

MARVELL TECHNOLOGY GROUP LTD
Form 10-K
March 27, 2012
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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, 2012

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
*(State or other jurisdiction of
incorporation or organization)*

77-0481679
*(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:

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Title of Each Class
Common shares, \$0.002 par value per share

Name of each exchange on which registered
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 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 approximately \$5,617 million based upon the closing price of \$14.82 per share on the NASDAQ Global Select Market on July 29, 2011 (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 16, 2012, there were 580.6 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 2012 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

The statements contained in this Annual Report on Form 10-K that are not purely historical are forward-looking statements and include statements regarding our expectations, beliefs, intentions or strategies regarding the future. Words such as anticipates, expects, intends, plans, believes, seeks, estimates, can, and similar expressions identify such forward-looking statements. These are statements that relate to future periods and include, without limitation, statements relating to such matters as: our anticipation that the rate of new orders and shipments will vary significantly from quarter to quarter; our expectation regarding industry trends, including statements regarding the hard disk drive (HDD) industry, the TD handset market in China and seasonal trends in the gaming industry; our expectation that a significant percentage of our sales will continue to come from direct sales to key customers; our expectations that quarterly operating results will fluctuate from quarter to quarter; our expectation regarding the current economic environment; our expectations regarding future growth based on market acceptance of our products, costs of securing access to adequate manufacturing capacity, the timing and extent of research and development projects, costs of making improvements to facilities, operating expenses and shipments of certain products; the potential opportunities for a new generation of integrated circuit solutions in response to growing demand for products in the semiconductor industry; our expectations regarding our facilities and the sufficiency of our facilities; the anticipated features and benefits of our technology solutions; our ability to execute our strategy and components of our strategy; our plan to strengthen and expand our relationship with customers using a variety of processes; our ability to anticipate the needs of our customers; our expectations that average selling prices of our products will continue to be subject to significant pricing pressures; our ability to transition our semiconductor products to increasingly smaller line width geometries; our expectations regarding competition and our ability to compete successfully in the markets for our products; our ability to reduce our customers overall system costs; our plan to attract new customers and retain existing customers by the introduction of new products; our continued efforts relating to the protection of our intellectual property, including claims of patent infringement; our expectations regarding the amount of customer concentration in the future; our expectations regarding the portion of our operations and sales outside of the United States, including the amount of our future sales in Asia; our expectations regarding our investment in research and development; our expected results, cash flows and expenses, including those related to sales and marketing, research and development and general and administrative; our expectations regarding acquisitions and investments; our expectations regarding net revenue, sources of revenue and make-up of revenue; our expectation regarding gross margin and events that may cause gross margin to fluctuate; our expectations regarding litigation and the impact of legal proceedings and claims; our expectations regarding the adequacy of our capital resources to meet our capital needs; our expectations regarding the growth in business and operations; our expectations regarding future impairment review of our goodwill and intangible assets; our ability to attract and retain highly skilled employees; our expectations regarding the effectiveness of our internal control over financial reporting; our plans regarding forward exchange contracts and the effect of foreign exchange rates; our expectations regarding arrangements with suppliers; our expectations regarding the demand for our products; our expectations regarding the implementation and improvement of operational and financial systems, as well as the implementation of additional procedures and other internal management systems; our expectations regarding the effect of recent accounting pronouncements and changes in taxation rules; our expectations regarding alternative information storage technologies; our expectations regarding defects in our products; and our expectations regarding our share repurchase program and the tax benefits we receive. These 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: the impact of international conflict and continued economic volatility in either domestic or foreign markets; our dependence upon the HDD industry which is highly cyclical; the impact of significant competition in the mobile and wireless communications markets; our dependence on a smaller number of customers; our ability to scale our operations in response to changes in demand for existing or new products and services; our maintenance of an effective system of internal control over financial reporting; our ability to develop new and

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enhanced products; the impact of our complex products on market acceptance of our new products; our reputation with current or prospective customers; defects in our products; our success in integrating businesses we acquire and the impact such acquisitions may have on our operating results; our ability to estimate customer demand accurately; the success of our strategic relationships with customers; our reliance on independent foundries and subcontractors for the manufacture, assembly and testing of our products; our ability to manage future growth; the development and evolution of markets for our integrated circuits; our ability to protect our intellectual property; the impact of any change in our application of the U.S. federal income tax laws and/or foreign tax laws and the loss of any beneficial tax treatment that we currently enjoy; the impact of changes in international financial and regulatory conditions; the impact of changes in management; the impact of natural disasters on our business; our ability to obtain and renew licenses from third parties; the impact of the crisis in the global financial markets; our ability to raise funds; our plans to implement and improve operational, financial and management systems; the impact of environmental regulations; 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 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.

