

## PART I

### ITEM 1. BUSINESS

#### Cautionary Statement Regarding Forward-Looking Statements

*The statements in this report include forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. These forward-looking statements are based on current expectations and beliefs and involve numerous risks and uncertainties that could cause actual results to differ materially from expectations. These forward-looking statements speak only as of the date hereof or as of the dates indicated in the statements and should not be relied upon as predictions of future events, as we cannot assure you that the events or circumstances reflected in these statements will be achieved or will occur. You can identify forward-looking statements by the use of forward-looking terminology including “believes,” “expects,” “may,” “will,” “should,” “seeks,” “intends,” “plans,” “pro forma,” “estimates,” “anticipates,” or the negative of these words and phrases, other variations of these words and phrases or comparable terminology. The forward-looking statements relate to, among other things: demand for AMD’s products; the growth, change and competitive landscape of the markets in which AMD participates; future restructuring activities; the nature and extent of AMD’s future payments to GLOBALFOUNDRIES Inc. (GF) and the materiality of these payments; the materiality of AMD’s future purchases from GF; Santa Clara lease commencement date; future patent filings; the level of international sales as compared to total sales; its dependence on a small number of customers for a substantial part of its revenue; receipt of license fees relating to the joint ventures between AMD and Tianjin Haiguang Advanced Technology Investment Co., Ltd. (THATIC) (the THATIC JV); expected royalties of future products from the THATIC JV; AMD’s expected completion of its restructuring plan implemented in the third quarter of 2015 (the 2015 Restructuring Plan); AMD’s expectation that based on the information presently known to management, the securities class action, the shareholder derivative suit and the patent lawsuit will not have a material adverse effect on its financial condition, cash flows or results of operations; that AMD’s cash and cash equivalents and marketable securities balances, the savings from its restructuring plans and the secured revolving line of credit (Secured Revolving Line of Credit) will be sufficient to fund AMD’s operations including capital expenditures over the next 12 months; AMD’s ability to obtain sufficient external financing on favorable terms, or at all; the monitoring of its exposure to interest rate risks; its hedging strategy; its expenditures related to environmental compliance and conflict minerals disclosure requirements; and AMD does not expect to pay dividends in the future. Material factors that could cause actual results to differ materially from current expectations include, without limitation, the following: Intel Corporation’s dominance of the microprocessor market and its aggressive business practices may limit AMD’s ability to compete effectively; AMD has a wafer supply agreement with GF with obligations to purchase all of our microprocessor and APU product requirements, and a certain portion of its GPU product requirements, from GF with limited exceptions. If GF is not able to satisfy AMD’s manufacturing requirements, its business could be adversely impacted; AMD relies on third parties to manufacture its products, and if they are unable to do so on a timely basis in sufficient quantities and using competitive technologies, AMD’s business could be materially adversely affected; failure to achieve expected manufacturing yields for AMD’s products could negatively impact its financial results; the success of AMD’s business is dependent upon its ability to introduce products on a timely basis with features and performance levels that provide value to its customers while supporting and coinciding with significant industry transitions; if AMD cannot generate sufficient revenue and operating cash flow or obtain external financing, it may face a cash shortfall and be unable to make all of its planned investments in research and development or other strategic investments; the loss of a significant customer may have a material adverse effect on AMD; AMD’s receipt of revenue from its semi-custom SoC products is dependent upon its technology being designed into third-party products and the success of those products; global economic uncertainty may adversely impact AMD’s business and operating results; the markets in which AMD’s products are sold are highly competitive; AMD may not be able to generate sufficient cash to service its debt obligations or meet its working capital requirements; AMD has a substantial amount of indebtedness which could adversely affect its financial position and prevent it from implementing its strategy or fulfilling its contractual obligations; the agreements governing AMD’s notes and the Secured Revolving Line of Credit impose restrictions on AMD that may adversely affect its ability to operate its business; uncertainties involving the ordering and shipment of AMD’s products could materially adversely affect it; the demand for AMD’s products depends in part on the market conditions in the industries into which they are sold. Fluctuations in demand for AMD’s products or a market decline in any of these industries could have a material adverse effect on its results of operations; AMD’s ability to design and introduce new products in a timely manner is dependent upon third-party intellectual property; AMD depends on third-party companies for the design, manufacture and supply of motherboards, software and other computer platform components to support its business; if AMD loses Microsoft Corporation’s support for its products or other software vendors do not design and develop software to run on AMD’s products, its ability to sell its products could be materially adversely affected; AMD’s reliance on third-party distributors and AIB partners subjects it to certain risks; AMD’s inability to continue to attract and retain qualified personnel may hinder its business; AMD’s issuance to West Coast Hitech L.P. (WCH) of warrants to purchase 75 million shares of its common stock, if and when exercised, will dilute the ownership interests of our existing stockholders, and the conversion of the 2.125% Convertible Senior Notes due 2026 may dilute the ownership interest of its existing stockholders,*

or may otherwise depress the price of our common stock; in the event of a change of control, AMD may not be able to repurchase its outstanding debt as required by the applicable indentures and its Secured Revolving Line of Credit, which would result in a default under the indentures and its Secured Revolving Line of Credit; the semiconductor industry is highly cyclical and has experienced severe downturns that have materially adversely affected, and may continue to materially adversely affect its business in the future; acquisitions, divestitures and/or joint ventures could disrupt its business, harm its financial condition and operating results or dilute, or adversely affect the price of, its common stock; AMD's business is dependent upon the proper functioning of its internal business processes and information systems and modification or interruption of such systems may disrupt its business, processes and internal controls; data breaches and cyber-attacks could compromise AMD's intellectual property or other sensitive information, be costly to remediate and cause significant damage to its business and reputation; AMD's operating results are subject to quarterly and seasonal sales patterns; if essential equipment, materials or manufacturing processes are not available to manufacture its products, AMD could be materially adversely affected; if AMD's products are not compatible with some or all industry-standard software and hardware, it could be materially adversely affected; costs related to defective products could have a material adverse effect on AMD; if AMD fails to maintain the efficiency of its supply chain as it responds to changes in customer demand for its products, its business could be materially adversely affected; AMD outsources to third parties certain supply-chain logistics functions, including portions of its product distribution, transportation management and information technology support services; the completion and impact of the 2015 Restructuring Plan, its transformation initiatives and any future restructuring actions could adversely affect AMD; AMD may incur future impairments of goodwill; AMD's stock price is subject to volatility; AMD's worldwide operations are subject to political, legal and economic risks and natural disasters, which could have a material adverse effect on it; worldwide political conditions may adversely affect demand for AMD's products; unfavorable currency exchange rate fluctuations could adversely affect AMD; AMD's inability to effectively control the sales of its products on the gray market could have a material adverse effect on it; if AMD cannot adequately protect its technology or other intellectual property in the United States and abroad, through patents, copyrights, trade secrets, trademarks and other measures, it may lose a competitive advantage and incur significant expenses; AMD is a party to litigation and may become a party to other claims or litigation that could cause it to incur substantial costs or pay substantial damages or prohibit it from selling its products; AMD's business is subject to potential tax liabilities; and AMD is subject to environmental laws, conflict minerals-related provisions of the Dodd-Frank Wall Street Reform and Consumer Protection Act as well as a variety of other laws or regulations that could result in additional costs and liabilities.

