In this document, the words "Qualcomm," "we," "our," "ours" and "us" refer only to QUALCOMM Incorporated and its subsidiaries and not any other person or entity. This Annual Report (including, but not limited to, the section regarding Management's Discussion and Analysis of Financial Condition and Results of Operations) contains forward-looking statements regarding our business, investments, financial condition, results of operations and prospects. Words such as "expects," "anticipates," "intends," "plans," "believes," "seeks," "estimates" and similar expressions or variations of such words are intended to identify forward-looking statements, but are not the exclusive means of identifying forward-looking statements in this Annual Report. Additionally, statements concerning future matters such as the development of new products, enhancements or technologies, industry and market trends, sales levels, expense levels and other statements regarding matters that are not historical are forward-looking statements, but are not the exclusive means of identifying forward-looking statements in this Annual Report.

Although forward-looking statements in this Annual Report reflect our good faith judgment, such statements can only be based on facts and factors currently known by us. Consequently, forward-looking statements are inherently subject to risks and uncertainties and actual results and outcomes may differ materially from the results and outcomes discussed in or anticipated by the forward-looking statements. Factors that could cause or contribute to such differences in results and outcomes include without limitation those discussed under "Part I, Item 1A. Risk Factors" below, as well as those discussed elsewhere in this Annual Report. Readers are urged not to place undue reliance on these forward-looking statements, which speak only as of the date of this Annual Report. We undertake no obligation to revise or update any forward-looking statements in order to reflect any event or circumstance that may arise after the date of this Annual Report. Readers are urged to carefully review and consider the various disclosures made in this Annual Report, which attempt to advise interested parties of the risks and factors that may affect our business, financial condition, results of operations and prospects.

PART I

Item 1. Business

We incorporated in California in 1985 and reincorporated in Delaware in 1991. We operate and report using a 52-53 week fiscal year ending on the last Sunday in September. Our 52-week fiscal years consist of four equal fiscal quarters of 13 weeks each, and our 53-week fiscal years consist of three 13-week fiscal quarters and one 14-week fiscal quarter. The financial results for our 53-week fiscal years and our 14-week fiscal quarters will not be exactly comparable to our 52-week fiscal years and our 13-week fiscal quarters. The fiscal years ended September 29, 2019 and September 24, 2017 included 52 weeks. The fiscal year ended September 30, 2018 included 53 weeks.

Overview

We are a global leader in the development and commercialization of foundational technologies for the wireless industry. Our technologies and products are used in mobile devices and other wireless products, including network equipment, broadband gateway equipment, consumer electronic devices and other connected devices. Our inventions have helped power the growth in smartphones, which have connected billions of people. We are a pioneer in 3G (third generation) and 4G (fourth generation) wireless technologies and are a leader in 5G (fifth generation) wireless technologies to empower a new era of intelligent, connected devices. Our technologies and products are also used in industry segments and applications beyond mobile, including automotive, computing, IoT (Internet of Things) and networking, allowing devices and objects to connect and communicate with each other in new ways. We derive revenues principally from sales of integrated circuit products and licensing our intellectual property, including patents and other rights.

The foundational technologies we invent help power the modern mobile experience, impacting how the world connects, computes and communicates. We share these inventions broadly through our licensing program, enabling wide ecosystem access to technologies at the core of mobile innovation, and through the sale of our wireless integrated circuit platforms (also known as chips or chipsets) and other products, which accelerates consumer adoption of experiences empowered by these inventions. As a company, we collaborate across the ecosystem, including manufacturers, operators, developers, governments and industry standards organizations, to enable a global environment to drive continued progress and growth.

We have a long history of driving innovation. We have played and continue to play a leading role in developing system level inventions that serve as the foundation for 3G, 4G and 5G wireless technologies. This includes the CDMA (Code Division Multiple Access) and OFDMA (Orthogonal Frequency Division Multiple Access) families of technologies, with the latter encompassing LTE (Long Term Evolution), which, along with TDMA (Time Division Multiple Access), are the primary digital technologies currently used to transmit a wireless device user's voice or data over radio waves using a public cellular wireless network.

We own significant intellectual property, including patents, patent applications and trade secrets, applicable to products that implement any version of CDMA and OFDMA. Companies in the mobile industry generally recognize that any company

seeking to develop, manufacture and/or sell devices or infrastructure equipment that use CDMA-based and/or OFDMA-based technologies will require a license or other rights to use our patents.

We also develop and commercialize numerous other key technologies used in mobile and other wireless devices that help drive end-user demand, and we own substantial intellectual property related to these technologies. Some of these inventions are contributed to and commercialized as industry standards, such as certain video and audio codecs, Wi-Fi, GPS (global positioning system) and Bluetooth. Other technologies that we have developed and that are widely used by wireless devices are not related to any industry standards, such as operating systems, user interfaces, graphics and camera processing functionality, RF (radio frequency), RF front-end (RFFE) and antenna designs and application processor architectures. Our patents cover a wide range of technologies across the entire wireless system (including wireless devices and network infrastructure equipment), not just the portion of such patented technologies incorporated into chipsets.

We are organized on the basis of products and services and have three reportable segments. We conduct business primarily through our QCT (Qualcomm CDMA Technologies) semiconductor business and our QTL (Qualcomm Technology Licensing) licensing business. QCT develops and supplies integrated circuits and system software based on CDMA, OFDMA and other technologies for use in mobile devices, wireless networks, broadband gateway equipment, consumer electronic devices, devices used in IoT and automotive telematics and infotainment systems. QTL grants licenses to use portions of our intellectual property portfolio, which includes certain patent rights essential to and/or useful in the manufacture and sale of certain wireless products. Our QSI (Qualcomm Strategic Initiatives) reportable segment makes strategic investments. We also have nonreportable segments, including Qualcomm Government Technologies or QGOV (formerly Qualcomm Cyber Security Solutions), as well as other wireless technology and service initiatives.

Industry Trends

As the largest technology platform in the world, mobile has transformed the way we connect, compute and communicate. The scale and pace of innovation in the mobile industry, especially around connectivity and computing capabilities, is also impacting industries beyond wireless, empowering new services, new business models and new experiences. Our inventions and licensing program have been integral to, and provided foundational technologies for, the evolution of the mobile industry.

Advancing connectivity. 3G/4G multimode mobile broadband technology has been a key innovation of mobile, providing users with fast, reliable, always-on connectivity. As of September 30, 2019, there were approximately 6.0 billion 3G/4G connections globally (CDMA-based, OFDMA-based and CDMA/OFDMA multimode) representing 76% of total mobile connections (GSMA Intelligence, November 2019). By 2023, global 3G/4G connections are projected to reach 7.0 billion, with approximately 88% of these connections coming from emerging regions and China (GSMA Intelligence, November 2019).

3G/4G multimode mobile broadband continues to be an important platform for extending the reach and potential of the Internet. This is amplified in emerging regions and China, where, as of September 30, 2019, 3G/4G mobile broadband connections are estimated to be approximately seven times the number of fixed Internet household connections (GSMA Intelligence November 2019 and PT June 2019). In China, 3G/4G multimode services have experienced strong adoption since being launched in 2013, with more than 1.4 billion connections estimated as of September 30, 2019 (GSMA Intelligence, November 2019). In India, mobile operators continue to expand their 3G/4G multimode services, providing consumers with the benefits of advanced mobile broadband connectivity while creating new opportunities for device manufacturers and other members of the mobile ecosystem. 3G/4G mobile broadband may be the first and, in many cases, the only way that people in these regions access the Internet. The transition of wireless networks and devices to 3G/4G has not only been driven by the number of affordable handsets available in emerging regions and China, but also by the variety of flexible and affordable data plans being offered by mobile operators.

With the first 5G global specifications defined in 2018 by 3GPP (3rd Generation Partnership Project), an industry standards development organization, initial commercial 5G network deployments and device launches, which focus on enhanced mobile broadband services, began in 2019 and will continue into 2020 and beyond. 5G is designed to enhance mobile broadband services, including ultra-high definition (4K) video streaming, near-instant access to cloud services and augmented and virtual reality applications, with lower latency and multi-gigabit user data speeds, and bring more capacity and efficiency to networks, which may enable operators to offer new unlimited mobile data plans.

Looking ahead, we expect future releases of 5G to expand to new industries beyond traditional cellular communications and to create new business models and services, such as autonomous vehicles and artificial intelligence-based platforms designed to bring greater autonomy to manufacturing and other industrial applications (known as industrial IoT), through ultra-reliable, ultra-low latency communication links. We also expect 5G will enable connecting a significant number of “things” (also known as IoT, including the connected home, smart cities, wearables and voice and music devices), with

connectivity designed to meet diverse (low) power and cost requirements, as well as to address both low and high complexity applications.

Most 5G devices are expected to include multimode support for 3G, 4G and Wi-Fi, enabling service continuity where 5G has yet to be deployed and simultaneous connectivity across 4G technology, while also allowing mobile operators to utilize current network deployments. At the same time, 4G is expected to continue to evolve in parallel with the further development of 5G and become fundamental to many of the key 5G technologies (through multi-connectivity) in areas such as support for unlicensed spectrum, gigabit LTE user data speeds and LTE IoT that meets low power and cost requirements. The first phase of 5G networks supports mobile broadband services for the smartphone form factor both in lower spectrum bands below 6 GHz (sub-6), as well as higher bands above 6 GHz, including millimeter wave (mmWave). As with previous generations of mobile networks, it will take time to deploy new 5G networks.

Consumer demand in smartphones. From October 2018 through September 2019, approximately 1.4 billion smartphones are estimated to have shipped globally, representing a year-over-year decrease of approximately 4% (IDC, Mobile Phone Tracker, 2019Q3). Smartphone shipments in calendar 2020 are expected to be approximately flat year-over-year (IDC Quarterly Mobile Phone Tracker, 2019Q3). The slow-down in smartphone demand that began in the year ended September 2019, and that is expected to continue into calendar 2020, reflects further lengthening of replacement cycles, particularly in developed regions and China, where consumer demand is increasingly driven by new product launches and/or innovation cycles as the industry transitions to 5G.

Consumer demand for new types of experiences, combined with the needs of mobile operators and device manufacturers to provide differentiated features and services, is driving continued innovation within the smartphone. As a result, the smartphone has become the go-to device for social networking, music and video streaming, gaming, email and web browsing, among others. It is expected that 5G connectivity will drive further innovations within the smartphone and offer enhanced connectivity, which in turn will enable new applications. Given its advanced capabilities and utility, the smartphone has replaced many traditional consumer electronic devices, including digital cameras, video cameras, standalone GPS units, gaming devices and music players.

Transforming other industries. With their significant scale and highly integrated solutions, industries beyond mobile, including automotive, computing, IoT and networking, among others, are leveraging the same technology innovations found in today's leading smartphones to enhance existing products and services as well as to create new products and services. Our inventions that contribute to the formation of advanced cellular technologies, such as 3G/4G and now 5G connectivity, are helping to drive, and in the case of 5G accelerate the pace of, this transformation. For example, in the automotive industry, approximately 72% of new vehicles produced are projected to have cellular connectivity by 2025, compared to 40% in 2018 (Strategy Analytics, October 2019). In addition, the installed base of non-mobile devices with cellular connectivity, which includes IoT devices among others, is projected to grow more than 150% between 2019 and 2023 (ABI Research, February 2019).

Wireless Technologies Overview

The growth in the use of wireless devices worldwide and the demand for data services and applications requires continuous innovation to improve the user experience, support new services, increase network capacity, make use of different frequency bands and allow for dense network deployments. To meet these requirements, different wireless communications technologies continue to evolve. For nearly three decades, we have invested heavily in research and development and have developed foundational technologies that drive the continued evolution of the wireless industry, including CDMA and OFDMA. As a result, we have developed and acquired (and continue to develop and acquire) significant related intellectual property. This intellectual property has been incorporated into the most widely accepted and deployed cellular wireless communications technology standards, and we have licensed it to several hundred licensees, including leading wireless device and infrastructure manufacturers.

Cellular wireless technologies. Relevant cellular wireless technologies can be grouped into the following categories.

TDMA-based. TDMA (Time Division Multiple Access)-based technologies are characterized by their access method allowing several users to share the same frequency channel by dividing the signal into different time slots. Most of these systems are classified as 2G (second generation) technology. The main examples of TDMA-based technologies are GSM (deployed worldwide), IS-136 (deployed in the Americas) and Personal Digital Cellular (PDC) (deployed in Japan).

The transition of wireless devices from 2G to 3G/4G and the emergence of 5G technologies continued around the world with estimated 3G/4G/5G connections up 11% year-over-year (GSMA Intelligence, November 2019). As of September 30, 2019, there were approximately 1.9 billion GSM connections worldwide, representing approximately 24% of total cellular connections, down from 30% as of September 30, 2018 (GSMA Intelligence, November 2019).

CDMA-based. CDMA-based technologies are characterized by their access method allowing several users to share the same frequency and time by allocating different orthogonal codes to individual users. Most of the CDMA-based technologies are classified as 3G technology.

There are a number of variants of CDMA-based technologies deployed around the world, in particular CDMA2000, EV-DO (Evolution Data Optimized), WCDMA (Wideband CDMA) and TD-SCDMA (Time Division-Synchronous CDMA) (deployed exclusively in China). CDMA-based technologies provide vastly improved capacity for voice and low-rate data services as compared to analog technologies and significant improvements over TDMA-based technologies such as GSM. To date, these technologies have seen many revisions. New specifications continue to be defined by 3GPP.

CDMA technologies ushered in a significant increase in mobile broadband data services. As of September 30, 2019, there were approximately 2.1 billion CDMA-based connections worldwide, representing approximately 27% of total cellular connections, down from 28% as of September 29, 2018 as consumers migrate to OFDMA-based technologies (GSMA Intelligence, November 2019).

OFDMA-based. OFDMA-based technologies are characterized by their access method allowing several users to share the same frequency band and time by allocating different subcarriers to individual users. Most of the OFDMA-based technologies to be deployed or expected to be deployed through the end of 2019 are classified as 4G technology. 5G heavily leverages OFDMA-based technologies. 3GPP developed 4G specifications through the standardization of the radio component (LTE) and the core network component (Enhanced Packet Core or EPC). Similarly, 3GPP has developed 5G specifications through the specification of the radio component (New Radio or NR) and the core network component (5G Core or 5GC). Unlike 4G that has fixed Orthogonal Frequency Division Multiplexing (OFDM) parameterization, 5G has multiple OFDM parameterizations to address a wide range of spectrum and use cases. We continue to play a significant role in the development of LTE, LTE Advanced and LTE Advanced Pro, which are the predominant 4G technologies currently in use.

LTE is incorporated in 3GPP specifications starting from Release 8 and uses OFDMA in the downlink and single carrier FDMA (Frequency Division Multiple Access) in the uplink. LTE has two modes, FDD (frequency division duplex) and TDD (time division duplex), to support paired and unpaired spectrum, respectively, and continues to evolve as 3GPP defines new specifications. The principal benefit of LTE is its ability to leverage a wide range of spectrum (bandwidths of up to 20 MHz or more through aggregation). LTE is designed to seamlessly interwork with 3G technologies through multimode devices.

LTE Advanced brings many more enhancements, including carrier aggregation, advanced antenna techniques and optimization for small cells. Apart from improving the performance of existing networks, there are also new enhancements under the umbrella of LTE Advanced Pro, including LTE Direct for proximity-based device-to-device discovery, improved LTE broadcast, optimizations of narrowband communications designed for IoT (known as eMTC and NB-IoT) and the ability to use LTE Advanced in unlicensed spectrum (LTE Unlicensed) as well as in emerging shared spectrum bands in various regions (such as the Citizens Broadband Radio Service, or CBRS, in the United States). There are multiple options for deploying LTE Unlicensed for different deployment scenarios.

- LAA (Licensed Assisted Access), introduced as part of 3GPP Release 13, aggregates unlicensed and licensed spectrum in the downlink and is being deployed globally by mobile operators. LAA is a key technology for many operators with limited licensed spectrum to deliver Gigabit LTE speeds.
- eLAA (enhanced LAA) introduced as part of 3GPP Release 14, is an evolution of LAA, enables aggregation of unlicensed and licensed spectrum in the uplink.

Beginning with Release 14, 3GPP specifications provide enhancements specifically for vehicular communications known as cellular vehicle-to-everything (C-V2X), which includes both direct communication (vehicle-to-vehicle, vehicle-to-infrastructure and vehicle-to-pedestrian) in dedicated spectrum that is independent of a cellular network and cellular communications with networks in traditional mobile broadband licensed spectrum. C-V2X is designed to serve as the foundation for Intelligent Transportation Systems (ITS), enabling vehicles to communicate with each other and everything around them providing non-line-of-sight awareness for enhanced road safety and traffic efficiency. In future 3GPP releases (starting in Release 16, which is expected to be completed in June 2020), C-V2X is expected to benefit from the incorporation of 5G features, such as high throughput, lower latency and ultra-reliable communication capabilities to enable a higher level of performance and predictability as needed for automated driving and other advanced use cases.

