

GLOSSARY OF TECHNICAL TERMS

This glossary contains explanations of certain technical terms used in this document. As such, these terms and their meanings may not correspond to standard industry meanings or usage of these terms.

“2G”/“3G”/“4G”/“5G”/“6G”	the second-generation, third-generation, fourth-generation, fifth-generation and sixth-generation technologies for cellular networks, with 6G referring to an emerging standard
“3GPP”	3rd Generation Partnership Project, a global partnership that develops technical specifications for mobile telecommunications systems, including 4G LTE and 5G
“5G RedCap”	5G reduced capability, a 5G standard for devices and applications that require lower throughput and lower power consumption than full-featured 5G platforms
“5G-Advanced”	the next evolution of the 5G standard, designed to support higher bandwidth, lower latency and greater reliability
“ADC”	analog-to-digital converter, a component or electronic circuit that converts continuous analog signals into discrete digital signals
“Arm TrustZone”	a hardware security technology developed by Arm that partitions a system into a secure world and a normal world to provide an isolated execution environment for sensitive functions
“ASIC”	application-specific integrated circuit, an integrated circuit designed and optimized for a particular application or set of functions
“baseband”	the part of a communication system that processes wireless signals and executes the communication protocols required for cellular network access
“BF16”	brain floating-point, a 16-bit floating-point numerical format used for artificial intelligence model computation
“BLE”	Bluetooth Low Energy, a wireless technology designed to provide short-range connectivity with low power consumption
“Bluetooth”/“Bluetooth 5.4”	a short-range wireless technology standard for exchanging data between devices; Bluetooth 5.4 is a version of that standard
“BOM”	bill of materials, a list of the components and materials required to manufacture a product
“BSP”	board support package, software that implements and supports an operating system on a specific hardware platform
“carrier aggregation”	a wireless communication technique that combines multiple component carriers to increase data throughput and network capacity

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“Cat.1”/“Cat.4”/“Cat.7”	categories of LTE user equipment defined by 3GPP, each specifying performance parameters such as data throughput, power consumption and system cost; Cat.1 (including its simplified variant Cat.1 bis) targets cost-sensitive internet of things applications; Cat.4 addresses applications requiring greater bandwidth; and Cat.7 supports higher-speed devices
“cellular connectivity chip”	a wireless connectivity chip designed for use in IoT devices to enable access to and communication over cellular networks
“cloud AI”	artificial intelligence workloads performed on centralized cloud infrastructure rather than locally on end-user devices
“CPE”	customer premises equipment, telecommunications equipment located at a subscriber’s premises that connects the subscriber to a communications network
“CPU”	central processing unit, a processor that executes instructions and performs general-purpose computing tasks
“DAC”	digital-to-analog converter, a component or electronic circuit that converts digital signals into continuous analog signals
“DDR”	double data rate, a memory technology that transfers data on both the rising and falling edges of the clock signal
“DRAM”	dynamic random-access memory, a type of random-access semiconductor memory that stores data in memory cells
“EDA”	electronic design automation, software tools used to design, simulate and verify integrated circuits
“edge AI”	artificial intelligence applications and processing performed on end-user devices or at the edge rather than exclusively in centralized cloud infrastructure
“eMBB”	enhanced mobile broadband, a 5G network capability designed to provide higher data rates and network capacity for bandwidth-intensive applications
“fabless”	a business model under which a company focuses on semiconductor design and sales and outsources wafer fabrication, packaging and testing to external providers
“fixed wireless access”	a form of wireless broadband access under which a fixed device at a subscriber’s premises connects to a cellular network as an alternative to a wired broadband connection
“foundry”	a manufacturer that fabricates integrated circuits for other companies based on their designs and specifications

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“FP16”	half-precision floating-point, a 16-bit numerical format used for artificial intelligence model computation
“GDSII”	Graphic Data System II, an industry-standard file format for exchanging integrated circuit layout data
“GHz”	gigahertz, a unit of frequency equal to one billion hertz
“GNSS”	global navigation satellite system, an umbrella term encompassing global satellite positioning systems
“GPU”	graphics processing unit, a processor designed to accelerate graphics processing and certain parallel computing workloads
“GSM”	Global System for Mobile Communications, a standard for second-generation digital cellular networks
“hardware encryption engine”	a dedicated hardware component that encrypts and decrypts data to protect information processed or stored in a device
“IC”	integrated circuit, a semiconductor device that integrates electronic components on a single chip
“INT4”	4-bit integer, a low-precision numerical format used for artificial intelligence model computation
“INT8”	8-bit integer, a numerical format that represents values using 8 bits and is commonly used for artificial intelligence model computation
“IoT”	internet of things, a network of physical devices connected to exchange data and perform functions
“IP core”	intellectual property core, a reusable block of logic, circuitry or layout design used in an integrated circuit
“ISP”	image signal processor, a processor that processes raw data from an image sensor to produce an image
“LPWAN”	low-power wide-area network, a wireless network designed to enable long-range communications at a low data rate among connected devices
“LTE”	Long-Term Evolution, a standard for wireless broadband communication for mobile devices and data terminals, often associated with 4G
“mass production”	the stage at which a product is manufactured in large quantities on a regular basis after pilot production and design validation