In this Annual Report on Form 10-K, references to Marvell, we, us, our or the Company mean Marvell Technology Group Ltd. and its subsidiaries, except where it is made clear that the term means only the parent company.

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PART I

Item 1. *Business* Overview

We are one of the world's largest fabless semiconductor providers 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 extensive technology portfolio of intellectual property in the areas of analog, mixed-signal, digital signal processing and embedded and standalone ARM-based microprocessor integrated circuits. Our broad product portfolio includes devices for data storage, enterprise-class Ethernet data switching, Ethernet physical-layer transceivers (PHY), mobile handsets and other consumer electronics, wireless networking, personal area networking, Ethernet-based PC connectivity, control plane communications controllers, video-image processing and power management solutions. 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 United States 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 Canada, China, Germany, Hong Kong, India, Israel, Italy, Japan, Korea, Malaysia, Netherlands, Singapore, Spain, Sweden, Switzerland, Taiwan and the United Kingdom. Our fiscal year ends on the Saturday nearest January 31. In this Annual Report on Form 10-K, we refer to the fiscal year ended January 27, 2007 as fiscal 2007, the fiscal year ended February 2, 2008 as fiscal 2008, the fiscal year ended January 29, 2009 as fiscal 2009, the fiscal year ended January 30, 2010 as fiscal 2010, the fiscal year ended January 29, 2011 as fiscal 2011, the fiscal year ended January 28, 2012 as fiscal 2012 and the fiscal year ending February 2, 2013 as fiscal 2013.

Available Information

Our website address is located at www.marvell.com. The information contained in our website does not form any part of this Annual Report on Form 10-K. However, 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 United States Securities and Exchange Commission (SEC).

Industry Background

The semiconductor industry has evolved over the last five decades primarily due to the rapid and systematic advancements in photolithography techniques and new materials used in the manufacture of semiconductor devices, which has enabled the fabrication of transistor devices with a greater number of features and functions at ever-smaller chip sizes and with increasing power efficiency. As transistor line widths shrink over time, transistor density increases proportionally, enabling the manufacture of ever more complex devices in a fixed area of silicon. This phenomenon, known as Moore's Law, states that with the transition to each new successive process node, transistor device size will shrink by 0.7x. This can enable a 2x increase in the number of transistors, an increase in device performance, a reduction in size of the chip, or additional functionality. Furthermore, the transition to ever smaller process geometries results in proportionally lower power consumption of integrated circuits.

The effect of Moore's Law on the semiconductor industry has been a rapid increase in the processing speed, the device density of integrated circuits and improved power efficiency. This has enabled the integration of multiple complex functions onto a single piece of silicon, which in the past required multiple discrete integrated circuits. Concurrently, with the advances in semiconductor technology, there has been an evolutionary shift toward standards-based communication interconnect protocols, such as Ethernet. This has given rise to a large and diverse number of electronic systems suppliers to address the simultaneous transmission of voice, video, audio and data through both wired and wireless connections.

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Technological innovations have increased the capability to transmit and process information, which has led to both business enterprise and consumer electronic devices sharing and communicating ever larger amounts of information for a wide array of applications. Due in part to the ongoing evolution of both semiconductor and communications technology, the bandwidth demanded by users has continued to expand at an exponential rate. Additionally, as the bandwidth demand of both enterprise and consumer users increase, there has been a commensurate increase in the required amount of data storage capacity. We believe the market effects enabled by both the advances in semiconductor and communication technologies will provide a large and growing market for our products, technologies and intellectual property capabilities.

Within most modern electronic systems, in both the enterprise and consumer application domain, the device interconnects and data transmission occurs within the analog signal domain. However, due to advanced technologies, modern systems approaches and new algorithms, most new products convert the analog signals into digital signals to process the information. Given the high volume and cost sensitive nature of both enterprise and consumer applications, it is very beneficial to be able to integrate many of the analog and digital functions onto a single integrated circuit, which can help to increase system performance, lower costs and lower overall power consumption. As a result, these devices require a combination of both analog and digital integrated circuit technologies, more commonly known as mixed-signal technology. Historically, the ability to manufacture mixed-signal technologies required the use of expensive, non-scalable semiconductor manufacturing process technologies. However, to achieve price points that will accelerate the acceptance of these highly integrated mixed-signal devices, a small number of semiconductor suppliers, including us, have invested in the fundamental research and development capability, which allows for the use of high volume, lower cost and scalable complementary metal oxide semiconductor (CMOS) fabrication technology.