As of September 30, 2019, there were approximately 3.8 billion global LTE connections worldwide, representing approximately 49% of total cellular connections, up from 41% as of September 30, 2018 (GSMA Intelligence, November 2019).

As of October 2019, approximately 900 wireless operators have commercially deployed or started testing LTE networks and 777 operators have commercially launched LTE in 228 countries, including 308 operators in 135 countries having commercially launched LTE Advanced networks (GSA, November 2019).

The wireless industry is actively developing and commercializing 5G technologies. Initial commercial 5G network deployments and device launches began in calendar 2019, and we expect that 5G network deployments and device launches will increase over the next several years. Some of our inventions that serve as foundational technologies for 3G and 4G now also serve as foundational technologies for 5G. 5G is designed to transform the role of wireless technologies and already incorporates or soon will incorporate advancements on 3G/4G features available today, including device-to-device capabilities and the use of all different types of spectrum (including licensed, unlicensed and shared spectrum). We continue to play a significant role in driving advancements in 5G, including contributing to 3GPP standardization activities that are defining the continued evolution of 5G NR and 5GC standards.

The first global set of 5G standards is incorporated in 3GPP specifications starting from Release 15, which was initially completed in March 2018 and subsequently updated in September 2018 and June 2019. Release 15 enables different architecture deployment choices of 5G networks while sharing the same radio access technology. The main advantages of 5G are its ability to target diverse services with very different technical requirements (from enhanced mobile broadband to massive IoT to mission critical services), its utilization of diverse types of spectrum (from the low bands to millimeter bands) and its ability to support diverse types of deployment scenarios. Predominant technological components of 5G include the ability to address ultra-reliable, low-latency communication, new channel coding schemes to efficiently support large data blocks, multiple-input multiple-output (MIMO) to increase coverage and network capacity and mobile millimeter wave to increase the data rate offered to users. 5G uses OFDMA in the downlink and either OFDMA or single carrier FDMA in the uplink depending on the use case. Like 3G and 4G, 5G supports carrier aggregation across spectrum bands, across FDD and TDD and across licensed and unlicensed spectrum (starting with Release 16), and 5G also supports dual connectivity across 4G and 5G. A key benefit of 5G is its ability to take advantage of very wide channel bandwidth such as 800/400/100 MHz (compared to LTE's 20 MHz maximum bandwidth, which requires carrier aggregation to combine spectrum beyond 20 MHz). As with previous cellular generations, 5G is designed to support seamless compatibility with 2G/3G/4G technologies through multimode devices.

As of October 2019, 258 wireless operators in 94 countries have demonstrated, are testing, trialing or have been licensed to begin field trials of 5G-enabling and candidate technologies, and an additional 69 wireless operators in 50 countries have announced their intentions to make 5G available to their customers by 2022 (GSA, November 2019).

Other (non-cellular) wireless technologies. There are other, non-cellular wireless technologies that have also been broadly adopted.

Wireless Local Area Networks. Wireless local area networks (WLAN), such as Wi-Fi, link two or more nearby devices wirelessly and usually provide connectivity through an access point. Wi-Fi systems are based on standards developed by the Institute of Electrical and Electronics Engineers (IEEE) in the 802.11 family of standards. 802.11ax, the latest standard, adds advanced features such as downlink and uplink OFDMA and uplink multiple-user MIMO to the 802.11 baseline standard. This technology primarily targets connectivity for mobile devices, tablets, laptops and other consumer electronic devices using 2.4 GHz and 5 GHz spectrum. For 60GHz mmWave technology, 802.11ay adds wider channel bandwidth and the use of MIMO to the existing 802.11ad (also known as Gigabit Wi-Fi or WiGig) standard. 802.11ah was finalized in early 2017 and targets sub-1 GHz spectrum and is expected to be a solution for "connected home" applications that require long battery life. We played a leading role in the development of 802.11ac, 802.11ax, 802.11ay, 802.11ah, 802.11ad and 802.11p, and continue to play a lead role in the evolution of 802.11 family of standards. We are actively involved in innovative programs developed in the context of the Wi-Fi Alliance, a non-profit organization that drives global Wi-Fi adoption and evolution.

Bluetooth. Bluetooth is a wireless personal area network that provides wireless connectivity between devices over short distances ranging from a few centimeters to approximately one hundred meters. Bluetooth technology provides wireless connectivity to a wide range of fixed or mobile consumer electronic devices. Bluetooth functionalities are standardized by the Bluetooth Special Interest Group in various versions of the specification (from 1.0 to 5.1), which include different functionalities, such as enhanced data rate, low energy and mesh technologies. We are a leading contributor to Bluetooth technologies in the areas of mobile devices, HID (human interface device), A/V (audio/video) and mesh technologies.

Location Positioning Technologies. Location positioning technologies continue to evolve in order to deliver an enhanced commercial location experience and comply with the new mandates on location for E911 calls from the United States Federal Communications Commission. We are a key developer of the Assisted-GPS (A-GPS), Assisted Global Navigation Satellite System (A-GNSS) and WLAN positioning technologies used in most cellular handsets today. For uses requiring the best reliability and accuracy for E911 services and navigational based services, A-GPS, A-GNSS and WLAN provide leading-edge solutions.

The industry continues to evolve to support additional inputs for improving the location experience. Our products and intellectual property now support multiple constellations for A-GNSS, including: GPS, GLONASS, Galileo and BeiDou; Wi-Fi-based and Bluetooth-based positioning for WLAN, including, Wi-Fi RSSI (received signal strength indication) and Wi-Fi RTT (round-trip time) signals for indoor location; observed time difference of arrival positioning for LTE access (e.g., in rural

and indoor areas); and third-party inertial sensors. The combination of these different location solutions is used to ensure accurate location availability in all areas.

Other Significant Technologies used in Cellular and Certain Consumer Electronic Devices and Networks. We have played and continue to play a leading role in developing and/or have acquired many of the other technologies used across the wireless system, such as cellular handsets and certain other consumer electronic devices and networks, including:

- RFFE chips and modules (including power amplifier modules, envelope tracker, antenna tuners, diversity modules, RF switches and micro-acoustic RF filters) designed for improved signal performance and reduced power consumption, while simplifying the design for manufacturers to develop LTE/5G multimode, multiband devices, including sub-6 GHz and mmWave devices;
- graphics and display processing functionality;
- video coding based on the HEVC (high efficiency video codec) standard, which is being deployed to support 4K video and immersive media content;
- audio coding, including EVS (enhanced voice services) and MPEG-H 3D Audio;
- the latest version of 3GPP's codec for multimedia use and for voice/speech use;
- multimedia transport, including MPEG-DASH (Dynamic Adaptive Streaming over HTTP) enabling advanced multimedia experiences;
- camera and camcorder functions;
- operating system and user interface features;
- on-device artificial intelligence (AI) features, including machine learning platforms;
- augmented reality (AR) and virtual reality (VR) features enabling new types of user experiences;
- security and content protection systems for enhanced device security without compromising the user experience and ultrasonic fingerprint readers for single touch authentication;
- volatile (LP-DDR2, 3, 4) and non-volatile (eMMC) memory and related controllers; and
- power management systems for improved battery life and device charging.

Operating Segments

We have three reportable segments. We conduct business primarily through QCT (Qualcomm CDMA Technologies) and QTL (Qualcomm Technology Licensing), while QSI (Qualcomm Strategic Initiatives) makes strategic investments. Revenues in fiscal 2019, 2018 and 2017 for our reportable segments were as follows (in millions, except percentage data):

	2019	2018	2017
QCT	$ 14,639	$ 17,282	$ 16,479
As a percent of total	60%	76%	74%
QTL	$ 4,591	$ 5,042	$ 6,412
As a percent of total	19%	22%	29%
QSI	$ 152	$ 100	$ 113
As a percent of total	1%	—%	1%

QCT Segment. QCT is a leading developer and supplier of integrated circuits and system software based on CDMA, OFDMA and other technologies for use in wireless voice and data communications, networking, application processing, multimedia and global positioning system products. QCT's integrated circuit products are sold and its system software is licensed to manufacturers that use our products in a broad range of devices in support of CDMA- and OFDMA-based technologies, from low-tier, entry-level devices primarily for emerging regions to premium-tier devices, including mobile devices (primarily smartphones), tablets, laptops, data modules, handheld wireless computers and gaming devices, access points and routers, broadband gateway equipment, data cards and infrastructure equipment, IoT devices and applications, other consumer electronics and automotive telematics and infotainment systems. Our 3G/4G/5G modem roadmap delivers the latest network technologies across multiple product tiers and devices. This roadmap is the result of extensive collaboration with manufacturers, operators, developers, governments and industry standards organizations, as well as our years of research into emerging network standards and the development of integrated circuits that take advantage of these new standards, while maintaining backward compatibility with existing standards.

The Qualcomm® Snapdragon™ family of integrated circuit products include the Snapdragon mobile, compute and automotive platforms. Each platform consists of application processors and wireless connectivity capabilities, including our cellular modem that provides core baseband modem functionality for voice and data communications, non-cellular wireless connectivity (such as Wi-Fi and Bluetooth) and global positioning functions. Our Snapdragon application processor functions include security, graphics, display, audio, video, camera and AI. Our central processing units are designed based on ARM

architecture and are designed to deliver high levels of compute performance at low power. Our Qualcomm® Hexagon™ processors are designed to support a variety of signal processing applications, including AI, audio and sensor processing. Qualcomm® Adreno™ graphics processing units are designed to deliver high quality graphics performance for visually rich 3D gaming and user interfaces. In addition to the highly integrated core system on a chip (SoC), we also design and supply supporting components, including the RF, PM (Power Management), audio, codecs, speaker amps and additional wireless connectivity integrated circuits. These supporting components, in addition to our cellular modems and application processors comprising our core SoC, are also sold as individual components. The combination of the Snapdragon SoC, system software and supporting components provide an overall platform with optimized performance and efficiency, enabling manufacturers to design and deliver powerful, slim and power-efficient devices ready for integration with the complex cellular networks worldwide.

Our portfolio of RF products includes Qualcomm® RFFE components that are designed to simplify the RF design for 5G front-end, LTE multimode and multiband mobile devices, to reduce power consumption and to improve radio performance. QCT offers an advanced portfolio of RFFE products for mobile devices, infrastructure, automotive, industrial IoT and other IoT applications. Our technologies provide comprehensive RFFE product offerings with system level performance from the modem and transceiver to the antenna that include power tracking, tuning systems, switching, multimode-multiband power amplification, low noise amplifiers, complex transmit and receive modules, in addition to discrete filtering applications across cellular, automotive, infrastructure, industrial IoT and other IoT industries.

Our wireless connectivity products also consist of integrated circuits and system software for Wi-Fi, Bluetooth, frequency modulation (FM) and near field communications (NFC), as well as technologies that support location data and services, including GPS, GLONASS, BeiDou and Galileo. Our wireless connectivity products provide additional connectivity for mobile devices, tablets, laptops, IoT applications and automotive telematics and infotainment systems. QCT also offers standalone Wi-Fi, Bluetooth, fingerprint sensor, applications processor and Ethernet products for mobile devices, consumer electronics, computers, IoT applications, other connected devices and automotive telematics and infotainment systems. Our networking products include Wi-Fi, Ethernet and Powerline chips, network processors and software. These products help enable home and business networks to support the growing number of connected devices, digital media and data services.

Other than for our RFFE modules and RF filter acoustic products, QCT utilizes a fabless production model, which means that we do not own or operate foundries for the production of silicon wafers from which our integrated circuits are made. Therefore, we primarily rely on independent third-party suppliers to perform the manufacturing and assembly, and most of the testing, of our integrated circuits based primarily on our proprietary designs and test programs. Our suppliers also are responsible for the procurement of most of the raw materials used in the production of our integrated circuits. Integrated circuits are die cut from silicon wafers that have completed the package assembly and test manufacturing processes. The semiconductor package supports the electrical contacts that connect the integrated circuit to a circuit board. Die cut from silicon wafers are the essential components of all of our integrated circuits and a significant portion of the total integrated circuit cost. We employ both turnkey and two-stage manufacturing models to purchase our integrated circuits. Under the turnkey model, our foundry suppliers are responsible for delivering fully assembled and tested integrated circuits. Under the two-stage manufacturing model, we purchase die in singular or wafer form from semiconductor manufacturing foundries and contract with separate third-party suppliers for manufacturing services such as wafer bump, probe, assembly and the majority of our final test requirements. The primary foundry suppliers for our various digital, analog/mixed-signal, RF and PM integrated circuits are Global Foundries, Samsung Electronics, Semiconductor Manufacturing International, Taiwan Semiconductor Manufacturing Company (TSMC) and United Microelectronics. The primary semiconductor assembly and test suppliers are Advanced Semiconductor Engineering, Amkor Technology, Siliconware Precision Industries and STATSChipPAC. The majority of our foundry and semiconductor assembly and test suppliers are located in the Asia-Pacific region.

QCT uses internal fabrication facilities to manufacture RFFE modules and RF filter acoustic products, and its manufacturing operations consist of front-end and back-end processes. The front-end processes primarily take place at manufacturing facilities located in Germany and Singapore and involve the imprinting of substrate silicon wafers with the circuitry required for semiconductors to function (also known as wafer fabrication). The back-end processes involve the assembly, packaging and test of semiconductors to prepare RFFE modules and RF filter acoustic products for distribution. The back-end manufacturing facilities are located in China, Germany and Singapore.

QCT's sales are primarily made through standard purchase orders for delivery of products. QCT generally allows customers to reschedule delivery dates within a defined time frame and to cancel orders prior to shipment with or without payment of a penalty, depending on when the order is canceled. The industry in which QCT operates is intensely competitive. QCT competes worldwide with a number of U.S. and international designers and manufacturers of semiconductors. As a

result of global expansion by foreign and domestic competitors, technological changes, lengthening replacement cycles for mobile devices, device manufacturer concentrations and the potential for further industry consolidation, we anticipate the industry to remain very competitive. We believe that the principal competitive factors for our products include performance, level of integration, quality, compliance with industry standards, price, time-to-market, system cost, design and engineering capabilities, new product innovation, growth and scaling of distribution channels, desire by certain customers to use multiple suppliers and customer support. QCT also competes in both single-mode and multimode environments against alternative communications technologies. Additional competitive factors exist for QCT product offerings that have expanded into adjacent industry segments outside traditional cellular industries, including automotive, computing, IoT and networking. The automotive industry is subject to long design-in time frames, long product life cycles and a high degree of regulatory and safety requirements, necessitating suppliers to the industry to comply with stringent qualification processes, very low defect rates and high reliability standards, all of which results in a significant barrier to entry and may result in increased costs.

QCT's current competitors include, but are not limited to, companies such as Broadcom, Cirrus Logic, Cypress Semiconductor, HiSilicon, Intel, Marvell, Maxim, MediaTek, Microchip Technology, Murata, Nordic Semiconductor, Nvidia, NXP Semiconductors, Qorvo, Realtek Semiconductor, Renesas, Samsung, Sequans Communications, Skyworks and Spreadtrum Communications (which is controlled by Tsinghua Unigroup). QCT also faces competition from products internally developed by our customers, including some of our largest customers, and from some early-stage companies. Our competitors devote significant amounts of their financial, technical and other resources to develop and market competitive products and, in some cases, to develop and adopt competitive digital communication or signal processing technologies, and those efforts may materially and adversely affect us. Although we have attained a significant position in the wireless industry, many of our current and potential competitors may have advantages over us that include, among others: motivation by our customers in certain circumstances to use our competitors' integrated circuit products, to utilize their own internally-developed integrated circuit products or sell such products to others, including by selling them together with certain of their other products, or to choose alternative technologies; lower cost structures or a willingness and ability to accept lower prices and lower or negative margins for their products, particularly in China; foreign government support of other technologies or competitors or original equipment manufacturers (OEMs) that sell devices that do not contain our chipsets; better known brand names; ownership and control of manufacturing facilities and greater expertise in manufacturing processes; more extensive relationships with local distribution companies and OEMs in certain geographic regions (such as China); more experience in adjacent industry segments outside traditional cellular industries (such as automotive, computing, IoT and networking); and a more established presence in certain regions. These relationships may affect customers' decisions to purchase products or license technology from us. Accordingly, new competitors or alliances among competitors could emerge and rapidly acquire significant market positions to our detriment.

