2017
Net revenue	100.0 %	100.0 %	100.0 %
Cost of goods sold	49.1	39.3	44.2
Gross profit	50.9	60.7	55.8
Operating expenses:			
Research and development	31.9	29.7	35.0
Selling, general and administrative	14.8	9.9	10.9
Litigation settlement	—	3.1	—
Restructuring related charges	2.7	0.2	4.2
Total operating expenses	49.4	42.9	50.1
Operating income from continuing operations	1.5	17.8	5.7
Interest income	0.4	0.7	0.6
Interest expense	(2.1)	—	—
Other income, net	—	0.2	0.1
Income (loss) from continuing operations before income taxes	(0.2)	18.7	6.4
Provision for income taxes	6.0	0.7	3.1
Income (loss) from continuing operations, net of tax	(6.2)%	18.0 %	3.3 %

Years Ended February 2, 2019 and February 3, 2018

Net Revenue

	Year Ended		
	February 2, 2019	February 3, 2018	% Change in 2019
	(in thousands, except percentage)		
Net revenue	$2,865,791	$2,409,170	19.0 %

At the beginning of fiscal 2019, we adopted the new revenue recognition standard using the modified retrospective method. Refer to “Note 3 - Revenue” in the Notes to the Consolidated Financial Statements set forth in Part II, Item 8 of this Annual Report on Form 10-K for further information.

Our net revenue for fiscal 2019 increased by $456.6 million compared to net revenue for fiscal 2018. This increase was primarily due to increased sales of our networking products by 37% and higher sales of our storage products by 10%, with sales benefiting from our acquisition of Cavium, which occurred in the second quarter of fiscal 2019. This increase was partially offset by decreased sales of our other products, which were down 9% compared to fiscal 2018. Average selling prices increased 23% compared to fiscal 2018, and unit shipments were 5% lower compared to fiscal 2018, for an overall increase in net revenue of 19%.

Cost of Goods Sold and Gross Profit

	Year Ended		
	February 2, 2019	February 3, 2018	% Change in 2019
	(in thousands, except percentages)		
Cost of goods sold	$1,407,399	$947,230	48.6 %
% of net revenue	49.1 %	39.3 %	
Gross profit	$1,458,392	$1,461,940	(0.2)%
% of net revenue	50.9 %	60.7 %	

The cost of goods sold as a percentage of net revenue was higher for fiscal 2019 due primarily to increase in inventory acquisition costs and amortization expenses related to acquired intangible assets. The increase was partially offset by lower costs due to improved product mix. As a result, gross margin for fiscal 2019 decreased 9.8 percentage points compared to fiscal 2018.

Share-Based Compensation Expense

	Year Ended	
	February 2, 2019	February 3, 2018
	(in thousands)	
Continuing operations:		
Cost of goods sold	$12,024	$ 6,646
Research and development	108,762	52,127
Selling, general and administrative	77,309	26,349
Share-based compensation - continuing operations	198,095	85,122
Discontinued operations:		
Cost of goods sold	—	(11)
Research and development	—	1,458
Selling, general and administrative	—	120
Share-based compensation - discontinued operations	—	1,567
Total share-based compensation	$198,095	$ 86,689

Share-based compensation expense for continuing operations increased by $111.4 million in fiscal 2019 compared to fiscal 2018. The increase was mainly due to additional equity awards assumed upon the Cavium acquisition as described in “Note 15 - Employee Benefit Plans" in the Notes to the Consolidated Financial Statements.

Restructuring and Other Related Charges

	Year Ended	
	February 2, 2019	February 3, 2018
	(in thousands)	
Restructuring related charges	$76,753	$ 5,250

We recorded total restructuring charges and other related charges of $76.8 million in fiscal 2019, which primarily arose from activities related to the restructuring plan in connection with the Cavium acquisition to increase operational efficiency, decrease costs and improve profitability. See “Note 4 - Restructuring and Other Related Charges” in the Notes to the Consolidated Financial Statements for further information.

Research and Development

	Year Ended		
	February 2, 2019	February 3, 2018	% Change in 2019
	(in thousands, except percentages)		
Research and development	$914,009	$714,444	27.9 %
% of net revenue	31.9 %	29.7 %	

Research and development expense increased by $199.6 million in fiscal 2019 compared to fiscal 2018. The increase was due primarily to additional costs from our acquisition of Cavium, including $157.6 million of higher employee personnel-related costs, $11.0 million of higher other personnel-related costs and $10.2 million of higher depreciation and amortization expense.

Selling, General and Administrative

	Year Ended		
	February 2, 2019	February 3, 2018	% Change in 2019
	(in thousands, except percentages)		
Selling, general and administrative	$424,360	$238,166	78.2 %
% of net revenue	14.8 %	9.9 %	

Selling, general and administrative expense increased by $186.2 million in fiscal 2019 compared to fiscal 2018. The increase was due primarily to additional costs from our acquisition of Cavium, including $65.8 million of higher employee personnel-related costs, $50.9 million of merger-related costs, $45.6 million of intangibles amortization expense and $15.1 million of higher facility-related expenses.

Litigation Settlement

	Year Ended		
	February 2, 2019	February 3, 2018	% Change in 2019
	(in thousands, except percentages)		
Litigation settlement	$—	$74,385	nm
% of net revenue	—%	3.1 %	

nm - not meaningful

In connection with the Luna legal settlement, the Company recorded $74.4 million of litigation settlement charges and related costs in fiscal 2018. Refer to “Note 13 - Commitments and Contingencies” in the Notes to the Consolidated Financial Statements for a discussion of such settlement.

Interest Income

	Year Ended		
	February 2, 2019	February 3, 2018	% Change in 2019
	(in thousands, except percentages)		
Interest income	$11,926	$17,381	(31.4)%
% of net revenue	0.4 %	0.7 %	

Interest income decreased by $5.5 million in fiscal 2019 compared to fiscal 2018. The decrease in fiscal 2019 is primarily due to the sale of investments during the first half of the year in connection with the Cavium acquisition.

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Interest Expense

	Year Ended		
	February 2, 2019	February 3, 2018	% Change in 2019
	(in thousands, except percentages)		
Interest expense	$(60,362)	$ (685)	8,712.0 %
% of net revenue	(2.1)%	— %	

Interest expense increased by $59.7 million in fiscal 2019 compared to fiscal 2018. The increase in fiscal 2019 is primarily due to incurring debt in connection with the Cavium acquisition as described in “Note 12 - Debt” in the Notes to the Consolidated Financial Statements.

Other Income, net

	Year Ended		
	February 2, 2019	February 3, 2018	% Change in 2019
	(in thousands, except percentages)		
Other income, net	$519	$ 4,813	(89.2)%
% of net revenue	— %	0.2 %	

Other income decreased by $4.3 million in fiscal 2019 compared to fiscal 2018. The decrease in fiscal 2019 is primarily due to approximately $4.8 million gain recorded in fiscal 2018 as a result of sales of a business and private equity investment, partially offset by $0.5 million related to gain from sale of a patent in fiscal 2019.

Provision for Income Taxes

	Year Ended		
	February 2, 2019	February 3, 2018	% Change in 2019
	(in thousands, except percentages)		
Provision for income taxes	$174,447	$ 18,062	865.8 %

The increase in income tax expense for fiscal 2019 compared to fiscal 2018 was primarily due to approximately $227.1 million recorded in the current year as a result of corporate restructurings we effectuated that included the restructuring of our U.S. and non-U.S. assets and subsidiaries. The restructurings involved the transfer of certain assets and intellectual property used in the business among various subsidiaries. The transfer of the intellectual property resulted in the recognition of tax expense representing the estimated U.S. tax to be paid currently and in future years on income generated from the intellectual property transfer. This amount was offset by a tax benefit to recognize pre-tax losses in the U.S. for the current fiscal year for which an income tax benefit is realized at the U.S. statutory rate of 21%, as well as a net reduction in unrecognized tax benefits of $11.4 million and other discrete items. In fiscal 2018, we recorded $20.1 million of current expense, offset by a net reduction in unrecognized tax benefits of $10.0 million, which was further offset by other discrete items.

The Tax Cuts and Jobs Act (“2017 Tax Act”) was signed into law on December 22, 2017. The 2017 Tax Act significantly revises the U.S. corporate income tax by, among other things, lowering the statutory corporate tax rate from 35% to 21%, eliminating certain deductions, imposing a mandatory one-time tax on accumulated earnings of foreign subsidiaries, introducing new tax regimes, and changing how foreign earnings are subject to U.S. tax. The 2017 Tax Act also enhanced and extended through 2026 the option to claim accelerated depreciation deductions on qualified property. We have completed our determination of the accounting implications of the 2017 Tax Act on our tax accruals under Staff Accounting Bulletin 118 (“SAB118”) measurement period and recorded amounts in our

financial statements as of February 2, 2019. There are immaterial adjustments for income taxes between the final amounts and the provisional estimates we recorded previously. In addition, the Company has made a policy election to treat the Global Intangible Low-Taxes Income (“GILTI”) inclusion as period costs.

Our provision for incomes taxes may be affected by changes in the geographic mix of earnings with different applicable tax rates, changes in the realizability of deferred tax assets and liabilities, accruals related to contingent tax liabilities and period-to-period changes in such accruals, the results of income tax audits, the expiration of statutes of limitations, the implementation of tax planning strategies, tax rulings, court decisions, settlements with tax authorities and changes in tax laws. Additionally, please see the information in "Item 1A: Risk Factors" under the caption "Changes in existing taxation benefits, rules or practices may adversely affect our financial results.”

Years Ended February 3, 2018 and January 28, 2017

Net Revenue

	Year Ended		
	February 3, 2018	January 28, 2017	% Change in 2018
	(in thousands, except percentage)		
Net revenue	$2,409,170	$2,300,992	4.7 %

Our net revenue for fiscal 2018 increased by $108.2 million compared to net revenue for fiscal 2017. This increase was primarily due to increased sales of our storage products, which were up 8%, and increased sales of our networking products, which were up by 6%. These increases were driven by growth in sales of SSD products and Wi-Fi products. These increases were partially offset by a decline of 18% in our other products. Unit shipments were 4% higher and weighted average selling prices increased 1% compared to fiscal 2017, for an overall increase in net revenue of 5%.

Cost of Goods Sold and Gross Profit

	Year Ended		
	February 3, 2018	January 28, 2017	% Change in 2018
	(in thousands, except percentages)		
Cost of goods sold	$947,230	$1,017,564	(6.9)%
% of net revenue	39.3 %	44.2 %	
Gross profit	$1,461,940	$1,283,428	13.9 %
% of net revenue	60.7 %	55.8 %	

The cost of goods sold as a percentage of net revenue was lower for fiscal 2018 due primarily to improved product mix, combined with lower manufacturing costs and lower inventory reserves. As a result, gross margin for fiscal 2018 increased 5 percentage points compared to fiscal 2017.

Share-Based Compensation Expense

	Year Ended	
	February 3, 2018	January 28, 2017
	(in thousands)	
Continuing operations:		
Cost of goods sold	$6,646	$ 8,334
Research and development	52,127	74,809
Selling, general and administrative	26,349	18,257
Share-based compensation - continuing operations	85,122	101,400
Discontinued operations:		
Cost of goods sold	(11)	187
Research and development	1,458	11,633
Selling, general and administrative	120	750
Share-based compensation - discontinued operations	1,567	12,570
Total share-based compensation	$86,689	$ 113,970

Share-based compensation expense for continuing operations decreased by $16.3 million in fiscal 2018 compared to fiscal 2017. The decrease was mainly due to lower headcount from restructuring actions.

Restructuring and Other Related Charges

	Year Ended	
	February 3, 2018	January 28, 2017
	(in thousands)	
Restructuring related charges	$5,250	$ 96,801

We recorded total restructuring charges and other related charges of $5.3 million in fiscal 2018, which primarily arose from activities related to the restructuring plan we announced in November 2016 to restructure our operations to refocus our research and development, increase operational efficiency and improve profitability. See "Note 4 - Restructuring and Other Related Charges" in the Notes to the Consolidated Financial Statements set forth in Part II, Item 8 of this Annual Report on Form 10-K for further information.

Research and Development

	Year Ended		
	February 3, 2018	January 28, 2017	% Change in 2018
	(in thousands, except percentages)		
Research and development	$714,444	$805,029	(11.3)%
% of net revenue	29.7 %	35.0 %	

Research and development expense decreased by $90.6 million in fiscal 2018 compared to fiscal 2017. The decrease was primarily attributable to $70.0 million of lower personnel-related costs, and reduction in depreciation and amortization expense of $13.6 million. These reductions were driven by the restructuring actions announced in November 2016.

Selling, general and administrative

	Year Ended		
	February 3, 2018	January 28, 2017	% Change in 2018
	(in thousands, except percentages)		
Selling, general, and administrative	$238,166	$251,191	(5.2)%
% of net revenue	9.9 %	10.9 %	

Selling, general and administrative expense decreased by $13.0 million in fiscal 2018 compared to fiscal 2017. The decrease was primarily attributable to $14.8 million of lower legal expenses and $13.2 million of lower audit and tax fees. The decrease was partially offset by $10.3 million of merger-related costs.

Litigation Settlement

	Year Ended		
	February 3, 2018	January 28, 2017	% Change in 2018
	(in thousands, except percentages)		
Litigation settlement	$74,385	$ —	nm
% of net revenue	3.1 %	— %	

nm - not meaningful

In connection with the Luna legal settlement, the Company recorded $74.4 million of litigation settlement charges and related costs. Refer to “Note 13 - Commitments and Contingencies” for a discussion of such settlement.

Interest Income

	Year Ended		
	February 3, 2018	January 28, 2017	% Change in 2018
	(in thousands, except percentages)		
Interest income	$17,381	$13,198	31.7 %
% of net revenue	0.7 %	0.6 %	

Interest income increased by $4.2 million in fiscal 2018 compared to fiscal 2017. The increase in fiscal 2018 reflects higher interest rates offset by lower average cash and investment balances.

Interest Expense

	Year Ended		
	February 3, 2018	January 28, 2017	% Change in 2018
	(in thousands, except percentages)		
Interest expense	$(685)	$(368)	86.1 %
% of net revenue	— %	— %	

Interest expense increased by $0.3 million in fiscal 2018 compared to fiscal 2017. The increase in fiscal 2018 was mainly due to higher imputed interest expense on technology license obligations.

Other Income, net

	Year Ended		
	February 3, 2018	January 28, 2017	% Change in 2018
	(in thousands, except percentages)		
Other income, net	$4,813	$4,192	14.8 %
% of net revenue	0.2 %	0.1 %	

Other income increased by $0.6 million in fiscal 2018 compared to fiscal 2017. Other income, net in fiscal 2018 was due to $4.8 million gain as a result of sales of a business and private equity investment. Other income, net in fiscal 2017 was due to $4.2 million gain primarily associated with realized gains on investments as well as foreign currency measurement.

Provision (benefit) for Income Taxes

	Year Ended		
	February 3, 2018	January 28, 2017	% Change in 2018
	(in thousands, except percentages)		
Provision for income taxes	$18,062	$72,608	(75.1)%

The decrease in income tax expense for fiscal 2018 compared to fiscal 2017 was primarily due to approximately $66.9 million recorded in the prior year as a result of restructuring actions taken in the fourth quarter of fiscal 2017, offset by additional tax expense of $2.1 million attributable to a building sale incurred in the current year. The prior year amount consisted of $50.1 million of foreign withholding taxes on undistributed earnings of certain subsidiaries that were no longer considered to be indefinitely reinvested as a result of those restructuring actions and $16.8 million of additional foreign tax expense which also arose as a result of such restructuring. Those amounts were one time in nature and were not expected to recur in the future.

Liquidity and Capital Resources

The Company's principal source of liquidity as of February 2, 2019 consisted of approximately $582 million of cash, cash equivalents and short-term investments, of which approximately $550 million was held by subsidiaries outside of Bermuda. The Company plans to use such amounts to fund various activities outside of Bermuda, including working capital requirements, capital expenditures for expansion, funding of future acquisitions or other financing activities.

In June 2018, we executed debt agreements to obtain a $900 million term loan and $1.0 billion of senior unsecured notes in order to fund the Cavium acquisition. In addition, we executed a debt agreement in June 2018 to obtain a $500 million Revolving Credit Facility, which was undrawn as of February 2, 2019. See “Note 12 - Debt” for further information.

We believe that our existing cash, cash equivalents, together with cash generated from operations, and funds from our Revolving Credit Facility will be sufficient to cover our working capital needs, capital expenditures, investment requirements and any declared dividends, repurchase of our common stock and commitments for at least the next twelve months. Our capital requirements will depend on many factors, including our rate of sales growth, market acceptance of our products, costs of securing access to adequate manufacturing capacity, the timing and extent of research and development projects and increases in operating expenses, which are all subject to uncertainty. For a discussion of litigation related risks, see Part I, Item 1A, "Risk Factors," including the risk detailed under the caption “We have been named as a party to several legal proceedings and may be named in additional ones in the future, including litigation involving our patents and other intellectual property, which could subject us to liability,

require us to indemnify our customers, require us to obtain or renew licenses, require us to stop selling our products or force us to redesign our products."

To the extent that our existing cash, cash equivalents and short-term investments together with cash generated by operations, and funds available under our Revolving Credit Facility are insufficient to fund our future activities, we may need to raise additional funds through public or private debt or equity financing. We may also acquire additional businesses, purchase assets or enter into other strategic arrangements in the future, which could also require us to seek debt or equity financing. Additional equity financing or convertible debt financing may be dilutive to our current shareholders. If we elect to raise additional funds, we may not be able to obtain such funds on a timely basis or on acceptable terms, if at all. In addition, the equity or debt securities that we issue may have rights, preferences or privileges senior to our common shares.

Future payment of a regular quarterly cash dividend on our common shares and our planned repurchases of common stock will be subject to, among other things, the best interests of the Company and our shareholders, our results of operations, cash balances and future cash requirements, financial condition, developments in ongoing litigation, statutory requirements under Bermuda law, market conditions and other factors that our board of directors may deem relevant. Our dividend payments and repurchases of common stock may change from time to time, and we cannot provide assurance that we will continue to declare dividends or repurchase shares at all or in any particular amounts.