Because the processing requirements of these mixed-signal integrated circuits continue to expand with the increased performance and sophistication of the devices in which they are embedded, many of these integrated circuits are now also integrating high performance embedded microprocessors and complex digital signal processors to handle this increased workload. This minimizes or eliminates the need for a costly host central processing unit (CPU). With improvements in the performance of such embedded microprocessors, devices can further expand their capabilities while at the same time minimizing power requirements.

Many of these new, sophisticated devices are also handheld battery-powered devices in which minimizing the power consumption is critical to maximizing the life of the battery. Utilizing highly integrated circuits that are optimized for power efficiency is a critical factor for such handheld devices. Additionally, advanced digital power management solutions that regulate the power supply to the integrated circuits in an efficient and cost-effective manner are becoming increasingly important to help reduce overall power consumption and the total size of the solution.

Platform Integration

Over the last several years, we have transitioned from a supplier of standalone 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 computing technologies, designed and configured to provide an optimized solution compared to individual components. Our solutions have become increasingly integrated, with ever 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 the anticipation of the future needs of the device manufacturer. For example, in order to provide a complete solution for a specific handheld consumer electronics device, a device manufacturer may require a solution that integrates a high performance applications processor, along with seamless communications capability with a 3G/4G multi-band modem, Wi-Fi, Bluetooth, radio frequency (RF), GPS and NFC. In addition, a device manufacturer may require graphics processing, high-definition audio and power management. These platforms will often cross multiple end markets, integrating components and technologies traditionally associated with one end market with components and technologies from another end market. For example, we

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may integrate an applications processor, traditionally associated with the mobile and wireless end market, with software and other components in an end user product targeting the home cloud. Therefore, it has become critical that our products across multiple end markets work seamlessly together.

In addition, software has become increasingly important to our business over the last several years, and we expect software to become even more important in the years to come. 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 that we deliver with our chip has become significantly more complex as the range of uses and the needs in application-level software have increased. For example, a chip that we develop for a smartphone may need to include software that is compatible with the latest version of a specific company's operating system that enables 3D graphics and that works seamlessly with a variety of popular end user applications. This requires a significant amount of up-front software development, testing, and often additional licensing.

Lastly, the market for consumer electronics devices is becoming increasingly standards-based. These standards change rapidly and often several different standards may exist and overlap in a single market. Our platforms must be designed to operate seamlessly with all relevant standards, which requires us to design products in anticipation of these relevant standards. For example, we have communications processors designed to operate on several different cellular standards, including EDGE, WCDMA (3G), TD-SCDMA (China 3G) and 4G/LTE.

In summary, while providing the most advanced components at the lowest possible price remains critical to our business, continuing the transformation into a platform company through the integration of multiple components together with on industry-leading software capability will continue to increase in importance to our overall success.

Our Markets and Products

When the company began, our core technologies were initially focused on the storage market, where we provide high-performance products to storage companies for traditional HDD to companies such as Hitachi Ltd., Samsung Semiconductor, Seagate Technology, Toshiba Corporation and Western Digital Corporation. Over the past few years, we have expanded on our core storage technologies by developing solid state flash drive (SSD) controllers, which are currently sold to flash providers who are building drives based on SSD, such as Micron, Sandisk, Toshiba, and others. The storage end markets continue to drive approximately 46% of our revenues on an annual basis. As the company developed, we applied our technology to the networking market, where we provide industry-leading PHY devices and wired and wireless Ethernet-switching solutions, which enable high-speed transmission between communications systems, that are sold by manufacturers of networking and wireless equipment, such as Alcatel, Brocade Communication Systems, Inc., Cisco Systems, Inc., Dell Inc., Sony Ericsson, Hewlett Packard Company, Huawei Technologies Co., Ltd., Intel Corporation, Juniper Networks, Inc., and ZTE Corporation. Our wireless technology has a variety of uses in consumer electronic devices, including enabling applications such as wireless access routers, gaming devices, streaming audio, video, Voice over Internet Protocol (VoIP) and wireless printing, for products offered by companies such as Cisco Systems, Hewlett Packard Company, Microsoft Corporation and Sony Corporation. We also provide communications and applications processor products for cellular and handheld solutions to customers, such as Research in Motion Limited, Huawei, Motorola, Samsung, Lenovo, Vizio and ZTE Corporation. Lastly, we provide printer SoC and system level solutions for both inkjet and laser jet printer systems for companies such as Hewlett Packard Company.