QTL Segment. QTL grants licenses or otherwise provides rights to use portions of our intellectual property portfolio, which, among other rights, includes certain patent rights essential to and/or useful in the manufacture, sale and/or use of certain wireless products, including, without limitation, products implementing CDMA2000, WCDMA, CDMA TDD, LTE and/or OFDMA-based 5G standards and their derivatives. We have historically licensed our cellular standard-essential patents together with other Qualcomm patents that may be useful to such licensed products because in the past, licensees typically have desired to obtain the commercial benefits of receiving such broad patent rights from us. However, since 2015, our standard practice in China is to offer licenses to our 3G and 4G (and now 5G) cellular standard-essential Chinese patents for devices sold for use in China separately from our other patents. In addition, we also offer licenses to only our cellular standard-essential patents (including 3G, 4G and 5G) for both single-mode and multimode devices on a worldwide basis, and since 2018, an increasing number of new and existing licensees have elected to enter into worldwide license agreements covering only our cellular standard essential patents. Going forward, we continue to anticipate that a significant portion of QTL's licensing revenues will be derived from licensees that have entered into license agreements covering only Qualcomm's cellular standard essential patents. Our licensees manufacture wireless products including mobile devices (including handsets), other consumer devices (e.g., tablets and laptops), plug-in end user data modem cards and embedded modules for incorporation into machine-to-machine devices and certain end user products (excluding handsets and tablets), as well as infrastructure equipment required to establish and operate a network and equipment to test networks and cellular devices.

Since our founding in 1985, we have focused heavily on technology development and innovation. These efforts have resulted in a leading intellectual property portfolio related to foundational, system level technologies for the wireless industry. We have an extensive portfolio of United States and foreign patents, and we continue to pursue patent applications around the world. Our patents have broad coverage in many countries, including Brazil, China, India, Japan, South Korea, Taiwan, the United States and countries in Europe and elsewhere. A substantial portion of our patents and patent applications relate to digital wireless communications technologies, including patents that are essential or may be important to the commercial implementation of CDMA2000, WCDMA (UMTS), TD-SCDMA, TD-CDMA (Time Division CDMA), OFDMA-based LTE and OFDMA-based 5G products. Our patent portfolio is the most widely and extensively licensed in the industry, with more

than 300 licensees. Additionally, we have a substantial patent portfolio related to key technologies used in communications and other devices and/or related services, some of which were developed in industry standards development bodies. These include certain video codecs, audio codecs, Wi-Fi, memory interfaces, wireless power, GPS and positioning, broadcast and streaming protocols, and short-range communication functionalities, including NFC and Bluetooth. Our patents cover a wide range of technologies across the entire wireless system, including the device (handsets and other wireless devices), not just the portion of such patented technologies incorporated into chipsets, and the network. Over the years, a number of companies have challenged our patent position, but companies in the mobile communications industry generally recognize that any company seeking to develop, manufacture and/or sell certain wireless products that use CDMA-based and/or OFDMA-based technologies will require a license or other rights to use our patents.

We have licensed or otherwise provided rights to use our patents to hundreds of companies on industry-accepted terms. Unlike some other companies in our industry that hold back certain key technologies, we offer companies substantially our entire patent portfolio for use in cellular devices and cell site infrastructure equipment. Our strategy to make our patented technologies broadly available has been a catalyst for industry growth, helping to enable a wide range of companies offering a broad array of wireless products and features while increasing the capabilities of and/or driving down average and low-end selling prices for 3G handsets and other wireless devices. By licensing or otherwise providing rights to use our patents to a wide range of equipment manufacturers, encouraging innovative applications, supporting equipment manufacturers with integrated chipset and software products and focusing on improving the efficiency of the airlink for wireless operators, we have helped 3G and 3G/4G multimode evolve and grow and reduce device pricing, all at a faster pace than the 2G (second generation) technologies such as GSM that preceded it. 5G network deployments and commercial 3G/4G/5G multimode device sales began in 2019 and will continue into 2020 and beyond. By licensing or otherwise providing rights to use our patents to a wide range of equipment manufacturers, 5G will continue to encourage innovative applications through enhanced mobile broadband services with lower latency and multi-gigabit user data speeds and bring more capacity and efficiency to wireless networks.

Upon the initial deployment of OFDMA-based networks, the products implementing such technologies generally have been multimode and implement OFDMA-based and CDMA-based technologies. The licenses granted under our existing license agreements generally cover multimode CDMA/OFDMA (3G/4G/5G) devices, and our licensees are obligated to pay royalties under their license agreements for such devices.

Standards bodies have been informed that we hold patents that might be essential for all 3G standards that are based on CDMA. We have committed to such standards bodies that we will offer to license our essential patents for these CDMA standards consistent with our commitments to those bodies. We have also informed standards bodies that we hold patents and pending patent applications that are potentially essential for LTE standards, including FDD and TDD versions and have committed to offer to license our essential patents for these LTE standards consistent with our commitments to those bodies. We have informed standards bodies that we hold patents and pending patent applications that are essential for 5G technologies and have committed to offer to license our essential patents for these 5G standards consistent with our commitments to those bodies. We have made similar commitments with respect to certain other technologies implemented in industry standards.

QTL licensing revenues include license fees and royalties. Licensees pay royalties based on their sales of products incorporating or using our licensed intellectual property and may also pay a fixed license fee in one or more installments. Sales-based royalties are generally based upon a percentage of the wholesale (i.e., licensee's) selling price of complete licensed products, net of certain permissible deductions (including transportation, insurance, packing costs and other items). We broadly provide per unit royalty caps that apply to certain categories of complete wireless devices, namely smartphones, tablets, laptops and smartwatches, and provide for a maximum royalty amount payable per device. Revenues generated from royalties are subject to quarterly and annual fluctuations.

The vast majority of QTL revenues have been generated through our licensees' sales of CDMA2000-based, WCDMA-based and LTE-based products (including 3G and 3G/4G multimode devices), such as smartphones and feature phones. We have invested and continue to invest in both the acquisition and development of OFDMA technology and intellectual property and have generated the industry leading patent portfolio applicable to LTE, LTE Advanced and LTE Advanced Pro. Some of our inventions that serve as foundational technologies for 3G and 4G now also serve as foundational technologies for 5G. We have invested and continue to invest in the development of 5G and continue to play a significant role in driving advancements of 5G. Nevertheless, we face competition in the development of intellectual property for future generations of digital wireless communications technologies and services.

Separate and apart from licensing manufacturers of wireless devices and network equipment, we have entered into certain arrangements with competitors of our QCT segment, such as Broadcom. A principal purpose of these arrangements is to provide our QCT segment and the counterparties certain freedom of operation with respect to each party's integrated

circuits business. In every case, these agreements expressly reserve the right for QTL to seek royalties from the customers of such integrated circuit suppliers with respect to such suppliers' customers' sales of CDMA-, WCDMA- and OFDMA-based wireless devices into which such suppliers' integrated circuits are incorporated.

Our license agreements also may provide us with rights to use certain of our licensees' technology and intellectual property to manufacture, sell and/or use certain components (e.g., Application-Specific Integrated Circuits) and related software, cellular devices and/or infrastructure equipment.

We are currently subject to various governmental investigations and private legal proceedings challenging our patent licensing practices, which may require us to change our patent licensing practices as described more fully in this Annual Report in "Part I, Item 1A. Risk Factors" under the heading "Changes in our patent licensing practices, whether due to governmental investigations or private legal proceedings challenging those practices, or otherwise, could adversely impact our business and results of operations" and in "Notes to Consolidated Financial Statements, Note 7. Commitments and Contingencies."

QSI Segment. QSI makes strategic investments primarily through our Qualcomm Ventures arm that are focused on expanding or opening new opportunities for our technologies as well as supporting the design and introduction of new products and services (or enhancing existing products or services). Many of these strategic investments are in early-stage companies in a variety of industries and applications, including, but not limited to, artificial intelligence, automotive, digital healthcare, enterprise software and solutions, IoT, mobile and networking. Investments primarily include non-marketable equity securities and to a lesser extent, non-marketable convertible debt instruments. In addition, QSI segment results include revenues and related costs associated with development contracts with one of our equity method investees. As part of our strategic investment activities, we intend to pursue various exit strategies for each of our QSI investments in the foreseeable future.

Other Businesses. Nonreportable segments include our Qualcomm Government Technologies or QGOV (formerly Qualcomm Cyber Security Solutions) business and other wireless technology and service initiatives. During fiscal 2019, we completed the sale of our mobile health nonreportable segment, and we combined our Small Cells nonreportable segment into our QCT segment. Prior period segment information has not been adjusted to conform to the new segment presentation as such adjustments are insignificant. QGOV provides development and other services and sells related products to U.S. government agencies and their contractors. Additional information regarding our operating segments is provided in this Annual Report in "Notes to Consolidated Financial Statements, Note 8. Segment Information." Information regarding seasonality is provided in this Annual Report in "Part II, Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations" in the "Our Business and Operating Segments" section under the heading "Seasonality."

Cost Plan

In the second quarter of fiscal 2018, we announced a Cost Plan designed to align our cost structure to our long-term margin targets. As part of this plan, we initiated a series of targeted actions across our businesses with the objective to reduce annual costs by $1 billion, excluding incremental costs resulting from any future acquisition of a business. Actions taken under this plan have been completed and resulted in us achieving substantially all of this target in fiscal 2019 based on our run rate exiting the second quarter of fiscal 2019, excluding litigation costs that were in excess of the baseline spend.

Additional information regarding our Cost Plan is provided in this Annual Report in "Notes to Consolidated Financial Statements, Note 10. Cost Plan."

Corporate Structure

We operate our businesses through our parent company, QUALCOMM Incorporated, and multiple direct and indirect subsidiaries. We have developed our corporate structure in order to address various legal, regulatory, tax, contractual compliance, operational and other matters. Substantially all of our products and services businesses, including QCT, and substantially all of our engineering, research and development functions, are operated by Qualcomm Technologies, Inc. (QTI), a wholly-owned subsidiary of QUALCOMM Incorporated, and QTI's subsidiaries. QTL is operated by QUALCOMM Incorporated, which owns the vast majority of our patent portfolio. Neither QTI nor any of its subsidiaries has any right, power or authority to grant any licenses or other rights under or to any patents owned by QUALCOMM Incorporated.

Revenue Concentrations and Significant Customers

A small number of customers/licensees historically have accounted for a significant portion of our consolidated revenues. In fiscal 2019, 2018 and 2017, revenues from Apple Inc. and its contract manufacturers (Hon Hai Precision Industry Co., Ltd./Foxconn, its affiliates and other suppliers to Apple), Samsung Electronics and combined revenues from GuangDong

OPPO Mobile Telecommunications and vivo Communication Technology, and their respective affiliates (including BBK), each comprised 10% or more of consolidated revenues. Revenues from Xiaomi also comprised 10% or more of consolidated revenues in fiscal 2019 and 2018. Revenues in fiscal 2018 and 2017 were negatively impacted by our prior dispute with Apple Inc. and its contract manufacturers. Revenues in fiscal 2019 were positively impacted by our settlement of such dispute in the third quarter of fiscal 2019. We expect to begin recording revenues for new chipset models under our recently announced multi-year chipset agreement with Apple in the second half of fiscal 2020.

Research and Development

The wireless communications industry is characterized by rapid technological change, evolving industry standards and frequent new product introductions, requiring a continuous effort to enhance existing products and technologies and to develop new products and technologies. We have significant engineering resources, including engineers with substantial expertise in CDMA, OFDMA and a broad range of other technologies. Using these engineering resources, we expect to continue to invest in research and development in a variety of ways in an effort to extend the demand for our products, and to utilize that research and development in adjacent industry segments outside of traditional cellular industries (such as automotive, computing, IoT and networking), including continuing the development of CDMA, OFDMA and other technologies (such as RF), developing alternative technologies for certain specialized applications, participating in the formulation of new voice and data communication standards and technologies, and assisting in deploying digital voice and data communications networks around the world. Our research and development team has a demonstrated track record of innovation in voice and data communication technologies and application processor technology, among others.

We continue to invest significant resources towards advancements in OFDMA-based 4G technologies (including LTE) and 5G technologies. We also engage in acquisitions and other transactions, such as joint ventures, to meet certain technology needs, to obtain development resources or open or expand opportunities for our technologies and to support the design and introduction of new products and services (or enhancing existing products and services) for voice and data communications and new industry segments outside of the traditional cellular industry. Our most recent significant transaction was the formation of, and subsequent acquisition of the remaining minority ownership interest in, RF360 Holdings to enable delivery of RFFE modules and RF filters into fully integrated products for mobile devices and IoT applications, among others. See "Notes to Consolidated Financial Statements, Note 9. Acquisitions" in this Annual Report for additional information.

We make investments to provide our integrated circuit customers with chipsets designed on leading-edge technology nodes that combine multiple technologies for use in consumer devices (e.g., smartphones, tablets and laptops), consumer electronics and other products (e.g., access points and routers, data cards and infrastructure equipment). In addition to 3G, 4G and 5G technologies, our chipsets support other wireless and wired connectivity technologies, including Wi-Fi, Bluetooth, Ethernet, location positioning and Powerline communication. Our integrated chipsets often include multiple technologies, including advanced multimode modems, application processors and graphics engines, as well as the tools to connect these diverse technologies. We continue to support Android, Windows and other mobile client software environments in our chipsets.

We develop on our own, and with our partners, innovations that are integrated into our product portfolio to further expand the opportunity for wireless communications and enhance the value of our products and services. These innovations are expected to enable our customers to improve the performance or value of their existing services, offer these services more affordably and introduce revenue-generating broadband data services ahead of their competition.

We have research and development centers in various locations throughout the world that support our global development activities and ongoing efforts to develop and/or advance 4G, 5G and a broad range of other technologies. We continue to use our substantial engineering resources and expertise to develop new technologies, applications and services and make them available to licensees to help grow the communications industry and generate new or expanded licensing opportunities.

We also make investments in opportunities that leverage our existing technical and business expertise to deploy new and expanded product areas, such as RFFE, and enter into adjacent industry segments, such as products for automotive, computing, IoT (including the connected home, smart cities, wearables, voice and music and robotics) and networking, among others.

Sales and Marketing

Sales and marketing activities of our operating segments are discussed under Operating Segments. Other marketing activities include public relations, advertising, digital marketing and social media, participation in technical conferences and trade shows, development of business cases and white papers, competitive analyses, industry intelligence and other marketing programs, such as marketing and/or market development funds with our customers. Our Corporate Marketing department

provides company information on our Internet site and through other channels regarding our products, strategies and technology to industry analysts and media.

Competition

Competition faced by our operating segments is discussed under Operating Segments. Competition in the wireless communications industry throughout the world continues to increase at a rapid pace as consumers, businesses and governments realize the potential of wireless communications products and services. We have facilitated competition in the wireless communications industry by licensing our technologies to a large number of manufacturers. Although we have attained a significant position in the traditional cellular industry, many of our current and potential competitors may have advantages over us that include, among others: motivation by our customers in certain circumstances to use our competitors' integrated circuit products, to utilize their own internally-developed integrated circuit products or sell such products to others, including by selling them together with certain of their other products, or to choose alternative technologies; lower cost structures or a willingness and ability to accept lower prices and lower or negative margins for their products, particularly in China; foreign government support of other technologies or competitors or original equipment manufacturers (OEMs) that sell devices that do not contain our chipsets; better known brand names; ownership and control of manufacturing facilities and greater expertise in manufacturing processes; more extensive relationships with local distribution companies and OEMs in certain geographic regions (such as China); more experience in adjacent industry segments outside traditional cellular industries (such as automotive, computing, IoT and networking); and a more established presence in certain regions. These relationships may affect customers' decisions to purchase products or license technology from us. Accordingly, new competitors or alliances among competitors could emerge and rapidly acquire significant market positions to our detriment.

We expect competition to increase as our current competitors expand their product offerings and introduce new technologies and services in the future and as additional companies compete with our products or services based on 3G, 4G, 5G or other technologies. Although we intend to continue to make substantial investments in developing new products and technologies and improving existing products and technologies to strengthen and/or maintain our competitive position, our competitors may introduce alternative products, services or technologies that threaten our business. It is also possible that the prices we charge for our products and services may continue to decline as competition continues to intensify. See also the Risk Factor entitled "*Our industry is subject to competition in an environment of rapid technological changes. Our success depends in part on our ability to adapt to such changes and compete effectively; and such changes and competition could result in decreased demand for our products or declining average selling prices for our products or those of our customers or licensees."*

Corporate Responsibility and Sustainability

We strive to better our local and global communities through ethical business practices, socially empowering technology applications, educational and environmental programs and employee diversity and volunteerism.