Cash Flows from Operating Activities

Net cash provided by operating activities was $596.7 million for fiscal 2019 compared to net cash provided by operating activities of $571.1 million for fiscal 2018, and net cash used in operating activities of $358.4 million for fiscal 2017. The cash inflows from operations for fiscal 2019 were primarily due to $179.1 million of net loss adjusted for $850.3 million of non-cash items, offset by a net decrease in working capital of $74.4 million. The cash outflow from working capital for fiscal 2019 was primarily driven by an increase in accounts receivable, which was primarily due to an increase in the days sales outstanding.

The cash inflows from operations for fiscal 2018 were primarily due to $520.8 million of net income adjusted for $94.4 million of non-cash items and gains on the sales of discontinued operations and businesses, offset by a net decrease in working capital of $44.1 million. The cash outflow from working capital for fiscal 2018 was primarily driven by a decrease in accrued liabilities and other non-current liabilities, which was primarily due to payments on accrued restructuring expenses and rebates.

The cash outflows from operations for fiscal 2017 were primarily due to $21.2 million of net income adjusted for $329.6 million of non-cash items, offset by a net decrease in working capital of $709.2 million. The cash outflow from working capital for fiscal 2017 was primarily driven by the decrease in the CMU accrued litigation settlement that was fully paid in the first quarter of fiscal 2017. The negative effect on working capital was partially offset by an increase in accrued liabilities and other non-current liabilities primarily due to an increase in income taxes payable for fiscal 2017 combined with a decrease in inventories.

Cash Flows from Investing Activities

Net cash used in investing activities of $1.8 billion in fiscal year 2019 was primarily driven by the net cash paid to acquire Cavium of $2.6 billion and purchases of property and equipment of $75.9 million, partially offset by sales and maturities of available-for-sale securities and time deposits of $986.9 million.

For fiscal 2018, net cash provided by investing activities of $39.5 million was primarily generated from the sales and maturities of available-for-sale securities of $733.2 million and net proceeds of $165.9 million from the sale of our discontinued operations, which were partially offset by purchases of available-for-sale securities of $835.5 million and capital expenditures of $38.6 million.

For fiscal 2017, net cash provided by investing activities of $161.6 million was primarily generated from the sales and maturities of available-for-sale securities of $856.3 million less purchases of available-for-sale securities of $489.9 million, which were also partially offset by payments of $150.0 million for net purchases of time deposits, $44.5 million for purchases of property and equipment and $10.3 million for the purchase of technology licenses.

Cash Flows from Financing Activities

Net cash provided by financing activities of $849.7 million in fiscal year 2019 was primarily attributable to $1.9 billion proceeds from issuance of debt and $46.0 million net proceeds from the issuance of our common shares under our share-based plans, less the tax withholding on behalf of employees for net share settlements. This cash inflow was partially offset by $756.1 million payment of debt principal, $148.1 million payment for our quarterly dividends, and $104.0 million payment for repurchases of our common stock.

For fiscal 2018, net cash used in financing activities of $536.2 million in fiscal year 2018 was primarily attributable to repurchases under our share repurchase program of our common shares in the open market for $527.6 million and quarterly cash dividends of $119.3 million. The cash outflow was partially offset by net proceeds of $153.5 million from the issuance of our common shares under our share-based plans, less the tax withholding on behalf of employees for net share settlements.

For fiscal 2017, net cash used in financing activities of $267.2 million was primarily attributable to payments for repurchases under our share repurchase program of our common shares in the open market for $181.6 million and for our quarterly cash dividends of $122.3 million. The cash outflow was partially offset by net proceeds of $57.5 million from the issuance of our common shares under our share-based plans less the minimum tax withholding on behalf of employees for net share settlements.

Off-Balance Sheet Arrangements

As part of our ongoing business, we do not participate in transactions that generate relationships with unconsolidated entities of financial partnerships, such as entities often referred to as structured finance or special purpose entities, or variable interest entities, which would have been established for the purpose of facilitating off-balance sheet arrangements or other contractually narrow or limited purposes. As of February 2, 2019, we did not have any off-balance sheet arrangements.

Contractual Obligations and Commitments

Under our manufacturing relationships with our foundry partners, cancellation of outstanding purchase orders is allowed but requires repayment of all expenses incurred through the date of cancellation. As of February 2, 2019, these foundries had incurred approximately $103.7 million of manufacturing costs and expenses relating to our outstanding purchase orders.

The following table summarizes our contractual obligations as of February 2, 2019 and the effect that such obligations are expected to have on our liquidity and cash flow in future periods (in thousands):

	Payment Obligations by Fiscal Year						
	2020	2021	2022	2023	2024	Thereafter	Total
Contractual obligations:							
Principal payments on debt	$—	$—	$750,000	$—	$500,000	$500,000	$1,750,000
Interest obligations on debt	75,856	75,879	59,025	46,391	34,127	111,124	402,402
Facilities operating leases, net	33,086	29,866	26,612	21,272	13,690	40,100	164,626
Computer-aided design software	10,200	—	—	—	—	—	10,200
Purchase commitments to foundries	103,704	—	—	—	—	—	103,704
Capital purchase obligations	43,034	—	—	—	—	—	43,034
Technology license obligations [(1)]	54,846	7,829	—	—	—	—	62,675
Other contractual commitments	7,689	3,424	2,845	1,246	755	1,523	17,482
Total contractual cash obligations	$328,415	$116,998	$838,482	$68,909	$548,572	$652,747	$2,554,123

(1) Amounts represent anticipated future cash payments, including anticipated interest payments not recorded in the consolidated balance sheet.

In addition to the above commitments and contingencies, as of February 2, 2019, we have $18.4 million of unrecognized tax benefits as liabilities. We also have a liability for potential interest and penalties of $15.1 million as of February 2, 2019. It is reasonably possible that the amount of unrecognized tax benefits could increase or decrease significantly due to changes in tax law in various jurisdictions, new tax audits and changes in the U.S. dollar as compared to foreign currencies within the next 12 months. Excluding these factors, uncertain tax positions may decrease by as much as $14.4 million from the lapse of statutes of limitation in various jurisdictions during the next 12 months. Government tax authorities from several non-U.S. jurisdictions are also examining our tax returns. We believe that we have adequately provided for any reasonably foreseeable outcomes related to these tax audits and that any settlement will not have a material effect on our results at this time.

Recent Accounting Pronouncements

Please see “Note 2 — Significant Accounting Policies — Recent Accounting Pronouncements” in our Notes to the Consolidated Financial Statements set forth in Part II, Item 8 of this Annual Report on Form 10-K.

Related Party Transactions

None.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

Interest Rate Risk. With our outstanding debt following our acquisition of Cavium, we are exposed to various forms of market risk, including the potential losses arising from adverse changes in interest rates on our outstanding Term Loan, including changes that may result from implementation of new benchmark rates that replace LIBOR. See “Note 12 - Debt” for further information. A hypothetical increase or decrease in the interest rate by 1% would result in an

increase or decrease in annual interest expense by approximately $3.3 million to $7.6 million.

We maintain an investment policy that requires minimum credit ratings, diversification of credit risk and limits the long-term interest rate risk by requiring effective maturities of generally less than five years. We invest our excess cash primarily in highly liquid debt instruments of the U.S. government and its agencies, money market mutual funds, asset backed securities, corporate debt securities and municipal debt securities that are classified as available-for-sale and time deposits. These investments are recorded on our consolidated balance sheets at fair market value with their related unrealized gain or loss reflected as a component of accumulated other comprehensive income (loss) in the consolidated statement of shareholders' equity. Investments in both fixed rate and floating rate interest earning securities carry a degree of interest rate risk. Fixed rate securities may have their fair market value adversely impacted due to a rise in interest rates, while floating rate securities may produce less income than predicted if interest rates fall. At February 2, 2019, our investment portfolio balance was $0.

Foreign Currency Exchange Risk. All of our sales and the majority of our expenses are denominated in U.S. dollars. Since we operate in many countries, a percentage of our international operational expenses are denominated in foreign currencies and exchange volatility could positively or negatively impact those operating costs. Increases in the value of the U.S. dollar relative to other currencies could make our products more expensive, which could negatively impact our ability to compete. Conversely, decreases in the value of the U.S. dollar relative to other currencies could result in our suppliers raising their prices to continue doing business with us. Additionally, we may hold certain assets and liabilities, including potential tax liabilities, in local currency on our consolidated balance sheet. These tax liabilities would be settled in local currency. Therefore, foreign exchange gains and losses from remeasuring the tax liabilities are recorded to interest and other income, net. We do not believe that foreign exchange volatility has a material impact on our current business or results of operations. However, fluctuations in currency exchange rates could have a greater effect on our business or results of operations in the future to the extent our expenses increasingly become denominated in foreign currencies.

We may enter into foreign currency forward and option contracts with financial institutions to protect against foreign exchange risks associated with certain existing assets and liabilities, certain firmly committed transactions, forecasted future cash flows and net investments in foreign subsidiaries. However, we may choose not to hedge certain foreign exchange exposures for a variety of reasons, including, but not limited to, accounting considerations and the prohibitive economic cost of hedging particular exposures.

To provide an assessment of the foreign currency exchange risk associated with our foreign currency exposures within operating expense, we performed a sensitivity analysis to determine the impact that an adverse change in exchange rates would have on our financial statements. If the U.S. dollar weakened by 10%, our operating expense could increase by approximately 2%.

Item 8. Financial Statements and Supplementary Data

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Shareholders of Marvell Technology Group Ltd.
Opinion on the Financial Statements
We have audited the accompanying consolidated balance sheets of Marvell Technology Group Ltd. and subsidiaries (the "Company") as of February 2, 2019, and February 3, 2018, the related consolidated statements of operations, comprehensive income (loss), shareholders' equity, and cash flows for each of the three years in the period ended February 2, 2019, and the related notes and the schedule listed in the Index at Item 15 (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of February 2, 2019, and February 3, 2018, and the results of its operations and its cash flows for each of the three years in the period ended February 2, 2019, in conformity with accounting principles generally accepted in the United States of America.
We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of February 2, 2019, based on criteria established in Internal Control-Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission and our report dated March 28, 2019, expressed an unqualified opinion on the Company's internal control over financial reporting.
Basis for Opinion
These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.
We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.
/s/ DELOITTE & TOUCHE LLP

San Jose, California
March 28, 2019
We have served as the Company's auditor since 2016.

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MARVELL TECHNOLOGY GROUP LTD.

CONSOLIDATED BALANCE SHEETS
(In thousands, except par value per share)

	February 2, 2019	February 3, 2018
ASSETS		
Current assets:		
Cash and cash equivalents	$582,410	$888,482
Short-term investments	—	952,790
Accounts receivable, net	493,122	280,395
Inventories	276,005	170,039
Prepaid expenses and other current assets	43,721	41,482
Assets held for sale	—	30,767
Total current assets	1,395,258	2,363,955
Property and equipment, net	318,978	202,222
Goodwill	5,494,505	1,993,310
Acquired intangible assets, net	2,560,682	—
Other non-current assets	247,329	148,800
Total assets	$10,016,752	$4,708,287
LIABILITIES AND SHAREHOLDERS’ EQUITY		
Current liabilities:		
Accounts payable	$185,362	$145,236
Accrued liabilities	330,594	86,958
Accrued employee compensation	115,925	127,711
Deferred income	4,915	61,237
Total current liabilities	636,796	421,142
Long-term debt	1,732,699	—
Non-current income taxes payable	59,221	56,976
Deferred tax liabilities	246,252	52,204
Other non-current liabilities	35,374	36,552
Total liabilities	2,710,342	566,874
Commitments and contingencies (Note 13)		
Shareholders’ equity:		
Preferred stock, $0.002 par value; 8,000 shares authorized; no shares issued and outstanding	—	—
Common stock, $0.002 par value; 992,000 shares authorized; 658,514 and 495,913 shares issued and outstanding in fiscal 2019 and 2018, respectively	1,317	991
Additional paid-in capital	6,188,598	2,733,292
Accumulated other comprehensive loss	—	(2,322)
Retained earnings	1,116,495	1,409,452
Total shareholders’ equity	7,306,410	4,141,413
Total liabilities and shareholders’ equity	$10,016,752	$4,708,287

See accompanying Notes to Consolidated Financial Statements.

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MARVELL TECHNOLOGY GROUP LTD.

CONSOLIDATED STATEMENTS OF OPERATIONS
(In thousands, except per share amounts)

	Year Ended		
	February 2, 2019	February 3, 2018	January 28, 2017
Net revenue	$2,865,791	$2,409,170	$2,300,992
Cost of goods sold	1,407,399	947,230	1,017,564
Gross profit	1,458,392	1,461,940	1,283,428
Operating expenses:			
Research and development	914,009	714,444	805,029
Selling, general and administrative	424,360	238,166	251,191
Litigation settlement	—	74,385	—
Restructuring related charges	76,753	5,250	96,801
Total operating expenses	1,415,122	1,032,245	1,153,021
Operating income from continuing operations	43,270	429,695	130,407
Interest income	11,926	17,381	13,198
Interest expense	(60,362)	(685)	(368)
Other income, net	519	4,813	4,192
Interest and other income (loss), net	(47,917)	21,509	17,022
Income (loss) from continuing operations before income taxes	(4,647)	451,204	147,429
Provision for income taxes	174,447	18,062	72,608
Income (loss) from continuing operations, net of tax	$(179,094)	$433,142	$74,821
Income (loss) from discontinued operations, net of tax	—	87,689	(53,670)
Net income (loss)	$(179,094)	$520,831	$21,151
Net income (loss) per share - Basic:			
Continuing operations	$(0.30)	$0.87	$0.15
Discontinued operations	$—	$0.18	$(0.11)
Net income (loss) per share - Basic	$(0.30)	$1.05	$0.04
Net income (loss) per share - Diluted:			
Continuing operations	$(0.30)	$0.85	$0.14
Discontinued operations	$—	$0.17	$(0.10)
Net income (loss) per share - diluted	$(0.30)	$1.02	$0.04
Weighted average shares:			
Basic	591,232	498,008	509,738
Diluted	591,232	509,667	517,513

See accompanying Notes to Consolidated Financial Statements.

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MARVELL TECHNOLOGY GROUP LTD.

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)
(In thousands)

	Year Ended		
	February 2, 2019	February 3, 2018	January 28, 2017
Net income (loss)	$(179,094)	$520,831	$21,151
Other comprehensive income (loss), net of tax:			
Net change in unrealized gain (loss) on marketable securities	2,322	(1,521)	(145)
Net change in unrealized gain (loss) on cash flow hedges	—	(824)	963
Other comprehensive income (loss), net of tax	2,322	(2,345)	818
Comprehensive income (loss), net of tax	$(176,772)	$518,486	$21,969

See accompanying Notes to Consolidated Financial Statements.

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MARVELL TECHNOLOGY GROUP LTD.

CONSOLIDATED STATEMENTS OF SHAREHOLDERS' EQUITY
(In thousands except per share amounts)

	Common Stock		Additional Paid-in Capital	Accumulated Other Comprehensive Income (Loss)	Retained Earnings	Total
	Shares	Amount				
Balance at January 30, 2016	507,572	$1,015	$3,028,921	$ (795)	$1,110,982	$4,140,123
Issuance of ordinary shares in connection with equity incentive plans	11,826	24	74,192	—	—	74,216
Tax withholdings related to net share settlement of restricted stock units	—	—	(16,679)	—	—	(16,679)
Share-based compensation	—	—	113,402	—	—	113,402
Tax benefit from employee stock transactions	—	—	(24)	—	—	(24)
Repurchase of common stock	(13,303)	(27)	(183,037)	—	—	(183,064)
Cash dividends declared and paid (cumulatively $0.24 per share)	—	—	—	—	(122,292)	(122,292)
Net income	—	—	—	—	21,151	21,151
Other comprehensive income	—	—	—	818	—	818
Balance at January 28, 2017	506,095	1,012	3,016,775	23	1,009,841	4,027,651
Issuance of ordinary shares in connection with equity incentive plans	21,278	42	180,260	—	—	180,302
Tax withholdings related to net share settlement of restricted stock units	—	—	(26,840)	—	—	(26,840)
Share-based compensation	—	—	87,140	—	—	87,140
Repurchase of common stock	(31,460)	(63)	(526,012)	—	—	(526,075)
Cash dividends declared and paid (cumulatively $0.24 per share)	—	—	—	—	(119,251)	(119,251)
Cumulative effect of stock compensation accounting change - see Note 2	—	—	1,969	—	(1,969)	—
Net income	—	—	—	—	520,831	520,831
Other comprehensive loss	—	—	—	(2,345)	—	(2,345)
Balance at February 3, 2018	495,913	991	2,733,292	(2,322)	1,409,452	4,141,413
Effect of revenue recognition accounting change - see Note 3	—	—	—	—	34,218	34,218
Issuance of ordinary shares in connection with equity incentive plans	14,164	29	101,140	—	—	101,169
Tax withholdings related to net share settlement of restricted stock units	—	—	(54,934)	—	—	(54,934)
Share-based compensation	—	—	184,956	—	—	184,956
Common stock issued to Cavium common stockholders	153,376	307	3,272,746	—	—	3,273,053
Stock consideration for Cavium accelerated awards	1,102	2	7,802	—	—	7,804
Equity related issuance cost	—	—	(2,927)	—	—	(2,927)
	—	—	50,485	—	—	50,485

Replacement equity awards attributable to pre-acquisition service						
Repurchase of common stock	(6,041)	(12)	(103,962)	—	—	(103,974)
Cash dividends declared and paid (cumulatively $0.24 per share)	—	—	—	—	(148,081)	(148,081)
Net loss	—	—	—	—	(179,094)	(179,094)
Other comprehensive income	—	—	—	2,322	—	2,322
Balance at February 2, 2019	658,514	$1,317	$6,188,598	$ —	$1,116,495	$7,306,410

See accompanying Notes to Consolidated Financial Statements.