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Our current product offerings are primarily in three broad end markets: mobile and wireless, storage and networking. Our net revenue by end market for the last three fiscal years are as follows:

	Fiscal Years Ended					
	January 28, 2012	January 29, 2011		January 30, 2010		
	(in millions, except for percentages)					
Mobile and Wireless	\$ 969	29%	\$ 1,124	31%	\$ 532	19%
Storage	1,561	46%	1,651	46%	1,574	56%
Networking	698	21%	683	19%	597	21%
Other	165	4%	154	4%	105	4%
Total	\$ 3,393		\$ 3,612		\$ 2,808	

Mobile and Wireless*Communications Processors*

Our communications processors are highly integrated cellular SoC devices that enable mobile handset developers to address EDGE, WCDMA (3G), TD-SCDMA (China 3G) and 4G/LTE mobile network standards. They incorporate high-performance multi-band baseband modem processors and applications processors in highly integrated, low-power SoC platforms for voice, computation and multimedia-intensive mobile applications for smartphones.

The PXA920 is a highly integrated 3G communications processor solution that targets the TD-SCDMA smartphone market with high multimedia performance and mass market appeal. The PXA978 worldphone platform is a single-chip 3G communications processor that features both the latest UMTS and TD-SCDMA modem technologies. It combines gigahertz class applications processing performance with advanced 3D graphics and 1080p multimedia processing capability. This device is designed to enable smartphones to have access anywhere in the world on multiple networks. The PXA978 is complemented by power management, RF and wireless connectivity components in an all-Marvell platform solution.

Modem Processors

Our modem processors are highly optimized multi-mode baseband modem devices that enable design of a wide-array of high-performance, low-power Internet-connected devices, including smartphones, tablets, laptops, automotive, set-top-boxes and TVs. Our modem processors incorporate a multiband multimode design, which is capable of addressing evolving 3G and 4G mobile standards.

Connectivity

Our Avastar family of wireless products include standalone Wi-Fi products, as well as multi-function SoCs, which include Wi-Fi and other communication protocols, including Bluetooth and/or FM, delivered on a single chip. Historically, these devices have been incorporated primarily in mobile handsets, printers and access points. In today's increasingly-connected and mobile lifestyle, the number and variety of products that require wireless communications have expanded significantly and includes digital still cameras, gaming devices, tablets, televisions, Blu-Ray players, DVRs, in-car infotainment and smart appliances. Our products are well positioned for these devices by delivering low power and high performance functionality with the latest technologies, such as Wi-Fi Direct, WPS and Wi-Fi Display. In addition, the Avastar family of products provides a high degree of integration of power management features, RF components and memory.

Mobile Computing Products

Our Armada 100, 500 and 600 products are SoCs that are designed to deliver advanced integration, leading multimedia performance and superior power consumption savings for mobile computing products, such as

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tablets, eReaders, scanners, printers and educational devices. During fiscal 2012, we shipped SoCs for use in tablets for the first time. We have also introduced new thin client products designed to operate on Linux-based devices, offering a low power cost and efficient alternative to existing desktop computers.

Connected Home Computing Products

The Armada 1000 and 1500 products are SoC solutions that are designed to enable the next generation of connected consumer platforms and to enhance the digital lifestyle. These devices are targeted at powering digital TVs, Blu-ray players, set-top boxes and advanced media players by delivering an immersive viewing experience, 3D graphics and enhanced security. In addition, the Armada 1000 and 1500 products are fully-integrated devices that include dual-SATA interfaces, high performance DDR2/3 and NAND memory controllers, USB2.0, HDMI and SDIO.

Storage Products

We offer a broad range of integrated data storage products across all major technologies, including HDDs, hybrid HDDs (HHDD) and optical disk drives (ODD). In addition, we offer storage system products for complex storage area network solutions. These products provide increased performance and reduced power consumption for enterprise, desktop and mobile storage systems. These integrated SoCs feature ultra-fast read channels, high-performance processors, transceivers, DDR RAM controllers and cryptographic engines.

Hard Disk Drive Controllers

Hard drive 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, SAS and Fiber Channel, which can support the complete range of enterprise, desktop and mobile HDDs. We are the leading HDD controller supplier and currently supply products to all of the major hard drive manufacturers. In addition, we were the first to introduce HDD controllers with advanced 500-gigabyte-per-platter technology for mobile HDDs, a technological advantage which enables a higher level of data storage on a smaller form factor.