For a discussion of the factors that could cause actual results to differ materially from the forward-looking statements, see "Part I, Item 1A-Risk Factors" and the "Financial Condition" section set forth in "Part II, Item 7-Management's Discussion and Analysis of Financial Condition and Results of Operations," or MD&A, beginning on page 35 below and such other risks and uncertainties as set forth below in this report or detailed in our other Securities and Exchange Commission (SEC) reports and filings. We assume no obligation to update forward-looking statements.

## General

We are a global semiconductor company primarily offering:

- x86 microprocessors, as standalone devices or as incorporated into an accelerated processing unit (APU), chipsets, discrete graphics processing units (GPUs) and professional graphics; and
- server and embedded processors and semi-custom System-on-Chip (SoC) products and technology for game consoles. We also license portions of our intellectual property portfolio.

For financial information about geographic areas and for segment information with respect to revenues and operating results, refer to the information set forth in Note 13 of our consolidated financial statements, beginning on page 86 below.

We use a 52 or 53 week fiscal year ending on the last Saturday in December. The years ended December 31, 2016, December 26, 2015 and December 27, 2014 included 53 weeks, 52 weeks and 52 weeks, respectively. References in this report to 2016, 2015 and 2014 refer to the fiscal year unless explicitly stated otherwise.

## Additional Information

Advanced Micro Devices, Inc. (AMD) was incorporated under the laws of Delaware on May 1, 1969 and became a publicly held company in 1972. Our common stock is currently listed on The NASDAQ Capital Market (NASDAQ) under the symbol "AMD". Our mailing address and executive offices are located at One AMD Place, Sunnyvale, California 94085, and our telephone number is (408) 749-4000. References in this Annual Report on Form 10-K to "AMD," "we," "us," "management," "our" or the "Company" mean Advanced Micro Devices, Inc. and our consolidated subsidiaries.

AMD, the AMD Arrow logo, Athlon, Opteron, Phenom, Sempron, Turion, FirePro, FreeSync-FX, LiquidVR, Radeon, Geode and combinations thereof are trademarks of Advanced Micro Devices, Inc. Microsoft, Windows, Direct X, Xbox360 and Xbox One are trademarks or registered trademarks of Microsoft Corporation in the United States and/or other jurisdictions.

PlayStation is a registered trademark of Sony Computer Entertainment, Inc. Wii and Wii U are registered trademarks of Nintendo of America, Inc. ARM is a registered trademark of ARM Limited (or its subsidiaries) in the UK and other countries. Vulkan and the Vulkan logo are trademarks of Khronos Group, Inc.

Other names are for informational purposes only and are used to identify companies and products and may be trademarks of their respective owners.

#### **Website Access to Our SEC Filings and Corporate Governance Documents**

On the Investor Relations pages of our Website, <http://ir.amd.com>, we post links to our filings with the SEC, our Principles of Corporate Governance, our Code of Ethics for our executive officers and all other senior finance executives, our Worldwide Standards of Business Conduct, which applies to our Board of Directors and all of our employees, and the charters of the Audit and Finance, Compensation and Leadership Resources, Nominating and Corporate Governance and Innovation and Technology committees of our Board of Directors. Our filings with the SEC are posted as soon as reasonably practical after they are electronically filed with, or furnished to, the SEC. You can also obtain copies of these documents by writing to us at: Corporate Secretary, AMD, 7171 Southwest Parkway, M/S B100.2, Austin, Texas 78735, or emailing us at: [Corporate.Secretary@amd.com](mailto:Corporate.Secretary@amd.com). All of these documents and filings are available free of charge.

If we make substantive amendments to our Code of Ethics or grant any waiver, including any implicit waiver, to our principal executive officer, principal financial officer, principal accounting officer, controller or persons performing similar functions, we intend to disclose the nature of such amendment or waiver on our Website.

The information contained on our Website is not incorporated by reference in, or considered to be a part of, this report.

#### **Our Industry**

We are a global semiconductor company. Semiconductors are components used in a variety of electronic products and systems. An integrated circuit (IC) is a semiconductor device that consists of many interconnected transistors on a single chip. Since the invention of the transistor in 1948, improvements in IC process and design technologies have led to the development of smaller, more complex and more reliable ICs at a lower cost-per-function.

#### **Computing and Graphics**

##### ***The x86 Microprocessor and Chipset Markets***

**Central Processing Unit (CPU).** A microprocessor is an IC that serves as the CPU of a computer. It generally consists of hundreds of millions or billions of transistors that process data in a serial fashion and control other devices in the system, acting as the “brain” of the computer. The performance of a microprocessor is a critical factor impacting the performance of computing and entertainment platforms, such as desktop PCs, notebooks and workstations. The principal elements used to measure CPU performance are work-per-cycle (or how many instructions are executed per cycle), clock speed (representing the rate at which a CPU’s internal logic operates, measured in units of gigahertz, or billions of cycles per second) and power consumption. Other factors impacting microprocessor performance include the process technology used in its manufacture, the number and type of cores, the bit size of its instruction set (e.g., 32-bit vs 16-bit), memory size and data access speed.

Developments in IC design and manufacturing process technologies have resulted in significant advances in microprocessor performance. Since businesses and consumers require greater performance from their computer systems due to the growth of digital data and increasingly sophisticated software applications, multi-core microprocessors offer enhanced overall system performance and efficiency because computing tasks can be spread across two or more processing cores, each of which can execute a task at full speed. Multi-core microprocessors can simultaneously increase performance of a computer system without greatly increasing the total amount of power consumed and the total amount of heat emitted. Businesses and consumers also require computer systems with improved power management technology, which helps them to reduce the power consumption of their computer systems, enables smaller and more portable form factors, and lowers the total cost of ownership.

**Graphics Processing Unit (GPU).** A GPU is a programmable logic chip that renders images, animations and video and is increasingly being used to handle general computing tasks. GPUs are located in plug-in cards, as a discrete processor or in a chipset on the motherboard, or in the same chip as the CPU as part of an accelerated processing unit (APU) or System on Chip (SoC). GPUs on stand-alone cards or discrete GPUs on the motherboard typically include their own memory, while GPUs in the chipset or CPU chip share main memory with the CPU.

GPUs perform parallel operations on data to render images for the screen and are essential to presenting computer generated images on the screen, decoding and rendering animations and video. The more sophisticated the GPU, the higher

the resolution and the faster and smoother moving objects can be displayed on the screen or in a virtual environment (virtual and augmented realities).

In addition to graphics processing, the parallel operation of GPUs are used on multiple sets of data, increasingly used in vector processor for non-graphics applications that require repetitive computations such as supercomputing, deep neural networks, artificial and machine intelligence, and various embedded applications.

**Accelerated Processing Unit (APU).** Consumers increasingly demand computing devices with improved end-user experience, system performance and energy efficiency. Consumers also continue to demand thinner and lighter mobile devices, with better performance and longer battery life. We believe that a computing architecture that optimizes the use of its components can provide these improvements.