MARVELL TECHNOLOGY GROUP LTD.

CONSOLIDATED STATEMENTS OF CASH FLOWS
(In thousands)

	Year Ended		
	February 2, 2019	February 3, 2018	January 28, 2017
Cash flows from operating activities:			
Net income (loss)	$(179,094)	$520,831	$21,151
Adjustments to reconcile net income (loss) to net cash provided by (used in) operating activities:			
Depreciation and amortization	123,983	83,487	107,851
Share-based compensation	184,064	86,689	113,970
Amortization of acquired intangible assets	183,318	3,570	10,641
Amortization of inventory fair value adjustment associated with acquisition of Cavium	223,372	—	—
Amortization of deferred debt issuance costs and debt discounts	11,354	—	—
Restructuring related impairment charges (gain)	(200)	(4,561)	52,581
Amortization of premium /discount on available-for-sale securities	624	995	3,319
Excess tax benefits from share-based compensation	—	—	(37)
Deferred income taxes	118,647	19,825	44,637
Gain on sale of discontinued operations	—	(88,406)	—
Loss (gain) on sale of business	1,592	(5,254)	—
Other expense (income), net	3,530	(1,920)	(3,312)
Changes in assets and liabilities:			
Accounts receivable	(99,044)	54,989	(12,084)
Inventories	4,348	(12,160)	29,325
Prepaid expenses and other assets	(11,685)	12,494	1,825
Accounts payable	(6,493)	(16,613)	(28,153)
Accrued liabilities and other non-current liabilities	84,352	(62,360)	3,763
Carnegie Mellon University accrued litigation settlement	—	—	(736,000)
Accrued employee compensation	(46,599)	(11,936)	18,016
Deferred income	675	(8,557)	14,072
Net cash provided by (used in) operating activities	596,744	571,113	(358,435)
Cash flows from investing activities:			
Purchases of available-for-sale securities	(14,956)	(835,494)	(489,856)
Sales of available-for-sale securities	623,896	306,822	616,697
Maturities of available-for-sale securities	187,985	426,341	239,557
Purchases of time deposits	(25,000)	(300,000)	(275,000)
Maturities of time deposits	175,000	300,000	125,000
Purchases of technology licenses	(11,540)	(6,587)	(10,309)
Purchases of property and equipment	(75,921)	(38,551)	(44,510)
Proceeds from sales of property and equipment	43,525	12,559	—
Cash payment for acquisition of Cavium, net of cash and cash equivalents acquired	(2,649,465)	—	—
Net proceeds from sale of discontinued operations	—	165,940	—
Net proceeds (payments) from sale of business	(3,352)	2,402	—
Other	(2,725)	6,089	16
Net cash provided by (used in) investing activities	(1,752,553)	39,521	161,595

Cash flows from financing activities:			
Repurchases of common stock	(103,974)	(527,574)	(181,564)
Proceeds from employee stock plans	100,961	180,302	74,219
Tax withholding paid on behalf of employees for net share settlement	(54,939)	(26,840)	(16,683)
Dividend payments to shareholders	(148,081)	(119,251)	(122,292)
Payments on technology license obligations	(69,157)	(28,503)	(20,965)
Excess tax benefits from share-based compensation	—	—	37
Proceeds from issuance of debt	1,892,605	—	—
Principal payments of debt	(756,128)	—	—
Payment of equity and debt financing costs	(11,550)	(14,378)	—
Net cash provided by (used in) in financing activities	849,737	(536,244)	(267,248)
Net increase (decrease) in cash and cash equivalents	(306,072)	74,390	(464,088)
Cash and cash equivalents at beginning of the year	888,482	814,092	1,278,180
Cash and cash equivalents at end of the year	$ 582,410	$ 888,482	$ 814,092

See accompanying Notes to Consolidated Financial Statements.

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MARVELL TECHNOLOGY GROUP LTD.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Note 1 — Basis of Presentation

The Company

Marvell Technology Group Ltd., a Bermuda exempted company, and its subsidiaries (the “Company”), is a fabless semiconductor provider of high-performance application-specific standard products. The Company’s core strength is the development of complex System-on-a-Chip devices, leveraging its extensive technology portfolio of intellectual property in the areas of analog, mixed-signal, digital signal processing, and embedded and standalone integrated circuits. The Company also develops platforms that it defines as integrated hardware along with software that incorporates digital computing technologies designed and configured to provide an optimized computing solution. The Company’s broad product portfolio includes devices for storage and networking.

Basis of Presentation

The Company’s fiscal year is the 52- or 53-week period ending on the Saturday closest to January 31. Accordingly, every fifth or sixth fiscal year will have a 53-week period. The additional week in a 53-week year is added to the fourth quarter, making such quarter consist of 14 weeks. Fiscal 2019 and fiscal 2017 each had a 52-week period, while fiscal 2018 had a 53-week period.

Note 2 — Significant Accounting Policies

Discontinued Operations

In connection with the plan the Company announced in November 2016 to restructure its operations to refocus its research and development, increase operational efficiency and improve profitability, the Company also planned to divest certain businesses. As of February 2, 2019, three businesses were divested and are classified as discontinued operations (see "Note 6 - Discontinued Operations"). As required, the Company has retrospectively recast its consolidated statements of operations and balance sheets for all periods presented to reflect these businesses as discontinued operations. The Company has not segregated the cash flows of these businesses in the consolidated statements of cash flows. Management was also required to make certain assumptions and apply judgment to determine historical expenses related to the discontinued operations presented in prior periods. Unless noted otherwise, discussion in the Notes to Consolidated Financial Statements refers to the Company’s continuing operations.

Use of Estimates

The preparation of consolidated financial statements in conformity with accounting principles generally accepted in the United States ("GAAP") requires management to make estimates, judgments and assumptions that affect the reported amounts of assets, liabilities, revenues and expenses, and related disclosure of contingent liabilities. On an ongoing basis, the Company evaluates its estimates, including those related to performance-based compensation, revenue recognition, provisions for sales returns and allowances, inventory excess and obsolescence, investment fair values, goodwill and other intangible assets, restructuring, income taxes, litigation and other contingencies. Actual results could differ from these estimates, and such differences could affect the results of operations reported in future periods.

Principles of Consolidation

The consolidated financial statements include the accounts of the Company and its wholly-owned subsidiaries. All inter-company accounts and transactions have been eliminated. The functional currency of the Company and its subsidiaries is the U.S. dollar.

Cash and Cash Equivalents

The Company considers all highly liquid investments with an original maturity of three months or less from the date of purchase to be cash equivalents. Cash and cash equivalents consist of cash on deposit with banks, time deposits, U.S. government and agency debt, municipal debt securities, corporate debt securities and money market funds.

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MARVELL TECHNOLOGY GROUP LTD.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

Investments
The Company's debt securities are classified as available-for-sale and are reported at fair value. The Company determines any realized gains or losses on the sale of available-for-sale securities on a specific identification method, and such gains and losses are recorded as a component of interest and other income (loss), net. Unrealized gains and losses of the available-for-sale securities are excluded from earnings and reported as a component of accumulated other comprehensive income. Time deposits with maturities greater than 90 days, but less than one year, are classified in short-term investments as held-to-maturity since the Company has both the intent and ability to hold them to maturity.
In general, investments with original maturities of greater than 90 days and remaining maturities of less than one year are classified as short-term investments. Investments with maturities beyond one year may also be classified as short-term based on their highly liquid nature and can be sold to fund current operations.
The Company also has equity investments in privately-held companies. If the Company has the ability to exercise significant influence over the investee, but not control, the Company accounts for the investment under the equity method. If the Company does not have the ability to exercise significant influence over the operations of the investee, the Company accounts for the investment under the measurement alternative method. Investments in privately-held companies are included in other non-current assets.
Impairment of Investments
The Company performs a periodic review of its available-for-sale securities to determine whether an other-than-temporary impairment has occurred. Generally, for an individual security that has been in an unrealized loss position for an extended period of time, the Company evaluates whether an impairment charge should be recognized. Its evaluation is based on specific facts and circumstances at the time of assessment, including general market conditions, and the duration and extent to which the fair value is below cost. If the fair value of a debt security is less than its amortized cost, then an other-than-temporary impairment for the difference is recognized if:

- the Company has the intent to sell the security;
- it is more likely than not that the Company will be required to sell the security before recovery of its amortized cost base; or
- a credit loss exists insofar as the Company does not expect to recover the entire recognized amortized cost of the security.

If a debt security's market value is below amortized cost and the Company either intends to sell the security or it is more likely than not that the Company will be required to sell the security before its anticipated recovery, the Company records an other-than-temporary impairment charge to interest and other income (loss), net in the consolidated statements of operations.
Investments in privately-held companies are subject to a periodic impairment review. Investments are considered impaired when the fair value is below the investment's cost basis. This assessment is based on a qualitative and quantitative analysis, including, but not limited to, the investee's revenue and earnings trends, available cash and liquidity, and the status of the investee's products and the related market for such products.
Derivative Financial Instruments
The Company accounts for its derivative instruments as either assets or liabilities and carries them at fair value. For derivative instruments that hedge the exposure to variability in expected future cash flows and are designated as cash flow hedges, the effective portion of the gain or loss on the derivative instrument is reported as a component of accumulated other comprehensive income (loss) in the consolidated statements of shareholders' equity and reclassified into earnings in the same period or periods during which the hedged transaction affects earnings. The ineffective portion of the gain or loss on the derivative instrument is recognized in current earnings. To receive hedge accounting treatment, cash flow hedges must be highly effective in offsetting changes to expected future cash flows on hedged transactions. Derivatives that are not designated as hedges must be adjusted to fair value through earnings.

MARVELL TECHNOLOGY GROUP LTD.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

Concentration of Credit Risk and Significant Customers

Financial instruments that potentially subject the Company to a significant concentration of credit risk consist principally of cash equivalents, short-term investments and accounts receivable. Cash, cash equivalents and short-term investments balances are maintained with high-quality financial institutions, the composition and maturities of which are regularly monitored by management. The Company believes that the concentration of credit risk in its trade receivables is substantially mitigated by the Company's credit evaluation process, relatively short collection terms and the high level of credit worthiness of its customers. The Company performs ongoing credit evaluations of its customers' financial conditions and limits the amount of credit extended when deemed necessary based upon payment history and the customer's current credit worthiness, but generally requires no collateral. The Company regularly reviews the allowance for bad debt and doubtful accounts by considering factors such as historical experience, credit quality, age of the accounts receivable balances and current economic conditions that may affect a customer's ability to pay.

The Company's accounts receivable was concentrated with three customers at February 2, 2019, who represented 11%, 10%, and 10% of gross accounts receivable, respectively, compared with three customers at February 3, 2018, who represented 22%, 17%, and 16% of gross accounts receivable, respectively. This presentation is at the customer consolidated level.

Historically, a relatively small number of customers have accounted for a significant portion of our net revenue. Net revenue attributable to significant customers whose revenues as a percentage of net revenue was 10% or greater of total net revenues is presented in the following table:

	Year Ended		
	February 2, 2019	February 3, 2018	January 28, 2017
Customer:			
Western Digital	12%	20 %	21 %
Toshiba	11%	14 %	14 %
Seagate	10%	11 %	9 %
Distributor:			
Wintech	**	10 %	10 %

* Less than 10% of net revenue

The Company continuously monitors the creditworthiness of its distributors and believes these distributors' sales to diverse end customers and to diverse geographies further serve to mitigate the Company's exposure to credit risk.

Inventories

Inventory is stated at the lower of cost or net realizable value, cost being determined under the first-in, first-out method. The total carrying value of the Company's inventory is reduced for any difference between cost and estimated net realizable value of inventory that is determined to be excess, obsolete or unsellable inventory based upon assumptions about future demand and market conditions. If actual future demand for the Company's products is less than currently forecasted, the Company may be required to write inventory down below the current carrying value. Once the carrying value of inventory is reduced, it is maintained until the product to which it relates to is sold or otherwise disposed of. Inventoriable shipping and handling costs are classified as a component of cost of goods sold in the consolidated statements of operations.

Property and Equipment, Net

Property and equipment, net, are stated at cost less accumulated depreciation. Depreciation is computed using the straight-line method over the estimated useful lives of the assets, which ranges from 2 to 7 years for machinery and equipment, and 3 to 4 years for computer software, and furniture and fixtures. Buildings are depreciated over an estimated useful life of 30 years and building improvements are depreciated over estimated useful lives of 15 years.

Leasehold improvements are depreciated over the shorter of the remaining lease term or the estimated useful life of the asset.

Goodwill

Goodwill is recorded when the consideration paid for a business acquisition exceeds the fair value of net tangible and intangible assets acquired. Goodwill is measured and tested for impairment annually on the last business day of the fiscal fourth quarter and whenever events or changes in circumstances indicate the carrying amount of goodwill may not be recoverable. The Company first assesses qualitative factors to determine whether it is more likely than not that the fair value of a reporting unit is less than its carrying amount or the Company may determine to proceed directly to the quantitative impairment test.

If the Company assesses qualitative factors and concludes that it is more likely than not that the fair value of a reporting unit is less than its carrying amount or if the Company determines not to use the qualitative assessment, then a quantitative impairment test is performed. The quantitative impairment test requires comparing the fair value of the reporting unit to its carrying value, including goodwill. The Company has identified that its business operates as a single operating segment with two components (Storage and Networking), which it has concluded can be aggregated into a single reporting unit for purposes of testing goodwill impairment. As part of a restructuring announced in November 2016 (see "Note 4 - Restructuring and Other Related Charges"), the former Smart Networked Devices and Solutions product group was changed to Networking and Connectivity. As part of a restructuring initiated in July 2018, the former Networking and Connectivity product group was combined and named Networking. An impairment exists if the fair value of the reporting unit is lower than its carrying value. If the fair value of the reporting unit is lower than its carrying value, the Company would record an impairment loss in the fiscal quarter in which the determination is made.

Long-Lived Assets and Intangible Assets

The Company assesses the impairment of long-lived assets and intangible assets whenever events or changes in circumstances indicate that the carrying amount of long-lived assets may not be recoverable. The Company estimates the future cash flows, undiscounted and without interest charges, expected to be generated by the assets from its use or eventual disposition. If the sum of the expected undiscounted future cash flows is less than the carrying amount of those assets, the Company recognizes an impairment loss based on the excess of the carrying amount over the fair value of the assets. Please see "Note 11 - Goodwill and Acquired Intangible Assets, Net" for further details regarding impairment of acquisition-related identified intangible assets.

Acquisition-related identified intangible assets are amortized on a straight-line basis over their estimated economic lives, except for customer contracts and related relationships, which are amortized using an accelerated method of amortization over the expected customer lives. In-process research and development ("IPR&D") is not amortized until the completion of the related development.

Foreign Currency Transactions

The functional currency of all of the Company's non-U.S. operations is the U.S. dollar. Monetary accounts maintained in currencies other than the U.S. dollar are re-measured using the foreign exchange rate at the balance sheet date. Operational accounts and nonmonetary balance sheet accounts are measured and recorded at the exchange rate in effect at the date of the transaction. The effects of foreign currency re-measurement are reported in current operations.

Revenue Recognition

Through the fiscal year ended February 3, 2018, in accordance with ASC 605, Revenue Recognition, the Company recognized revenue when there was persuasive evidence of an arrangement, delivery had occurred, the fee was fixed or determinable, and collection was reasonably assured. If the Company granted extended payment terms greater than its standard terms for a customer such that collectability was not assured, the revenue was deferred upon shipment and would be recognized when the payment became due provided all other revenue recognition criteria had been satisfied.

Product revenue was generally recognized upon shipment of product to customers, net of accruals for estimated sales returns and rebates. However, some of the Company's sales were made through distributors under agreements allowing for price protection and limited rights of stock rotation on products unsold by the distributors. Product revenue on sales made through distributors were deferred until the distributors sold the product to end customers. Deferred revenue less the related cost of the inventories was reported as deferred income. The Company did not believe that there was any significant exposure related to impairment of deferred cost of sales, as its historical returns had been minimal and inventory turnover for its distributors generally ranged from 60 to 90 days. The Company's sales to direct customers were made primarily pursuant to standard purchase orders for delivery of products.

As a result of the adoption of the new revenue standard on February 4, 2018, at the beginning of the first quarter of fiscal year 2019, the Company revised its revenue recognition policy. The Company now recognizes revenue upon

transfer of control of promised products or services to customers in an amount that reflects the consideration the Company expects to receive in exchange for those products or services. Under the new revenue recognition standard, the Company applies the following five step approach: (1) identify the contract with a customer, (2) identify the performance obligations in the contract, (3) determine the transaction price, (4) allocate the transaction price to the performance obligations in the contract, and (5) recognize revenue when a performance obligation is satisfied.

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The Company enters into contracts that may include various combinations of products and services that are capable of being distinct and accounted for as separate performance obligations. To date, the majority of the revenue has been generated by sales associated with storage and networking products. Revenue from services has been insignificant. Performance obligations associated with product sales transactions are generally satisfied when control passes to customers upon shipment. Accordingly, product revenue is recognized at a point in time when control of the asset is transferred to the customer. The Company recognizes revenue when it satisfies a performance obligation by transferring control of a product to a customer in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. For product revenue, the performance obligation is deemed to be the delivery of the product and therefore, the revenue is generally recognized upon shipment to customers, net of accruals for estimated sales returns and rebates. These estimates are based on historical returns, analysis of credit memo data and other known factors. Actual returns could differ from these estimates. The Company accounts for rebates by recording reductions to revenue for rebates in the same period that the related revenue is recorded. The amount of these reductions is based upon the terms agreed to with the customer. Some of the Company’s sales are made to distributors under agreements allowing for price protection, price discounts and limited rights of stock rotation on products unsold by the distributors. Control passes to the distributor upon shipment, and terms and payment by the Company’s distributors is not contingent on resale of the product. Product revenue on sales made to distributors with price protection and stock rotation rights is recognized upon shipment to distributors, with an accrual for the variable consideration aspect of sales to distributors, estimated based on historical experience, including estimates for price discounts, price protection, rebates, and stock rotation programs.