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“MCU”	microcontroller unit, a small computer on a single integrated circuit containing a processor, memory and programmable input and output peripherals
“MiFi”	mobile Wi-Fi, a portable wireless router that provides internet connectivity to other devices over Wi-Fi
“MIMO”	multiple-input multiple-output, a technique that uses multiple transmitting and receiving antennas to increase the capacity of a radio link
“MIPI”	mobile industry processor interface, a set of interface standards for connecting components in mobile and other electronic devices
“modem”	the functional block or component that modulates and demodulates signals so that data can be transmitted over and received from a communication network
“netlist”	the output of front-end integrated circuit design, describing the logic gates in a design and the connections among them, which serves as the input to back-end physical implementation
“Netlist-in”	an ASIC design service model under which the customer provides a completed front-end netlist and the service provider performs back-end physical implementation and tape-out, together with agreed production-support activities
“network slicing”	a network architecture that enables multiple virtualized and independent logical networks to operate on the same physical network infrastructure
“NPU”	neural processing unit, a processor designed to accelerate artificial intelligence workloads
“NR”	New Radio, the 5G radio interface standard
“NRE”	non-recurring engineering, a one-time engineering cost associated with the design and development of a new product or component
“NTN”	non-terrestrial network, a wireless communication network that uses satellites or other non-terrestrial platforms to provide connectivity
“ONNX”	open neural network exchange, an open standard format for representing machine learning models that enables their transfer among different AI frameworks and hardware platforms
“OSAT”	outsourced semiconductor assembly and test, the assembly, packaging and testing of semiconductor devices by third-party vendors

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“PCB”	printed circuit board, a board that mechanically supports and electrically connects electronic components
“PCIe”	peripheral component interconnect express, a high-speed serial computer expansion bus standard
“PHY”	physical layer, the electronic circuit or functional block that provides the physical interface required by a communication or interface standard
“process node”	a generation of semiconductor manufacturing technology conventionally identified by a nanometer figure
“protocol stack”	the software that implements the layered communication procedures defined by a communication standard, enabling a device to connect to and operate over a network
“quantization”	the process of representing the weights and activations of an artificial intelligence model in a lower-precision numerical format, such as INT8 or INT4, to reduce memory usage and computational requirements
“RF”	radio frequency, the range of electromagnetic wave frequencies used for wireless communication
“RISC-V”	an open standard instruction set architecture based on reduced instruction set computer principles
“RTOS”	real-time operating system, an operating system designed to process data and respond to events within deterministic time limits
“satellite communications”	wireless communications using satellites to transmit signals between devices or ground stations
“secure boot”	a security mechanism that ensures a device starts up using only software authenticated as trusted by the device manufacturer
“sensor hub”	a dedicated microcontroller or co-processor that collects and processes data from multiple sensors, reducing the processing load on the main processor and lowering power consumption
“SoC”	system-on-chip, an integrated circuit that integrates most or all components of a computer or other electronic system
“Spec-in”	an ASIC design service model under which the service provider performs both front-end SoC design and back-end physical implementation based on specifications agreed with the customer

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“standalone”/“non-standalone”	the two 5G network architectures defined by 3GPP; a standalone network uses a 5G core network together with 5G radio access, whereas a non-standalone network uses 5G radio access anchored to an existing 4G core network
“system-in-package”	a packaging architecture in which multiple integrated circuits are enclosed in a single module or package so as to function as a complete system
“tape-out”	the stage at which the final layout of an integrated circuit design is released to a foundry for fabrication
“TensorFlow”/“TensorFlow Lite”	TensorFlow is an open-source machine learning framework; TensorFlow Lite is a lightweight version of TensorFlow designed for deploying machine learning models on mobile and edge devices
“toolchain”	a set of software tools used together to develop, compile and execute software or artificial intelligence models
“TOPS”	trillion operations per second, a measure of computing throughput commonly used to express the artificial intelligence computing power of a processor or accelerator at a specified numerical precision, such as INT8
“turnkey”	a project or service model under which the provider assumes responsibility for designing, developing and delivering a customized chip or solution in accordance with the customer’s specifications
“UFI”	USB Wi-Fi, a portable wireless network terminal that connects to a host device through a universal serial bus interface
“unit(s)”	with respect to the sales volume of our chip products, as calculated by chipset(s), with each main chip and any accompanying chips, such as power management or RF chips, collectively counted as one unit
“USB”	universal serial bus, an industry standard that allows data exchange and power delivery between electronic devices
“VoLTE”	voice over Long-Term Evolution, a technology that enables voice calling over a 4G LTE network
“VoNR”	voice over New Radio, a technology that enables voice calling over a 5G standalone network
“VPU”	video processing unit, a processor designed to accelerate video processing tasks such as encoding and decoding
“wafer”	a thin slice of semiconductor material, such as silicon, used for fabricating integrated circuits

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“WCDMA”	wideband code division multiple access, a third-generation mobile telecommunications technology used for broadband wireless access
“Wi-Fi”	a wireless networking technology used to provide local connectivity over radio waves
“Wi-Fi 6”/“Wi-Fi 7”	the sixth and seventh generations of the Wi-Fi standard; Wi-Fi 7 is a subsequent generation designed to provide higher throughput and lower latency
“WLAN”	wireless local area network, a communication network linking devices wirelessly within a localized area