Solid-State Drive Controllers

Our SSD controller SoCs are targeted at the growing market for flash-based storage systems, for the enterprise, consumer and mobile markets. Our SSD controllers leverage significant portions of intellectual property and software developed for the HDD market. Additionally, we incorporate unique intellectual property and development required to ensure stable device operation. We have also leveraged our technology leadership in consumer SSD controllers and have developed a family of SSD controller-based solutions designed for the smartphone end market.

Hybrid Hard Disk Drive Controllers

A HHDD is an HDD that also contains flash memory, thereby leveraging the low cost of a HDD with the performance of a SSD. Our HHDD controller SoCs include the technology required for HDD operation as well as a high speed interface for the on-drive flash memory.

Optical Disk Drive Controllers

Our ODD controller SoCs leverage our various storage technologies to support a variety of ODD formats, such as Blu-Ray.

Storage-System Products

Our storage system products enable customers to manage and aggregate data from arrays of multiple HDDs or from multiple servers. Our portfolio of storage system solutions includes devices which convert data from

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multiple formats, as well as devices which aggregate and consolidate data into high bandwidth streams. In fiscal 2012, we released DragonFly, a storage accelerator product which enhances performance in virtualization and database applications.

Networking

Residential, enterprise and service provider networks are experiencing rapid change. To meet these challenges, our Networking business is evolving by investing and adding technologies required for the buildout of new network architectures. We are focusing on cloud infrastructure and service provider infrastructure.

Cloud Infrastructure

We supply products related to cloud infrastructure, which encompasses home, private and public cloud networks: Home cloud is where personal applications and data reside within the privacy and control of a residential network. Our home cloud products are designed to allow a multitude of smart devices to share content and manage home services. Our home cloud-related product offerings include our Kirkwood and Link Street families.

Our Kirkwood family of products is based on our embedded CPU technology, which have been designed to maximize overall performance while minimizing power consumption. Designed for network connected consumer electronics equipment, this family of products is used in home gateways, set-top boxes, network storage, printers, media players and point-of-service terminals.

Our Link Street family of 10/100 Fast Ethernet and Gigabit switches are targeted to the small office and home office market, where cost, ease-of-use and flexibility are critical. These devices are targeted at applications, such as standalone switches, media converters, intellectual property phones, firewall appliances, wireless and wired gateway routers, and wireless access points. When integrated with a high performance ARM-based embedded microprocessor, a media access controller and PHY interface, our Link Street family of products provide an integrated single-chip solution for small and medium-size business applications, as well as residential applications.

Private cloud represents the next generation of the enterprise network that enables a more mobile workforce, global collaboration, increased bandwidth and enhanced security. Our Private cloud product offerings are within our Presteria, Discovery Innovation and Alaska families. The Presteria DX family of Gigabit Ethernet (GbE) switches offers integration and performance for small and medium-size business networks. These products are designed to enable system vendors to design affordable, plug-and-play, high-density and standalone switches, which address the cost-sensitive desktop switching market. The Presteria EX family of enterprise switches is designed to deliver exceptional price and performance. The Presteria EX family delivers a complete line of Fast Ethernet, GbE and 10GbE switching solutions. Our Discovery Innovation family of products provides a complete SoC solution based on our embedded CPU technology. By leveraging our Discovery system controllers and deep expertise in ARM-based CPUs, the Discovery Innovation SoCs offer high levels of integration. The high-performance, low-power, highly integrated processors are ideally suited to a wide range of applications, ranging from sophisticated routers, switches and wireless base stations to high-volume laser printer applications.

Our Alaska family of products includes high-performance and low-power Gigabit transceivers, which address enterprise switching, server and telecom applications. This family of products enables the accelerated deployment of 10GbE capable systems for the local area network (LAN), metropolitan area network (MAN) and wide area network (WAN) markets. Our low-power, low-cost solutions effectively address network connectivity for client systems, such as PCs, gaming systems and digital TVs.

Public cloud encompasses low-power commercial data centers, where we are focused on the convergence of networking, computing and storage technologies. Our Public cloud product offerings are within our Presteria, Armada XP and Yukon families.

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The Prestera CX family of 10GbE and 40GbE switches is designed for the new generation of high density data centers and optical broadband, as well as the convergence of data and storage networks. Using standards-based congestion management capabilities and dynamic power management, these products enable virtualization, cloud computing and software as a service.

Our Armada XP family of products is a quad-core processing, enterprise-class cloud computing platform. This platform integrates four Marvell designed ARM-compliant 1.6Hz CPU cores along with a host of I/O peripherals and is optimized to consume low power while simultaneously delivering high performance-per-watt.