A portion of the Company's net revenue is derived from sales through third-party logistics providers who maintain warehouses in close proximity to our customer’s facilities. Revenue from sales through these third-party logistics providers is not recognized until the product is pulled from stock by the customer.

The Company’s products are generally subject to warranty, which provides for the estimated future costs of replacement upon shipment of the product. The Company’s products carry a standard one-year warranty, with certain exceptions in which the warranty period can extend to more than one year based on contractual agreements. The warranty accrual is estimated primarily based on historical claims compared to historical revenues and assumes that the Company will have to replace products subject to a claim. From time to time, the Company becomes aware of specific warranty situations, and it records specific accruals to cover these exposures. Warranty expenses were not material for the periods presented.

Business Combination

The Company allocates the fair value of the purchase consideration of its acquisitions to the tangible assets, liabilities, and intangible assets acquired, including in-process research and development (“IPR&D”), based on their estimated fair values. The excess of the fair value of purchase consideration over the fair values of these identifiable assets and liabilities is recorded as goodwill. IPR&D is initially capitalized at fair value as an intangible asset with an indefinite life and assessed for impairment thereafter. When an IPR&D project is completed, the IPR&D is reclassified as an amortizable purchased intangible asset and amortized over the asset’s estimated useful life. Acquisition-related expenses and related restructuring costs are recognized separately from the business combination and are expensed as incurred.

Advertising Expense

Advertising costs are expensed as incurred. The Company recorded $0.2 million, $0.2 million and $0.5 million of advertising costs for fiscal 2019, 2018 and 2017, respectively, included in selling and marketing expenses in the consolidated statements of operations.

Share-Based Compensation

Share-based compensation is measured at the grant date, based on the fair value of the award, and is recognized as expense over the requisite service period. The Company amortizes share-based compensation expense for time-based

awards under the straight-line attribution method over the vesting period. Share-based compensation expense for performance-based awards is recognized when it becomes probable that the performance conditions will be met. Once it becomes probable that a performance-based award will vest, the Company recognizes compensation expense equal to the number of shares expected to vest multiplied by the fair value of the award at the grant date, which is amortized using the accelerated method. In the case of performance-based awards based on total shareholder return ("TSR"), share-based compensation expense is amortized over the requisite service period. For stock purchase rights under the stock purchase plan, the Company amortizes share-based compensation expense ratably over the two-year offering period.

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The Company estimates the fair value of time-based stock option and stock purchase awards on the date of grant using the Black Scholes option-pricing model. The fair value of TSR awards is estimated on the date of grant using a Monte Carlo simulation model since the award is indexed to the price of the Company's common stock as set forth under the terms of the award. The value of the portion of the awards that is ultimately expected to vest is recognized as expense over the requisite service period. The Black Scholes and Monte Carlo models incorporate various highly subjective assumptions including expected term of awards, expected future stock price volatility, expected dividend yield and risk-free interest rate.

In developing estimates used to calculate assumptions, the Company establishes the expected term for employee stock options based on historical settlement experience and after giving consideration to vesting schedules. Assumptions for stock option exercises are stratified by two employee groups and one employee/non-employee group with sufficiently distinct behavior patterns. Expected volatility was developed based on historical stock price volatility. The expected dividend yield is calculated by dividing annualized dividend payments by the closing stock price on the grant date of the option.

The fair value of each restricted stock unit is estimated based on the market price of the Company's common shares on the date of grant less the expected dividend yield.

Forfeitures are recorded when they occur. Previously recognized expense is reversed for the portion of awards forfeited prior to vesting as and when forfeitures occurred.

Comprehensive Income (Loss)

Comprehensive income (loss), net of tax is comprised of net income and net change in unrealized gains and losses, on available-for-sale securities and cash flow hedges. Accumulated other comprehensive income (loss), as presented on the accompanying consolidated balance sheets, consists of net unrealized gains and losses on available-for-sale securities and cash flow hedges, net of tax.

Accounting for Income Taxes

The Company recognizes income taxes using an asset and liability approach. This approach requires the recognition of taxes payable or refundable for the current year, and deferred tax liabilities and assets for the future tax consequences of events that have been recognized in the Company's consolidated financial statements or tax returns. The measurement of current and deferred taxes is based on provisions of the enacted tax law and the effects of future changes in tax laws or rates are not anticipated.

Using available evidence and judgment, the Company establishes a valuation allowance for deferred tax assets, when it is determined that it is more likely than not that they will not be realized. Valuation allowances have been provided primarily against the U.S. research and development credits. Valuation allowances have also been provided against certain acquired operating losses and the deferred tax assets of foreign subsidiaries. A change in the assessment of the realization of deferred tax assets may materially impact the Company's tax provision in the period in which a change of assessment occurs.

The Company is subject to income tax audits by the respective tax authorities in each jurisdiction in which the Company operates. The Company recognizes the effect of income tax positions only if these positions are more likely than not of being sustained. Recognized income tax positions are measured at the largest amount that is more than 50% likely of being realized. Changes in recognition or measurement are reflected in the period in which the change in judgment occurs. The Company records interest and penalties related to unrecognized tax benefits in income tax expense.

Recent Accounting Pronouncements

Accounting Pronouncements Recently Adopted

In January 2016, the FASB issued an accounting standard update that changes the accounting for equity investments, financial liabilities under the fair value option, and the presentation and disclosure requirements for financial instruments. The Company adopted the standard in the first quarter of fiscal 2019. The adoption of this guidance did

not have a significant impact on the Company's consolidated financial statements.

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In August 2016, the FASB issued an accounting standards update to add or clarify guidance on the classification of certain cash receipts and cash payments in the statement of cash flows. The amendments in the update provide guidance on eight specific cash flow issues. The amendments to the guidance should be applied using a retrospective transition method for each period presented and, if it is impracticable to apply all of the amendments retrospectively for some of the issues, the amendments for those issues would be applied prospectively as of the earliest date practicable. The Company adopted the standard in the first quarter of fiscal 2019. The adoption of this guidance did not have an impact on the Company's consolidated financial statements.

In October 2016, the FASB issued new guidance that simplifies the accounting for the income tax effects of intra-entity transfers and will require companies to recognize the income tax effects of intra-entity transfers of assets other than inventory when the transfer occurs. Previous guidance required companies to defer the income tax effects of intra-entity transfers of assets until the asset had been sold to an outside party or otherwise recognized. The Company adopted the standard in the first quarter of fiscal 2019. The adoption of this guidance did not have an impact on the Company's consolidated financial statements.

In November 2016, the FASB issued new guidance that requires entities to include in their cash and cash-equivalent balances in the statement of cash flows those amounts that are deemed to be restricted cash and restricted cash equivalents. As a result, companies will no longer present transfers between cash and cash equivalents and restricted cash and restricted cash equivalents in the statement of cash flows. The Company adopted the standard in the first quarter of fiscal 2019. The adoption of this guidance did not have a significant impact on the Company's consolidated financial statements.

In January 2017, the FASB issued an accounting standards update that revises the definition of a business. The amendments provide a more robust framework for determining when a set of assets and activities is a business. The update is intended to help companies evaluate whether transactions should be accounted for as acquisitions or disposals of assets or businesses. The Company adopted the standard in the first quarter of fiscal 2019. The adoption of this guidance did not have an impact on the Company's consolidated financial statements.

In May 2017, the FASB issued an accounting standards update that provides guidance about which changes to the terms or conditions of a share-based payment award require an entity to apply modification accounting. Unless the changes in terms or conditions meet all three criteria outlined in the guidance, modification accounting should be applied. The three criteria relate to changes in the terms and conditions that affect the fair value, vesting conditions, or classification of a share-based payment award. The guidance is required to be applied prospectively to an award modified on or after the adoption date. The Company adopted the standard in the first quarter of fiscal 2019. The adoption of this guidance did not have an impact on the Company's consolidated financial statements.

In August 2017, the FASB issued an accounting standards update that simplifies the application and administration of hedge accounting. The guidance amends the presentation and disclosure requirements and changes how companies assess effectiveness. The guidance is intended to more closely align hedge accounting with companies' risk management strategies, simplify the application of hedge accounting, and increase transparency as to the scope and results of hedging programs. The guidance is effective for the Company beginning in the first quarter of fiscal year 2020. Early adoption is permitted. The guidance will be applied to cash flow and net investment hedge relationships that exist on the date of adoption using a modified retrospective approach. The presentation and disclosure requirements will be applied prospectively. The Company early adopted the standard in the third quarter of fiscal 2019. The adoption of this guidance did not have a significant effect on the Company's consolidated financial statements.

In June 2018, the FASB issued an accounting standards update that substantially aligns the accounting for shared-based payments to non-employees and employees. The standard is required to be applied through a cumulative-effect adjustment to retained earnings as of the beginning of the fiscal year of adoption. This guidance is effective for fiscal years beginning after December 15, 2018, including interim periods within that fiscal year. Early adoption is permitted. The Company early adopted the standard in the second quarter of fiscal 2019. The adoption of this guidance did not have a significant effect on the Company's consolidated financial statements.

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Accounting Pronouncements Not Yet Effective
In February 2016, the FASB issued a new standard on the accounting for leases, which requires a lessee to record a right-of-use asset and a corresponding lease liability on the balance sheet for all leases with terms longer than twelve months. The standard also expands the required quantitative and qualitative disclosures for lease arrangements. The standard is effective for the Company beginning in the first quarter of fiscal year 2020. The Company is adopting the new lease accounting standard using a modified retrospective method and will not restate comparative periods. The Company expects that the adoption of the new leasing standard will result in recognition of $125 million to $165 million in lease related right-of-use assets and liabilities on the company's consolidated balance sheet, primarily related to real estate.

In June 2016, the FASB issued a new standard requiring financial assets measured at amortized cost be presented at the net amount expected to be collected, through an allowance for credit losses that is deducted from the amortized cost basis. The standard eliminates the threshold for initial recognition in current GAAP and reflects an entity’s current estimate of all expected credit losses. The measurement of expected credit losses is based on historical experience, current conditions, and reasonable and supportable forecasts that affect the collectability of the financial assets. The standard is effective for the Company beginning in the first quarter of fiscal year 2021. The Company does not expect the adoption of this guidance will have a material effect on its consolidated financial statements.

In August 2018, the FASB issued an accounting standards update to align the requirements for capitalizing implementation costs incurred in a software hosting arrangement that is a service contract and costs to develop or obtain internal-use software. The guidance is effective for the Company beginning in the first quarter of fiscal year 2021, with early adoption permitted. The Company is evaluating the effect this new guidance will have on its consolidated financial statements.

In August 2018, the FASB issued an accounting standards update that modifies the disclosure requirements on fair value measurements. The new guidance adds, modifies and removes certain fair value measurement disclosure requirements. The guidance is effective for the company beginning in the first quarter of fiscal year 2021, with early adoption permitted. The Company is evaluating the effect this new guidance will have on its consolidated financial statements.

In November 2018, the FASB issued an accounting standards update that clarifies when transactions between participants in a collaborative arrangement are within the scope of the new revenue recognition standard that the Company adopted at the beginning of fiscal 2019. The guidance is effective for the Company beginning in the first quarter of fiscal year 2021, with early adoption permitted. The guidance must be applied retrospectively as of the date of initial application of the revenue recognition standard. In addition, entities may elect to apply the guidance to all collaborative arrangements or only to collaborative arrangements that are not completed as of the date of initial application of the aforementioned revenue recognition standard. The Company is evaluating the effect this new guidance will have on its consolidated financial statements.

Note 3 — Revenue
Effect of the Adoption of the New Revenue Standard
At the beginning of fiscal year 2019, the Company adopted the new revenue recognition standard on a modified retrospective basis, with the cumulative effect recognized in retained earnings at the date of adoption. The Company elected to apply the new revenue standard retrospectively to all contracts that are not completed contracts at the date of the initial adoption. Based on the Company’s assessment of this new accounting standard, a change in revenue recognition timing on its component sales made to distributors was made in the first quarter of fiscal year 2019 and the Company started to recognize revenue when the Company transfers control to the distributor rather than deferring

recognition until the distributor sells the components. In addition, the Company established accruals for the variable consideration aspect of sales, estimated based on historical experience, which include estimates for price discounts, price protection, rebates, returns and stock rotation programs. On the date of initial adoption, the Company removed the deferred income on component sales made to distributors and recorded estimates of the accruals for variable consideration through a cumulative adjustment to retained earnings. The net impact to the opening balance of retained earnings related to the adoption of the new standard was an increase of $34.2 million.

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The following table summarizes the effects of adopting the new revenue standard on the Company's financial statements for the fiscal year beginning February 4, 2018 as an adjustment to the opening balance. Such adjustments were of a non-cash nature.

(In thousands)	Balance as of February 3, 2018	Adjustments	Opening Balance as of February 4, 2018
Consolidated balance sheet:			
Assets			
Accounts receivable, net	$280,395	$ 1,862	$282,257
Inventory	170,039	2,016	172,055
Other non-current assets	148,800	42,116	190,916
Liabilities and shareholders' equity:			
Accrued liabilities	86,958	70,336	157,294
Deferred income	61,237	(58,560)	2,677
Retained earnings	$1,409,452	$ 34,218	$1,443,670

The following tables summarize financial statement line items that are affected in the current reporting period by the application of the new revenue recognition policy as compared with the previous revenue recognition policy which was in effect in prior periods in accordance with ASC 605, Revenue Recognition:

	February 2, 2019		
(In thousands)	As currently reported	Adjustments	Balances without adoption of new revenue standard
Consolidated balance sheet:			
Assets			
Accounts receivable, net	$493,122	$ —	$493,122
Inventories	276,005	(1,850)	274,155
Other non-current assets	247,329	(75,079)	172,250
Liabilities and shareholders' equity:			
Accrued liabilities	330,594	(125,221)	205,373
Deferred income	4,915	119,252	124,167
Retained earnings	$1,116,495	$ (70,960)	$1,045,535

	Year Ended February 2, 2019		
(In thousands, except per share amounts)	As currently reported	Adjustments	Balances without adoption of new revenue standard
Consolidated statement of operation:			
Net revenue	$2,865,791	$ (52,556)	$2,813,235
Cost of goods sold	1,407,399	(15,814)	1,391,585

Net loss	(179,094)	(36,742)	(215,836)
Net loss per share - Basic	(0.30)	(0.06)	(0.36)
Net loss per share - Diluted	$(0.30)	$ (0.06)	$(0.36)

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Adoption of the new revenue standard had no impact to cash from or used in operating, financing, or investing activities on the consolidated statements of cash flow.

New Revenue Recognition Policy Including Significant Judgments and Estimates

See Note 2, “Significant Accounting Policies - Revenue Recognition” for discussion of the new revenue recognition policy including significant judgments and estimates.

Disaggregation of Revenue

The majority of the Company's revenue is generated from sales of the Company’s products.

The following table summarizes net revenue disaggregated by product group (in thousands, except percentages):

	Year Ended February 2, 2019	% of Total	Year Ended February 3, 2018	% of Total	Year Ended January 28, 2017	% of Total
Net revenue by product group:						
Storage (1)	$1,376,697	48 %	$1,254,365	52 %	$1,157,712	50 %
Networking (2)	1,313,439	46 %	961,497	40 %	908,099	40 %
Other (3)	175,655	6 %	193,308	8 %	235,181	10 %
	$2,865,791		$2,409,170		$2,300,992	

1) Storage products are comprised primarily of HDD, SSD Controllers, Fibre Channel Adapters and Data Center Storage Solutions.
2) Networking products are comprised primarily of Ethernet Switches, Ethernet Transceivers, Ethernet NICs, Embedded Communications and Infrastructure Processors, Automotive Ethernet, Security Adapters and Processors as well as Connectivity products. In addition, this grouping includes a few legacy product lines in which the Company no longer invests, but will generate revenue for several years.
3) Other products are comprised of primarily Printer Solutions, Application Processors and others.

The following table summarizes net revenue disaggregated by primary geographical market (in thousands, except percentages):

	Year Ended February 2, 2019	% of Total	Year Ended February 3, 2018	% of Total	Year Ended January 28, 2017	% of Total
Net revenue based on destination of shipment:						
China	$1,189,928	42 %	$1,205,202	50 %	$1,224,032	53 %
Malaysia	372,817	13 %	388,469	16 %	286,267	12 %
United States	251,905	9 %	42,560	2 %	51,416	2 %
Philippines	235,921	8 %	270,101	11 %	283,345	12 %
Thailand	165,923	6 %	137,662	6 %	113,778	5 %
Others	649,297	22 %	365,176	15 %	342,154	16 %
	$2,865,791		$2,409,170		$2,300,992	

The following table summarizes net revenue disaggregated by customer type (in thousands, except percentages):

	Year Ended February 2, 2019	% of Total	Year Ended February 3, 2018	% of Total	Year Ended January 28, 2017	% of Total
Net revenue by customer type:						
Direct customers	$2,197,209	77 %	$1,888,108	78 %	$1,814,688	79 %
Distributors	668,582	23 %	521,062	22 %	486,304	21 %
	$2,865,791		$2,409,170		$2,300,992	

Contract Liabilities

Contract liabilities consist of the Company's obligation to transfer goods or services to a customer for which the Company has received consideration or the amount is due from the customer. As of February 2, 2019, contract liability balances are comprised of variable consideration estimated based on a portfolio basis using the expected value methodology based on analysis of historical data, current economic conditions, and contractual terms. Variable consideration estimates consist of the estimated returns, price discounts, price protection, rebates, and stock rotation programs. As of the end of a reporting period, some of the performance obligations associated with contracts will have been unsatisfied or only partially satisfied. In accordance with the practical expedients available in the guidance, the Company does not disclose the value of unsatisfied performance obligations for contracts with an original expected duration of one year or less. Contract liabilities are included in accrued liabilities in the consolidated balance sheets.

The opening balance of contract liabilities at the beginning of fiscal year 2019 was $79.6 million. During the year ended February 2, 2019, contract liabilities increased by $721.7 million associated with variable consideration estimates, offset by $658.9 million decrease in such reserves primarily due to credit memos issued to customers. The ending balance of contract liabilities at the end of fiscal year 2019 was $142.4 million. The amount of revenue recognized during the year ended February 2, 2019 that was included in the contract liabilities balance at February 3, 2018 was not material.