An APU is a processing unit that integrates a CPU and a GPU onto one chip (or one piece of silicon), along with, in some cases, other special-purpose components. This integration enhances system performance by “offloading” selected tasks to the best-suited component (i.e., the CPU or the GPU) to optimize component use, increasing the speed of data flow between the CPU and GPU through shared memory and allowing the GPU to function as both a graphics engine and an application accelerator. Having the CPU and GPU on the same chip also typically improves energy efficiency by, for example, eliminating connections between discrete chips.

Heterogeneous System Architecture (HSA) describes an industry standard that is an overarching design for having combinations of CPU and GPU processor cores that operate as a unified, integrated engine that shares system responsibilities and resources. AMD is a founding member of the HSA Foundation, a non-profit organization established to define and promote this open standards-based approach to heterogeneous computing. Heterogeneous computing allows for the elevation of the GPU to the same level of the CPU for memory access, queuing and execution. This capability allows software programmers to develop applications to more fully utilize graphics capabilities.

**System-on-Chip (SoC).** A SoC is a type of IC with a CPU, GPU and other components, such as a memory controller and peripheral management, comprising a complete computing system on a single chip. By combining all of these elements as a SoC, system performance and energy efficiency is improved, similar to an APU.

**Chipset.** A chipset is a generic term referring to a collection of system level components that manage data flow among a microprocessor or microprocessors, memory and peripherals (such as CD ROM drives, DVD drives and USB peripherals). Chipsets perform essential logic functions, balance a system’s performance and provide system control and power management functions. Some chipsets have graphics capabilities by including an integrated graphics processor (IGP) within the chipset. A chipset with an IGP is known as an IGP chipset. IGP chipsets can offer a lower cost, reduced power alternative to a discrete GPU, and are often also used in smaller form factors. Systems that are powered by an APU or by a CPU and discrete GPU combination often do not have a chipset and instead use an AMD Controller Hub chip to perform the functions of a chipset. As a result, we believe that either an APU and AMD Controller Hub chip combination or a SoC, which already includes a chipset, will eventually replace the market for IGP chipsets.

#### ***Our x86 Microprocessor and Chipset Products***

Our microprocessors are incorporated into computing platforms, which are a collection of technologies that are designed to work together to provide a more complete computing solution and to enable and advance the computing components. We believe that integrated, balanced computing platforms consisting of microprocessors, chipsets (either as discrete devices or integrated into an SoC) and GPUs (either as discrete GPUs or integrated into an APU or SoC) that work together at the system level bring end users improved system stability, increased performance and enhanced power efficiency. In addition, we believe our customers also benefit from an all-AMD platform (consisting of an APU or CPU, a discrete GPU, and an AMD Fusion Controller Hub chip when needed), as we are able to optimize interoperability, provide our customers a single point of contact for the key platform components and enable them to bring the platforms to market faster in a variety of client and server system form factors.

We currently base our microprocessors and chipsets on the x86 instruction set architecture and AMD’s Direct Connect Architecture, which connects an on-chip memory controller and input/output (I/O) channels directly to one or more microprocessor cores. We typically integrate two or more processor cores onto a single die, and each core has its own dedicated cache, which is memory that is located on the semiconductor die, permitting quick access to frequently used data and instructions. Some of our microprocessors have additional levels of cache such as L2, or second-level cache, and L3, or third-level cache, to enable faster data access and higher performance.

We focus on continually improving the energy efficiency of our products through our design principles and innovations in power management technology. To that end, we offer CPUs, GPUs, APUs, SoCs and chipsets with multiple low power

states that are designed to utilize lower clock speeds and voltages to reduce processor power consumption during active and idle times. The use of intelligent, dynamic power management is designed to create lower energy use by allowing compute applications to be completed quickly and efficiently, enabling a return to the ultra-low power idle state.

**Desktop.** Our APUs for desktop PCs consist primarily of the AMD A-Series and AMD E-Series APUs. We also offer AMD FX™ CPUs for the enthusiast market. The latest generation of our AMD FX CPUs is based on the “Piledriver” x86 multi-core architecture. Our AMD FX CPUs are designed for multitasking, high resolution gaming and HD media processing and come in eight-, six- and quad-core versions. In March 2016, we announced new additions to our desktop processor family with the AMD A10-7890K APU designed to help enable smooth play of online games and the AMD Athlon™ X4 880K APU that features our “Excavator” x86 architecture.

**Notebooks and 2-in-1s.** We continue to invest in designing and developing high performing and low power APUs for notebook PC platforms for the consumer market. Our APUs for notebook PCs consist primarily of AMD A-Series APUs and AMD E-Series APUs. These APUs combine discrete-level AMD Radeon™ graphics, and multi-core CPU processors on a single chip and are designed to optimize performance and energy efficiency. In May 2016, we announced our mobile 7th Generation A-Series processors, designed to provide productivity and entertainment performance with maximum mobility for consumers. These mobile 7th Generation AMD FX, A-Series and E-Series APUs are designed to deliver improvement in performance compared to the previous generation processors in gaming, video rendering and file compression performance.

**Chipsets.** Our portfolio of chipset products includes models with and without integrated graphics features for desktop and notebook PCs and servers, as well as AMD Controller Hub-based chipsets for our APUs. We offer AMD 9-Series chipsets for the Socket AM3/3+ platforms serving desktop PCs, and AMD A-Series Control Hubs for the Socket FM2/2+ and Socket FP4 platforms for desktop, all-in-one and notebook PCs. We also offer AMD 785E, 780E, 780M, 690E, SR5690, SP5100, SB600, SB710, SB850 and M690E chipsets and AMD A-Series Controller Hubs for our embedded products.

**Commercial.** We offer enterprise-class desktop and notebook PC solutions sold as AMD PRO for the commercial client market. AMD PRO solutions are designed to provide commercial-grade quality, platform longevity and extended image stability, and also include security and manageability features for enterprise customers. In October 2016, we announced the first PCs featuring 7th Generation AMD PRO APUs (formerly codenamed “Bristol Ridge PRO”). These AMD PRO APUs are built for businesses and designed to deliver increased computing and graphics performance and improved energy efficiency, while providing a secure and stable platform to protect customers’ IT investments.

### **Graphics Market**

The semiconductor graphics market addresses the need for improved visual and data processing in various computing devices. Many consumers value a rich visual experience to enable a more compelling and immersive experience, and, for these consumers, the PC has evolved from a traditional data processing and communications device to an entertainment platform. As a result, visual realism and graphical display capabilities are key product differentiation elements among computing devices. This has led to increasing creation and use of processing-intensive multimedia content for computing devices, including playing games, capturing media content, viewing online videos, editing photos and managing digital content. In turn, these trends have contributed to higher consumer demand for performance graphics solutions and to manufacturers designing computing devices with these capabilities.

### **Our Graphics Products**

Graphics processing is a fundamental component of almost everything we create and can be found in an APU, GPU, SoC or a combination of a GPU with one of the other foregoing products working in tandem. Our customers generally use our graphics solutions to increase the speed of rendering images, to help improve image resolution and color definition, and increasingly to process massive data sets for cloud and datacenter applications. We develop our graphics products for use in various computing devices and entertainment platforms, including desktop PCs, notebook PCs, 2-in-1s, All-in-Ones (AIOs), professional workstations, and the datacenter. With each of our graphics products, we have available drivers and supporting software packages that enable the effective use of these products under a variety of operating systems and applications. In addition, our recent Radeon Pro Software Crimson ReLive Edition now supports Linux®. The Linux version of this driver combines an open-source core and AMD Radeon Pro graphics' technologies and performance.