Our Yukon family of connectivity products includes integrated, single-chip solutions, based on our proven enterprise-class Alaska family of products. These products are offered in an ultra-small form factor, with low-power consumption and are targeted for client and server network interface cards.

Service Provider Infrastructure

We are leading the deployment of residential fiber access infrastructure and mobile internet infrastructure with Ethernet passive optical network (EPON), Gigabit passive optical network (GPON) and Universal PON technologies, as well as the transition to intellectual property Radio Access Networks, which will allow for the transition to LTE/4G technologies.

Our Avanta family provides solutions for next generation broadband, based on EPON and GPON architectures. These products consist of a highly integrated Gateway-on-a-Chip solution, Ethernet and packet processing, voice processing, power management and applications processors. Avanta is meant to meet the needs of next generation Internet and the significant increases in required bandwidth, including high quality video, online gaming and conferencing.

During fiscal 2012, we also acquired Xelerated AB (for further details, please see Note 2 Business Combinations in our notes to the Consolidated Financial Statements set forth in Part II, Item 8 of this Annual Report on Form 10-K). This acquisition enhances our product portfolio and adds a family of network processors and ultra programmable Ethernet switching solutions designed for carrier ethernet, united fiber access, mobile backhaul and transport platforms. The Xelerated family of products enables customers to quickly scale their services while maintaining low power, low latency and high performance necessary for a reliable mobile internet.

The Prestera MX multi-layer switching family of products includes fully-integrated 100 MbE, 1GbE and 10GbE-per-second, fast Ethernet configurable devices. These products are targeted at metropolitan edge and access systems in service provider networks.

Our Powerline products for home networking and Advanced Metering Infrastructure (AMI) are designed for performance and robust connectivity. Our Home Networking Powerline solutions are designed into networking equipment deployed by service providers to deliver intellectual property television services and are also available to consumers through the retail channels. We are designing products that support the ITU G.hn standard, ensure high performance over a variety of media. The G.hn standard provides support for powerline, as well as phoneline and coax media. Our G.hn transceiver is designed to enable a superior user experience for performance-intensive applications, such as VoIP, multi-room DVR, video surveillance and gaming. With energy-saving features and easy plug-and-play installation, our G.hn product family also enables easy connectivity for Blu-ray players, IPTV/OTT set-top boxes and Internet-ready TVs in the home. Our Powerline products are also designed to support high performance broadband AMI applications for utility providers by supporting current and future smart grid needs, including real-time network planning and management, outage avoidance and demand management.

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Other Products

Printing Solutions

Our printing solutions include integrated SoCs that are custom-designed ASICs for customer printing products, as well as application-specific standard products designed for various product types. Our printing solutions address the inkjet, laser and all-in-one printer markets and offer capabilities which include printing, scanning, copying, user interface, USB, networking, wireless, fax, photo and other applications.

Digital Video Processing Products

Our digital video format converter products convert PC graphics, standard-definition and high definition video into 1080p high definition outputs, removing signal noise and image artifacts. These products are targeted for Blu-Ray players and recorders, set-top-boxes, A/V receivers, digital television and media clients.

Power Management and Green Technology Products

Our DSP Switcher regulators are designed to provide efficiency, precision and transient response, all in a small form factor. We also offer analog switching regulators that are low-cost, highly-integrated power management solutions. Our analog switching regulators are available as single or multiple output devices, allowing design flexibility for our customers. These solutions feature low-power consumption, high efficiency and high switching frequency. Our integrated Power Management IC family (PMIC) of products are designed as companion chips for our cellular and applications processor product lines. Our PMIC products are used in cellular handsets and other mobile platforms. The PMIC devices are highly integrated and designed to support all of the peripheral functions on the platform, including power regulation, battery charging, white LED backlight drivers, touch screen control, audio and voice, vibration control and the real time clock.

Smart-LED Lighting

Our Smart LED Lighting platform enables energy efficient, high-quality LED lights, promoting an eco-friendly and convenient lifestyle. It enables end users to control lighting solutions from their mobile and personal computing devices, whereby they can conveniently manage, analyze and maintain a cost-saving digital lighting solution from anywhere in the world. This platform combines our LED processors and a wireless ZigBee/Wi-Fi gateway with smart lighting software.

Smart-Energy/Wi-Fi Microcontroller

Our new Smart Energy Platform provides a cost-effective, flexible and easy-to-use solution for building a new generation of connected smart appliances. This platform is driven by a Wi-Fi-enabled microcontroller and integrated software. In addition to smart-appliances, the smart energy platform also targets sensors, lighting controls, measurement tools, toys, personal medical devices and consumer accessories.