Sales Commissions

The Company has elected to apply the practical expedient to expense commissions when incurred as the amortization period is typically one year or less. These costs are recorded in selling, general and administrative expenses in the consolidated statements of operations.

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Note 4 — Restructuring and Other Related Charges
The following table presents details related to the restructuring related charges as presented in the Consolidated Statements of Operations (in thousands):

	Year Ended		
	February 2, 2019	February 3, 2018	January 28, 2017
Severance and related costs	$40,345	$ 8,247	$ 32,650
Facilities and related costs	35,831	1,692	6,587
Other exit-related costs	2,050	2,082	5,452
	78,226	12,021	44,689
Release of reserves:			
Severance	(1,273)	(1,612)	(86)
Facilities and related costs	—	(258)	—
Other exit-related costs	—	(340)	(383)
Impairment and write-off of assets & restructuring (gain):			
Prepaid deposit	—	—	45,000
Technology licenses	6,523	174	629
Equipment and other	5,503	(489)	6,952
Building sale	(12,226)	(4,246)	—
	$76,753	$ 5,250	$ 96,801

Fiscal 2019. The Company recorded $76.8 million of restructuring and other related charges in fiscal 2019 in connection with the Cavium acquisition as described in “Note 5 - Business Combination”. Following the acquisition, the Company reviewed its financial position and operating results against the Company's strategic objectives, long-term operating targets and other operational priorities and initiated a restructuring plan in an effort to increase operational efficiency, decrease costs and increase profitability. The Company expects to complete these restructuring actions by the end of fiscal 2020.

The charges include approximately $39.1 million in severance and related costs, $35.8 million in facilities and related costs, $2.0 million in other exit-related costs, $12.0 million for the impairment of equipment and technology licenses, offset by a gain of $12.2 million from the sale of a building in Singapore. The severance costs primarily relate to the employee separation costs in connection with the Cavium acquisition. The facility and related costs primarily relate to the remaining lease obligation, net of sublease income, upon vacating certain worldwide office locations, and ongoing operating expenses of vacated facilities.

Fiscal 2018. The Company recorded $5.3 million of restructuring and other related charges in fiscal 2018 in continuation of the restructuring plan announced in November 2016 as described in Note 6 - Discontinued Operations. As of February 2, 2019, the Company has completed its restructuring actions that were contemplated in the original November 2016 announcement. Total cumulative charges recorded related to this restructuring action were $95.6 million.

Fiscal 2017. The Company recorded $96.8 million of restructuring and other related charges in fiscal 2017, which included costs associated with severance, asset impairment, lease termination fees and other costs.

The Company recorded restructuring and other related charges of $90.3 million in fiscal 2017 related to this restructuring plan announced in November 2016. The charges included $32.6 million of severance benefits, $5.5 million of other exit-related costs primarily related to contract cancellation penalties, $1.9 million of costs related to closing certain facilities, $45.0 million to fully impair a nonrefundable deposit due to the non-utilization of the related contract, and $5.4 million for the impairment of equipment and technology licenses.

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In connection with the restructuring of its mobile platform business in September 2015, substantially all of the remaining activities expected to be completed in the first half of fiscal 2017 were completed. As a result, the Company recorded a charge of $1.9 million in fiscal 2017, which included $2.2 million primarily for the write off of all remaining mobile-related equipment that was previously classified as held for sale that was offset by a net credit of $0.3 million, mainly due to the release of a reserve related to the loss on contract termination previously recognized in fiscal 2016. In addition to the restructuring actions described in the preceding paragraph, the Company recorded charges of $4.6 million in the fiscal 2017, primarily for the remaining lease obligation, net of sublease income, upon vacating certain floors in one of its Israel facilities and ongoing operating expenses of vacated facilities related to restructuring actions in previous years.

The following table sets forth a reconciliation of the beginning and ending restructuring liability balances by each major type of costs associated with the restructuring charges (in thousands):

	November 2016 and Other Restructuring			July 2018 Restructuring			
	Severance and related costs	Facilities and related costs	Other exit-related costs	Severance and related costs	Facilities and related costs	Other exit-related costs	Total
Balance at January 28, 2017	$17,000	$2,474	$ 4,625	$—	$—	$ —	$24,099
Restructuring charges - continuing operations	8,247	1,692	2,082	—	—	—	12,021
Release of reserves - continuing operations	(1,612)	(258)	(340)	—	—	—	(2,210)
Restructuring charges - discontinued operations	7,015	9	3,560	—	—	—	10,584
Net cash payments	(29,996)	(3,455)	(11,364)	—	—	—	(44,815)
Other	—	—	1,992	—	—	—	1,992
Balance at February 3, 2018	654	462	555	—	—	—	1,671
Restructuring charges - continuing operations	—	—	—	40,345	35,831	2,050	78,226
Release of reserves - continuing operations	—	—	—	(1,273)	—	—	(1,273)
Net cash payments	(654)	(462)	(555)	(26,614)	(8,927)	(1,001)	(38,213)
Exchange rate adjustment	—	—	—	(55)	—	—	(55)
Balance at February 2, 2019	—	—	—	12,403	26,904	1,049	40,356
Less: non-current portion		—	—	—	13,654	—	13,654
Current portion	$—	$—	$ —	$12,403	$13,250	$ 1,049	$26,702

For fiscal 2018, severance charges of $7.0 million and other exit-related costs of $3.6 million relate to discontinued operations and have been included in income (loss) from discontinued operations, net of tax, in the Company's consolidated statements of operations. For fiscal 2019, all restructuring and related charges associated with the July 2018 restructuring plan have been included in income (loss) from continuing operations, net of tax, in the Company's consolidated statements of operations.
The balance at February 2, 2019 for facility and related costs includes remaining payments under lease obligations related to vacated space that are expected to be paid through fiscal 2028, net of estimated sub-lease income. The remaining accrued severance and related costs and the other exit-related costs are expected to be paid in fiscal 2020.

Note 5 — Business Combination

On July 6, 2018, the Company completed the acquisition of Cavium (the "Cavium acquisition"). Cavium is a provider of highly integrated semiconductor processors that enable intelligent processing for wired and wireless infrastructure and cloud for networking, communications, storage and security applications. The Cavium acquisition was primarily intended to create an opportunity for the combined company to emerge as a leader in infrastructure solutions. In accordance with the terms of the Agreement and Plan of Merger, dated as of November 19, 2017, by and among the Company and Cavium (the "Cavium merger agreement"), the Company acquired all outstanding shares of common stock of Cavium (the "Cavium shares") for $40.00 per share in cash and 2.1757 shares of the Company's common stock exchanged for each share of Cavium stock. The Company also made cash payments for the fractional shares that resulted from conversion as specified in the Cavium merger agreement. The merger consideration was funded with a combination of cash on hand, new debt financing and issuance of the Company's common shares. See "Note 12 - Debt" for discussion of the debt financing.

The following table summarizes the total merger consideration (in thousands, except share and per share data):

Cash consideration to Cavium common stockholders	$2,819,812
Common stock (153,376,408 shares of the Company's common stock at $21.34 per share)	3,273,053
Cash consideration for intrinsic value of vested director stock options and employee accelerated awards attributable to pre-acquisition service	10,642
Stock consideration for employee accelerated awards attributable to pre-acquisition service	7,804
Fair value of the replacement equity awards attributable to pre-acquisition service	50,485
Total merger consideration	$6,161,796

Pursuant to the Cavium merger agreement, the Company assumed the outstanding employee equity awards originally granted by Cavium and converted such shares into the Company's equivalent awards. The outstanding vested options held by directors of Cavium were settled in cash as specified in the Cavium merger agreement. The portion of the fair value of partially vested awards associated with pre-acquisition service of Cavium employees represented a component of the total consideration, as presented above.

The merger consideration allocation set forth herein is preliminary and may be revised as additional information becomes available during the measurement period which could be up to 12 months from the closing date of the acquisition. Any such revisions or changes may be material.

In accordance with US GAAP requirements for business combinations, the Company allocated the fair value of the purchase consideration to the tangible assets, liabilities and intangible assets acquired, including in-process research and development, or IPR&D, generally based on their estimated fair values. The excess purchase price over those fair values is recorded as goodwill. The factors contributing to the recognition of goodwill were based upon the Company's conclusion that there are strategic and synergistic benefits that are expected to be realized from the acquisition. Goodwill of $3.5 billion recorded for the Cavium acquisition is not expected to be deductible for tax purposes. IPR&D is initially capitalized at fair value as an intangible asset with an indefinite life and assessed for impairment thereafter. When an IPR&D project is completed, the IPR&D is reclassified as an amortizable purchased intangible asset and amortized over the asset's estimated useful life. The Company's valuation assumptions of acquired assets and assumed liabilities require significant estimates, especially with respect to intangible assets. Acquisition-related costs are expensed in the periods in which the costs are incurred.

MARVELL TECHNOLOGY GROUP LTD.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

The purchase price allocation is as follows, including adjustments to the purchase price allocation from the previously reported figures at August 4, 2018 (in thousands):

	Previously Reported August 4, 2018 (Provisional)	Measurement Period Adjustments	February 2, 2019
Cash and cash equivalents	$180,989	$ —	$180,989
Accounts receivable	112,270	—	112,270
Inventories	330,778	—	330,778
Prepaid expense and other current assets	19,890	—	19,890
Assets held for sale	483	—	483
Property and equipment	115,428	—	115,428
Acquired intangible assets	2,744,000	—	2,744,000
Other non-current assets	89,139	—	89,139
Goodwill	3,504,302	(3,107)	3,501,195
Accounts payable	(52,383)	—	(52,383)
Accrued liabilities	(127,837)	1,830	(126,007)
Accrued employee compensation	(34,813)	—	(34,813)
Deferred income	(2,466)	—	(2,466)
Current portion of long-term debt	(6,123)	—	(6,123)
Liabilities held for sale	(3,032)	—	(3,032)
Long-term debt	(600,005)	—	(600,005)
Non-current income taxes payable	(8,365)	(89)	(8,454)
Deferred tax liabilities	(84,360)	1,366	(82,994)
Other non-current liabilities	(16,099)	—	(16,099)
Total merger consideration	$6,161,796	$ —	$6,161,796

The provisional amounts presented in the table above pertained to the preliminary purchase price allocation reported in the Company’s Form 10-Q for the second quarter ended August 4, 2018. See “Note 11 - Goodwill and Acquired Intangible Assets, Net” for discussion of acquired intangible assets. The measurement period adjustments were primarily related to adjustments to acquired contingent liabilities, adjustments to deferred tax liabilities, the completion of the final Cavium income tax returns and adjustments to uncertain tax positions. The Company does not believe that the measurement period adjustments had a material impact on its consolidated statements of operations, balance sheets or cash flows in any periods previously reported.

The Company incurred total acquisition related costs of $53.7 million which were recorded in selling, general and administrative expense in the consolidated statements of operations. The Company also incurred $22.8 million of debt financing costs. As of February 2, 2019, $0.4 million associated with the Revolving Credit Facility was classified in prepaid expenses and other current assets, $1.3 million associated with the Revolving Credit Facility was classified in other non-current assets, and $10.5 million associated with the term loan and senior notes was classified in long-term debt in the consolidated balance sheet. See “Note 12. Debt” for additional information. Additionally, the Company incurred $2.9 million of equity issuance costs, which were recorded in additional paid-in capital in the consolidated balance sheet.

Since the date of the acquisition, Cavium contributed $487.1 million of the consolidated net revenue for the year ended February 2, 2019. Post-acquisition income (loss) on a standalone basis is impracticable to determine as the Company has been integrating Cavium into the Company's existing operations.

MARVELL TECHNOLOGY GROUP LTD.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

Unaudited Supplemental Pro Forma Information
The unaudited supplemental pro forma financial information presented below is for illustrative purposes only and is not necessarily indicative of the financial position or results of operations that would have been realized if the acquisition had been completed on the date indicated, does not reflect synergies that might have been achieved, nor is it indicative of future operating results or financial position. The pro forma adjustments are based upon currently available information and certain assumptions the Company believe are reasonable under the circumstances.

The following unaudited supplemental pro forma information presents the combined results of operations for each of the periods presented, as if Cavium had been acquired as of the beginning of fiscal year 2018. The unaudited supplemental pro forma information includes adjustments to amortization and depreciation for acquired intangible assets and property and equipment, adjustments to share-based compensation expense, the purchase accounting effect on inventories acquired, interest expense, and transaction costs. For fiscal year 2018, nonrecurring pro forma adjustments directly attributable to the Cavium acquisition included (i) share-based compensation expense of $37.8 million, (ii) the purchase accounting effect of inventories acquired of $223.0 million, (iii) bridge loan related debt issuance costs of $6.1 million and (iv) transaction costs of $121.8 million. The unaudited supplemental pro forma information presented below is for informational purposes only and is not necessarily indicative of our consolidated results of operations of the combined business had the Cavium acquisition actually occurred at the beginning of fiscal year 2018 or of the results of our future operations of the combined business.
The unaudited supplemental pro forma financial information for the periods presented is as follows (in thousands):

	Year ended	
	February 2, 2019	February 3, 2018
Pro forma net revenue	$3,208,723	$3,393,188
Pro forma net loss	$(106,601)	$(91,355)

Note 6 — Discontinued Operations
In November 2016, the Company announced a plan to restructure its operations to refocus its research and development, increase operational efficiency and improve profitability. As part of these actions, the Company began an active program to locate buyers for several businesses. The Company concluded that the divestitures of these businesses in the aggregate represented a strategic shift that had a major effect on the Company's operations and financial results. These businesses were deemed not to align with the Company's core business. The Company classified these businesses as discontinued operations for all periods presented in its consolidated financial statements.
In February 2017, the Company entered into an agreement to sell the assets of one of these businesses, the Broadband operations. The transaction closed on April 4, 2017. Based on the terms of the agreement, the Company received sale consideration of $23.0 million in cash proceeds. The divestiture resulted in a pre-tax gain on sale of $8.2 million, which is included in income from discontinued operations in the consolidated statements of operations.
In May 2017, the Company sold the assets of a second business, the LTE thin-modem operations. The transaction closed on May 18, 2017. Based on the terms of the agreement, the Company received sale consideration of $52.9 million. The sale consideration included $3.6 million related to the Company's tax withholding liability paid by the buyer to tax authorities. The divestiture resulted in a pre-tax gain on sale of $34.0 million, which is included in income from discontinued operations in the consolidated statements of operations.
In June 2017, the Company entered into an agreement to sell the assets of a third business, the Multimedia operations. The transaction closed on September 8, 2017. Based on the terms of the agreement, the Company received sale consideration of $93.7 million in cash proceeds. The divestiture resulted in a pre-tax gain on sale of $46.2 million which is included in income from discontinued operations in the consolidated statements of operations.

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MARVELL TECHNOLOGY GROUP LTD.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

There were no carrying amounts of assets and liabilities pertaining to discontinued operations in the consolidated balance sheet as of February 2, 2019 and February 3, 2018. There were no other assets held for sale as of February 2, 2019. Other assets held for sale as of February 3, 2018 consisted of a building in Singapore and land.
The following table presents a reconciliation of the major financial lines constituting the results of operations for discontinued operations to the net income (loss) from discontinued operations presented separately in the consolidated statements of operations (in thousands):

	Year Ended	
	February 3, 2018	January 28, 2017
Net revenue	$94,137	$115,437
Cost of goods sold	47,499	72,764
Gross Profit	46,638	42,673
Operating expenses:		
Research and development	34,530	88,538
Selling, general and administrative	6,925	6,415
Total operating expenses	41,455	94,953
Income (loss) from discontinued operations before income taxes	5,183	(52,280)
Gain from sale of discontinued operations	88,406	—
Provision for income taxes	5,900	1,390
Net income (loss) from discontinued operations	$87,689	$(53,670)

The Company had no discontinued operations for the year ended February 2, 2019. Non-cash operating amounts reported for discontinued operations include share-based compensation expense of $1.6 million and $12.6 million in fiscal 2018 and 2017, respectively. Depreciation, amortization and capital expenditures are not material. The proceeds from sale of the Multimedia business of $93.7 million, proceeds from sale of the LTE thin-modem business of $49.2 million and proceeds from sale of the Broadband business of $23.0 million are classified in investing activities for fiscal 2018, and the gain on sale of such business is presented in operating activities in the consolidated statements of cash flows. Due to the Company's transfer pricing arrangements, the Company generates income in most jurisdictions in which it operates, regardless of a loss that may exist on a consolidated basis. In addition, the Company recognized a tax expense of $0.5 million on the sale of its Multimedia business for fiscal 2018, and a tax expense of $4.5 million on the sale of its LTE thin-modem business for fiscal 2018. As such, the Company has reflected a tax expense of $5.9 million and $1.4 million for fiscal 2018 and 2017, respectively, attributable to discontinued operations.

Note 7 — Supplemental Financial Information (in thousands)
Consolidated Balance Sheets

	February 2, 2019	February 3, 2018
Cash and cash equivalents:		
Cash	$ 491,646	$ 620,907
Cash equivalents:		
Money market funds	16,829	18,503
Time deposits	73,935	65,117
U.S. government and agency debt	—	51,589
Foreign government and agency debt	—	—
Municipal debt securities	—	5,290
Corporate debt securities	—	127,076
Cash and cash equivalents	$ 582,410	$ 888,482

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MARVELL TECHNOLOGY GROUP LTD.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

	February 2, 2019	February 3, 2018
Sales returns	$ —	$ 1,516
Doubtful accounts	2,637	984
	$ 2,637	$ 2,500

Beginning in fiscal 2019 upon the adoption of the new revenue recognition standard, the provision for sales return is included as a component of contract liabilities within accrued liabilities in the accompanying consolidated balance sheet, whereas in previous periods it was included within the accounts receivable, net balance. The allowance for doubtful accounts continues to be included within the accounts receivable, net balance on the consolidated balance sheets.

