

MARVELL TECHNOLOGY GROUP LTD
Form 10-K
March 28, 2017

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

Form 10-K

(Mark One)

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

For the fiscal year ended January 28, 2017

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 (I.R.S. Employer incorporation or organization) 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
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Common shares, \$0.002 par value per share	The NASDAQ Stock Market LLC
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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 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

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

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

Large accelerated filer Accelerated filer Non-accelerated filer Smaller reporting company

(Do not check if a smaller
reporting company)

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

The aggregate market value of the registrant's common shares held by non-affiliates of the registrant was \$3,844,207,456 based upon the closing price of \$11.75 per share on the NASDAQ Global Select Market on July 29, 2016 (the last business day of the registrant's most recently completed second quarter). Common shares held by each director and executive officer of the registrant, as well as shares held by each holder of more than 5% of the common shares known to the registrant (based on Schedule 13G filings), have been excluded for purposes of the foregoing calculation.

As of March 22, 2017, there were 502.4 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 2017 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

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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 successfully restructure our operations within our anticipated timeframe announced in November 2016 and with our anticipated amounts of costs and savings;
- our dependence upon the hard disk drive market, which is highly cyclical and intensely competitive;
- the outcome of pending or future litigation and legal proceedings;
- our dependence on a small number of customers;
- severe financial hardship or bankruptcy of one or more of our major customers;
- our ability and the ability of our customers to successfully compete in the markets in which we serve;
- our reliance on independent foundries and subcontractors for the manufacture, assembly and testing of our products;
- 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 ability to estimate customer demand and future sales accurately;
- our ability to scale our operations in response to changes in demand for existing or new products and services;
- the impact of international conflict and continued economic volatility in either domestic or foreign markets;
- the effects of transitioning to smaller geometry process technologies;
- the risks associated with manufacturing and selling a majority of our products and our customers' products outside of the United States;
- risks associated with acquisition and consolidation activity in the semiconductor industry;
- 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;
- the effects of any potential acquisitions or investments;
- our ability to protect our intellectual property;
- the impact and costs associated with changes in international financial and regulatory conditions; and
- our maintenance of an effective system of internal controls.

Additional factors that could cause actual results to differ materially include the risks discussed in Part I, Item 1A, "Risk Factors" and Part II, Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations." 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

We are a fabless semiconductor provider of high-performance application-specific standard products. Our core strength of expertise is the development of 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, networking and connectivity. We were incorporated in Bermuda in January 1995.

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 located at www.marvell.com. The information contained on our website does not form any part of this Annual Report on Form 10-K and is not incorporated by reference herein. 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”).

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. 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 offering. 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 has become significantly more complex as the range of uses and the needs has increased. For example, a solution that we develop for storage or networking can contain software that has a range of functionalities built in. Alternatively, our solution can allow our customers to deploy their operative systems on top of our chip, as well as deploy their application software on top of our SoC.

Our current product offerings are primarily in three broad product groups: storage, networking and connectivity. In storage, we are a market leader in data storage controller solutions spanning consumer, mobile, desktop and enterprise markets. Our storage solutions enable customers to engineer high-volume products for hard disk drives and solid state drives. Our networking products address end markets in cloud, enterprise, small and medium business and service provider networks. Our connectivity products address end markets in consumer, enterprise, desktop, service provider networks and automotive. Our storage, networking and connectivity products power cutting-edge networks and data centers around the world. The networking & connectivity product groups were previously referred to as smart networked devices and solutions.

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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 also plan to divest certain businesses and we began an active program to locate buyers for several businesses. As of January 28, 2017, two of these businesses were classified as discontinued operations. As required, we 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. Our net revenue by product group for the last three fiscal years is as follows:

	Year Ended					
	January		January		January	
	28,	30,	31,	31,	31,	31,
	2017	2016	2015	2016	2015	2015
	(in millions, except for percentages)					
Storage	\$1,158	50%	\$1,201	45%	\$1,745	48%
Networking	590	25%	532	20%	661	18%
Connectivity	318	14%	441	17%	530	15%
Other	252	11%	475	18%	701	19%
Total	\$2,318		\$2,649		\$3,637	

Storage

Hard Disk Drive 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 SATA (Serial Advanced Technology Attachment) and SAS (Serial Attached SCSI), which support the complete range of 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 with advanced technology for HDDs provide a technological advantage that enable a higher level of data storage on smaller form factors and higher volumetric densities.

• Our advanced HDD controller SoCs are designed incorporating the latest Marvell IPs using leading advanced semiconductor process nodes.

Solid-State Drive Controllers

Our solid-state- drive ("SSD") controller SoCs are targeted at the fast growing market for flash-based storage 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 SSD controllers are complemented by our fully featured SDK (software development kit) and FTK (Full Turnkey software solutions.)

HDD Components

In fiscal 2017, Marvell re-entered the HDD preamps business. We are working with a number of customers in developing and qualifying our components.

Enterprise Storage Solutions

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.

Networking

Ethernet Solutions

Ethernet connectivity is pervasive throughout networking infrastructures built for enterprise, small and medium business, home office, service provider and data centers. Our Ethernet solutions address a wide variety of end-customer products for those market spaces, from small, cost-effective appliances to large, high-performance modular solutions.

Our Ethernet products include:

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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;

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

A family of single-chip network interface devices offered in ultra-small form factor with low-power consumption and targeted for client-server network interface cards.

Embedded Communication Processors

Our range of SoC-embedded communication processors provide multi-core ARM processor architecture optimized to consume low power while simultaneously delivering high-performance per watt. They provide a combination of I/O peripherals, including Ethernet, SATA, SAS, PCIe and universal serial bus and are ideally suited for a range of end-customer networking applications, such as home gateways, networked storage, control plane applications, routers, switches and wireless access points and base stations.

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, 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 and 4x4 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

Printing Solutions & Custom ASIC

Our printer SoC products power many of today's laser and ink printers and multi-function peripherals. These SoCs include a family of printer-specific standard products as well as full-custom application-specific integrated circuits.

Communications and Application Processors

While we exited the mobile market in September 2015, several customers continue to ship our LTE communications processors. Our separate line of application processors is 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 13 — 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.

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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:

Customer:	Year Ended		January 31,	
	2017	2016	2016	2015
Western Digital*	21%	19%	20%	20%
Toshiba	13%	**%	**%	**%
Seagate	9%	14%	13%	13%
Wintech	10%			