We have determined that we operate in one reportable business segment: the design, development and sale of integrated circuits. For further information, please see Note 13 Segment and Geographic Information in the notes to the Consolidated Financial Statements set forth in Part II, Item 8 of this Annual Report on Form 10-K.

Customers, Sales and Marketing

Our direct sales force targets markets that have high intensity data communications processing and high performance storage requirements. 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 stocking

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representatives outside of the United States for some of our products. We expect a significant percentage of our sales will continue to come from direct sales to key customers. As we expand into other end markets, we will evaluate the best sales channel to service that business.

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. We believe that superior field applications engineering support plays a pivotal role in building long-term relationships with customers by improving our customers' time-to-market, maintaining a high level of customer satisfaction and encouraging customers to use our next-generation products.

Our marketing team works in conjunction with our field sales and application engineering force and is organized around our product applications and end-markets. Due to the complexity of our products, we believe that individual meetings with our marketing, sales and engineering teams provide the most effective and rapid means of communicating the capabilities, benefits and extremely technical specifications of each significant new product.

The target customers for our storage products are manufacturers of HDDs and SSDs for the enterprise, desktop and mobile computing markets.

The target customers for our switching, transceiver and connectivity products are manufacturers of high-speed networking equipment targeted at LANs, MANs and WANs, in addition to PC-client OEMs. The target customers for our communications controller and embedded processor products are the manufacturers and vendors of wireless communications equipment and handsets for the internet voice communications market.

The target customers for our cellular and applications processor products are manufacturers of cellular handsets, tablets, personal navigation devices and a large variety of other handheld, portable consumer applications. Our target customers for our wireless and personal area networking products include manufacturers of Wireless LAN solutions for small-and-medium size businesses, small office/home office and residential gateway solutions as well as manufacturers of a variety of new consumer applications such as cellular handsets, gaming devices, PDAs and home entertainment multimedia client devices.

The target customers for our digital video processing products include manufacturers of consumer electronic devices, such as digital televisions, HD-based media players, HD-based set-top-boxes, media clients and audio-visual receivers. The target customers for our power management and green technology products are very diverse and include manufacturers of many different electronic devices.

A small number of customers have accounted for a significant portion of our net revenue. One customer, Western Digital, accounted for more than 10% of our net revenue in fiscal 2012, and two customers represented more than 10% of our net revenue in fiscal 2011 and 2010. Western Digital represented 19%, 21% and 24% of our net revenue in fiscal 2012, 2011 and 2010, respectively. Research in Motion represented 14% of net revenue in fiscal 2011. Toshiba represented 15% of net revenue in fiscal 2010. Subsequent to our fiscal 2012, Western Digital acquired Hitachi's HDD unit. If this acquisition had occurred at the beginning of fiscal 2012, Western Digital would have represented 24% of net revenue in fiscal 2012. During fiscal 2012, Seagate acquired the HDD operations of Samsung. If this acquisition had occurred at the beginning of fiscal 2012, Seagate would have represented 11% of net revenue.

Our sales are made under purchase orders typically received between one week and four months prior to the scheduled delivery date. These purchase orders can be cancelled without charge if notice is given within an agreed upon period. Because of the scheduling requirements of our foundries, we generally place firm orders for products with our suppliers 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.

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An increasing number of our products are being incorporated into consumer electronics products, including gaming devices, which are subject to significant seasonality and fluctuations in demand. Due to holiday and back to school buying trends, these seasonal demand patterns generally will 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.

Backlog

Our sales are made primarily pursuant to standard purchase orders for delivery of products. The quantities actually purchased by the customer, as well as the shipment schedules, are frequently revised during the agreement term to reflect changes in the customer's needs. Due to an industry practice that allows customers to cancel or change purchase orders with limited notice prior to the scheduled shipment dates, we believe that backlog is not a reliable indicator of future revenue. In addition, a significant portion of our revenue is related to inventory pulled by customers from third party logistics providers. As such, this revenue would not be included in the 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 extensive experience in the areas of mixed-signal circuit design, digital signal processing, embedded microprocessors, CMOS technology and system-level architectures. We have invested, and expect that we will continue to invest, significant funds for research and development. Our research and development expense was \$1,014 million, \$898 million and \$828 million in fiscal 2012, 2011 and 2010, respectively.