	February 2, 2019	February 3, 2018
Inventories:		
Work-in-process	$ 162,384	$ 103,711
Finished goods	113,621	66,328
Inventories	$ 276,005	$ 170,039

Inventory held by third-party logistics providers is recorded as consigned inventory on the Company's consolidated balance sheet. The amount of inventory held at third-party logistics providers was $23.6 million and $18.7 million at February 2, 2019 and February 3, 2018, respectively.

	February 2, 2019	February 3, 2018
Property and equipment, net:		
Machinery and equipment	$ 615,329	$ 535,416
Land, buildings, and leasehold improvements	287,047	247,675
Computer software	105,539	98,253
Furniture and fixtures	23,924	21,139
	1,031,839	902,483
Less: Accumulated depreciation	(712,861)	(700,261)
Property and equipment, net	$ 318,978	$ 202,222

The Company recorded depreciation expense of $64.5 million, $49.2 million and $82.4 million for fiscal 2019, 2018 and 2017, respectively.

	February 2, 2019	February 3, 2018
Other non-current assets:		
Technology and other licenses	$ 125,278	$ 87,536
Prepaid ship and debit *	75,079	—
Deferred tax assets	12,460	20,633
Deferred debt and equity financing costs	1,342	17,622
Other	33,170	23,009
Other non-current assets	$ 247,329	$ 148,800

* Prepaid ship and debit of $75.1 million as of February 2, 2019 relate to certain prepaid distributor arrangements for ship and debit claims.

Deferred debt and equity financing costs as of February 2, 2019 and February 3, 2018 related to financing for the Cavium acquisition, which closed during the second quarter of fiscal 2019. Amortization of technology and other licenses was $57.0 million, $34.3 million and $25.5 million in fiscal 2019, 2018 and 2017, respectively.

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MARVELL TECHNOLOGY GROUP LTD.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

	February 2, 2019	February 3, 2018
Accrued liabilities:		
Contract liabilities	$ 142,378	$ —
Technology license obligations	48,018	28,488
Accrued rebates (1)	—	9,292
Accrued income tax payable	47,079	959
Other	93,119	48,219
Accrued liabilities	$ 330,594	$ 86,958

(1) Accrued rebates are classified as part of contract liabilities beginning in fiscal year 2019 upon adoption of the new revenue recognition standard.

	February 2, 2019	February 3, 2018
Deferred income:		
Deferred revenue	$ 5,050	$ 81,896
Deferred cost of goods sold	(135)	(20,659)
Deferred income	$ 4,915	$ 61,237

	February 2, 2019	February 3, 2018
Other non-current liabilities:		
Long-term restructuring liabilities	$ 13,654	$ 59
Technology license obligations	6,716	34,060
Long-term accrued employee compensation	1,246	1,029
Other	13,758	1,404
Other non-current liabilities	$ 35,374	$ 36,552

Accumulated other comprehensive income (loss):

The changes in accumulated other comprehensive income (loss) by components are presented in the following tables (in thousands):

	Unrealized Gain (Loss) on Marketable Securities (1)	Unrealized Gain (Loss) on Cash Flow Hedges (2)	Total
Balance at January 28, 2017	$ (801)	$ 824	$ 23
Other comprehensive income (loss) before reclassifications	(1,460)	2,341	881
Amounts reclassified from accumulated other comprehensive income (loss)	(61)	(3,165)	(3,226)
Net current-period other comprehensive loss, net of tax	(1,521)	(824)	(2,345)
Balance at February 3, 2018	(2,322)	—	(2,322)
Other comprehensive loss before reclassifications	(733)	—	(733)
Amounts reclassified from accumulated other comprehensive income (loss)	3,055	—	3,055
Net current-period other comprehensive income, net of tax	2,322	—	2,322
Balance at February 2, 2019	$ —	$ —	$ —

MARVELL TECHNOLOGY GROUP LTD.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

(1) The amounts of gains (losses) associated with the Company's marketable securities reclassified from accumulated other comprehensive income (loss) are recorded in other income, net in the consolidated statements of operations.
(2) The amounts of gains (losses) associated with the Company's derivative financial instruments reclassified from accumulated other comprehensive income (loss) are recorded in operating expenses. See “Note 9- Derivative Financial Instruments” for additional information on the affected line items in the consolidated statements of operations.
Consolidated Statements of Cash Flows

	Year Ended		
	February 2, 2019	February 3, 2018	January 28, 2017
Supplemental cash flow information:			
Cash paid for interest	$39,156	$ 746	$ 363
Cash paid for income taxes, net	$8,143	$ 11,401	$ 17,032
Non-Cash Investing and Financing Activities:			
Non-cash consideration paid for the acquisition of Cavium	$3,331,342	$ —	$ —
Purchase of software and intellectual property under license obligations	$4,221	$ 59,803	$ 27,081
Unsettled trade receivable of available-for-sale securities	$—	$ —	$ 7,742
Unsettled trade payable of available-for-sale securities	$—	$ 4,497	$ 15,371
Unpaid purchase of property and equipment at end of year	$8,837	$ 5,595	$ 2,547
Unpaid repurchases of our common shares	$—	$ —	$ 1,499
Unpaid equity and debt financing costs	$—	$ 3,244	$ —

Note 8 — Investments

As of February 2, 2019, the Company has no investments on hand. As of February 3, 2018, the following table summarizes the Company’s investments (in thousands):

	February 3, 2018			
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
Short-term investments:				
Available-for-sale:				
U.S. government and agency debt	$248,336	$ 49	$ (644)	$247,741
Foreign government and agency debt	7,004	—	(17)	6,987
Municipal debt securities	2,734	—	(6)	2,728
Corporate debt securities	504,609	469	(1,999)	503,079
Asset backed securities	42,429	3	(177)	42,255
Held-to-Maturity:				
Time deposits	150,000	—	—	150,000
Total short-term investments	955,112	521	(2,843)	952,790
Total investments	$955,112	$ 521	$ (2,843)	$952,790

Short-term, highly liquid investments of $90.8 million and $267.6 million as of February 2, 2019 and February 3, 2018, respectively, included in cash and cash equivalents on the accompanying consolidated balance sheets are not included in the tables above because the gross unrealized gains and losses were immaterial as the carrying values approximate fair value because of the short term maturity of such investments.

MARVELL TECHNOLOGY GROUP LTD.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

Gross realized gains and gross realized losses on sales of available-for-sale securities are presented in the following table (in thousands):

	Year Ended		
	February 2, 2019	February 3, 2018	January 28, 2017
Gross realized gains	$371	$ 186	$ 2,047
Gross realized losses	(3,437)	(2,963)	(547)
Total net realized gains (losses)	$(3,066)	$ (2,777)	$ 1,500

There are no available-for-sale securities on hand at February 2, 2019. The contractual maturities of available-for-sale securities for the fiscal year ended February 3, 2018 are presented in the following table (in thousands):

	February 3, 2018	
	Amortized Cost	Estimated Fair Value
Due in one year or less	$554,247	$553,866
Due between one and five years	400,866	398,924
	$955,113	$952,790

There are no securities on hand at February 2, 2019. Securities that have been in a continuous unrealized loss position are presented as follows for the fiscal year ended February 3, 2018:

	February 3, 2018					
	Less than 12 months		12 months or more		Total	
	Fair Value	Unrealized Loss	Fair Value	Unrealized Loss	Fair Value	Unrealized Loss
U.S. government and agency debt	$148,538	$ (298)	$51,332	$ (346)	$199,870	$ (644)
Foreign government and agency debt	3,993	(1)	2,994	(16)	6,987	(17)
Municipal debt securities	1,969	(6)	—	—	1,969	(6)
Corporate debt securities	253,380	(1,514)	46,805	(485)	300,185	(1,999)
Asset backed securities	37,636	(145)	2,167	(32)	39,803	(177)
Total securities	$445,516	$ (1,964)	$103,298	$ (879)	$548,814	$ (2,843)

Note 9 — Derivative Financial Instruments

The Company manages some of its foreign currency exchange rate risk through the purchase of foreign currency exchange contracts that hedge against the short-term effect of currency fluctuations. The Company's policy is to enter into foreign currency forward contracts with maturities less than 12 months that mitigate the effect of rate fluctuations on certain local currency denominated operating expenses. All derivative instruments are recorded at fair value in either prepaid expenses and other current assets or accrued liabilities. The Company reports cash flows from derivative instruments in cash flows from operating activities. The Company uses quoted prices to value its derivative instruments. There were no outstanding forward contracts at the year ended February 2, 2019 and February 3, 2018.
Cash Flow Hedges. The Company designates and documents its foreign currency forward exchange contracts as cash flow hedges for certain operating expenses. The Company evaluates and calculates the effectiveness of each hedge at least quarterly. The effective change is recorded in accumulated other comprehensive income and is subsequently reclassified to operating expense when the hedged expense is recognized. Ineffectiveness is recorded in interest and other income, net.

MARVELL TECHNOLOGY GROUP LTD.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

The following table provides information about gains (losses) associated with our derivative financial instruments (in thousands):

	Location of Gains (Losses) in Statement of Operations	Amount of Gains (Losses) in Statement of Operations for the Year Ended		
		February 2, 2019	February 3, 2018	January 28, 2017
Derivatives designated as cash flow hedges:				
Forward contracts:	Research and development	$ —	$ 3,223	$ 737
	Selling, general and administrative	—	723	101
		$ —	$ 3,946	$ 838

The amounts of gains (losses) associated with the Company's derivative financial instruments reclassified from accumulated other comprehensive income (loss) are presented in the following table (in thousands):

Affected Line Item in the Statement of Operations	Year Ended		
	February 2, 2019	February 3, 2018	January 28, 2017
Operating costs and expenses:			
Cash flow hedges:			
Research and development	$ —	$ 2,564	$ 467
Selling, general and administrative	—	601	66
Total	$ —	$ 3,165	$ 533

The portion of gains (losses) excluded from the assessment of hedge effectiveness is included in interest and other income, net. These amounts were not material in fiscal 2019, 2018 and 2017. The Company did not have hedge ineffectiveness from derivative financial instruments in fiscal 2019, 2018 and 2017. No cash flow hedges were terminated as a result of forecasted transactions that did not occur.

Note 10 — Fair Value Measurements

Fair value is an exit price representing the amount that would be received in the sale of an asset or paid to transfer a liability in an orderly transaction between market participants. As such, fair value is a market-based measurement that should be determined based on assumptions that market participants would use in pricing an asset or a liability. As a basis for considering such assumptions, the accounting guidance establishes a three-tier value hierarchy, which prioritizes the inputs used in the valuation methodologies in measuring fair value:

Level 1 — Observable inputs that reflect quoted prices for identical assets or liabilities in active markets.
Level 2 — Other inputs that are directly or indirectly observable in the marketplace.
Level 3 — Unobservable inputs that are supported by little or no market activity.

The fair value hierarchy also requires an entity to maximize the use of observable inputs and minimize the use of unobservable inputs when measuring fair value.

The Company’s Level 1 assets include institutional money-market funds that are classified as cash equivalents and marketable investments in U.S. government and agency debt, which are valued primarily using quoted market prices. The Company’s Level 2 assets include its marketable investments in time deposits, corporate debt securities, foreign government and agency debt, municipal debt securities and asset backed securities as the market inputs used to value these instruments consist of market yields, reported trades and broker/dealer quotes, which are corroborated with observable market data. In addition, forward contracts, and the severance pay fund are classified as Level 2 assets as the valuation inputs are based on quoted prices and market observable data of similar instruments. The Company’s investments in auction rate securities were classified as Level 3 assets because there were no active markets for the auction rate securities and consequently the Company was unable to obtain independent valuations from market

sources. Therefore, the auction rate securities were valued using a discounted cash flow model. Some of the inputs to the discounted cash flow model are unobservable in the market.

MARVELL TECHNOLOGY GROUP LTD.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

The tables below set forth, by level, the Company's assets and liabilities that are measured at fair value on a recurring basis. The tables do not include assets and liabilities that are measured at historical cost or any basis other than fair value (in thousands):

	Fair Value Measurements at February 2, 2019			
	Level 1	Level 2	Level 3	Total
Items measured at fair value on a recurring basis:				
Assets				
Cash equivalents:				
Money market funds	$16,829	$—	$ —	$16,829
Time deposits	—	73,935	—	73,935
Other non-current assets:				
Severance pay fund	—	727	—	727
Total assets	$16,829	$74,662	$ —	$91,491

	Fair Value Measurements at February 3, 2018			
	Level 1	Level 2	Level 3	Total
Items measured at fair value on a recurring basis:				
Assets				
Cash equivalents:				
Money market funds	$18,503	$—	$ —	$18,503
Time deposits	—	65,117	—	65,117
U.S. government and agency debt	51,589	—	—	51,589
Municipal debt securities	—	5,290	—	5,290
Corporate debt securities	—	127,076	—	127,076
Short-term investments:				
Time deposits	—	150,000	—	150,000
U.S. government and agency debt	247,741	—	—	247,741
Foreign government and agency debt	—	6,987	—	6,987
Municipal debt securities	—	2,728	—	2,728
Corporate debt securities	—	503,079	—	503,079
Asset backed securities	—	42,255	—	42,255
Other non-current assets:				
Severance pay fund	—	896	—	896
Total assets	$317,833	$903,428	$ —	$1,221,261

Fair Value of Debt

The Company classified the Term Loan, the 2023 Notes and 2028 Notes under Level 2 of the fair value measurement hierarchy. The carrying value of the Term Loan approximates its fair value as the Term Loan is carried at a market observable interest rate that resets periodically. At February 2, 2019, the estimated aggregate fair value of the 2023 Notes and 2028 Notes was $997.3 million and were classified as Level 2 as there are quoted prices from less active markets for the notes.

MARVELL TECHNOLOGY GROUP LTD.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

The following table summarizes the change in fair values for Level 3 assets for the years ended February 2, 2019 and February 3, 2018 (in thousands):

	Level 3
Changes in fair value during the year (pre-tax):	
Balance at January 28, 2017	$4,615
Sales, redemption and settlement	(4,550)
Realized loss	(65)
Balance at February 3, 2018	—
Sales, redemption and settlement	—
Realized loss	—
Balance at February 2, 2019	$—

There were no transfers of assets between levels in either fiscal 2019 or 2018.

Note 11 — Goodwill and Acquired Intangible Assets, Net

Goodwill

Goodwill represents the excess of the purchase price over the fair value of the net tangible and identifiable intangible assets acquired in a business combination. The carrying value of goodwill as of February 2, 2019 and February 3, 2018 is $5.5 billion and $2.0 billion, respectively. The change in the carrying value of goodwill from February 3, 2018 to February 2, 2019 was due to the Cavium acquisition. See “Note 5 - Business Combination” for further discussion of the acquisition.

In connection with the restructuring plan the Company announced in November 2016 (see “Note 4 - Restructuring and Other Related Charges”), its Board of Directors approved a plan to sell certain businesses that are classified and reported in the consolidated statement of operations as discontinued operations. As a result, goodwill was allocated to these businesses based on relative fair value since each represents a portion of the Company’s reporting unit (see “Note 6 - Discontinued Operations”), and was eliminated upon divestiture in fiscal year 2018.

The Company has identified that its business operates as a single operating segment with two components that it has concluded can be aggregated into a single reporting unit. The Company’s annual test for goodwill impairment as of the last day of the fourth quarter of fiscal 2019 did not result in any impairment charge.

There was no activity from acquisitions or divestitures recorded to goodwill in fiscal 2019 and 2018 other than those described above.