- *Our Governance.* We aim to demonstrate accountability, transparency, integrity and ethical business practices throughout our operations and interactions with our stakeholders.
- *Our Products.* We strive to meet or exceed industry standards for product responsibility and supplier management.
- *Our Workplace.* We endeavor to provide a safe and healthy work environment where diversity is embraced, innovation is encouraged, and opportunities for training, growth and advancement are available for all employees.
- *Our Community.* We have strategic relationships with a wide range of local organizations and programs that develop and strengthen communities worldwide.
- *Our Commitment to STEM Education.* We aim to promote and improve science, technology, engineering and math (STEM) education at all levels and expand opportunities for underrepresented students in STEM careers.
- *Our Environment.* We aim to expand our operations while minimizing our carbon footprint, conserving water and reducing waste.
- *Qualcomm® Wireless Reach™ Initiative.* We invest in strategic programs that foster entrepreneurship, aid in public safety, enhance delivery of health care, enrich teaching and learning and improve environmental sustainability through the use of advanced wireless technologies.

Employees

At September 29, 2019, we employed approximately 37,000 full-time, part-time and temporary employees. During fiscal 2019, the number of employees increased by approximately 1,600, primarily due to increases in engineering resources, partially offset by actions taken under our Cost Plan.

Available Information

Our Internet address is www.qualcomm.com. There we make available, free of charge, our annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, proxy statements and any amendments to those reports, as soon as reasonably practicable after we electronically file such material with, or furnish it to, the Securities and Exchange Commission (SEC). We also make available on our Internet site public financial information for which a report is not required to be filed with or furnished to the SEC. Our SEC reports and other financial information can be accessed through the investor relations section of our Internet site. The information found on our Internet site is not part of this or any other report we file with or furnish to the SEC.

Information about our Executive Officers

Our executive officers (and their ages at September 29, 2019) are as follows:

Steve Mollenkopf, age 50, has served as Chief Executive Officer since March 2014 and as a director since December 2013. He served as Chief Executive Officer-elect and President from December 2013 to March 2014 and as President and Chief Operating Officer from November 2011 to December 2013. In addition, he served as Executive Vice President and Group President from September 2010 to November 2011 and as Executive Vice President and President, Qualcomm CDMA Technologies (QCT) from August 2008 to September 2010. Mr. Mollenkopf joined Qualcomm in 1994 as an engineer and throughout his tenure at Qualcomm has held several other technical and leadership positions. Mr. Mollenkopf served as a member of the board of directors of General Electric Company from November 2016 to April 2018. Mr. Mollenkopf holds a B.S. degree in Electrical Engineering from Virginia Tech and an M.S. degree in Electrical Engineering from the University of Michigan.

Cristiano R. Amon, age 49, has served as President, Qualcomm Incorporated since January 2018. He served as Executive Vice President, Qualcomm Technologies, Inc., a subsidiary of Qualcomm Incorporated (QTI) and President, QCT from November 2015 to January 2018. He served as Executive Vice President, QTI and Co-President, QCT from October 2012 to November 2015, Senior Vice President, Qualcomm Incorporated and Co-President, QCT from June 2012 to October 2012 and as Senior Vice President, QCT Product Management from October 2007 to June 2012. Mr. Amon joined Qualcomm in 1995 as an engineer and throughout his tenure at Qualcomm has held several other technical and leadership positions. Mr. Amon holds a B.S. degree in Electrical Engineering from UNICAMP, the State University of Campinas, Brazil.

Brian T. Modoff, age 60, has served as Executive Vice President, Strategy and Mergers & Acquisitions since October 2015. Prior to joining Qualcomm, Mr. Modoff was a Managing Director in Equity Research at Deutsche Bank Securities Inc., a provider of financial services, from March 1999 to October 2015. Prior to joining Deutsche Bank, Mr. Modoff was a research analyst at several financial institutions from November 1993 to March 1999. Mr. Modoff previously worked in defense electronics, including at Rockwell International in manufacturing management, and for the U.S. Navy as a communications technician. Mr. Modoff holds a B.A. degree in Economics from California State University, Fullerton and a Master of International Management from the Thunderbird School of Global Management.

Akash Palkhiwala, age 44, has served as Executive Vice President and Chief Financial Officer since November 2019. He served as Senior Vice President and Interim Chief Financial Officer from August 2019 to November 2019. He served as Senior Vice President, (QCT) Finance, QTI from December 2015 to August 2019, and Senior Vice President and Treasurer, Qualcomm Incorporated from October 2014 to December 2015. Mr. Palkhiwala served as Vice President, (QCT) Finance, QTI from October 2012 to October 2014 and Vice President, (QCT) Finance from October 2009 to October 2012. He served in various other finance roles since joining the Company in March 2001. Prior to joining Qualcomm, Mr. Palkhiwala was an Analyst at KeyBank. Mr. Palkhiwala has an undergraduate degree in Mechanical Engineering from L.D. College of Engineering in India and an M.B.A from the University of Maryland.

Alexander H. Rogers, age 62, has served as Executive Vice President and President, Qualcomm Technology Licensing (QTL) since October 2016. He served as Senior Vice President and President, QTL from September 2016 to October 2016, Senior Vice President, Deputy General Counsel and General Manager, QTL from March 2016 to September 2016, Senior Vice President and Deputy General Counsel from October 2015 to March 2016 and Senior Vice President and Legal Counsel from April 2007 to October 2015. Prior to transitioning to QTL, Mr. Rogers led Qualcomm's litigation group. Mr. Rogers joined Qualcomm in January 2001 as an attorney. Prior to joining Qualcomm, Mr. Rogers was a partner at the law firm of Gray, Cary, Ware & Friedenrich (now DLA Piper), specializing in intellectual property and commercial litigation. Mr. Rogers holds B.A. and M.A. degrees in English Literature from Georgetown University and a J.D. degree from Georgetown University Law Center.

Donald J. Rosenberg, age 68, has served as Executive Vice President, General Counsel and Corporate Secretary since October 2007. He served as Senior Vice President, General Counsel and Corporate Secretary of Apple Inc. from November

2006 to October 2007. From May 1975 to November 2006, Mr. Rosenberg held numerous positions at IBM Corporation, including Senior Vice President and General Counsel. Mr. Rosenberg has served as a member of the board of directors of NuVasive, Inc. since February 2016 and is presently NuVasive's lead independent director. Mr. Rosenberg holds a B.S. degree in Mathematics from the State University of New York at Stony Brook and a J.D. degree from St. John's University School of Law.

Michelle Sterling, age 52, has served as Executive Vice President, Human Resources since May 2015. She served as Senior Vice President, Human Resources from October 2007 to May 2015. Ms. Sterling joined Qualcomm in 1994 and throughout her tenure at Qualcomm has held several other human resources and leadership positions. Ms. Sterling has served as a member of the board of directors of Digital Turbine, Inc. since June 2019. Ms. Sterling holds a B.S. degree in Business Management from the University of Redlands.

James H. Thompson, age 55, has served as Executive Vice President, Engineering, QTI and Chief Technology Officer since March 2017. He served as Executive Vice President, Engineering, QTI from October 2012 to March 2017 and as Senior Vice President, Engineering, Qualcomm Incorporated from July 1998 to October 2012. Dr. Thompson joined Qualcomm in 1992 as a senior engineer and throughout his tenure at Qualcomm held several other technical and leadership positions. Dr. Thompson holds B.S., M.S. and Ph.D. degrees in Electrical Engineering from the University of Wisconsin.

Item 1A. Risk Factors

You should consider each of the following factors in evaluating our business and our prospects. The risks and uncertainties described below are not the only ones we face. Additional risks and uncertainties not presently known to us or that we currently consider immaterial may also negatively impact our business and results of operations and require significant management time and attention. In that case, the trading price of our common stock could decline. You should also consider the other information set forth in this Annual Report in evaluating our business and our prospects, including but not limited to our financial statements and the related notes, and "Part II, Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations." References to "and" and "or" should be read to include the other as well as "and/or," as appropriate.

Risks Related to Our Businesses

Our revenues depend on commercial network deployments, expansions and upgrades of CDMA, OFDMA and other communications technologies, including 5G; our customers' and licensees' sales of products and services based on these technologies; and customers' demand for our products and services.

We develop, patent and commercialize technology and products based on CDMA, OFDMA and other communications technologies, which are primarily wireless. We depend on operators of wireless networks and our customers and licensees to adopt and implement the latest generation of these technologies for use in their networks, devices and services. We also depend on our customers and licensees to develop devices and services based on these technologies with value-added features to drive consumer demand for new 3G/4G and 3G/4G/5G multimode devices, as well as 3G, 4G and 5G single-mode devices, and to establish the selling prices for such devices. Further, we depend on the timing of our customers' and licensees' deployments of new devices and services based on these technologies. Increasingly, we also depend on operators of wireless networks, our customers and licensees and other third parties to incorporate these technologies into new device types and into industries and applications beyond traditional cellular communications, such as automotive, computing, IoT (including the connected home, smart cities, wearables, voice and music and robotics) and networking, among others.

We have historically been successful during wireless technology transitions, including 3G and 4G. The next generation of wireless technologies is 5G, which we expect will empower a new era of connected devices and will be utilized not only in handsets but in new device types, industries and applications beyond traditional cellular communications, as described above (see also Part I, Item 1, "Business" for further description of 5G). Initial commercial deployments of 5G networks and devices have begun and will continue into fiscal 2020 and beyond. We believe it is important that we remain a leader in 5G technology development, standardization, intellectual property creation and licensing, and that we develop, commercialize and be a leading supplier of 5G integrated circuit products and services, in order to sustain and grow our business long-term.

Our revenues and growth in revenues could be negatively impacted, our business may be harmed and our substantial investments in these technologies may not provide us an adequate return, if:

- wireless operators and industries beyond traditional cellular communications deploy alternative technologies;
- wireless operators delay next-generation network deployments, expansions or upgrades or delay moving customers to 3G/4G and 3G/4G/5G multimode devices, as well as 4G and 5G single-mode devices;
- LTE, an OFDMA-based wireless technology, is not more widely deployed or further commercial deployment is delayed;
- government regulators delay making sufficient spectrum available for 4G and 5G wireless technologies, including unlicensed spectrum and shared spectrum technologies, thereby delaying or precluding the initial deployment or expanded deployment of these technologies;
- wireless operators delay or do not drive improvements in 4G or 5G, or 3G/4G or 3G/4G/5G multimode network performance and capacity;
- our customers' and licensees' revenues and sales of products, particularly premium-tier products, and services using these technologies, and average selling prices (ASPs) of such products, decline, do not grow or do not grow meaningfully due to, for example, the maturity of smartphone penetration in developed regions;
- our intellectual property and technical leadership included in the continued 5G standardization effort is different than in 3G and 4G standards;
- the continued standardization or commercial deployment of 5G technologies is delayed;
- we are unable to drive the adoption of our products and services into networks and devices, including devices beyond traditional cellular applications, based on CDMA, OFDMA and other communications technologies; or
- consumers' rates of replacement of smartphones and other computing devices decline, do not grow or do not grow meaningfully.

Our industry is subject to competition in an environment of rapid technological changes. Our success depends in part on our ability to adapt to such changes and compete effectively; and such changes and competition could result in decreased demand for our products or declining average selling prices for our products or those of our customers or licensees.

Our products, services and technologies face significant competition. We expect competition to increase as our current competitors expand their product offerings or reduce the prices of their products as part of a strategy to maintain existing business and customers or attract new business and customers, as new opportunities develop and as new competitors enter the industry. Competition in wireless communications is affected by various factors that include, among others: device manufacturer concentrations; vertical integration; growth in demand, consumption and competition in certain geographic regions; government intervention or support of national industries or competitors; evolving industry standards and business models; evolving methods of transmission of voice and data communications; increasing data traffic and densification of wireless networks; convergence and aggregation of connectivity technologies (including Wi-Fi and LTE) in both devices and access points; consolidation of wireless technologies and infrastructure at the network edge; networking and connectivity trends (including cloud services); use of licensed, shared and unlicensed spectrum; the evolving nature of computing (including demand for always on, always connected capabilities); the speed of technological change (including the transition to smaller geometry process technologies); value-added features that drive selling prices and consumer demand for new 3G/4G and 3G/4G/5G multimode devices, as well as 3G, 4G and 5G single-mode devices; turnkey, integrated products that incorporate hardware, software, user interface, applications and reference designs; scalability; and the ability of the system technology to meet customers' immediate and future network requirements. We anticipate that additional competitors will introduce products as a result of growth opportunities in wireless communications, the trend toward global expansion by foreign and domestic competitors, technological and public policy changes and relatively low barriers to entry in certain segments of the industry. Additionally, the semiconductor industry has experienced and may continue to experience consolidation, which could result in significant changes to the competitive landscape.

We expect that our future success will depend on, among other factors, our ability to:

- differentiate our integrated circuit products with innovative technologies across multiple products and features (e.g., modem, RFFE, graphics and other processors, camera and connectivity) and with smaller geometry process technologies that drive both performance and lower power consumption;
- develop and offer integrated circuit products at competitive cost and price points to effectively cover both emerging and developed geographic regions and all device tiers;
- drive the adoption of our integrated circuit products into the most popular device models and across a broad spectrum of devices, such as smartphones, tablets, laptops and other computing devices, automobiles, wearables, voice and music and other connected devices and infrastructure products;

- maintain or accelerate demand for our integrated circuit products at the premium device tier, while also driving the adoption of our 5G products into high, mid- and low-tier devices across all regions;
- continue to be a leader in 4G and 5G technology evolution and continue to innovate and introduce 4G and 5G turnkey, integrated products and services that differentiate us from our competition;
- remain a leader in 5G technology development, standardization, intellectual property creation and licensing, and develop, commercialize and be a leading supplier of 5G integrated circuit products and services;
- increase or accelerate demand for our semiconductor component products, including RFFE, and our wireless connectivity products, including networking products for consumers, carriers and enterprise equipment and connected devices;
- become a leading supplier of RFFE products, which are designed to address cellular radio frequency band fragmentation while improving radio frequency performance and assist original equipment manufacturers in developing multiband, multimode mobile devices;
- create standalone value and contribute to the success of our existing businesses through acquisitions, joint ventures and other transactions, and by developing customer, licensee, vendor, distributor and other channel relationships in new industry segments and with disruptive technologies, products and services, such as products for automotive, computing, IoT (including the connected home, smart cities, wearables, voice and music and robotics) and networking, among others;
- identify potential acquisition targets that will grow or sustain our business or address strategic needs, reach agreement on terms acceptable to us, close the transactions and effectively integrate these new businesses, products and technologies;
- be a leader serving original equipment manufacturers (OEMs), high level operating systems (HLOS) providers, operators, cloud providers and other industry participants as competitors, new industry entrants and other factors continue to affect the industry landscape;
- be a preferred partner and sustain preferred relationships providing integrated circuit products that support multiple operating system and infrastructure platforms to industry participants that effectively commercialize new devices using these platforms; and
- continue to develop brand recognition to effectively compete against better known companies in computing and other consumer driven segments and to deepen our presence in significant emerging regions and China.

We compete with many different semiconductor companies, ranging from multinational companies with integrated research and development, manufacturing, sales and marketing organizations across a broad spectrum of product lines, to companies that are focused on a single application market segment or standard product, including those that produce products for automotive, computing, IoT and networking applications. Most of these competitors compete with us with respect to some, but not all, of our businesses. Companies that design integrated circuits based on CDMA, OFDMA, Wi-Fi or their derivatives are generally competitors or potential competitors. Examples (some of which are strategic partners of ours in other areas) include Broadcom, Cirrus Logic, Cypress Semiconductor, HiSilicon, Intel, Marvell, Maxim, MediaTek, Microchip Technology, Murata, Nordic Semiconductor, Nvidia, NXP Semiconductors, Qorvo, Realtek Semiconductor, Renesas, Samsung, Sequans Communications, Skyworks and Spreadtrum Communications (which is controlled by Tsinghua Unigroup). Some of these current and potential competitors may have advantages over us that include, among others: motivation by our customers in certain circumstances to use our competitors' integrated circuit products, to utilize their own internally-developed integrated circuit products or sell such products to others, or to choose alternative technologies; lower cost structures or a willingness and ability to accept lower prices or lower or negative margins for their products, particularly in China; foreign government support of other technologies, competitors or OEMs that sell devices that do not contain our chipsets; better known brand names; ownership and control of manufacturing facilities and greater expertise in manufacturing processes; more extensive relationships with local distribution companies and OEMs in certain geographic regions (such as China); more experience in adjacent industry segments outside traditional cellular industries (such as automotive, computing, IoT and networking); and a more established presence in certain regions.