Manufacturing

Integrated Circuit Fabrication

The vast majority of our integrated circuits are substantially 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 currently outsource a substantial percentage of our integrated circuit manufacturing to Taiwan Semiconductor Manufacturing Company, with the remaining manufacturing outsourced to other foundries primarily in Asia. We work closely with our foundry partners to forecast on a monthly basis our manufacturing capacity requirements. Our integrated circuits are currently fabricated in several advanced, sub-micron 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 production products to several assembly and test subcontractors, including STATS ChipPAC Ltd. in Singapore, Malaysia, Korea, Taiwan and China, Global Testing Corporation in Singapore, Siliconware Precision Industries in Taiwan, ASE Electronics in Singapore, Taiwan and Malaysia and Amkor in Korea, Philippines and Taiwan.

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Quality Assurance

We are certified to the International Organization for Standardization Quality Management Systems Standard ISO 9001:2008. We build quality into our products starting with the design and development process. Our designs are subjected to extensive circuit simulation under extreme conditions of temperature, voltage and processing before being committed to manufacture. We pre-qualify each of our subcontractors and conduct regular in-depth quality audits. We closely monitor foundry production to ensure consistent overall quality, reliability and yield levels. All of our independent foundries and assembly-test subcontractors have been awarded ISO 9001 certification.

Environmental Management

We monitor the environmental impact of our products. The need for lead-free and halogen-free solutions in electronic components and systems has received increasing attention within the semiconductor industry and many companies are moving towards becoming compliant with the Restriction of Hazardous Substances Directive (RoHS), the European legislation that restricts the use of a number of substances, including lead. We believe that our current products are compliant with the RoHS Directive and the REACH (Regulation, Evaluation and Authorization of Chemicals) SVHC Substances Directive.

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 secret laws, contractual provisions and licenses to protect our intellectual property. We also enter into confidentiality agreements with our employees, consultants, suppliers and customers and seek to control access to and distribution of, our documentation and other proprietary information. Despite these precautions, it may be possible for a third party to copy or otherwise obtain and use our products and technology without authorization, independently develop similar technology or design around our patents. In addition, we often incorporate the intellectual property of other companies into our designs and we have certain obligations with respect to the non-use and non-disclosure of their intellectual property. It is possible, however, that the steps taken by us to prevent misappropriation or infringement of our intellectual property or our customers' intellectual property may not be successful.

As of January 28, 2012, we have been issued and/or have acquired over 2,500 U.S. patents and over 700 foreign patents and we have more than 3,000 U.S. and foreign pending patent applications on various aspects of our technology, with expiration dates ranging approximately from 2012 to 2032, however, we cannot be certain whether we will be issued patents as a result of these applications. Furthermore, it is possible that our patents may be invalidated, circumvented, challenged or licensed to others. Additionally, the laws of some foreign countries in which our products are or may be developed, manufactured or sold, including various countries in Asia, may not protect our products or proprietary information to the same extent as do the laws of the United States and thus make the possibility of piracy of our technology and products more likely in these countries. We may need to engage in litigation in the future to enforce our intellectual property rights or the rights of our customers, to protect our trade secrets or to determine the validity and scope of proprietary rights of others, including our customers. This litigation could result in substantial costs and diversion of our resources and could materially and adversely affect our business, financial condition and results of operations.

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. We cannot be sure that any necessary licenses will be available or will be available on commercially reasonable terms.

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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. Although we defend these claims vigorously, it is possible that we will not prevail in pending or future lawsuits. In addition, we may be sued in the future by other parties who claim that we have infringed their patents or misappropriated or misused their trade secrets, or who may seek to invalidate one or more of our patents. Any of these claims could materially and adversely affect our business, financial condition and results of operations. Even if claims against us are not valid or successfully asserted, these claims could result in significant costs and a diversion of management and personnel resources to defend. In that event, our business, financial condition and results of operations could also be materially and adversely affected. In any of the pending or future claims or actions asserted against us, we may seek to obtain licenses under a third party's intellectual property rights; however, we may not be able to obtain such licenses on commercially reasonable terms, if at all.

Competition

The markets for our products are intensely competitive, characterized by rapid technological change, evolving standards, short product life cycles and pricing pressures imposed by high-volume customers. We expect competition to intensify as current competitors expand their product offerings and new competitors enter our markets.

We believe that our ability to compete successfully in the rapidly evolving markets for our products depends on a number of factors, including the:

performance, features, quality and price of our products;

timing and success of new product introductions by us, our customers and our competitors;

emergence of new industry standards;

ability to obtain adequate foundry capacity; and

number and nature of our competitors in a given market.

By end market our major competitors are as follows;

Mobile and Wireless

QUALCOMM Incorporated

Storage

LSI Corporation

Networking