MARVELL TECHNOLOGY GROUP LTD.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

Acquired Intangible Assets, Net
There had been no new acquired intangible assets in fiscal year 2018, and as of February 3, 2018, the gross value of acquired intangible assets was fully amortized. In connection with the Cavium acquisition on July 6, 2018, the Company acquired $2.7 billion of intangible assets. As of February 2, 2019, net carrying amounts are as follows (in thousands, except for weighted average remaining amortization period):

	February 2, 2019			
	Gross Carrying Amounts	Accumulated Amortization and Write-Offs	Net Carrying Amounts	Weighted average remaining amortization period (years)
Developed technologies	$1,743,000	$(134,167)	$1,608,833	7.10
Customer contracts and related relationships	465,000	(45,939)	419,061	8.42
Trade names	23,000	(3,212)	19,788	3.85
Total acquired amortizable intangible assets	$2,231,000	$(183,318)	$2,047,682	7.34
IPR&D	513,000	—	513,000	n/a
Total acquired intangible assets	$2,744,000	$(183,318)	$2,560,682	

The intangible assets are amortized on a straight-line basis over the estimated useful lives, except for customer contracts and related relationships, which are amortized using an accelerated method of amortization over the expected customer lives, which more accurately reflects the pattern of realization of economic benefits expected to be obtained. The IPR&D will be accounted for as an indefinite-lived intangible asset and will not be amortized until the underlying projects reach technological feasibility and commercial production at which point the IPR&D will be amortized over the estimated useful life. Useful lives for these IPR&D projects are expected to range between 4 to 9 years. In the event the IPR&D is abandoned the related assets will be written off.
Amortization and write-off expense for acquired intangible assets was $183.3 million, $3.6 million and $10.6 million during the years ended February 2, 2019, February 3, 2018 and January 28, 2017, respectively. The following table presents the estimated future amortization expense of acquired amortizable intangible assets as of February 2, 2019 (in thousands):

Fiscal Year	Amount
2020	$309,701
2021	301,580
2022	293,024
2023	285,596
2024	266,982
Thereafter	590,799
	$2,047,682

MARVELL TECHNOLOGY GROUP LTD.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

Note 12 — Debt
On July 6, 2018, the Company completed its acquisition of Cavium. In connection with the acquisition (see "Note 5 - Business Combination"), the Company executed debt agreements in June 2018 to obtain a $900 million term loan, a $500 million revolving credit facility and $1.0 billion of senior unsecured notes, for $16.7 million debt issuance costs. Upon completion of the offering of the senior unsecured notes in June 2018, the Company terminated an $850 million bridge loan commitment. This bridge loan commitment was provided by the underwriting bankers at the time the Merger Agreement was executed in November 2017. The bridge loan was never drawn upon.
Term Loan and Revolving Credit Facility
On June 13, 2018, the Company entered into a credit agreement (“Credit Agreement”) with certain lenders and Goldman Sachs Bank USA, as the general administrative agent and the term facility agent, and Bank of America, N.A., as the revolving facility agent. The Credit Agreement provides for borrowings of: (i) up to $500 million in the form of a revolving line of credit (“Revolving Credit Facility”) and (ii) $900 million in the form of a term loan (“Term Loan”). The proceeds of the Term Loan were used to fund a portion of the cash consideration for the Cavium acquisition, repay Cavium’s debt, and pay transaction expenses in connection with the Cavium acquisition. The proceeds of the Revolving Credit Facility is intended for general corporate purposes of the Company and its subsidiaries, which may include, among other things, the financing of acquisitions, the refinancing of other indebtedness and the payment of transaction expenses related to the foregoing. As of February 2, 2019, the Revolving Credit Facility has not been drawn upon. Following is further detail of the terms of the various debt agreements.
The Term Loan has a three year term which matures on July 6, 2021 and has a stated floating interest rate which resets on a monthly basis and which equates to reserve-adjusted LIBOR + 137.5 bps as of February 2, 2019. The effective interest rate for the Term Loan was 4.341% as of February 2, 2019. The Term Loan does not require any scheduled principal payments prior to final maturity but does permit the Company to make early principal payments without premium or penalty. During the year ended February 2, 2019, the Company repaid $150 million of the principal outstanding, and wrote off $1.6 million of associated unamortized debt issuance costs. The Revolving Credit Facility has a five year term and has a stated floating interest rate which equates to reserve-adjusted LIBOR + 150.0 bps. As of February 2, 2019, the full amount of the Revolving Credit Facility of $500 million was undrawn and will be available for draw down through June 13, 2023. An unused commitment fee is payable quarterly based on unused balances at a rate that is based on the ratings of the Company's senior unsecured long-term indebtedness. This rate was initially 0.175% per year.
The Credit Agreement is unsecured and requires that the Company and its subsidiaries comply, subject to certain exceptions, with covenants relating to customary matters such as creating or permitting certain liens, entering into sale and leaseback transactions, consolidating, merging, liquidating or dissolving, and entering into restrictive agreements. It also prohibits subsidiaries of the Company from incurring additional indebtedness, and requires the Company to comply with a leverage ratio financial covenant not to exceed 3 to 1 as of the end of any fiscal quarter. As of February 2, 2019, the Company was in compliance with all of its debt covenants.
Senior Unsecured Notes
On June 22, 2018, the Company completed a public offering of (i)$500.0 million aggregate principal amount of the Company's 4.200% Senior Notes due 2023 (the “2023 Notes”) and (ii) $500.0 million aggregate principal amount of the Company's 4.875% Senior Notes due 2028 (the “2028 Notes” and, together with the 2023 Notes, the "Senior Notes”). The 2023 Notes mature on June 22, 2023 and the 2028 Notes mature on June 22, 2028. The stated and effective interest rates for the 2023 Notes are 4.200% and 4.423%, respectively. The stated and effective interest rates for the 2028 Notes are 4.875% and 5.012%, respectively. The Company may redeem the Senior Notes, in whole or in part, at any time prior to their maturity at the redemption prices set forth in Senior Notes. In addition, upon the occurrence of a change of control repurchase event (which involves the occurrence of both a change of control and a ratings event involving the Senior Notes being rated below investment grade), the Company will be required to make an offer to repurchase the Senior Notes at a price equal to 101% of the principal amount of the notes, plus accrued and unpaid interest to, but excluding, the repurchase date. The indenture governing the Senior Notes also contains certain limited

covenants restricting the Company’s ability to incur certain liens, enter into certain sale and leaseback transactions and merge or consolidate with any other entity or convey, transfer or lease all or substantially all of the Company’s properties or assets to another person, which, in each case, are subject to certain qualifications and exceptions.

MARVELL TECHNOLOGY GROUP LTD.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

Summary of Borrowings and Outstanding Debt

The following table summarizes the Company's outstanding debt at February 2, 2019 (in thousands):

	February 2, 2019
Face Value Outstanding:	
Term Loan	$750,000
2023 Notes	500,000
2028 Notes	500,000
Total borrowings	$1,750,000
Less: Unamortized debt discount and issuance cost	(17,301)
Net carrying amount of debt	$1,732,699
Less: Current portion	—
Non-current portion	$1,732,699

During the year ended February 2, 2019, the Company recognized $50.1 million of interest expense in its consolidated statements of operations related to interest, amortization of debt issuance costs and accretion of discount associated with the outstanding Term Loan and Senior Notes.
As of February 2, 2019, the aggregate future contractual maturities of the Company's outstanding debt, at face value, were as follows (in thousands):

Fiscal year	Amount
2020	$—
2021	$—
2022	$750,000
2023	$—
2024	$500,000
Thereafter	$500,000

Repayment of Debt and Termination of Credit Facility of Cavium
On July 6, 2018, concurrent with completing the acquisition of Cavium as further described in “Note 5 - Business Combination,” the Company assumed and paid all of Cavium's outstanding debt and accrued interest of $606.6 million. Cavium's debt was governed under a credit agreement dated August 16, 2016, which was terminated following the repayment.

Note 13 — Commitments and Contingencies
Warranty Obligations
The Company’s products carry a standard one-year warranty with certain exceptions in which the warranty period can extend to more than one year based on contractual agreements. The Company’s warranty expense has not been significant in the periods presented.

MARVELL TECHNOLOGY GROUP LTD.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

Lease Commitments

The Company leases some of its facilities, equipment and computer aided design software under non-cancelable operating leases. Rent expense, net of sublease income for fiscal 2019, 2018, and 2017 was approximately $59.3 million, $16.8 million and $23.7 million, respectively. The Company also purchases certain intellectual property under technology license obligations. Future minimum lease payments, net of estimated sublease income, and payments under technology license obligations as of February 2, 2019, are presented in the following tables (in thousands):

Fiscal Year	Minimum Operating Lease Payments
2020	$ 43,286
2021	29,866
2022	26,612
2023	21,272
2024	13,690
Thereafter	40,100
Total future minimum lease payments	$ 174,826

Fiscal Year	Technology License Obligations
2020	$ 54,846
2021	7,829
Total future minimum lease payments	$ 62,675
Less: amount representing interest	(955)
Present value of future minimum payments	61,720
Less: current portion	(54,005)
Non-current portion	$ 7,715

Technology license obligations include the liabilities under agreements for technology licenses between the Company and various vendors.

Purchase Commitments

Under the Company’s manufacturing relationships with its foundry partners, cancellation of all outstanding purchase orders is allowed but requires payment of all costs and expenses incurred through the date of cancellation. As of February 2, 2019, these foundries had incurred approximately $103.7 million of manufacturing costs and expenses relating to the Company’s outstanding purchase orders.

Contingencies

The Company may from time to time be a party to claims, lawsuits, governmental inquiries, inspections or investigations, and other legal proceedings (collectively, “Legal Matters”) arising in the course of its business. Such Legal Matters, even if not meritorious, could result in the expenditure of significant financial and managerial resources. The Company is currently unable to predict the final outcome of its Legal Matters and therefore cannot determine the likelihood of loss or estimate a range of possible loss, except with respect to amounts where it has determined a loss is both probable and estimable and has made an accrual. The Company evaluates, at least on a quarterly basis, developments in its Legal Matters that could affect the amount of any accrual, as well as any developments that would result in a loss contingency to become both probable and reasonably estimable. The ultimate outcome of any Legal Matter involves judgments, estimates and inherent uncertainties. An unfavorable outcome in a Legal Matter, particularly in a patent dispute, could require the Company to pay damages or could prevent the Company from selling some of its products in certain jurisdictions. While the Company cannot predict with certainty the results of the Legal Matters in which it is currently involved, the Company does not expect that the ultimate costs

to resolve these Legal Matters will individually or in the aggregate have a material adverse effect on its financial condition, however, there can be no assurance that the current or any future Legal Matters will be resolved in a manner that is not adverse to the Company’s business, financial condition, results of operations or cash flows.

MARVELL TECHNOLOGY GROUP LTD.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

Luna Litigation and Consolidated Cases

On September 11, 2015, Daniel Luna filed an action asserting putative class action claims on behalf of the Company's shareholders in the United States District Court for the Southern District of New York. This action was consolidated with two additional, nearly identical complaints subsequently filed by Philip Limbacher and Jim Farno. On December 21, 2017, a settlement agreement was preliminarily approved by the court, and a $72.5 million payment was made to the Marvell Settlement Fund account on January 22, 2018. The settlement amount plus associated legal fees totaling $74.4 million is included in "Litigation settlement" in the accompanying consolidated statement of operations for the fiscal year ended February 3, 2018.

Indemnities, Commitments and Guarantees

During its normal course of business, the Company has made certain indemnities, commitments and guarantees under which it may be required to make payments in relation to certain transactions. These indemnities may include indemnities for general commercial obligations, indemnities to various lessors in connection with facility leases for certain claims arising from such facility or lease, and indemnities to directors and officers of the Company to the maximum extent permitted under the laws of Bermuda. In addition, the Company has contractual commitments to various customers, which could require the Company to incur costs to repair an epidemic defect with respect to its products outside of the normal warranty period if such defect were to occur. The duration of these indemnities, commitments and guarantees varies, and in certain cases, is indefinite. Some of these indemnities, commitments and guarantees do not provide for any limitation of the maximum potential future payments that the Company could be obligated to make. In general, the Company does not record any liability for these indemnities, commitments and guarantees in the accompanying consolidated balance sheets as the amounts cannot be reasonably estimated and are not considered probable. The Company does, however, accrue for losses for any known contingent liability, including those that may arise from indemnification provisions, when future payment is probable.

Intellectual Property Indemnification

In addition to the above indemnities, the Company has agreed to indemnify certain customers for claims made against the Company's products where such claims allege infringement of third-party intellectual property rights, including, but not limited to, patents, registered trademarks, and/or copyrights. Under the aforementioned indemnification clauses, the Company may be obligated to defend the customer and pay for the damages awarded against the customer as well as the attorneys' fees and costs under an infringement claim. The Company's indemnification obligations generally do not expire after termination or expiration of the agreement containing the indemnification obligation. Generally, there are limits on and exceptions to the Company's potential liability for indemnification. Although historically the Company has not made significant payments under these indemnification obligations, the Company cannot estimate the amount of potential future payments, if any, that it might be required to make as a result of these agreements. The maximum potential amount of any future payments that the Company could be required to make under these indemnification obligations could be significant.

Note 14 — Shareholders' Equity

Preferred and Common Stock

Under the terms of the Company's Articles of Association, the Board of Directors may determine the rights, preferences, and terms of the Company's authorized but unissued shares of preferred stock.

As of February 2, 2019, the Company is authorized to issue 8.0 million shares of $0.002 par value preferred stock and 992.0 million shares of $0.002 par value common stock. As of February 2, 2019 and February 3, 2018, no shares of preferred stock were outstanding.

Restricted Stock Unit Withholdings

For the years ended February 2, 2019 and February 3, 2018, the Company withheld approximately 2.7 million and 1.7 million shares, or $54.9 million and $26.8 million, of common stock, respectively, in settlement of employee tax

withholding obligations due upon the vesting of restricted stock.

Cash Dividends on Shares of Common Stock

During fiscal 2019, the Company declared and paid cash dividends of $0.24 per common share, or $148.1 million, on the Company’s outstanding common stock. During fiscal 2018, the Company declared and paid cash dividends of $0.24 per common share, or $119.3 million, on the Company’s outstanding common stock.

Any future dividends will be subject to the approval of the Company's Board of Directors.

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On March 14, 2019, the Company announced that its board of directors declared a cash dividend of $0.06 per share payable on April 24, 2019 to shareholders of record as of April 3, 2019.

Stock Repurchase Program

On November 17, 2016, the Company announced that its Board of Directors authorized a $1.0 billion share repurchase plan. The newly authorized stock repurchase program replaced in its entirety the prior $3.25 billion stock repurchase program. On October 16, 2018, the Company announced that its Board of Directors authorized a $700 million addition to the balance of its existing share repurchase plan. The Company intends to effect share repurchases in accordance with the conditions of Rule 10b-18 under the Exchange Act, but may also make repurchases in the open market outside of Rule 10b-18 or in privately negotiated transactions. The share repurchase program will be subject to market conditions and other factors, and does not obligate the Company to repurchase any dollar amount or number of its common shares and the repurchase program may be extended, modified, suspended or discontinued at any time.

The Company repurchased 6.0 million of its common shares for $104.0 million, 31.5 million of its common shares for $526.1 million, and 13.3 million of its common shares for $183.1 million in cash during fiscal 2019, 2018 and 2017, respectively. The repurchased shares were retired immediately after the repurchases were completed. The Company records all repurchases, as well as investment purchases and sales, based on their trade date. As of February 2, 2019, a total of 292.4 million shares have been repurchased to date under the Company's share repurchase program for a total $3.9 billion in cash and there was $954.0 million remaining available for future share repurchases.

Subsequent to the year ended February 2, 2019 through March 21, 2019, the Company purchased an additional 0.8 million of its common shares for $16.5 million at an average price per share of $19.85.

A summary of the stock repurchase activity under the stock repurchase program, reported based on the trade date, is summarized as follows (in thousands, except per-share amounts):

	Shares Repurchased	Weighted-Average Price per Share	Amount Repurchased
Cumulative balance at January 30, 2016	241,602	$ 12.70	$ 3,067,418
Repurchase of common stock under the stock repurchase program (1)	13,303	$ 13.76	183,064
Cumulative balance at January 28, 2017	254,904	$ 12.75	3,250,481
Repurchase of common stock under the stock repurchase program (2)	31,460	$ 16.72	526,075
Cumulative balance at February 3, 2018	286,365	$ 13.19	3,776,557
Repurchase of common stock under the stock repurchase program (3)	6,041	$ 17.21	103,974
Cumulative balance at February 2, 2019	292,406	$ 13.27	$ 3,880,531

(1) Includes stock purchases of $1.5 million stock repurchases pending settlement as of January 28, 2017.
(2) There were no stock repurchases pending settlement as of February 3, 2018.
(3) There were no stock repurchases pending settlement as of February 2, 2019.

Note 15 — Employee Benefit Plans

Employee Stock Compensation Plans

1995 Stock Option Plan

In April 1995, the Company adopted the 1995 Stock Option Plan (the "Option Plan"). The Option Plan, as amended from time to time, had 383.4 million common shares reserved for issuance thereunder as of February 2, 2019. Options granted under the Option Plan generally have a term of 10 years and generally must be issued at prices equal to the fair market value of the stock on the date of grant. The Company can also grant stock awards, which may be subject to vesting. Further, the Company can grant restricted stock unit ("RSU") awards. RSU awards are denominated in shares of stock, but may be settled in cash or shares upon vesting, as determined by the Company at the time of grant. Awards under the Option Plan generally vest over 2 to 5 years.

As of February 2, 2019, approximately 90.1 million shares remained available for future grants under the Option Plan.

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Equity awards granted under the Option Plan include time-based RSUs and also RSU's that vest based on the achievement of performance-based criteria including Company financial goals ("Financial Performance RSU") or relative total shareholder return ("TSR RSUs").
The Company has granted Financial Performance RSUs to each of its executive officers when they joined the Company, and as an annual refresh grant to all executive officers and other Vice Presidents in April of each fiscal year. The Financial Performance RSUs have a three year service requirement. The number of shares to be earned can be 0% to 200% of target and is based on the achievement of certain financial operating metrics to be measured as of the end of the second fiscal year of the three year vesting term. Shares granted under these Financial Performance RSUs are reported in the table presented below as "Performance-Based" based on 100% expected achievement.
In addition, the Company has also granted TSR RSUs to its executive officers when they joined the Company, and as an annual refresh grant to all executive officers and other Vice Presidents, usually in April of each fiscal year. The number of shares to be earned can be 0% to 150% of target and is based on the achievement of performance objectives relating to relative total shareholder return of the Company's common shares as compared to that of companies on the Philadelphia Semiconductor Sector Index over a performance period defined in the award. The TSR RSUs have a three year service requirement. These TSR RSUs are reported in the table presented below as "Market-Based" awards based on 100% expected achievement.
In December 2017, the Company's Executive Compensation Committee approved a deferred stock program, whereby executives of the Company have the option, beginning in 2018, to defer the settlement of time-based and performance-based restricted stock units granted under the Option Plan to a future date. A deferral election is irrevocable after the annual submission deadline. The shares of common stock underlying the deferred grants will be distributed at the earliest of the employee's specified future settlement date, not to be earlier than 2023, or upon separation from service, a change in control, or death or disability. As of February 2, 2019, no executives had elected deferral.
Cavium Acquisition
Following the Cavium acquisition and in accordance with the Cavium merger agreement, certain outstanding options to purchase shares of Cavium common stock and certain restricted stock units with respect to Cavium common stock, each granted under Cavium 2016 Equity Incentive Plan ("Cavium 2016 EIP"), Cavium 2007 Equity Incentive Plan ("Cavium 2007 EIP") and QLogic 2005 Performance Incentive Plan, as assumed by Cavium effective August 16, 2016 ("QLogic 2005 Plan"), (and collectively, with the Cavium 2016 EIP and the Cavium 2007 EIP, the "Cavium Plans"), were assumed by the Company and converted into options to purchase common shares of the Company and restricted stock units with respect to common shares of the Company, respectively. The Company filed a registration statement on July 6, 2018 to register 15,824,555 common shares of the Company, issuable under the Cavium Plans, comprised of 2,535,940 common shares issuable pursuant to outstanding but unexercised options under the Cavium Plans and 13,288,615 common shares issuable pursuant to outstanding unvested restricted stock units under the Cavium Plans.
Cavium 2016 EIP
The Cavium 2016 EIP was adopted by Cavium on June 15, 2016 and was intended as the successor to and continuation of Cavium 2007 EIP. The Cavium 2016 EIP provided for the grant of incentive stock options, non-statutory stock options, stock appreciation rights, restricted stock awards, restricted stock unit awards, performance stock awards, performance cash awards and other stock awards, which may be granted to employees, directors and consultants. Awards under the Cavium 2016 EIP generally vest over four years and expire seven to ten years from the date of grant. Following the effective date, no additional awards were granted under the Cavium 2007 EIP.
Cavium 2007 EIP
Cavium adopted the Cavium 2007 EIP in May 2007 upon completion of its initial public offering. The Cavium 2007 EIP provided for the grant of incentive stock options, non-statutory stock options, restricted stock awards, restricted stock unit awards, stock appreciation rights, performance stock awards, and other forms of equity compensation and

performance cash awards, all of which may be granted to employees (including officers), directors, and consultants or affiliates. Awards granted under the Cavium 2007 EIP vest at the rate specified by the plan administrator, for stock options, typically with 1/8th of the shares vesting six months after the date of grant and 1/48th of the shares vesting monthly thereafter over the next three and one half years and for restricted stock unit awards typically with quarterly vesting over four years. Awards expire seven to ten years from the date of grant.
QLogic 2005 Plan
The QLogic 2005 Plan was assumed and registered by Cavium upon its completion of acquisition of QLogic Corporation on August 16, 2016. The QLogic 2005 Plan provided for the issuance of restricted stock unit awards, incentive and non-qualified stock options, and other stock-based incentive awards. Restricted stock unit awards granted pursuant to the QLogic

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2005 Plan to employees subject to a service condition generally vest over four years from the date of grant. Stock options granted pursuant to the QLogic 2005 Plan to employees have ten-year terms and generally vest over four years from the date of grant.