In particular, certain of our largest integrated circuit customers develop their own integrated circuit products, which they have in the past utilized, and currently utilize, in certain of their devices and may in the future choose to utilize in certain (or all) of their devices, rather than our products (and they may sell their integrated circuit products to third parties, discretely or together with certain of their other products, in competition with us). Also, Apple, which has historically been one of our largest customers, now utilizes products of one of our competitors in many of their devices rather than our products and is solely utilizing one of our competitor's products in its most recent smartphone launch. Apple may continue to use our competitors' products in one or more of its future devices and may develop and utilize its own modem products, rather than our products, in one or more of its future devices.

Further, certain of our competitors develop and sell multiple components (including integrated circuit products) for use in devices and sell those components together to device manufacturers. Our competitors' sales of multiple components put us (and our discrete integrated circuit products) at a competitive disadvantage. Certain of our competitors also develop and sell infrastructure equipment for wireless networks and can optimize their integrated circuit products to perform on such networks to a degree that we are not able to, which again puts us at a competitive disadvantage.

Competition in any or all product tiers may result in the loss of business or customers, which would negatively impact our revenues, results of operations and cash flows. Such competition may also reduce average selling prices for our chipset products or the products of our customers and licensees. Certain of these dynamics are particularly pronounced in emerging regions and China where competitors may have lower cost structures or may have a willingness and ability to accept lower prices or lower or negative margins on their products (particularly in China). Reductions in the average selling prices of our chipset products, without a corresponding increase in volumes, would negatively impact our revenues, and without corresponding decreases in average unit costs, would negatively impact our margins. In addition, reductions in the average selling prices of our licensees' products, unless offset by an increase in volumes, would generally decrease total royalties payable to us, negatively impacting our licensing revenues.

We derive a significant portion of our revenues from a small number of customers and licensees, which increasingly includes a small number of Chinese OEMs. If revenues derived from these customers or licensees decrease or the timing of such revenues fluctuates, our business and results of operations could be negatively affected.

Our QCT segment derives a significant portion of its revenues from a small number of customers, and we expect this trend to continue in the foreseeable future. Our industry is experiencing and may continue to experience concentration of device share among a few companies, particularly at the premium tier, contributing to this trend. Chinese OEMs continue to grow their device share in China and are increasing their device share in regions outside of China, and we derive a significant and increasing portion of our revenues from a small number of these OEMs. In addition, certain of our largest integrated circuit customers develop their own integrated circuit products, which they have in the past utilized, and currently utilize, in certain of their devices and may in the future choose to utilize in certain (or all) of their devices, rather than our products (and they may sell their integrated circuit products to third parties, discretely or together with certain of their other products, in competition with us). Also, Apple, which has historically been one of our largest customers, utilizes products of one of our competitors in many of their devices rather than our products and is solely utilizing one of our competitor's products in its most recent smartphone launch. In April 2019, we entered into a new multi-year chipset supply agreement with Apple. We do not expect to begin recording revenues under this agreement until the second half of fiscal 2020. However, Apple may continue to use our competitors' products in one or more of its future devices and may develop and utilize its own modem products, rather than our products, in one or more of its future devices.

Similarly, certain of our Chinese OEM customers have developed and others may in the future develop their own integrated circuit products and use such integrated circuit products, or other integrated circuit products, in their devices rather than our integrated circuit products, whether due to pressure from the Chinese government as part of its broader economic policies, the OEMs' concerns over losing access to our integrated circuit products as a result of U.S./Chinese trade tensions, or otherwise.

Further, political actions, including trade and/or national security protection policies, or other actions by governments, have in the past, currently are and could in the future limit or prevent us from transacting business with certain of our customers, or limit or prevent certain of our customers from transacting business with us.

Finally, we spend a significant amount of engineering and development time, funds and resources in understanding our key customers' feedback and/or specifications and attempt to incorporate such input into our product launches and technologies. These efforts may not require or result in purchase commitments from such customers or we may have lower purchases from such customers than expected, and consequently, we may not achieve the anticipated revenues from these efforts, or these efforts may result in non-recoverable costs.

The loss of any one of our significant customers, a reduction in the purchases of our products by such customers or the cancelation of significant purchases by any of these customers, whether due to the use of their own integrated circuit products or our competitors' integrated circuit products, government restrictions or otherwise, would reduce our revenues and could harm our ability to achieve or sustain expected results of operations, and a delay of significant purchases, even if only temporary, would reduce our revenues in the period of the delay. Any such reduction in revenues would also impact our cash resources available for other purposes, such as research and development. Further, the concentration of device share among a few companies, and the corresponding purchasing power of these companies, may result in lower prices for our products which, if not accompanied by a sufficient increase in the volume of purchases of our products, could have an adverse effect on our revenues and margins. In addition, the timing and size of purchases by our significant customers may be impacted by

the timing of such customers' new or next generation product introductions, over which we have no control, and the timing and success of such introductions may cause our revenues and results of operations to fluctuate. Accordingly, if current industry dynamics continue, our QCT segment's revenues will continue to depend largely upon, and be impacted by, future purchases, and the timing and size of any such future purchases, by these significant customers.

Further, to the extent Apple purchases our modem products, it purchases our Mobile Data Modem (MDM) products, which do not include our integrated application processor technology, and which have lower revenue and margin contributions than our combined modem and application processor products. To the extent Apple takes device share from our customers who purchase our integrated modem and application processor products, our revenues and margins may be negatively impacted.

Further, companies that develop HLOS for devices, including leading technology companies, sell their own devices. If we fail to effectively partner or continue partnering with these companies, or with their partners or customers, they may decide not to purchase (either directly or through their contract manufacturers), or to reduce or discontinue their purchases of, our integrated circuit products.

In addition, there has been and continues to be litigation among certain of our customers and other industry participants, and the potential outcomes of such litigation, including but not limited to injunctions against devices that incorporate our products or intellectual property, and rulings on certain patent law or patent licensing issues that create new legal precedent, could impact our business, particularly if such action impacts one of our larger customers.

Although we have more than 300 licensees, our QTL segment derives a significant portion of its revenues from a limited number of licensees, which increasingly includes a small number of Chinese OEMs. In the event that one or more of our significant licensees fail to meet their reporting and payment obligations, or we are unable to renew or modify one or more of such license agreements under similar terms, our revenues, results of operations and cash flows would be adversely impacted. Moreover, the future growth and success of our core licensing business will depend in part on the ability of our licensees to develop, introduce and deliver high-volume products that achieve and sustain customer acceptance. We have no control over the product development, sales efforts or pricing of products by our licensees, and our licensees might not be successful. Reductions in sales of our licensees' products, or reductions in the average selling prices of wireless devices sold by our licensees without a sufficient increase in the volumes of such devices sold, would generally have an adverse effect on our licensing revenues. Such adverse impact may be mitigated by the per unit royalty caps that apply to certain categories of complete wireless devices, namely smartphones, tablets, laptops and smartwatches.

We derive a significant portion of our revenues from the premium-tier device segment. If sales of premium-tier devices decrease, or sales of our premium-tier integrated circuit products decrease, our results of operations could be negatively affected.

We derive a significant portion of our revenues from the premium-tier device segment, and we expect this trend to continue in the foreseeable future. We have experienced, and expect to continue to experience, slowing growth in the premium-tier device segment due to, among other factors, lengthening replacement cycles in developed regions, where premium-tier smartphones are common; increasing consumer demand in emerging regions and China where premium-tier smartphones are less common and replacement cycles are on average longer than in developed regions and are continuing to lengthen; and a maturing premium-tier smartphone industry in which demand is increasingly driven by new product launches and innovation cycles.

In addition, as discussed in the prior risk factor, our industry is experiencing concentration of device share at the premium tier among a few companies, which gives them significant leverage. Further, certain of those companies have in the past utilized, currently utilize and may in the future utilize their own internally-developed integrated circuit products or our competitors' integrated circuit products rather than our products in all or a portion of their devices. These dynamics may result in reduced sales of or lower prices for our premium-tier integrated circuit products.

A reduction in sales of premium-tier devices, a reduction in sales of our premium-tier integrated circuit products (which have a higher revenue and margin contribution than our lower-tier integrated circuit products) or a shift in share away from OEMs that utilize our products to OEMs that do not utilize our products, would reduce our revenues and margins and may harm our ability to achieve or sustain expected financial results. Any such reduction in revenues would also impact our cash resources available for other purposes, such as research and development.

Efforts by some communications equipment manufacturers or their customers to avoid paying fair and reasonable royalties for the use of our intellectual property may require the investment of substantial management time and financial resources and may result in legal decisions or actions by governments, courts, regulators or agencies, Standards Development Organizations (SDOs) or other industry organizations that harm our business.

From time to time, companies initiate various strategies to attempt to negotiate, renegotiate, reduce and/or eliminate their need to pay royalties to us for the use of our intellectual property. These strategies have included: (i) litigation, often alleging infringement of patents held by such companies, patent misuse, patent exhaustion, patent invalidity or unenforceability of our patents or licenses, that we do not license our patents on fair, reasonable and nondiscriminatory (FRAND) terms, or some form of unfair competition or competition law violation; (ii) taking positions contrary to our understanding (and/or the plain language) of their contracts with us; (iii) appeals to governmental authorities; (iv) collective action, including working with wireless operators, standards bodies, other like-minded companies and organizations, on both formal and informal bases, to adopt intellectual property policies and practices that could have the effect of limiting returns on intellectual property innovations; (v) lobbying governmental regulators and elected officials for the purpose of seeking the reduction of royalty rates or the base on which royalties are calculated, seeking to impose some form of compulsory licensing or weakening a patent holder's ability to enforce its rights or obtain a fair return for such rights; and (vi) various attempts by licensees to shift their royalty obligation to their suppliers that results in lowering the wholesale (i.e., licensee's) selling price on which the royalty is calculated.

In addition, certain licensees have disputed, underreported, underpaid, not reported or not paid royalties owed to us under their license agreements or reported to us in a manner that is not in compliance with their contractual obligations, and certain companies have yet to enter into or have delayed entering into or renewing license agreements with us for their use of our intellectual property. Further, certain licensees and companies are currently engaged in such behavior and they or others may engage in such behavior in the future. The fact that one or more licensees dispute, underreport, underpay, do not report or do not pay royalties owed to us may encourage other licensees to take similar actions and may encourage other licensees or unlicensed companies to delay entering into, or not enter into, new license agreements. Further, to the extent such licensees and companies increase their device share, the negative impact of their underreporting, underpayment, non-payment or non-reporting on our business, revenues, results of operations, financial condition and cash flows will be exacerbated.

We have been in the past and are currently subject to various litigation and governmental investigations and proceedings, including the lawsuit filed against us by the United States Federal Trade Commission (FTC). Certain of these matters are described more fully in this Annual Report in "Notes to Consolidated Financial Statements, Note 7. Commitments and Contingencies." We may become subject to other litigation or governmental investigations or proceedings in the future. Additionally, certain of our direct and indirect customers and licensees have pursued, and others may in the future pursue, litigation or arbitration against us related to our business. Unfavorable resolutions of one or more of these matters have had and could in the future have a material adverse effect on our business, revenues, results of operations, financial condition and cash flows. See the Risk Factors below entitled "*Our business, particularly our licensing business, may suffer as a result of adverse rulings in government investigations or proceedings*" and "*Changes in our patent licensing practices, whether due to governmental investigations or private legal proceedings challenging those practices, or otherwise, could adversely impact our business and results of operations*."

In addition, in connection with our participation in SDOs, we, like other patent owners, generally have made contractual commitments to such organizations to license those of our patents that would necessarily be infringed by standard-compliant products as set forth in those commitments. Some manufacturers and users of standard-compliant products advance interpretations of these commitments that are adverse to our licensing business, including interpretations that would limit the amount of royalties that we could collect on the licensing of our standard-essential patent portfolio.

Further, some companies or entities have proposed significant changes to existing intellectual property policies for implementation by SDOs and other industry organizations with the goal of significantly devaluing standard-essential patents. For example, some have put forth proposals which would require a maximum aggregate intellectual property royalty rate for the use of all standard-essential patents owned by all of the member companies to be applied to the selling price of any product implementing the relevant standard. They have further proposed that such maximum aggregate royalty rate be apportioned to each member company with standard-essential patents based upon the number of standard-essential patents held by such company. Others have proposed that injunctions should not be an available remedy for infringement of standard-essential patents and have made proposals that could severely limit damage awards and other remedies by courts for patent infringement (e.g., by severely limiting the base upon which the royalty rate may be applied). A number of these strategies are purportedly based on interpretations of the policies of certain SDOs concerning the licensing of patents that are or may be essential to industry standards and on our (or other companies') alleged failure to abide by these policies. Some SDOs, courts and governmental agencies have adopted and may in the future adopt some or all of these interpretations or proposals in a manner adverse to our interests, including in litigation to which we may not be a party.

We expect that such proposals, interpretations and strategies will continue in the future, and if successful, our business model would be harmed, either by limiting or eliminating our ability to collect royalties (or by reducing the royalties we can collect) on all or a portion of our standard-essential patent portfolio, limiting our return on investment with respect to new

technologies, limiting our ability to seek injunctions against infringers of our standard-essential patents, constraining our ability to make licensing commitments when submitting our technology for inclusion in future standards (which could make our technology less likely to be included in such standards) or forcing us to work outside of SDOs or other industry groups to promote our new technologies, and our revenues, results of operations and cash flows could be negatively impacted. In addition, the legal and other costs associated with asserting or defending our positions have been and continue to be significant. We assume that such challenges, regardless of their merits, will continue into the foreseeable future and will require the investment of substantial management time and financial resources.

Our business, particularly our licensing business, may suffer as a result of adverse rulings in government investigations or proceedings.

We have been in the past and are currently subject to various governmental investigations and proceedings, particularly with respect to our licensing business, including the lawsuit filed against us by the FTC. Certain of these matters are described more fully in this Annual Report in "Notes to Consolidated Financial Statements, Note 7. Commitments and Contingencies." Key allegations or findings in those matters include, among others, that we violate FRAND licensing commitments by refusing to grant licenses to chipset makers, that our royalty rates are too high, that the base on which our royalties are calculated should be something less than the wholesale (i.e., licensee's) selling price of the applicable device (minus certain permitted deductions), that we unlawfully require customers to execute a patent license before we sell them cellular modem chipsets, that we have entered into exclusive agreements with chipset customers that foreclose competition, and that we violate antitrust laws, engage in anticompetitive conduct and unfair methods of competition. We may become subject to other litigation or governmental investigations or proceedings in the future.

Unfavorable resolutions of one or more of these matters have had and could in the future have a material adverse effect on our business, revenues, results of operations, financial condition and cash flows. Depending on the matter, various remedies that could result from an unfavorable resolution include, among others, the loss of our ability to enforce one or more of our patents; injunctions; monetary damages or fines or other orders to pay money; the issuance of orders to cease certain conduct or modify our business practices, such as requiring us to reduce our royalty rates, reduce the base on which our royalties are calculated, grant patent licenses to chipset manufacturers, sell chipsets to unlicensed OEMs or modify or renegotiate some or all of our existing license agreements; and determinations that some or all of our license agreements are invalid or unenforceable. If some or all of our license agreements are declared invalid or unenforceable and/or we are required to renegotiate these license agreements, we may not receive, or may not be able to recognize, some or any licensing or royalty revenues under the impacted license agreements unless and until we enter into new license agreements; and even licensees whose license agreements are not impacted may demand to renegotiate their agreements or invoke the dispute resolution provision in their agreements, and we may not be able to recognize some or any licensing or royalty revenues under such agreements. The renegotiation of license agreements could lead to arbitration or litigation to resolve the licensing terms (which could be less favorable to us than existing terms), each of which could take months or possibly years. Licensees may underreport, underpay, not report or not pay royalties owed to us pending the conclusion of such negotiations, arbitration or litigation. In addition, we may be sued for alleged overpayments of past royalties paid to us, including private antitrust actions seeking treble damages under U.S. antitrust laws. Further, if our appeal in the FTC lawsuit is unsuccessful, it could have a material adverse effect on our business. Any such event could result in a materially negative impact on our financial condition, in which case we would have to significantly cut costs and other uses of cash, including in research and development, significantly impairing our ability to maintain product and technology leadership and invest in next generation technologies such as 5G. Further, depending on the breadth and severity of the circumstances above, we may have to reduce or eliminate our capital return programs, and our ability to timely pay our indebtedness may be impacted. If these events occur, our financial outlook and stock price could decline, possibly significantly. Further, a governmental body in a particular country or region may successfully assert and impose remedies with effects that extend beyond the borders of that country or region.

These challenges have required, and we expect that they will continue to require, the investment of significant management time and attention and have resulted, and we expect that they will continue to result, in increased legal costs until the respective matters are resolved.

Changes in our patent licensing practices, whether due to governmental investigations or private legal proceedings challenging those practices, or otherwise, could adversely impact our business and results of operations.