Our APUs deliver visual processing functionality for value and mainstream PCs by integrating a CPU and a GPU on a single chip, while discrete GPUs (which are also known as dGPUs) offer high performance graphics processing across all platforms. AMD Accelerated Parallel Processing or General Purpose GPU (GPGPU) refers to a set of advanced hardware and software technologies that enable discrete AMD GPUs, working in concert with the CPU, to accelerate computational tasks beyond traditional CPU processing by utilizing the vast number of discrete GPU cores while working with the CPU to process information cooperatively. In addition, computing devices with heterogeneous computing features run

computationally-intensive tasks more efficiently, which we believe provides a superior application experience to the end user. Moreover, heterogeneous computing allows for the elevation of the GPU to the same level as the CPU for memory access, queuing and execution.

**Discrete Desktop and Notebook Graphics.** Our discrete GPUs for desktop and notebook PCs are designed to enable next generation application program interface (APIs) like DirectX® 12 and Vulkan™, support new displays using FreeSync™ technology, and are uniquely positioned to help drive the next visual revolution of virtual reality (VR) in PC platforms. In March 2016, we introduced the Radeon Pro Duo GPU with the LiquidVR™ SDK platform designed for many aspects of VR content creation: from entertainment to education, journalism, medicine and cinema. In June 2016, we launched our first GPU featuring our Polaris architecture, the Radeon™ RX 480 GPU. Our Polaris architecture features our latest 4<sup>th</sup> Generation Graphics Core Next (GCN), along with the latest display technology support and performance per watt capabilities, all based on a FinFET 14 process technology. In July 2016, we revealed our new Radeon Pro SSG GPU with the ability to expand GPU storage up to 1 terabyte (TB) and which is designed for media and entertainment professionals. We also announced our new Radeon Pro WX series GPUs, which are based on our Polaris architecture and are designed for workstation professionals and creators. In August 2016, we introduced the new Radeon RX 470, targeted at high definition (HD) resolutions for gamers. Also in August 2016, we released the new Radeon RX 460 graphics card with an ultra-quiet cooling solution and sub-75W power footprint for mainstream and e-sports gaming.

**Professional Graphics.** Our AMD FirePro™ family of professional graphics products consists of 3D and 2D multi-view graphics cards and GPUs designed for integration in mobile and desktop workstations, as well as commercial PCs. We designed our AMD FirePro 3D graphics cards for demanding applications, such as those found in the computer aided design (CAD) and digital content creation (DCC) markets, with drivers specifically tuned for maximum performance, stability and reliability across a wide range of software packages. We designed our AMD FirePro 2D graphics cards with dual- and quad-display outputs for financial and corporate environments.

We also provide the AMD FirePro S-Series GPU products for the server market, where we target high performance computing (HPC) primarily focused on artificial and machine intelligence, deep neural networks (DNN), geosciences, biosciences, academic and government workloads, and virtual desktop infrastructure (VDI) use cases primarily focused on workstation-class virtualization, remote desktop and content streaming workloads. In April 2016, we announced the AMD FirePro W9100 with 32 gigabyte (GB) of memory support designed for large workflows with creative applications. In May 2016, we announced an AMD Multiuser GPU (MxGPU) for blade servers, the AMD FirePro S7100X GPU, designed to provide a “workstation-class” experience for up to 16 users that is practically indistinguishable from a native desktop experience. In November 2016, we announced a new release of Radeon Open Compute Platform (ROCm) featuring software support of the new Radeon GPU hardware, new math libraries, and a rich foundation of modern programming languages, designed to speed development of high-performance, energy efficient heterogeneous computing systems.

## **Enterprise, Embedded and Semi-Custom**

### ***The Enterprise, Embedded and Semi-Custom Markets***

**Server.** A server is a computer system that performs services for connected customers as part of a client-server architecture. Many servers are designed to run an application or applications often for extended periods of time with minimal human intervention. Examples of servers include web servers, e-mail servers and print servers. These servers can run a variety of applications, including business intelligence, enterprise resource planning, customer relationship management and advanced scientific or engineering models to solve advanced computational problems in disciplines ranging from financial modeling to weather forecasting to oil and gas exploration. Servers are also used in cloud computing, which is a computing model where data, applications and services are delivered over the internet or an intranet which can be rapidly provisioned and released with minimal effort. Today’s data centers require new technologies and configuration models to meet the demand driven by the staggering amount of data that needs to be stored, accessed and managed. Servers must be efficient, scalable and adaptable to meet the compute characteristics of new and changing workloads.

**Embedded.** Embedded products address computing needs in PC-adjacent markets, such as industrial control and automation, digital signage, point-of-sale/self-service kiosks, medical imaging and casino gaming machines as well as enterprise class telecommunications, networking, security, storage systems and thin clients (which are computers that serve as an access device on a network). Typically, our embedded products are used in applications that require high to moderate levels of performance, where key features may include mobility, relatively low power, small form factor, and 24x7 operations. High-performance graphics are increasingly important in many embedded systems. Support for Linux®, Windows® and other operating systems as well as for increasingly sophisticated applications are also critical for some customers. Other requirements may include meeting rigid specifications for industrial temperatures, shock, vibration and reliability. The embedded market has moved from developing proprietary, custom designs to leveraging industry-standard instruction set architectures and processors as a way to help reduce costs and speed time to market.

**Semi-Custom.** We have leveraged our core IP, including our graphics and processing technologies developed for the gaming, VR, augmented reality (AR) and machine intelligent markets, to develop semi-custom solutions for customers who want differentiation in their products. In this market, semiconductor suppliers work alongside system designers and manufacturers to enhance the performance and overall user experience for semi-custom customers. AMD has used this type of collaborative development approach with today's leading game console manufacturers, and can also address customer needs in many other markets beyond game consoles, leveraging our existing IP to create a variety of products tailored to a specific customer's needs, ranging from complex fully-customized SoCs to more modest adaptations and integrations of existing CPU, APU or GPU products.

#### ***Our Enterprise, Embedded and Semi-Custom Products***

**Server Processors.** Our microprocessors for server platforms currently include the AMD Opteron™ X-Series, AMD Opteron™ 6300 Series processors, and AMD Opteron™ A-Series processors.

**Embedded Processors.** Our embedded processors are increasingly driving intelligence into new areas of our lives, like interactive digital signage, casino gaming, and medical imaging devices. These products are designed to support greater connectivity and productivity, and we believe they are a strong driver for the “internet of things” and “immersive computing” areas in the computing industry. Our processor products for embedded platforms include AMD Embedded R-Series APU and CPUs, AMD Embedded G-Series SoC platform and AMD Embedded Radeon™ GPUs. In February 2016, we announced our 3<sup>rd</sup> Generation AMD Embedded G-Series SoCs and the Embedded G-Series LX SoC, providing customers a broadened portfolio of performance options. The 3<sup>rd</sup> Generation AMD Embedded G-Series SoCs, introduced for the first time pin compatibility between the G-Series family and the higher performance AMD Embedded R-Series family. Pin compatibility allows for devices to share the same package and pin-out so that customers can design one board and change the processor on the board without changing the board design. In September 2016, we announced two new AMD Embedded Radeon graphics cards, the AMD Embedded Radeon E9260 and the AMD Embedded Radeon E9550 discrete GPU products. These GPUs bring our Polaris architecture to the embedded markets and are designed elevate the level of GPU processing performance available to embedded customers.