Cavium Acquisition-related Equity Awards

The awards under the Cavium Plans assumed by the Company in the Cavium acquisition were measured at the acquisition date based on the estimated fair value of $357.1 million. A portion of that fair value, $68.9 million, which represented the pre-acquisition service provided by employees to Cavium, was included in the total consideration transferred as part of the acquisition. As of the acquisition date, the remaining portion of the fair value of those awards was $288.2 million, representing post-acquisition share-based compensation expense that will be recognized as these employees provide service over the remaining vesting periods.

Outside Director Equity Compensation Policy

In September 2016, the Company's Board of Directors approved the termination of the 2007 Directors' Stock Incentive Plan, ("2007 Director Plan") that was initially adopted in October 2007, and it approved a new Outside Director Equity Compensation Policy that governs the grant of equity awards to non-employee directors under the Option Plan. At the annual general meeting of shareholders held in June 2015, the shareholders approved an amendment to the Option Plan to enable a full range of awards to be granted to non-employee directors. Under the newly adopted Outside Director Compensation Policy, each outside director, upon appointment to fill a vacancy on the board or in connection with election at an annual meeting of shareholders, will be granted an RSU award under the Option Plan for a number of shares with an aggregate fair market value equal to $220,000 on the grant date. In no event shall an outside director be awarded an annual RSU award for more than 20,000 shares. The RSU award vests 100% on the earlier of the date of the next annual general meeting of shareholders or the one-year anniversary of the date of grant.

Employee Stock Purchase Plan

Under the 2000 Employee Stock Purchase Plan, as amended and restated on October 31, 2011 (the "ESPP"), participants purchase the Company's stock using payroll deductions, which may not exceed 15% of their total cash compensation. Pursuant to the terms of the current ESPP, the "look-back" period for the stock purchase price is 24 months. Offering and purchase periods begin on December 8 and June 8 of each year. Participants enrolled in a 24-month offering period will continue in that offering period until the earlier of the end of the offering period or the reset of the offering period. A reset occurs if the fair market value of the Company's common shares on any purchase date is less than it was on the first day of the offering period. Participants in a 24-month offering period will be granted the right to purchase common shares at a price per share that is 85% of the lesser of the fair market value of the shares at (i) the participant's entry date into the two-year offering period or (ii) the end of each six-month purchase period within the offering period.

Under the ESPP, a total of 3.2 million shares were issued in fiscal 2019 at a weighted-average price of $15.08 per share, a total of 7.0 million shares were issued in fiscal 2018 at a weighted-average price of $7.49 per share, and a total of 2.3 million shares were issued in fiscal 2017 at a weighted-average price of $7.33 per share. As of February 2, 2019, there was $53.1 million of unamortized compensation cost related to the ESPP.

As of February 2, 2019, approximately 26.7 million shares remained available for future issuance under the ESPP.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

Summary of Share-Based Compensation Expense

The following table summarizes share-based compensation expense (in thousands):

	Year Ended		
	February 2, 2019	February 3, 2018	January 28, 2017
Continuing operations:			
Cost of goods sold	$ 12,024	$ 6,646	$ 8,334
Research and development	108,762	52,127	74,809
Selling, general and administrative	77,309	26,349	18,257
Share-based compensation - continuing operations	$ 198,095	$ 85,122	$ 101,400
Discontinued operations:			
Cost of goods sold	—	(11)	187
Research and development	—	1,458	11,633
Selling, general and administrative	—	120	750
Share-based compensation - discontinued operations	—	1,567	12,570
Total share-based compensation	$ 198,095	$ 86,689	$ 113,970

Share-based compensation capitalized in inventory was $2.8 million at February 2, 2019, $1.3 million at February 3, 2018 and $0.9 million at January 28, 2017.

Upon the termination of certain members of our executive management in April 2016, it was determined that the vesting in certain of their unvested stock awards was no longer probable. As a result, the Company recorded a reversal of the previously recognized related share-based compensation expense in fiscal 2017 of $2.4 million.

Restricted Stock and Stock Unit Awards

A summary of restricted stock unit activity, which includes time-based and performance-based or market-based restricted stock units, is as follows (in thousands, except per-share amounts):

	Time-Based		Performance-Based		Market-Based		Total	
	Number of Shares	Weighted Average Grant Date Fair Value	Number of Shares	Weighted Average Grant Date Fair Value	Number of Shares	Weighted Average Grant Date Fair Value	Number of Shares	Weighted Average Grant Date Fair Value
Balance at January 30, 2016	8,343	$ 13.57	977	$ 14.43	353	$ 12.24	9,673	$ 13.61
Granted	9,139	$ 9.83	366 *	$ 13.91	612 *	$ 11.94	10,117	$ 10.11
Vested	(5,490)	$ 13.95	(155)	$ 14.15	—	$ —	(5,645)	$ 13.95
Canceled/Forfeited	(2,067)	$ 10.69	(875)	$ 14.45	(406)	$ 12.39	(3,348)	$ 11.88
Balance at January 28, 2017	9,925	$ 10.52	313	$ 13.91	559	$ 11.80	10,797	$ 10.69
Granted	8,154	$ 15.33	406 *	$ 14.49	409 *	$ 15.14	8,969	$ 15.28
Vested	(5,653)	$ 10.86	—	$ —	—	$ —	(5,653)	$ 10.86
Canceled/Forfeited	(2,137)	$ 11.95	(47)	$ 13.99	(47)	$ 14.71	(2,231)	$ 12.05
Balance at February 3, 2018	10,289	$ 13.84	672	$ 14.25	921	$ 13.14	11,882	$ 13.81
Assumed upon acquisition	13,289	$ 21.02	—	$ —	—	$ —	13,289	$ 21.02
Granted	7,453	$ 19.95	340 *	$ 21.12	351 *	$ 21.36	8,144	$ 20.06
Vested	(8,827)	$ 16.30	—	$ —	(30)	$ 13.08	(8,857)	$ 16.28
Canceled/Forfeited	(3,159)	$ 19.64	(64)	$ 16.29	(64)	$ 16.52	(3,287)	$ 19.51
Balance at February 2, 2019	19,045	$ 19.15	948	$ 16.58	1,178	$ 15.40	21,171	$ 18.82

* Amounts represent the target number of restricted stock units at grant date. For awards granted to our executive officers, up to 200% of the target restricted stock units may vest if the maximum level for performance goals is achieved.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

The aggregate intrinsic value of restricted stock units expected to vest as of February 2, 2019 was $389.8 million. The number of restricted stock units that are expected to vest is 21.2 million shares. The Company's closing stock price of $18.41 as reported on the NASDAQ Global Select Market as of February 2, 2019 was used to calculate the aggregate intrinsic value for the restricted stock units.

As of February 2, 2019, unamortized compensation expense related to restricted stock units was $322.5 million. The unamortized compensation expense for restricted stock units will be amortized on a straight-line basis and is expected to be recognized over a weighted-average period of 2.1 years

Stock Option Awards

Option Plan and Stock Award Activity

Stock option activity under the Company's stock option and stock incentive plans is included in the following table (in thousands, except for per share amounts):

	Time-Based Options		Market-Based Options		Total	
	Number of Shares	Weighted Average Exercise Price	Number of Shares	Weighted Average Exercise Price	Number of Shares	Weighted Average Exercise Price
Balance at January 30, 2016	40,874	$ 13.59	2,156	$ 15.43	43,030	$ 13.68
Granted	2,104	$ 9.99	—	$ —	2,104	$ 9.99
Exercised	(5,558)	$ 10.35	—	$ —	(5,558)	$ 10.35
Canceled/Forfeited	(12,324)	$ 16.44	(2,156)	$ 15.43	(14,480)	$ 16.29
Balance at January 28, 2017	25,096	$ 12.61	—	$ —	25,096	$ 12.61
Granted	—	$ —	—	$ —	—	$ —
Exercised	(10,305)	$ 12.38	—	$ —	(10,305)	$ 12.38
Canceled/Forfeited	(3,019)	$ 14.33	—	$ —	(3,019)	$ 14.33
Balance at February 3, 2018	11,772	$ 12.36	—	$ —	11,772	$ 12.36
Assumed Upon Acquisition	3,026	$ 11.85		$ —	3,026	$ 11.85
Granted	—	$ —	—	$ —	—	$ —
Exercised	(4,812)	$ 10.93	—	$ —	(4,812)	$ 10.93
Canceled/Forfeited	(362)	$ 13.64	—	$ —	(362)	$ 13.64
Balance at February 2, 2019	9,624	$ 12.87	—	$ —	9,624	$ 12.87
Vested or expected to vest at February 2, 2019	9,624					

For stock options vested and expected to vest at February 2, 2019, the aggregate intrinsic value was $53.7 million. For stock options exercisable at February 2, 2019, the aggregate intrinsic value was $47.8 million. The aggregate intrinsic value of stock options exercised during fiscal 2019, 2018 and 2017 was $40.6 million, $57.0 million and $19.8 million, respectively. The Company's closing stock price of $18.41 as reported on the NASDAQ Global Select Market as of February 2, 2019 was used to calculate the aggregate intrinsic value for all in-the-money options.

Outstanding options and exercisable options information by range of exercise prices as of February 2, 2019 was as follows:

Range of Exercise Prices		Outstanding Options			Exercisable Options	
		Number of Shares (in Thousands)	Weighted Average Remaining Contractual Term (in Years)	Weighted Average Exercise Price	Number of Shares (in Thousands)	Weighted Average Exercise Price
$8.23	$10.47	1,510	4.67	$ 9.48	1,285	$ 9.45
$10.76	$10.76	2,676	4.22	$ 10.76	2,674	$ 10.76

$10.80	$14.35	2,540	5.62	$	13.64	1,616	$ 13.29
$14.45	$15.87	2,348	4.45	$	15.51	2,336	$ 15.51
$15.91	$22.27	550	3.25	$	17.55	516	$ 17.59
Total		9,624	4.66	$	12.87	8,427	$ 12.78

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As of February 2, 2019, the unamortized compensation expense for stock options was $1.0 million. The unamortized compensation expense for options will be amortized on a straight-line basis and is expected to be recognized over a weighted-average period of 0.31 years

Valuation of Employee Share-Based Awards

The expected volatility for awards granted during fiscal 2019, 2018 and 2017 was based on an equally weighted combination of historical stock price volatility and implied volatility derived from traded options on the Company's stock in the marketplace. The Company believes that the combination of historical volatility and implied volatility provides a better estimate of future stock price volatility.

The expected dividend yield is calculated by dividing the current annualized dividend by the closing stock price on the date of grant of the option.

There were no options granted in fiscal 2019 and fiscal 2018.

The following weighted average assumptions were used for fiscal 2017 to calculate the fair value of each time-based stock option award on the date of grant using the Black-Scholes option pricing model:

	Year Ended January 28, 2017
Time-based Stock Options:	
Weighted average fair value	$ 2.92
Expected volatility	40 %
Expected term (in years)	5.2
Risk-free interest rate	1.3 %
Expected dividend yield	2.5 %

The following weighted-average assumptions were used for each respective period to calculate the fair value of common shares to be issued under the ESPP on the date of grant using the Black-Scholes option pricing model:

	Year Ended		
	February 2, 2019	February 3, 2018	January 28, 2017
Employee Stock Purchase Plan:			
Estimated fair value	$4.91	$ 6.03	$ 3.83
Expected volatility	33 %	30 %	39 %
Expected term (in years)	1.2	1.2	1.2
Risk-free interest rate	2.6 %	1.6 %	0.7 %
Expected dividend yield	1.4 %	1.1 %	1.9 %

The following weighted-average assumptions were used for each respective period to calculate the fair value of common shares to be issued under Total Shareholder Return performance awards on the date of grant using the Monte Carlo pricing model:

	Year Ended		
	February 2, 2019	February 3, 2018	January 28, 2017
Total Shareholder Return Awards:			
Expected term (in years)	2.9	2.9	2.9
Expected volatility	35 %	35 %	36 %
Average correlation coefficient of peer companies	0.5	0.5	0.5
Risk-free interest rate	2.5%	1.4 %	0.9 %
Expected dividend yield	1.1%	1.6 %	2.1 %

The correlation coefficients are calculated based upon the price data used to calculate the historical volatilities and is used to model the way in which each entity tends to move in relation to its peers.

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Employee 401(k) Plans

The Company sponsors a 401(k) savings and investment plan that allows eligible U.S. employees to participate by making pre-tax contributions to the 401(k) plan ranging from 1% to 50% of eligible earnings subject to a required annual limit. The Company currently matches 100% of the first 4% of the employee's contribution and 50% of the next 2%, up to a $4,000 maximum contribution effective from January 1, 2018. The Company made matching contributions to employees of $8.6 million in fiscal 2019, $4.6 million in fiscal 2018 and $4.5 million in fiscal 2017. As of February 2, 2019, the 401(k) plan offers a variety of investment alternatives, representing different asset classes. Employees may not invest in the Company's common shares through the 401(k) plan.

The Company also has voluntary defined contribution plans in various non-U.S. locations. In connection with these plans, the Company made contributions on behalf of employees totaling $16.8 million, $12.3 million and $11.8 million during fiscal 2019, 2018 and 2017, respectively.

Note 16 — Income Taxes

The U.S. and non-U.S. components of income (loss) before income taxes of continuing operations consist of the following (in thousands):

	Year Ended		
	February 2, 2019	February 3, 2018	January 28, 2017
U.S. operations	$666,508	$ 24,377	$ 30,601
Non-U.S. operations	(671,155)	426,827	116,828
	$(4,647)	$ 451,204	$ 147,429

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The provision (benefit) for income taxes consists of the following (in thousands):

	Year Ended		
	February 2, 2019	February 3, 2018	January 28, 2017
Current income tax provision (benefit):			
Federal	$46,519	$ 776	$ 8,231
State	5,959	2	180
Foreign	3,322	(2,541)	19,560
Total current income tax provision (benefit)	55,800	(1,763)	27,971
Deferred income tax provision (benefit):			
Federal	134,336	10,136	(5,062)
State	(6,567)	83	(12)
Foreign	(9,122)	9,606	49,711
Total deferred income tax provision (benefit)	118,647	19,825	44,637
Total provision (benefit) for income taxes	$174,447	$ 18,062	$ 72,608

Deferred tax assets consist of the following (in thousands):

	February 2, 2019	February 3, 2018
Deferred tax assets:		
Federal and California research and other tax credits	$557,333	$607,726
Reserves and accruals	18,404	16,951
Share-based compensation	4,715	2,493
Net operating losses	134,598	11,816
Gross deferred tax assets	715,050	638,986
Valuation allowance	(597,829)	(618,353)
Total deferred tax assets	117,221	20,633
Total deferred tax liabilities	(351,013)	(52,204)
Net deferred tax assets (liabilities)	$(233,792)	$(31,571)

The deferred tax assets and liabilities based on tax jurisdictions are presented on our Consolidated Balance Sheet as follows:

	February 2, 2019	February 3, 2018
Non-current deferred tax assets	$12,460	$ 20,633
Non-current deferred tax liabilities	(246,252)	(52,204)
Net deferred tax assets (liabilities)	$(233,792)	$(31,571)

As of February 2, 2019, the Company recorded a valuation allowance of $597.8 million which is a decrease of $20.5 million from fiscal 2018. The Company provided a full valuation allowance against its federal and various state research and other tax credits which it generates in excess of its current year tax liabilities, as well as a portion against its net operating loss carryforwards in the U.S. federal and California jurisdictions. Based on the available objectively verifiable positive and negative evidence, the Company determined that it is more likely than not that these research and other tax credits and a limited amount of net operating losses will not be realized in the future. The Company also provided a valuation allowance against the deferred tax assets of a portion of its operations in Israel, which has cumulative losses in recent years and is not projecting sufficient future taxable income to realize the benefit of its deferred tax assets.

As of February 2, 2019, the Company had net operating loss carryforwards available to offset future taxable income of approximately $634.5 million, $445.9 million and $83.6 million for U.S. federal, state of California and foreign purposes, respectively. The federal carryforwards will begin to expire in fiscal year 2022, and the California carryforwards will begin to expire in fiscal year 2020, if not utilized before these years. The majority of the Company's foreign losses carry forward indefinitely. The Company also had federal research and other tax credit carryforwards of approximately $263.3 million which expire through fiscal 2039. As of February 2, 2019, the Company also had California research tax credit carryforwards of approximately $314.9 million, which can be carried forward indefinitely. The Company also has research and other tax credit carryforwards o