As described in the Risk Factor above entitled "*Our business, particularly our licensing business, may suffer as a result of adverse rulings in government investigations or proceedings*," we have been in the past and are currently subject to various governmental investigations and proceedings and private legal proceedings challenging our patent licensing and chipset sales practices, including the lawsuit filed against us by the FTC. Certain of these matters are described more fully in this Annual Report in "Notes to Consolidated Financial Statements, Note 7. Commitments and Contingencies." We believe that one intent

of these investigations and legal proceedings is to reduce the amount of royalties that licensees are required to pay to us for their use of our intellectual property. We may become subject to other litigation or governmental investigations or proceedings in the future.

We historically licensed our cellular standard-essential patents together with our other patents that may be useful to licensed products because licensees desired to obtain the commercial benefits of receiving such broad patent rights from us. However, we also licensed only our cellular standard-essential patents to certain licensees who requested such licenses. Since 2015, our standard practice in China is to offer licenses to our 3G and 4G (and now 5G) cellular standard-essential Chinese patents for devices sold for use in China separately from our other patents. In addition, we also offer licenses to only our cellular standard-essential patents (including 3G, 4G and 5G) for both single-mode and multimode devices on a worldwide basis, and since 2018, an increasing number of new and existing licensees have elected to enter into worldwide license agreements covering only our cellular standard-essential patents. Going forward, we continue to anticipate that a significant portion of our licensing revenues will be derived from licensees that have entered into license agreements covering only our cellular standard-essential patents. Our royalty rates for licenses to only our cellular standard-essential patents are lower than our royalty rates for licenses to substantially all of our patent portfolio. If more licensees choose a license to only our cellular standard-essential patents instead of a portfolio license than has historically been the case, our licensing revenues and earnings would be negatively impacted unless we were able to license our other patents at rates that offset all or a portion of any difference between the royalties previously received for licenses of substantially all of our patent portfolio as compared to licenses of only our cellular standard-essential patents or there was a sufficient increase in the overall volume of sales of devices upon which royalties are paid.

If we were required to grant patent licenses to chipset manufacturers (which could lead to implementing a more complex, multi-level licensing structure in which we license certain portions of our patent portfolio to chipset manufacturers and other portions to device manufacturers), we would incur additional transaction costs, which may be significant, and we could incur delays in recognizing revenues until license negotiations were completed. In addition, our licensing revenues and earnings would be negatively impacted if we were not able to obtain, in the aggregate, equivalent revenues under such a multi-level licensing structure.

If we were required to reduce the royalty rates, we charge under our patent license agreements, our revenues, earnings and cash flows would be negatively impacted absent a sufficient increase in the volume of sales of devices upon which royalties are paid. Similarly, if we were required to reduce the base on which our royalties are calculated, our revenues, results of operations and cash flows would be negatively impacted unless there was a sufficient increase in the volume of sales of devices upon which royalties are paid or we were able to increase our royalty rates to offset the decrease in revenues resulting from such lower royalty base (assuming the absolute royalty dollars were below any relevant royalty caps).

If we were required to sell chipsets to OEMs that do not have a license to our patents, our licensing program could be negatively impacted by patent exhaustion claims raised by such unlicensed OEMs (i.e., claims that our sale of chipsets to such OEMs forecloses us from asserting any patents substantially embodied by the chipsets against such OEMs). Such sales would provide OEMs with a defense in the event we asserted our patents against them to obtain licensing revenue for those patents. This would have a material adverse effect on our licensing program and our results of operations, financial condition and cash flows.

To the extent that we were required to implement any of these new licensing and/or business practices, including by modifying or renegotiating our existing license agreements or pursuing other commercial arrangements, we would incur additional transaction costs, which may be significant, and we could incur delays in recognizing revenues until license negotiations were completed. The impact of any such changes to our licensing practices could vary widely and by jurisdiction, depending on the specific outcomes and the geographic scope of such outcomes. In addition, if we were required to make modifications to our licensing practices in one jurisdiction, licensees or governmental agencies in other jurisdictions may attempt to obtain similar outcomes for themselves or for such other jurisdictions, as applicable.

Finally, if our appeal in the FTC lawsuit is unsuccessful, it could have a material adverse effect on our business.

The enforcement and protection of our intellectual property rights may be expensive, could fail to prevent misappropriation or unauthorized use of our intellectual property rights, could result in the loss of our ability to enforce one or more patents, and could be adversely affected by changes in patent laws, by laws in certain foreign jurisdictions that may not effectively protect our intellectual property rights and by ineffective enforcement of laws in such jurisdictions.

We rely primarily on patent, copyright, trademark and trade secret laws, as well as nondisclosure and confidentiality agreements, international treaties and other methods, to protect our proprietary information, technologies and processes, including our patent portfolio. Policing unauthorized use of our products, technologies and proprietary information is difficult

and time consuming. The steps we have taken have not always prevented, and we cannot be certain the steps we will take in the future will prevent, the misappropriation or unauthorized use of our proprietary information and technologies, particularly in foreign countries where the laws may not protect our proprietary intellectual property rights as fully or as readily as U.S. laws or where the enforcement of such laws may be lacking or ineffective.

Some industry participants who have a vested interest in devaluing patents in general, or standard-essential patents in particular, have mounted attacks on certain patent systems, increasing the likelihood of changes to established patent laws. In the United States, there is continued discussion regarding potential patent law changes and current and potential future litigation regarding patents, the outcomes of which could be detrimental to our licensing business. The laws in certain foreign countries in which our products are or may be manufactured or sold, including certain countries in Asia, may not protect our intellectual property rights to the same extent as the laws in the United States. We expect that the European Union (EU) will adopt a unitary patent system in the next few years that may broadly impact that region's patent regime. We cannot predict with certainty the long-term effects of any potential changes. In addition, we cannot be certain that the laws and policies of any country or the practices of any standards bodies, foreign or domestic, with respect to intellectual property enforcement or licensing or the adoption of standards, will not be changed in the future in a way detrimental to our licensing program or to the sale or use of our products or technologies.

We have had, currently have, and may in the future have, difficulty in certain circumstances in protecting or enforcing our intellectual property rights and contracts, including collecting royalties for use of our patent portfolio due to, among others: refusal by certain licensees to report and pay all or a portion of the royalties they owe to us; policies of foreign governments; challenges to our licensing practices under competition laws; adoption of mandatory licensing provisions by foreign jurisdictions; failure of foreign courts to recognize and enforce judgments of contract breach and damages issued by courts in the United States; and challenges before competition agencies to our licensing business and the pricing and integration of additional features and functionality into our chipset products. Certain licensees have disputed, underreported, underpaid, not reported or not paid royalties owed to us under their license agreements with us or reported to us in a manner that is not in compliance with their contractual obligations, and certain companies have yet to enter into or have delayed entering into or renewing license agreements for their use of our intellectual property. Further, certain licensees and companies are currently engaged in such behavior and they or others may engage in such behavior in the future. The fact that one or more licensees dispute, underreport, underpay, do not report or do not pay royalties owed to us may encourage other licensees to take similar actions and may encourage other licensees or unlicensed companies to delay entering into, or not enter into, new license agreements. Additionally, although our license agreements provide us with the right to audit the books and records of licensees, audits can be expensive, time consuming, incomplete and subject to dispute. Further, certain licensees may not comply with the obligation to provide full access to their books and records. To the extent we do not aggressively enforce our rights under our license agreements, licensees may not comply with their existing license agreements, and to the extent we do not aggressively pursue unlicensed companies to enter into license agreements with us for their use of our intellectual property, other unlicensed companies may not enter into license agreements. Similarly, we provide access to certain of our intellectual property and proprietary and confidential business information to our direct and indirect customers and licensees, who have in the past and may in the future wrongfully use such intellectual property and information or wrongfully disclose such intellectual property and information to third parties, including our competitors.

We have engaged in litigation and arbitration in the past and may need to further litigate or arbitrate in the future to enforce our contract and intellectual property rights, protect our trade secrets or determine the validity and scope of proprietary rights of others. As a result of any such litigation or arbitration, we could lose our ability to enforce one or more patents, portions of our license agreements could be determined to be invalid or unenforceable (which may in turn result in other licensees either not complying with their existing license agreements or initiating litigation), license terms (including but not limited to royalty rates for the use of our intellectual property) could be imposed that are less favorable to us than existing terms, and we could incur substantial costs. Any action we take to enforce our contract or intellectual property rights could be costly and could absorb significant management time and attention, which, in turn, could negatively impact our results of operations and cash flows. Further, even a positive resolution to our enforcement efforts may take time to conclude, which may reduce our revenues and cash resources available for other purposes, such as research and development, in the periods prior to conclusion.

Our growth increasingly depends on our ability to extend our technologies, products and services into new and expanded product areas, such as RFFE, and adjacent industry segments and applications outside of traditional cellular industries, such as automotive, computing, IoT and networking, among others. Our research, development and other investments in these new and expanded product areas, industry segments and applications, and related technologies, products and services, as well as in our existing technologies, products and services and new technologies, such as 5G, may not generate operating income or contribute to future results of operations that meet our expectations.

Our industry is subject to rapid technological change, evolving industry standards and frequent new product introductions, and we must make substantial research, development and other investments, such as acquisitions, in new products, services and technologies to compete successfully. Technological innovations generally require significant research and development efforts before they are commercially viable. While we continue to invest significant resources toward advancements primarily in support of 4G- and 5G-based technologies, we also invest in new and expanded product areas, and adjacent industry segments and applications, by leveraging our existing technical and business expertise and through acquisitions.

In particular, our future growth significantly depends on new and expanded product areas, such as RFFE, and adjacent industry segments and applications outside of traditional cellular industries, such as automotive, computing, IoT (including the connected home, smart cities, wearables, voice and music and robotics) and networking, among others; our ability to develop leading and cost-effective technologies, products and services for new and expanded product areas, adjacent industry segments and applications; and third parties incorporating our technologies, products and services into devices used in these product areas, industry segments and applications. Accordingly, we intend to continue to make substantial investments in these new and expanded product areas and adjacent industry segments and applications, and in developing new products, services and technologies for these product areas, industry segments and applications.

Our growth also depends significantly on our ability to develop and patent 5G technologies, and to develop and commercialize products using 5G technologies.

However, our research, development and other investments in these new and expanded product areas and adjacent industry segments and applications, and corresponding technologies, products and services, as well as in our existing, technologies, products and services and new technologies, such as 5G, use of licensed, shared and unlicensed spectrum and convergence of cellular and Wi-Fi, may not succeed due to, among other reasons: we may not be issued patents on the technologies we develop; the technologies we develop may not be incorporated into relevant standards; new and expanded product areas and adjacent industry segments, applications and consumer demand may not develop or grow as anticipated; our strategies or the strategies of our customers, licensees or partners may not be successful; improvements in alternate technologies in ways that reduce the advantages we anticipate from our investments; competitors' technologies, products or services being more cost effective, having more capabilities or fewer limitations or being brought to market faster than our new technologies, products and services; we may not be able to develop, or our competitors may have more established and/or stronger, customer, vendor, distributor or other channel relationships; and competitors having longer operating histories in industry segments that are new to us. We may also underestimate the costs of or overestimate the future revenues or margins that could result from these investments, and these investments may not, or may take many years to, generate material returns.

Further, the automotive industry is subject to long design-in time frames, long product life cycles and a high degree of regulatory and safety requirements, necessitating suppliers to the industry to comply with stringent qualification processes, very low defect rates and high reliability standards, all of which results in a significant barrier to entry and increased costs.

If our new technologies, products and services are not successful, or are not successful in the time frame we anticipate, we may incur significant costs and asset impairments, our business may not grow meaningfully, our revenues and margins may be negatively impacted, and our reputation may be harmed.

There are numerous risks associated with the operation and control of our manufacturing facilities, including a higher portion of fixed costs relative to a fabless model, environmental compliance and liability, exposure to natural disasters, timely supply of equipment and materials, and various manufacturing issues.

While our QCT segment has historically utilized a fabless production model (which means that we do not own or operate foundries for the production of silicon wafers from which our integrated circuits are made), we own and operate various facilities that manufacture our RFFE modules and RF filter acoustic products. Manufacturing facilities are characterized by a higher portion of fixed costs relative to a fabless model. We may be faced with a decline in the utilization rates of our manufacturing facilities due to decreases in demand for our products, including in less favorable industry environments. During such periods, our manufacturing facilities could operate at lower capacity levels, while the fixed costs associated with full capacity continue to be incurred, resulting in lower gross profit.

We are subject to many environmental, health and safety laws and regulations in each jurisdiction in which we operate our manufacturing facilities, which govern, among other things, emissions of pollutants into the air, wastewater discharges, the use and handling of hazardous substances, waste disposal, the investigation and remediation of soil and ground water contamination and the health and safety of our employees. We are also required to obtain and maintain environmental permits from governmental authorities for certain of our operations. While we continue to take measures to comply, we cannot make assurances that we will be at all times in compliance with such laws, regulations and permits. Certain environmental laws

impose strict, and in certain circumstances, joint and several, liability on current or previous owners or operators of real property for the cost of investigation, removal or remediation of hazardous substances. Certain of these 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. In addition, we could also be held liable for consequences arising out of human exposure to hazardous substances or other environmental damage.

We have manufacturing facilities in Asia and Europe. If tsunamis, flooding, earthquakes, volcanic eruptions or other natural disasters, or geopolitical conflicts, were to damage, destroy or disrupt our manufacturing facilities, it could disrupt our operations, delay new production and shipments of inventory and result in costly repairs, replacements or other costs. In addition, natural disasters or geopolitical conflicts may result in disruptions in transportation, distribution channels and supply chains, and significant increases in the prices of raw materials.

Our manufacturing operations depend on securing raw materials and other supplies in adequate quality and quantity in a timely manner from multiple suppliers, and in some cases, we rely on a limited number of suppliers, particularly in Asia. Accordingly, there may be cases where supplies of raw materials and other products are interrupted by disaster, accident or some other event at a supplier, supply is suspended due to quality or other issues, or there is a shortage of supply due to a rapid increase in demand, which could impact production and prevent us from supplying products to our customers. If the supply-demand balance is disrupted, it may considerably increase costs of manufacturing due to increased prices we pay for raw materials. From time to time, suppliers may extend lead times, limit the amounts supplied to us or increase prices due to capacity constraints or other factors. Additionally, supply and costs of raw materials may be negatively impacted by trade and/or national security protection policies, such as tariffs, or actions by governments that limit or prevent us from transacting business with certain companies or that limit or prevent certain companies from transacting business with us, or escalating trade tensions, particularly with countries in Asia. Further, it may be difficult or impossible to substitute one piece of equipment for another or replace one type of material with another. A failure by our suppliers to deliver our requirements could result in disruptions to our manufacturing operations.

Our manufacturing processes are highly complex, require advanced and costly equipment and must be continuously modified to improve yields and performance. Difficulties in the production process can reduce yields or interrupt production, and as a result, we may not be able to deliver products or do so in a timely, cost-effective or competitive manner. Further, to remain competitive and meet customer demand, we may be required to improve our facilities and process technologies and carry out extensive research and development, each of which may require investment of significant amounts of capital and may have a material adverse effect on our results of operations, financial condition and cash flows.

Finally, we typically begin manufacturing our products using our or our customers' forecasts of customer demand, which are based on a number of assumptions and estimates and are generally not covered by purchase commitments. As a result, we incur inventory and manufacturing costs in advance of anticipated sales, which sales ultimately may not materialize or may be lower than expected. If we or our customer overestimate customer demand that is not under a binding commitment from our customer, we may experience higher inventory carrying and operating costs and/or increased excess or obsolete inventory, which would negatively impact our results of operations.

The continued and future success of our licensing programs requires us to continue to evolve our patent portfolio, and our licensing programs may be impacted by the proliferation of devices in new industry segments such as automotive, computing, IoT and networking, as well as the need to renew or renegotiate license agreements that are expiring or to cover additional future patents.

We own a very strong portfolio of issued and pending patents related to 3G, 4G, 5G and other technologies. It is critical that we continue to evolve our patent portfolio, particularly in 5G. If we do not maintain a strong portfolio that is applicable to current and future standards, products and services, particularly 5G, our future licensing revenues could be negatively impacted.

In addition, new connectivity and other services are emerging that rely on devices that may or may not be used on traditional cellular networks, such as devices used in the automotive, computing, IoT and networking industry segments. Standards, even de facto standards, that develop as these technologies mature, in particular those that do not include a base level of interoperability, may impact our ability to obtain royalties at all or that are equivalent to those that we receive for products used in cellular communications. Although we believe that our patented technologies are essential and useful to the commercialization of such services, any royalties we receive may be lower than those we receive from our current licensing program.