**Semi-Custom.** Our semi-custom products are tailored, high-performance, customer-specific solutions based on AMD's CPU, GPU and multi-media technologies. We work closely together with our customers to define solutions to precisely match the requirements of the device or application. Historically we have leveraged our core graphics processing technology into the game console market by licensing our graphic technology in game consoles such as the Microsoft® Xbox 360™ and Nintendo Wii and Wii U. More recently, we developed the semi-custom SoC products that power the Sony PlayStation® 4 and new PlayStation® 4 Pro and Microsoft® Xbox One™ and Xbox One S™ game consoles.

#### **Marketing and Sales**

We sell our products through our direct sales force and through independent distributors and sales representatives in both domestic and international markets. Our sales arrangements generally operate on the basis of product forecasts provided by the particular customer, but do not typically include any commitment or requirement for minimum product purchases. We primarily use purchase orders, sales order acknowledgments and contractual agreements as evidence of our sales arrangements. Our agreements typically contain standard terms and conditions covering matters such as payment terms, warranties and indemnities for issues specific to our products.

We generally warrant that our products sold to our customers will conform to our approved specifications and be free from defects in material and workmanship under normal use and conditions for one year. Subject to certain exceptions, we also offer a three-year limited warranty to end users for those CPU and AMD A-Series APU products purchased as individually packaged products, commonly referred to as “processors in a box”, and for PC workstation products. We have also offered extended limited warranties to certain customers of “tray” microprocessor products and/or workstation graphics products who have written agreements with us and target their computer systems at the commercial and/or embedded markets.

We market and sell our latest products under the AMD trademark. Our desktop PC product brands for microprocessors are AMD A-Series, AMD E-Series, AMD FX CPU, AMD Athlon CPU and APU, AMD Sempron™ APU and CPU and AMD Pro A-Series APU. Our notebook and 2-in-1s for microprocessors are AMD A-Series, AMD E-Series, AMD C-Series, AMD Z-Series, AMD FX APU, AMD Phenom™, AMD Athlon CPU and APU, AMD Turion™ and AMD Sempron APU and CPU. Our server brand for microprocessors is AMD Opteron™. We also sell low-power versions of our AMD Opteron, AMD Athlon and AMD Sempron, as well as AMD Geode™, AMD R-Series and G-Series processors as embedded processor solutions. Our product brand for the consumer graphics market is AMD Radeon, and AMD Embedded Radeon is our product brand for the embedded graphics market. Our product brand for professional graphics products is AMD FirePro™. We also market and sell our chipsets under the AMD trademark.

We market our products through our direct marketing and co-marketing programs. In addition, we have cooperative advertising and marketing programs with customers and third parties, including market development programs, pursuant to which we may provide product information, training, marketing materials and funds. Under our co-marketing development programs, eligible customers can use market development funds as reimbursement for advertisements and marketing programs related to our products and third-party systems integrating our products, subject to meeting defined criteria.

## **Customers**

Our microprocessor customers consist primarily of original equipment manufacturers (OEMs), original design manufacturers (ODMs), system builders and independent distributors in both domestic and international markets. ODMs provide design and/or manufacturing services to branded and unbranded private label resellers, OEMs and system builders. Our graphics product customers include the foregoing as well as add-in-board manufacturers (AIBs).

Customers of our chipset products consist primarily of PC and server OEMs, often through ODMs or other contract manufacturers, who build the OEM motherboards, as well as desktop and server motherboard manufacturers who incorporate chipsets into their channel motherboards.

We work closely with our customers to define product features, performance and timing of new products so that the products we are developing meet our customers' needs. We also employ application engineers to assist our customers in designing, testing and qualifying system designs that incorporate our products. We believe that our commitment to customer service and design support improves our customers' time-to-market and fosters relationships that encourage customers to use the next generation of our products.

We also work with our customers to create differentiated products that leverage our CPU, GPU and APU technology. Customers of our semi-custom products pay us non-recurring engineering fees for design and development services and a purchase price for the resulting semi-custom products.

Our major customers, Sony Corporation, Microsoft Corporation and HP Inc., each accounted for more than 10% of our consolidated net revenue for the year ended December 31, 2016. Sales to Sony and Microsoft consisted of products from our Enterprise, Embedded and Semi-Custom segment and sales to HP Inc. consisted primarily of products from our Computing and Graphics segment. A loss of any of these customers would have a material adverse effect on our business.

### ***Original Equipment Manufacturers***

We focus on three types of OEM customers: multi-nationals, selected regional accounts and target market customers. Large multi-nationals and regional accounts are our core OEM customers. Our OEM customers include numerous foreign and domestic manufacturers of servers and workstations, desktops, notebooks, PC motherboards and game consoles.

### ***Third-Party Distributors***

Our authorized channel distributors resell to sub-distributors and mid-sized and smaller OEMs and ODMs. Typically, distributors handle a wide variety of products, and may include those that compete with our products. Distributors typically maintain an inventory of our products. In most instances, our agreements with distributors protect their inventory of our products against price reductions and provide return rights with respect to any product that we have removed from our price book that is not more than 12 months older than the manufacturing code date. In addition, some agreements with our distributors may contain standard stock rotation provisions permitting limited levels of product returns.

### ***Add-in-Board (AIB) Manufacturers and System Integrators***

We offer component-level graphics and chipset products to AIB manufacturers who in turn build and sell board-level products using our technology to system integrators (SIs), retail buyers and sub distributors. Our agreements with AIBs protect their inventory of our products against price reductions. We also sell directly to our SI customers. SIs typically sell from positions of regional or product-based strength in the market. They usually operate on short design cycles and can respond quickly with new technologies. SIs often use discrete graphics solutions as a means to differentiate their products and add value to their customers.

## **Competition**

Generally, the IC industry is intensely competitive. Products typically compete on timely product introductions, product quality (including enabling state-of-the art visual experiences), power consumption (including battery life), reliability, processor clock speed, performance, size (or form factor), selling price, cost, adherence to industry standards (and the creation of open industry standards), level of integration, software and hardware compatibility and stability, brand recognition and



availability. Technological advances in the industry can result in frequent product introductions, regular price reductions and short product life cycles for some products, and increased product capabilities that may result in significant performance improvements. Our ability to compete depends on our ability to develop, introduce and sell new products or enhanced versions of existing products on a timely basis and at competitive prices with competitive costs.

### ***Competition in the Microprocessor and Chipset Market***

Intel Corporation has been the market share leader for microprocessors for many years. Intel's market share, margins and significant financial resources enable it to market its products aggressively, to target our customers and our channel partners with special incentives and to influence customers who do business with us. These aggressive activities have in the past resulted in lower unit sales and a lower average selling price for many of our products and adversely affected our margins and profitability.

Intel exerts substantial influence over computer manufacturers and their channels of distribution through various brand and other marketing programs. As a result of Intel's position in the microprocessor market, Intel has been able to control x86 microprocessor and computer system standards and benchmarks and to dictate the type of products the microprocessor market requires of us. Intel also dominates the computer system platform, which includes core logic chipsets, graphics chips, motherboards and other components necessary to assemble a computer system. OEMs that purchase microprocessors for computer systems are highly dependent on Intel, which can make them less innovative on their own and, to a large extent, can become distributors of Intel technology. Additionally, Intel is able to drive de facto standards and specifications for x86 microprocessors that could cause us and other companies to have delayed access to such standards.

As long as Intel remains in this dominant position, we may be materially adversely affected by Intel's:

- business practices, including rebating and allocation strategies and pricing actions which may limit our market share and margins;
- product mix and introduction schedules;
- product bundling, marketing and merchandising strategies;
- exclusivity payments to its current and potential customers and channel partners that require or result in exclusive product arrangements;
- de facto control over industry standards, and heavy influence on PC manufacturers and other PC industry participants, including motherboard, memory, chipset and basic input/output system, or BIOS, suppliers and software companies as well as the graphics interface for Intel platforms; and
- marketing and advertising expenditures in support of positioning the Intel brand over the brand of its OEM customers.

Intel has substantially greater financial resources than we do and accordingly spends substantially greater amounts on marketing and research and development than we do. We expect Intel to maintain its market position and to continue to invest heavily in marketing, research and development, new manufacturing facilities and other technology companies. To the extent Intel manufactures a significantly larger portion of its microprocessor products using more advanced process technologies, or introduces competitive new products into the market before we do, we may be more vulnerable to Intel's aggressive marketing and pricing strategies for microprocessor products. For example, Intel has introduced microprocessors for low-cost notebooks, similar to products that we offer for low-cost notebooks.

Intel could also take actions that place our discrete GPUs at a competitive disadvantage, including giving one or more of our competitors in the graphics market, such as Nvidia Corporation, preferential access to its proprietary graphics interface or other useful information. Intel's position in the microprocessor market and integrated graphics chipset market, its introduction of competitive new products, its existing relationships with top-tier OEMs and its aggressive marketing and pricing strategies could result in lower unit sales and lower average selling prices for our products, which could have a material adverse effect on us.

Other competitors include a variety of companies providing or developing ARM-based designs at relatively low cost and low power processors for the computing market including tablets and thin-client form factors, as well as dense servers, set-top boxes and gaming consoles. ARM Holdings designs and licenses its ARM architecture to third parties, including us, and offers supporting software and services. Our ability to compete with companies who use ARM-based solutions depends on our ability to timely design and bring to market energy-efficient, high-performing products at an attractive price point.

In the chipset market, our competitors include suppliers of IGP chipsets. PC manufacturers use IGP chipsets because they typically cost less than traditional discrete GPUs while offering acceptable graphics performance for most mainstream

PC users. Intel also leverages its dominance in the microprocessor market to sell its IGP chipsets. Intel manufactures and sells IGP chipsets bundled with their microprocessors and is our main competitor in this market.

#### ***Competition in the Graphics Markets***

In the graphics market, our competitors include suppliers of discrete graphics, embedded graphics processors and IGP chipsets. Intel manufactures and sells embedded graphics processors and IGP chipsets, and is a dominant competitor with respect to this portion of our business. Higher unit shipments of our APUs and Intel's integrated graphics may drive computer manufacturers to reduce the number of systems they build paired with discrete graphics components, particularly for notebooks, because they may offer satisfactory graphics performance for most mainstream PC users, at a lower cost. Intel could take actions that place our discrete GPUs and IGP chipsets at a competitive disadvantage such as giving one or more of our competitors in the graphics market, such as Nvidia Corporation, preferential access to its proprietary graphics interface or other useful information.

Our principal competitor in the graphics market is Nvidia. AMD and Nvidia are the two principal companies offering discrete graphics solutions. Other competitors include a number of smaller companies, which may have greater flexibility to address specific market needs, but less financial resources to do so, especially as we believe that the growing complexity of graphics processors and the associated research and development costs represent an increasingly higher barrier to entry in this market.

In the semi-custom game console products, where graphics performance is critical, we compete primarily against Nvidia.

#### **Research and Development**

We focus our research and development activities on improving product performance and enhancing product design. Our main area of focus is on delivering the next generation of CPU and GPU IP, and designing that IP into our SoCs for our next generation of products, with, in each case, improved system performance and performance-per-watt characteristics. For example, we are focusing on improving the battery life of our APU products for notebooks, the power efficiency of our microprocessors for servers and the performance and power efficiency of our discrete GPUs. We are also focusing on delivering a range of low-power integrated platforms to serve key markets, including commercial clients, mobile computing and gaming. We believe that these platforms will bring customers increased performance and energy efficiency. We also work with industry leaders on process technology, software and other functional intellectual property and with others in the industry and industry consortia to conduct early stage research and development.

Our research and development expenses for 2016, 2015 and 2014 were approximately \$1.0 billion, \$0.9 billion and \$1.1 billion, respectively. For more information, see "Part II, Item 7-Management's Discussion and Analysis of Financial Condition and Results of Operations," below.

We conduct product and system research and development activities for our products in the United States with additional design and development engineering teams located in China, Canada, India, Singapore and Taiwan.

#### **Manufacturing Arrangements and Assembly and Test Facilities**

##### ***Third-Party Wafer Foundry Facilities***

**GLOBALFOUNDRIES Inc.** On March 2, 2009, we entered into a Wafer Supply Agreement (WSA) with GLOBALFOUNDRIES Inc. (GF). The WSA governs the terms by which we purchase products manufactured by GF, a related party to us. Pursuant to the WSA, we are required to purchase all of our microprocessor and APU product requirements, and a certain portion of our GPU product requirements from GF with limited exceptions. For more information about the WSA, see "Part II, Item 7-Management's Discussion and Analysis of Financial Condition and Results of Operations-GLOBALFOUNDRIES," below.

**Taiwan Semiconductor Manufacturing Company.** We also have foundry arrangements with Taiwan Semiconductor Manufacturing Company (TSMC) for the production of wafers for certain products.

**Other Third-Party Manufacturers.** We outsource board-level graphics product manufacturing to third-party manufacturers.

##### ***Assembly, Test, Mark and Packaging Facilities***

Wafers for our products are delivered from third-party foundries to our test, assembly and packaging partners located in the Asia-Pacific region who package and test our final semiconductor products.

On April 29, 2016, we and certain of our subsidiaries completed the sale of a majority of the equity interests in two of our assembly, test, mark and packaging facilities, Suzhou TF-AMD Semiconductor Co., Ltd. (formerly, AMD Technologies (China) Co., Ltd.) and TF AMD Microelectronics (Penang) Sdn. Bhd. (formerly, Advanced Micro Devices Export Sdn. Bhd.) to affiliates of Tongfu Fujitsu Microelectronics, Co., Ltd., or TFME (formerly, Nantong Fujitsu Microelectronics Co., Ltd.) to form two joint ventures (each an “ATMP JV”). As a result of the sale, TFME’s affiliates own 85% of the equity interests in each ATMP JV while certain of our subsidiaries own the remaining 15%.