Further, the licenses granted to and from us under a number of our license agreements include only patents that are either filed or issued prior to a certain date. As a result, there are agreements with some licensees where later patents are not licensed by or to us. Additionally, all of our patent license agreements in China that were entered into in 2015 or thereafter, as

well as our recent worldwide cellular standard-essential patent only agreements, are effective for a specified term. In order to license or to obtain a license to such later patents or after the expiration of the specified term, and to receive royalties after the expiration date of the specified term, we will need to extend or modify such license agreements or enter into new license agreements with such licensees more frequently than we have done historically. In particular, our license agreements with certain of our key Chinese licensees expire at the end of calendar year 2019. We might not be able to extend or modify those license agreements, or enter into new license agreements, in the future without negatively affecting the material terms and conditions of our license agreements with such licensees, and such modifications or new agreements may negatively impact our revenues. In some circumstances, we may extend, modify or enter into new license agreements as a result of arbitration or litigation, and terms imposed by arbitrators or courts may be less favorable to us than existing terms. If there is a delay in extending, modifying or entering into a new license agreement with a licensee, there would be a delay in our ability to recognize revenues related to that licensee's product sales. Further, if we are unable to reach agreement on such modifications or new agreements, it could result in patent infringement litigation with such companies.

We depend on a limited number of third-party suppliers for the procurement, manufacture and testing of our products manufactured in a fabless production model. If we fail to execute supply strategies that provide technology leadership, supply assurance and low cost, our business and results of operations may be harmed. We are also subject to order and shipment uncertainties that could negatively impact our results of operations.

Our QCT segment primarily utilizes a fabless production model, which means that we do not own or operate foundries for the production of silicon wafers from which our integrated circuits are made. Other than the facilities we own that manufacture our RFFE modules and RF filter acoustic products, we rely on independent third-party suppliers to perform the manufacturing and assembly, and most of the testing, of our integrated circuits. Our suppliers are also responsible for the procurement of most of the raw materials used in the production of our integrated circuits. We employ both turnkey and two-stage manufacturing models to purchase our integrated circuits. Under the turnkey model, our foundry suppliers are responsible for delivering fully assembled and tested integrated circuits. Under the two-stage manufacturing model, we purchase die in singular or wafer form from semiconductor manufacturing foundries and contract with separate third-party suppliers for manufacturing services such as wafer bump, probe, assembly and the majority of our final test requirements. The semiconductor manufacturing foundries that supply products to our QCT segment are primarily located in Asia, as are our primary warehouses where we store finished goods for fulfillment of customer orders.

The following could have an adverse effect on our ability to meet customer demand and negatively impact our revenues, business operations, profitability and cash flows:

- a reduction, interruption, delay or limitation in our product supply sources;
- a failure by our suppliers to procure raw materials or to provide or allocate adequate raw materials, manufacturing or test capacity for our products;
- our suppliers' inability to react to shifts in product demand or an increase in raw material or component prices;
- our suppliers' delay in developing leading process technologies, or inability to develop or maintain leading process technologies, including transitions to smaller geometry process technologies;
- the loss of a supplier or the inability of a supplier to meet performance, quality or yield specifications or delivery schedules;
- additional expense or production delays as a result of qualifying a new supplier and commencing volume production or testing in the event of a loss of, or a decision to add or change, a supplier; and
- natural disasters or geopolitical conflicts impacting our suppliers.

Additionally, supply and costs of raw materials may be negatively impacted by trade or national security protection policies, such as tariffs, or actions by governments that limit or prevent us from transacting business with certain companies or that limit or prevent certain companies from transacting business with us, or escalating trade tensions, particularly with countries in Asia.

While we have established alternate suppliers for certain technologies, we rely on sole- or limited-source suppliers for certain products, subjecting us to significant risks, including: possible shortages of raw materials or manufacturing capacity; poor product performance; and reduced control over delivery schedules, manufacturing capability and yields, quality assurance, quantity and costs. To the extent we have established alternate suppliers, these suppliers may require significant levels of support to bring complex technologies to production. As a result, we may invest a significant amount of effort and resources and incur higher costs to support and maintain such alternate suppliers. Further, any future consolidation of foundry suppliers could increase our vulnerability to sole- or limited-source arrangements and reduce our suppliers' willingness to negotiate pricing, which could negatively impact our ability to achieve cost reductions and could increase our manufacturing costs. Our arrangements with our suppliers may obligate us to incur costs to manufacture and test our products that do not decrease at the same rate as decreases in pricing to our customers. Our ability, and that of our suppliers, to develop or

maintain leading process technologies, including transitions to smaller geometry process technologies, and to effectively compete with the manufacturing processes and performance of our competitors, could impact our ability to introduce new products and meet customer demand, could increase our costs (possibly decreasing our margins) and could subject us to the risk of excess inventories. Any of the above could negatively impact our business, results of operations and cash flows.

Although we have long-term contracts with our suppliers, many of these contracts do not provide for long-term capacity commitments. To the extent we do not have firm commitments from our suppliers over a specific time period or for any specific quantity, our suppliers may allocate, and in the past have allocated, capacity to the production and testing of products for their other customers while reducing or limiting capacity to manufacture or test our products. Accordingly, capacity for our products may not be available when we need it or at reasonable prices. To the extent we do obtain long-term capacity commitments, we may incur additional costs related to those commitments or make non-refundable payments for capacity commitments that are not used.

Our suppliers or potential alternate suppliers may manufacture CDMA- or OFDMA-based integrated circuits, for themselves or for other companies, that compete with our products. Such suppliers have in the past and could again elect to allocate raw materials and manufacturing capacity to their own products or products of our competitors and reduce or limit deliveries to us to our detriment.

In addition, we may not receive reasonable pricing, manufacturing or delivery terms from our suppliers. We cannot guarantee that the actions of our suppliers will not cause disruptions in our operations that could harm our ability to meet our delivery obligations to our customers or increase our cost of sales. To the extent we are unable to obtain adequate supply, we may be obligated to make payment to our customers for such shortfalls.

Additionally, we place orders with our suppliers using our and our customers' forecasts of customer demand, which are based on a number of assumptions and estimates. As we move to smaller geometry process technologies, the manufacturing lead-time increases. As a result, the orders we place with our suppliers are generally only partially covered by commitments from our customers. If we, or our customers, overestimate customer demand that is not under a binding commitment from our customer, we may experience increased excess or obsolete inventory, which would negatively impact our results of operations.

Claims by other companies that we infringe their intellectual property could adversely affect our business.

From time to time, companies have asserted, and may again assert, patent, copyright and other intellectual property rights against our products or products using our technologies or other technologies used in our industry. These claims have resulted and may again result in our involvement in litigation. We may not prevail in such litigation given, among other factors, the complex technical issues and inherent uncertainties in intellectual property litigation. If any of our products or services were found to infringe another company's intellectual property rights, we could be subject to an injunction or be required to redesign our products or services, which could be costly, or to license such rights or pay damages or other compensation to such other company. If we are unable to redesign our products or services, license such intellectual property rights used in our products or services or otherwise distribute our products (e.g., through a licensed supplier), we could be prohibited from making and selling such products or providing such services. Similarly, our suppliers could be found to infringe another company's intellectual property rights, and such suppliers could then be enjoined from providing products or services to us.

In any potential dispute involving us and another company's patents or other intellectual property, our chipset foundries, semiconductor assembly and test providers and customers could also become the targets of litigation. We are contingently liable under certain product sales, services, license and other agreements to indemnify certain customers, chipset foundries and semiconductor assembly and test service providers against certain types of liability and damages arising from qualifying claims of patent infringement by products or services sold or provided by us, or by intellectual property provided by us to our chipset foundries and semiconductor assembly and test service providers. Reimbursements under indemnification arrangements could have an adverse effect on our results of operations and cash flows. Furthermore, any such litigation could severely disrupt the supply of our products and the businesses of our chipset customers and their customers, which in turn could harm our relationships with them and could result in a decline in our chipset sales or a reduction in our licensees' sales, causing a corresponding decline in our chipset or licensing revenues. Any claims, regardless of their merit, could be time consuming to address, result in costly litigation, divert the efforts of our technical and management personnel or cause product release or shipment delays, any of which could have an adverse effect on our results of operations and cash flows.

We may continue to be involved in litigation and may have to appear in front of administrative bodies (such as the United States International Trade Commission) to defend against patent assertions against our products by companies, some of whom are attempting to gain competitive advantage or leverage in licensing negotiations. We may not be successful in such proceedings, and if we are not, the range of possible outcomes is very broad and may include, for example, monetary

damages or fines or other orders to pay money, royalty payments, injunctions on the sale of certain of our integrated circuit products (or on the sale of our customers' devices using such products) or the issuance of orders to cease certain conduct or modify our business practices. Further, a governmental body in a particular country or region may assert, and may be successful in imposing, remedies with effects that extend beyond the borders of that country or region. In addition, a negative outcome in any such proceeding could severely disrupt the business of our chipset customers and their wireless operator customers, which in turn could harm our relationships with them and could result in a decline in our worldwide chipset sales or a reduction in our licensees' sales to wireless operators, causing corresponding declines in our chipset or licensing revenues.

Certain legal matters, which may include certain claims by other companies that we infringe their intellectual property, are described more fully in this Annual Report in "Notes to Consolidated Financial Statements, Note 7. Commitments and Contingencies."

We may engage in strategic acquisitions, transactions or make investments, or be unable to consummate planned strategic acquisitions, which could adversely affect our results of operations or fail to enhance stockholder value.

We engage in strategic acquisitions and other transactions, including joint ventures, and make investments, which we believe are important to the future of our business, with the goal of maximizing stockholder value. From time to time, we acquire businesses and other assets, including patents, technology, wireless spectrum and other intangible assets, enter into joint ventures or other strategic transactions and purchase minority equity interests in or make loans to companies, including those that may be private and early-stage. Our strategic activities are generally focused on opening or expanding opportunities for our products and technologies and supporting the design and introduction of new products and services (or enhancing existing products or services) for voice and data communications and new industry segments. Many of our strategic activities entail a high degree of risk and require the use of significant amounts of capital, and investments may not become liquid for several years after the date of the investment, if at all. Our strategic activities may not generate financial returns or result in increased adoption or continued use of our technologies, products or services. We may underestimate the costs or overestimate the benefits, including product, revenue, cost and other synergies and growth opportunities that we expect to realize, and we may not achieve those benefits. In some cases, we may be required to consolidate or record our share of the earnings or losses of companies in which we have acquired ownership interests. In addition, we may record impairment charges related to our strategic activities. Any losses or impairment charges that we incur related to strategic activities will have a negative impact on our financial condition and results of operations, and we may continue to incur new or additional losses related to strategic assets or investments that we have not fully impaired or exited.

Achieving the anticipated benefits of business acquisitions, including joint ventures and other strategic investments in which we have management and operational control, depends in part upon our ability to integrate the businesses in an efficient and effective manner and achieve anticipated synergies, and we may not be successful in these efforts. Such integration is complex and time consuming and involves significant challenges, including, among others: retaining key employees; successfully integrating new employees, technology, products, processes, operations (including manufacturing operations), sales and distribution channels, business models and business systems; retaining customers and suppliers of the businesses; consolidating research and development and supply operations; minimizing the diversion of management's attention from ongoing business matters; consolidating corporate and administrative infrastructures; and managing the increased scale, complexity and globalization of our business, operations and employee base. We may not derive any commercial value from associated technologies or products or from future technologies or products based on these technologies, and we may be subject to liabilities that are not covered by indemnification protection that we may obtain, and we may become subject to litigation. Additionally, we may not be successful in entering or expanding into new sales or distribution channels, business or operational models (including manufacturing), geographic regions, industry segments or categories of products served by or adjacent to the associated businesses or in addressing potential new opportunities that may arise out of the combination.

If we do not achieve the anticipated benefits of business acquisitions or other strategic activities, our business and results of operations may be adversely affected, and we may not enhance stockholder value by engaging in these transactions.

Many of our acquisitions and other strategic investments require approval by the United States and/or foreign government agencies. Certain agencies in the past have, and may in the future, deny the transaction or fail to approve in a timely manner, resulting in us not realizing the anticipated benefits of the transaction. Future acquisitions or other strategic investments may be more difficult, complex or expensive to the extent that our reputation for our ability to consummate acquisitions has been harmed. Further, if U.S./China trade relations remain strained, our ability to consummate any transaction that would require approval from the State Administration for Market Regulation (SAMR) in China may be severely impacted.

We are subject to various laws, regulations, policies and standards. Our business may suffer as a result of existing, new or amended laws, regulations, policies or standards, or our failure or inability to comply with laws, regulations, policies or standards.

Our business, products and services, and those of our customers and licensees, are subject to various laws and regulations globally, as well as government policies and the specifications of international, national and regional communications standards bodies. Compliance with existing laws, regulations, policies and standards, the adoption of new laws, regulations, policies or standards, changes in the interpretation of existing laws, regulations, policies or standards, changes in the regulation of our activities by a government or standards body or rulings in court, regulatory, administrative or other proceedings relating to such laws, regulations, policies or standards, including, among others, those affecting licensing practices, competitive business practices, the use of our technology or products, protection of intellectual property, trade and trade protection including tariffs, cybersecurity, foreign currency, investments or loans, spectrum availability and license issuance, adoption of standards, the provision of device subsidies by wireless operators to their customers, taxation, export control, privacy and data protection, environmental protection, health and safety, labor and employment, human rights, corporate governance, public disclosure or business conduct, could have an adverse effect on our business and results of operations.

Government policies, particularly in China, that regulate the amount and timing of funds that may flow out of a country have impacted and may continue to impact the timing of our receipt of and/or ability to receive payments from our customers and licensees in such countries, which may negatively impact our cash flows.

Further, China has implemented, and other countries or regions may implement, cybersecurity laws that require that our overall information technology security environment meet certain standards and/or to be certified. Such laws may be complex, ambiguous and subject to interpretation, which may create uncertainty regarding compliance. As a result, our efforts to comply with such laws may be expensive and may fail, which could adversely affect our business, results of operations and cash flows.

Delays in government approvals or other governmental activities that could result from, among others, a decrease in or a lack of funding for certain agencies or branches of the government, trade or national security protection policies, or political changes, could result in our incurring higher costs, could negatively impact our ability to timely consummate strategic transactions and could have other negative impacts on our business and the businesses of our customers and licensees.

Import/export regulations, such as the U.S. Export Administration Regulations administered by the U.S. Department of Commerce, are complex, change frequently, have generally become more stringent over time and have intensified under the current U.S. administration. If our customers or suppliers fail to comply with these regulations, we may be required to suspend activities with these customers or suppliers, which could negatively impact our results of operations. Additionally, we may be required to incur significant expense to comply with, or to remedy violations of, these regulations.

National, state and local environmental laws and regulations affect our operations around the world. These laws may make it more expensive to manufacture, have manufactured and sell products, and our costs could increase if our vendors (e.g., suppliers, third-party manufacturers or utility companies) pass on their costs to us. The imposition of tariffs on raw materials or our products could also have a negative impact on our revenues and results of operations. We are also subject to laws and regulations impacting our manufacturing operations. See the Risk Factor entitled “There are numerous risks associated with the operation and control of our manufacturing facilities, including a higher portion of fixed costs relative to a fabless model, environmental compliance and liability, exposure to natural disasters, timely supply of equipment and materials, and various manufacturing issues.”

Regulations in the United States require that we determine whether certain materials used in our products, referred to as conflict minerals, originated in the Democratic Republic of the Congo or an adjoining country (collectively, the Covered Countries), or were from recycled or scrap sources. Other countries and regions are imposing similar regulations, which may require us to undertake additional verification and reporting, including regarding countries in addition to the Covered Countries and minerals in addition to conflict minerals. The verification and reporting requirements, in addition to customer demands for conflict free sourcing, impose additional costs on us and on our suppliers and may limit the sources or increase the prices of materials used in our products. Further, if we are unable to determine that the conflict minerals used in our products do not directly or indirectly finance or benefit armed groups in the Covered Countries, we may face challenges with our customers that place us at a competitive disadvantage, and our reputation may be harmed. Similarly, other laws and regulations have been adopted or proposed that require additional transparency regarding the employment practices of our suppliers, and any failure to maintain responsible sourcing practices could also adversely affect our relationships with customers and our reputation.

Laws, regulations, policies and standards are complex and changing and may create uncertainty regarding compliance. Laws, regulations, policies and standards are subject to varying interpretations in many cases, and their application in practice may evolve over time. As a result, our efforts to comply may fail, particularly if there is ambiguity as to how they should be applied in practice. Failure to comply with any law, regulation, policy or standard may adversely affect our business, results of operations and cash flows. New laws, regulations, policies and standards or evolving interpretations of legal requirements may cause us to incur higher costs as we revise current practices, policies or procedures and may divert management time and attention to compliance activities.

Our use of open source software may harm our business.

Certain of our software and our suppliers' software may contain or may be derived from "open source" software, and we have seen, and believe we will continue to see, an increase in customers requesting that we develop products, including software associated with our integrated circuit products, that incorporate open source software elements and operate in an open source environment, which, under certain open source licenses, may offer accessibility to a portion of a product's source code and may expose related intellectual property to adverse licensing conditions. Licensing of such software may impose certain obligations on us if we were to distribute derivative works of the open source software. For example, these obligations may require us to make source code for the derivative works available to our customers in a manner that allows them to make such source code available to their customers or license such derivative works under a particular type of license that is different than what we customarily use to license our software. Furthermore, in the course of product development, we may make contributions to third party open source projects that could obligate our intellectual property to adverse licensing conditions. For example, to encourage the growth of a software ecosystem that is interoperable with our products, we may need to contribute certain implementations under the open source licensing terms that govern such projects, which may adversely impact certain of our associated intellectual property. Developing open source products, while adequately protecting the intellectual property rights upon which our licensing business depends, may prove burdensome and time-consuming under certain circumstances, thereby placing us at a competitive disadvantage, and we may not adequately protect our intellectual property rights. Also, our use and our customers' use of open source software may subject our products and our customers' products to governmental scrutiny and delays in product certification, which could cause customers to view our products as less desirable than our competitors' products. While we believe we have taken appropriate steps and employ adequate controls to protect our intellectual property rights, our contributions to and use of open source software presents risks that could have an adverse effect on these rights and on our business.

We operate in the highly cyclical semiconductor industry, which is subject to significant downturns that may adversely impact our business. Our stock price, earnings and the fair value of our investments are subject to substantial quarterly and annual fluctuations due to this dynamic and others, and to market downturns generally.

The semiconductor industry is highly cyclical and characterized by constant and rapid technological change, price erosion, evolving technical standards, frequent new product introductions, short product life cycles (for both semiconductors and for many of the products in which they are used) and fluctuations in product supply and demand. From time to time, these factors, together with changes in general economic conditions, cause significant upturns and downturns in the semiconductor industry. Periods of downturns have been characterized by diminished demand for end-user products, high inventory levels, periods of inventory adjustment, underutilization of manufacturing capacity, changes in revenue mix and erosion of average selling prices. We expect our business to continue to be subject to cyclical downturns, even when overall economic conditions are relatively stable. If we cannot offset semiconductor industry or market downturns, our revenues may decline, and our financial condition and results of operations may be adversely impacted.

Our stock price and earnings have fluctuated in the past and are likely to fluctuate in the future. Factors that may have a significant impact on the market price of our stock and earnings include those identified above and throughout this Risk Factors section; volatility of the stock market in general and technology-based and semiconductor companies in particular; announcements concerning us, our suppliers, our competitors or our customers or licensees; and variations between our actual financial results or guidance and expectations of securities analysts or investors, among others. Further, increased volatility in the financial markets and overall economic conditions may reduce the amounts that we realize in the future on our cash equivalents and marketable securities and may reduce our earnings as a result of any reductions in the fair values of marketable securities.

In the past, securities class action litigation has been brought against companies following periods of volatility in the market price of their securities. Due to changes in our stock price, we are and may in the future be the target of securities litigation. Securities litigation could result in substantial uninsured costs and divert management's attention and our resources. Certain legal matters, including certain securities litigation brought against us, are described more fully in this Annual Report in "Notes to Consolidated Financial Statements, Note 7. Commitments and Contingencies."

There are risks associated with our indebtedness and our significant stock repurchase program.

Our outstanding indebtedness and any additional indebtedness we incur may have negative consequences on our business, including, among others:

- requiring us to use cash to pay the principal of and interest on our indebtedness, thereby reducing the amount of cash available for other purposes;
- limiting our ability to obtain additional financing for working capital, capital expenditures, acquisitions, stock repurchases, dividends or general corporate or other purposes;
- limiting our flexibility in planning for, or reacting to, changes in our business, our industry and the market; and
- increasing our vulnerability to interest rate fluctuations to the extent a portion of our debt has variable interest rates.

Our ability to make payments of principal and interest on our indebtedness depends upon our future performance, which is subject to economic and political conditions, industry cycles and financial, business and other factors, including factors which negatively impact our cash flows, such as licensees withholding some or all of the royalty payments they owe to us or our paying fines or modifying our business practices in connection with regulatory investigations or litigation, many of which are beyond our control. If we are unable to generate sufficient cash flow from operations in the future to service our debt, we may be required to, among other things: refinance or restructure all or a portion of our indebtedness; reduce or delay planned capital or operating expenditures; reduce or eliminate our dividend payments; or sell selected assets. Such measures might not be sufficient to enable us to service our debt. In addition, any such refinancing, restructuring or sale of assets might not be available on economically favorable terms or at all, and if prevailing interest rates at the time of any such refinancing or restructuring are higher than our current rates, interest expense related to such refinancing or restructuring would increase. If there are adverse changes in the ratings assigned to our debt securities by credit rating agencies, our borrowing costs, our ability to access debt in the future and the terms of such debt could be adversely affected.

Our current outstanding variable rate indebtedness uses LIBOR as a benchmark for establishing the interest rate. LIBOR is the subject of recent national, international and other regulatory guidance and proposals for reform. These reforms may cause LIBOR to disappear entirely after 2021 or to perform differently than in the past. We expect that reasonable alternatives to LIBOR will be created and implemented prior to the 2021 target date. Fallback provisions are being written into LIBOR-based contracts to attempt to reduce the risk of sudden and unpredictable increases in the cost of variable rate indebtedness. However, we cannot predict the consequences and timing of these developments.

We have implemented a stock repurchase program to repurchase up to $30 billion of our outstanding common stock. This stock repurchase program has significantly reduced and will continue to reduce the amount of cash that we have available to fund our operations, including research and development, working capital, capital expenditures, acquisitions, investments, dividends and other corporate purposes; and increases our exposure to adverse economic, market, industry and competitive conditions and developments, and other changes in our business and our industry. In addition, this significant decrease in our cash reserves exacerbates the risks described above associated with our indebtedness.

Our business and operations could suffer in the event of security breaches of our information technology systems, or other misappropriation of our intellectual property or proprietary or confidential information.

Third parties regularly attempt to gain unauthorized access to our information technology systems, and most of such attempts are increasingly more sophisticated. These attempts, which might be related to industrial or other espionage, criminal hackers or state-sponsored intrusions, include trying to covertly introduce malware to our computers and networks, including those in our manufacturing operations, and impersonating authorized users, among others. In addition, third party suppliers that we may rely on to store and/or process our confidential information may also be subject to similar attacks. Such attempts could result in the misappropriation, theft, misuse, disclosure or loss or destruction of the intellectual property, or the proprietary, confidential or personal information, of us or our employees, customers, licensees, suppliers or other third parties, as well as damage to or disruptions in our information technology systems. These threats are constantly evolving, thereby increasing the difficulty of successfully defending against them or implementing adequate preventative measures.

We seek to detect and investigate all security incidents and to prevent their recurrence, but attempts to gain unauthorized access to our information technology systems may be successful, and in some cases, we might be unaware of an incident or its magnitude and effects. The misappropriation, theft, misuse, disclosure or loss or destruction of the intellectual property, or the proprietary, confidential or personal information, of us or our employees, customers, licensees, suppliers or other third parties, could harm our competitive position, reduce the value of our investment in research and development and other strategic initiatives, cause us to lose business, damage our reputation, subject us to legal or regulatory proceedings, cause us to incur other loss or liability and otherwise adversely affect our business. We expect to continue to devote significant resources to the security of our information technology systems.

In addition, employees and former employees, in particular former employees who become employees of our competitors, customers or licensees, may misappropriate, use, publish or provide to our competitors, customers, licensees or other third parties our intellectual property or proprietary or confidential business information. This risk is exacerbated as competitors for talent, particularly engineering talent, increasingly attempt to hire our employees. See the Risk Factor entitled "We may not be able to attract and retain qualified employees." Similarly, we provide access to certain of our intellectual property or proprietary or confidential business information to our direct and indirect customers and licensees and certain of our consultants, who may wrongfully use such intellectual property or information, or wrongfully disclose such intellectual property or information to third parties, including our competitors.

Potential tax liabilities could adversely affect our results of operations.

We are subject to income taxes in the United States and numerous foreign jurisdictions. Significant judgment is required in determining our provision for income taxes. We regularly are subject to examination of our tax returns and reports by taxing authorities in the United States federal jurisdiction and various state and foreign jurisdictions, most notably in countries where we earn a routine return and the tax authorities believe substantial value-add activities are performed. Our current examinations are at various stages with respect to assessments, claims, deficiencies and refunds. We continually assess the likelihood and amount of potential adjustments and adjust the income tax provision, income taxes payable and deferred taxes in the period in which the facts giving rise to a revision become known. Although we believe that our tax estimates are reasonable, the final determination of tax audits and any related legal proceedings could materially differ from amounts reflected in our historical income tax provisions and accruals. In such case, our income tax provision, results of operations and cash flows in the period or periods in which that determination is made could be negatively affected.

The United States Treasury Department has issued proposed regulations on several provisions of the Tax Legislation, including foreign tax credits, FDII, BEAT and interest expense deduction limitations, which are expected to be finalized in the next several months. When finalized, these proposed regulations may adversely affect our provision for income taxes, results of operations and/or cash flows.

We have tax incentives in Singapore provided that we meet specified employment and other criteria, and as a result of the expiration of these incentives, our Singapore tax rate is expected to increase in fiscal 2022 and again in fiscal 2027. If we do not meet the criteria required to retain such incentives, our Singapore tax rate could increase prior to fiscal 2022, and our results of operations and cash flows could be adversely affected.

Tax rules may change in a manner that adversely affects our future reported results of operations or the way we conduct our business. Further changes in the tax laws of foreign jurisdictions could arise as a result of the base erosion and profit shifting (BEPS) project that was undertaken by the Organization for Economic Co-operation and Development (OECD). The OECD, which represents a coalition of member countries, recommended changes to numerous long-standing tax principles related to transfer pricing. These changes, as adopted by countries, may increase tax uncertainty and may adversely affect our provision for income taxes, results of operations and cash flows. Partially to address BEPS, we moved certain IP from Singapore to the United States. As a result, if tax rates were to increase in the United States, our results of operations, cash flows and financial condition could be adversely affected.

Global, regional or local economic conditions, or political actions including trade and/or national security protection policies, such as tariffs, that impact the mobile communications industry or the other industries in which we operate could negatively affect the demand for our products and services and our customers' or licensees' products and services, which may negatively affect our revenues.

A decline in global, regional or local economic conditions, a slow-down in economic growth, political actions including trade and/or national security protection policies, such as tariffs, or actions by governments that limit or prevent us from transacting business with certain companies or that limit or prevent certain companies from transacting business with us, particularly in geographic regions with high concentrations of wireless voice and data users or high concentrations of our customers or licensees, could have adverse, wide-ranging effects on demand for our products and services and for the products and services of our customers or licensees, particularly equipment manufacturers or others in the wireless communications industry who buy their products, such as wireless operators. Any prolonged economic downturn or "trade war" may result in a decrease in demand for our products and technologies; a decrease in demand for the products of our customers or licensees; the insolvency of key suppliers, customers or licensees; delays in reporting or payments from our licensees or customers; failures by counterparties; and negative effects on wireless device inventories. In addition, our customers' ability to purchase or pay for our products and services and network operators' ability to upgrade their wireless networks could be adversely affected by economic conditions, leading to a reduction, cancelation or delay of orders for our products and services.

We may not be able to attract and retain qualified employees.

Our future success depends largely upon the continued service of our executive officers and other key management and technical personnel, and on our ability to continue to identify, attract, retain and motivate them. Implementing our business strategy requires specialized engineering and other talent, as our revenues are highly dependent on technological and product innovations. The market for employees in our industry is extremely competitive, and competitors for talent, particularly engineering talent, increasingly attempt to hire, and to varying degrees have been successful in hiring, our employees, including by establishing local offices near our headquarters in San Diego, California. A number of such competitors for talent are significantly larger than us and are able to offer compensation in excess of what we are able to offer. Further, existing immigration laws make it more difficult for us to recruit and retain highly skilled foreign national graduates of universities in the United States, making the pool of available talent even smaller. If we are unable to attract and retain qualified employees, our business may be harmed.

Currency fluctuations could negatively affect future product sales or royalty revenues, harm our ability to collect receivables or increase the U.S. dollar cost of our products.

Our customers sell their products throughout the world in various currencies. Our consolidated revenues from international customers and licensees accounted for a significant portion of our total revenues in each of the last three fiscal years. Adverse movements in currency exchange rates may negatively affect our business, revenues, results of operations and cash flows due to a number of factors, including, among others:

- Our products and those of our customers and licensees that are sold outside the United States may become less price-competitive, which may result in reduced demand for those products or downward pressure on average selling prices;
- Certain of our revenues that are derived from products that are sold in foreign currencies could decrease, resulting in lower revenues, cash flows and margins;
- Certain of our revenues, such as royalties, that are derived from licensee or customer sales denominated in foreign currencies could decrease, resulting in lower revenues and cash flows;
- Our foreign suppliers may raise their prices if they are impacted by currency fluctuations, resulting in higher than expected costs, and lower margins and cash flows;
- Certain of our costs that are denominated in foreign currencies could increase, resulting in higher than expected costs and cash outflows; and
- Foreign exchange hedging exposes us to counterparty risk and may require the payment of structuring fees. If the foreign exchange hedges do not qualify for hedge accounting, the hedge results may cause earnings volatility. The foreign exchange hedging activities are designed to lessen earnings volatility; therefore, hedges may reduce the impact of currency fluctuations to certain revenues and costs.

Failures in our products or services, or in the products or services of our customers or licensees, including those resulting from security vulnerabilities, defects or errors, could harm our business.

The use of devices containing our products to interact with untrusted systems or otherwise access untrusted content creates a risk of exposing the system hardware and software in those devices to malicious attacks. While we continue to focus on this issue and are taking measures to safeguard our products from cybersecurity threats, device capabilities continue to evolve, enabling more elaborate functionality and applications, and increasing the risk of security failures. Further, our products are inherently complex and may contain defects or errors that are detected only when the products are in use. Development of products and features in new domains of technology and the migration to integrated circuit technologies with smaller geometric feature sizes are complex, add risk to manufacturing yields and reliability and increase the likelihood of product defects or errors. Because our products and services are responsible for critical functions in our customers' products and networks, security failures, defects or errors in our products or services could have an adverse impact on us, on our customers and the end users of our customers' products. Such adverse impact could include shipment delays; write-offs of our inventories, property, plant and equipment and intangible assets; unfavorable purchase commitments; a shift of business to our competitors; a decrease in demand for connected devices and wireless services; damage to our reputation and our customer relationships; regulatory actions; and other financial liability or harm to our business. In addition, security failures, defects or errors in the products of our customers or licensees could have an adverse impact on our results of operations and cash flows due to a delay or decrease in demand for our products or services generally, and our premium-tier products in particular, among other factors. Further, failures, defects or errors in our products or those of our customers or licensees entail the risk of product liability claims or recalls.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

At September 29, 2019, we occupied the following facilities (square footage in millions):

	United States	Other Countries	Total
Owned facilities	4.4	0.4	4.8
Leased facilities	0.9	5.3	6.2
Total	5.3	5.7	11.0

Our headquarters as well as certain research and development, manufacturing and network management hub operations are located in San Diego, California. Additionally, our QCT segment's non-United States headquarters is located in Singapore. Our QCT segment also operates leased manufacturing facilities in Germany, China and Singapore. We also own and lease properties around the world for use as sales and administrative offices and research and development centers, primarily in the United States and India. Our facility leases expire at varying dates through 2032, not including renewals that are at our option. Several other owned and leased facilities are under construction totaling approximately 1.3 million additional square feet, primarily related to the construction of new facilities in India and a new manufacturing facility in Singapore.

We believe that our facilities are suitable and adequate for our present purposes and that the productive capacity in facilities that are not under construction is substantially utilized. We do not identify or allocate facilities by operating segment. Additional information on net property, plant and equipment by geography is provided in this Annual Report in "Notes to Consolidated Financial Statements, Note 8. Segment Information." In the future, we may need to purchase, build or lease additional facilities to meet the requirements projected in our long-term business plan.

Item 3. Legal and Regulatory Proceedings

Information regarding legal and regulatory proceedings is provided in this Annual Report in "Notes to Consolidated Financial Statements, Note 7. Commitments and Contingencies." We are also engaged in numerous other legal actions arising in the ordinary course of our business and, while there can be no assurance, we believe that the ultimate outcome of these other legal actions will not have a material adverse effect on our business, results of operations, financial condition or cash flows.

Item 4. Mine Safety Disclosures

Not applicable.