### **Intellectual Property and Licensing**

We rely on contracts and intellectual property rights to protect our products and technologies from unauthorized third-party copying and use. Intellectual property rights include copyrights, patents, patent applications, trademarks, trade secrets and mask work rights. As of December 31, 2016, we had approximately 5,033 patents in the United States and approximately 913 patent applications pending in the United States. In certain cases, we have filed corresponding applications in foreign jurisdictions. Including United States and foreign matters, we have approximately 10,767 patent matters worldwide consisting of approximately 7,814 issued patents and 2,953 patent applications pending. We expect to file future patent applications in both the United States and abroad on significant inventions, as we deem appropriate. We do not believe that any individual patent, or the expiration of any patent, is or would be material to our business.

As is typical in the semiconductor industry, we have numerous cross-licensing and technology exchange agreements with other companies under which we both transfer and receive technology and intellectual property rights. One such agreement is the cross-license agreement that we entered into with Intel on November 11, 2009. Under the cross-license agreement, we granted to Intel and Intel granted to us, non-exclusive, royalty-free licenses to all of each other’s patents that were first filed no later than November 11, 2014 and each party can exploit these patents anywhere in the world for making and selling certain semiconductor- and electronic-related products. Under the cross-license agreement, Intel has rights to make semiconductor products for third parties, but the third-party product designs are not licensed as a result of such manufacture. We have rights to perform assembly and testing for third parties but not rights to make semiconductor products for third parties. The term of the cross-license agreement continues until the expiration of the last to expire of the licensed patents, unless earlier terminated. A party can terminate the cross-license agreement or the rights and licenses of the other party if the other party materially breaches the cross-license agreement and does not correct the noticed material breach within 60 days. Upon such termination, the terminated party’s license rights terminate but the terminating party’s license rights continue, subject to that party’s continued compliance with the terms of the cross-license agreement. The cross-license agreement will automatically terminate if a party undergoes a change of control (as defined in the cross license agreement), and both parties’ licenses will terminate. Upon the bankruptcy of a party, that party may assume, but may not assign, the cross-license agreement, and in the event that the cross-license agreement cannot be assumed, the cross-license agreement and the licenses granted will terminate.

### **Backlog**

Sales are made primarily pursuant to purchase orders for current delivery or agreements covering purchases over a period of time. Some of these orders or agreements may be revised or canceled without penalty. Generally, in light of current industry practice, we do not believe that such orders or agreements provide meaningful backlog figures or are necessarily indicative of actual sales for any succeeding period.

### **Seasonality**

Our operating results tend to vary seasonally. For example, historically, first quarter PC product sales are generally lower than fourth quarter sales. In addition, with respect to our semi-custom SoC products for game consoles, we expect sales patterns to follow the seasonal trends of a consumer business with sales in the first half of the year being lower than sales in the second half of the year.

### **Employees**

As of December 31, 2016, we had approximately 8,200 employees.

### **Environmental Regulations**

Our operations and properties have in the past been and continue to be subject to various United States and foreign environmental laws and regulations, including those relating to materials used in our products and manufacturing processes,

discharge of pollutants into the environment, the treatment, transport, storage and disposal of solid and hazardous wastes and remediation of contamination. These laws and regulations require us to obtain permits for our operations, including the discharge of air pollutants and wastewater. Although our management systems are designed to maintain compliance, we cannot assure you that we have been or will be at all times in complete compliance with such laws, regulations and permits. If we violate or fail to comply with any of them, a range of consequences could result, including fines, suspension of production, alteration of manufacturing processes, import/export restrictions, sales limitations, criminal and civil liabilities or other sanctions. We could also be held liable for any and all consequences arising out of exposure to hazardous materials used, stored, released, disposed of by us or located at, under or emanating from our facilities or other environmental or natural resource damage. While we have budgeted for foreseeable associated expenditures, we cannot assure you that future environmental legal requirements will not become more stringent or costly in the future. Therefore, we cannot assure you that our costs of complying with current and future environmental and health and safety laws, and our liabilities arising from past and future releases of, or exposure to, hazardous substances will not have a material adverse effect on us.

Environmental laws are complex, change frequently and have tended to become more stringent over time. For example, the European Union (EU) and China are two among a growing number of jurisdictions that have enacted restrictions on the use of lead and other materials in electronic products. These regulations affect semiconductor devices and packaging. As regulations restricting materials in electronic products continue to increase around the world, there is a risk that the cost, quality and manufacturing yields of products that are subject to these restrictions, may be less favorable compared to products that are not subject to such restrictions, or that the transition to compliant products may not meet customer roadmaps, or produce sudden changes in demand, which may result in excess inventory. A number of jurisdictions including the EU, Australia and China are developing or have finalized market entry or public procurement regulations for computers and servers based on ENERGY STAR specifications as well as additional energy consumption limits. There is the potential for certain of our products being excluded from some of these markets which could materially adversely affect us.

Certain environmental laws, including the U.S. Comprehensive, Environmental Response, Compensation and Liability Act of 1980, or the Superfund Act, impose strict or, under certain circumstances, joint and several liability on current and previous owners or operators of real property for the cost of removal or remediation of hazardous substances and impose liability for damages to natural resources. These laws often impose liability even if the owner or operator did not know of, or was not responsible for, the release of such hazardous substances. These environmental laws also assess liability on persons who arrange for hazardous substances to be sent to disposal or treatment facilities when such facilities are found to be contaminated. Such persons can be responsible for cleanup costs even if they never owned or operated the contaminated facility. We have been named as a responsible party at three Superfund sites in Sunnyvale, California. Although we have not yet been, we could be named a potentially responsible party at other Superfund or contaminated sites in the future. In addition, contamination that has not yet been identified could exist at our other facilities.

Under the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, the Securities and Exchange Commission (“SEC”) adopted disclosure and reporting requirements for companies that use “conflict” minerals originating from the Democratic Republic of Congo or adjoining countries. We continue to incur additional costs associated with complying with these requirements, such as costs related to developing internal controls for the due diligence process, determining the source of any conflict minerals used in our products, auditing the process and reporting to our customers and the SEC. Also, since our supply chain is complex, we may face reputational challenges if we are unable to sufficiently verify the origins of the subject minerals. Moreover, we are likely to encounter challenges to satisfy those customers who require that all of the components of our products are certified as “conflict free.” If we cannot satisfy these customers, they may choose a competitor’s products.

## ITEM 1A. RISK FACTORS

*The risks and uncertainties described below are not the only ones we face. If any of the following risks actually occurs, our business, financial condition or results of operations could be materially adversely affected. In addition, you should consider the interrelationship and compounding effects of two or more risks occurring simultaneously.*

### ***Intel Corporation's dominance of the microprocessor market and its aggressive business practices may limit our ability to compete effectively.***

Intel Corporation has been the market share leader for microprocessors for many years. Intel's market share, margins and significant financial resources enable it to market its products aggressively, to target our customers and our channel partners with special incentives and to influence customers who do business with us. These aggressive activities have in the past and are likely in the future to result in lower unit sales and a lower average selling price for many of our products and adversely affect our margins and profitability.

Intel exerts substantial influence over computer manufacturers and their channels of distribution through various brand and other marketing programs. As a result of Intel's position in the microprocessor market, Intel has been able to control x86 microprocessor and computer system standards and benchmarks and to dictate the type of products the microprocessor market requires of us. Intel also dominates the computer system platform, which includes core logic chipsets, graphics chips, motherboards and other components necessary to assemble a computer system. OEMs that purchase microprocessors for computer systems are highly dependent on Intel, less innovative on their own and, to a large extent, are distributors of Intel technology. Additionally, Intel is able to drive de facto standards and specifications for x86 microprocessors that could cause us and other companies to have delayed access to such standards.

As long as Intel remains in this dominant position, we may be materially adversely affected by Intel's:

- business practices, including rebating and allocation strategies and pricing actions, designed to limit our market share and margins;
- product mix and introduction schedules;
- product bundling, marketing and merchandising strategies;
- exclusivity payments to its current and potential customers and channel partners;
- de facto control over industry standards, and heavy influence on PC manufacturers and other PC industry participants, including motherboard, memory, chipset and basic input/output system, or BIOS, suppliers and software companies as well as the graphics interface for Intel platforms; and
- marketing and advertising expenditures in support of positioning the Intel brand over the brand of its original equipment manufacturer OEM customers.

Intel has substantially greater financial resources than we do and accordingly spends substantially greater amounts on marketing and research and development than we do. We expect Intel to maintain its market position and to continue to invest heavily in marketing, research and development, new manufacturing facilities and other technology companies. To the extent Intel manufactures a significantly larger portion of its microprocessor products using more advanced process technologies, or introduces competitive new products into the market before we do, we may be more vulnerable to Intel's aggressive marketing and pricing strategies for microprocessor products. For example, Intel has introduced microprocessors for low-cost notebooks, similar to products that we offer for low-cost notebooks.

Intel could also take actions that place our discrete GPUs at a competitive disadvantage, including giving one or more of our competitors in the graphics market, such as Nvidia Corporation, preferential access to its proprietary graphics interface or other useful information. Intel's position in the microprocessor market and integrated graphics chipset market, its introduction of competitive new products, its existing relationships with top-tier OEMs and its aggressive marketing and pricing strategies could result in lower unit sales and a lower average selling price for our products, which could have a material adverse effect on us.

***We have a wafer supply agreement with GF with obligations to purchase all of our microprocessor and APU product requirements, and a certain portion of our GPU product requirements from GF, with limited exceptions. If GF is not able to satisfy our manufacturing requirements, our business could be adversely impacted.***

The WSA governs the terms by which we purchase products manufactured by GF. The WSA is in place until 2024. Pursuant to the WSA, we are required to purchase all of our microprocessor and APU product requirements, and a portion of our GPU product requirements from GF with limited exceptions. If GF is unable to achieve anticipated manufacturing yields, remain

competitive using or implementing advanced leading-edge process technologies needed to manufacture future generations of our products, manufacture our products on a timely basis at competitive prices or meet our capacity requirements, then we may experience delays in product launches, supply shortages for certain products or increased costs and our business could be materially adversely affected. Moreover, if GF is unable to satisfy our manufacturing requirements and we are unable to secure from GF additional exceptions allowing us to contract with another wafer foundry to satisfy those requirements, then our business could be materially adversely affected.

In August 2016, we entered into the sixth amendment to the WSA (Sixth Amendment) pursuant to which we agreed to certain annual wafer purchase targets through 2020, and if we fail to meet the agreed wafer purchase target during a calendar year we will be required to pay to GF a portion of the difference between our actual wafer purchases and the applicable annual purchase target. If our actual wafer requirements are less than the number of wafers required to meet the applicable annual wafer purchase target, we could have excess inventory or higher inventory unit costs, both of which may adversely impact our gross margin and our results of operations.

In addition, GF has relied on Mubadala Technology Investments LLC (Mubadala Tech) for its funding needs. If Mubadala Tech fails to adequately fund GF on a timely basis, or at all, GF's ability to manufacture products for us could be materially adversely affected.

***We rely on third parties to manufacture our products, and if they are unable to do so on a timely basis in sufficient quantities and using competitive technologies, our business could be materially adversely affected.***

We rely on third-party wafer foundries to fabricate the silicon wafers for all of our products. We also rely on third-party manufacturers to assemble, test, mark and pack (ATMP) our products. It is important to have reliable relationships with all of these third-party manufacturing suppliers to ensure adequate product supply to respond to customer demand.

We cannot guarantee that these manufacturers or our other third-party manufacturing suppliers will be able to meet our near-term or long-term manufacturing requirements. If we experience supply constraints from our third-party manufacturing suppliers, we may be required to allocate the affected products amongst our customers, which could have a material adverse effect on our relationships with these customers and on our financial condition. In addition, if we are unable to meet customer demand due to fluctuating or late supply from our manufacturing suppliers, it could result in lost sales and have a material adverse effect on our business.

We do not have long-term commitment contracts with some of our third-party manufacturing suppliers. We obtain some of these manufacturing services on a purchase order basis and these manufacturers are not required to provide us with any specified minimum quantity of product beyond the quantities in an existing purchase order. Accordingly, we depend on these suppliers to allocate to us a portion of their manufacturing capacity sufficient to meet our needs, to produce products of acceptable quality and at acceptable manufacturing yields and to deliver those products to us on a timely basis and at acceptable prices. The manufacturers we use also fabricate wafers and assemble, test and package products for other companies, including certain of our competitors. They could choose to prioritize capacity for other customers, increase the prices that they charge us on short notice or reduce or eliminate deliveries to us, which could have a material adverse effect on our business.

Other risks associated with our dependence on third-party manufacturers include limited control over delivery schedules and quality assurance, lack of capacity in periods of excess demand, misappropriation of our intellectual property, dependence on several small undercapitalized subcontractors and limited ability to manage inventory and parts. Moreover, if any of our third-party manufacturers suffer any damage to facilities, lose benefits under material agreements, experience power outages, lack sufficient capacity to manufacture our products, encounter financial difficulties, are unable to secure necessary raw materials from their suppliers or suffer any other disruption or reduction in efficiency, we may encounter supply delays or disruptions. If we are unable to secure sufficient or reliable supplies of products, our ability to meet customer demand may be adversely affected and this could materially affect our business.

If we transition the production of some of our products to new manufacturers, we may experience delayed product introductions, lower yields or poorer performance of our products. If we experience problems with product quality or are unable to secure sufficient capacity from a particular third-party manufacturer, or if we for other reasons cease utilizing one of those suppliers, we may be unable to secure an alternative supply for any specific product in a short time frame. We could experience significant delays in the shipment of our products if we are required to find alternative third-party manufacturers, which could have a material adverse effect on our business.

In April 2016, we consummated a transaction with Tongfu Fujitsu Microelectronics Co., Ltd. (formerly, Nantong Fujitsu Microelectronics Co., Ltd.) (TFME), under which we sold to TFME 85% of the equity interests in our ATMP facilities consisting