

GLOSSARY OF TECHNICAL TERMS

This glossary of technical terms contains explanations of certain technical terms used in this document. These terms and their meanings may not correspond to standard industry meanings or usage, and may not be comparable to similar terms adopted by other companies.

“4K”	image or display resolution of 800w with 3840 horizontal pixel and 2160 vertical pixel
“8K”	image of display resolution of 1600w with 7680 horizontal pixel and 4320 vertical pixel
“AEC-Q100”	failure mechanism based stress test qualification for integrated circuits in automotive applications, an automotive electronics council standard
“AES encryption”	the advanced encryption standard, a widely adopted symmetric-key encryption algorithm that encrypt and decrypt data blocks of a fixed size of 128 bits by using the same secret key. AES supports multiple key lengths such as 128, 192, and 256 bits to provide different levels of security strength
“AI-BOX”	an edge computing product deployed in customer data centers. It features wide adaptability, low deployment and maintenance costs, and edge computing cloud-edge collaboration
“Analog Camera”	camera for video signal transmission in analog mode
“AR”	augmented reality, a technology that overlays digital information, such as images, sounds and other data, onto the real-world environment in real-time, enhancing the user’s perception and interaction with the surroundings
“AVM”	around view monitor, a driving assistance system that captures environmental images through multiple cameras around the vehicle to create a 360-degree panoramic images through image processing technology
“BOM”	bill of materials, a comprehensive, hierarchical list of all raw materials, sub-assemblies, intermediate assemblies, and parts, along with their quantities, needed to manufacture a finished product
“CFA”	color filter array, a mosaic of tiny color filters placed over the pixel sensors of an image sensor to capture color information
“CMOS”	complementary metal oxide semiconductor, a widely used semiconductor technology and manufacturing process for integrated circuits that combines p-type and n-type MOSFETs to create low-power, high-reliability circuits for digital devices like processors, memory, and sensors

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“CMS”	camera monitor system, an indirect vision device that obtains a specified vision through a system composed of a camera and a monitor, and is mainly used to replace the traditional exterior rearview mirror of automobiles
“CPU”	central processing unit, an integrated circuit that serves as the computational and control core of an electronic product
“die”	an individual chip obtained from a wafer after it has undergone cutting and extraction processes
“DDR”	double data rate synchronous dynamic random-access memory
“DMS”	driver monitor system, which uses interior cameras and sensors to track a driver’s alertness and focus, detecting signs of drowsiness or distraction through eye movements, head position, and facial expressions
“DSP”	digital signal processor/processing, the process of using digital computers to analyze, modify, or improve real-world signals like sound or images that have been converted from analog to digital form
“DVR/NVR/XVR”	digital video recorder records analog cameras using coaxial cables; network video recorder records IP cameras over a network; extended video recorder can freely switch between the working modes of the traditional digital video recorder and the network video recorder, and supports various video stream formats
“EDA”	electronic design automation, the process and industry that uses specialized software, hardware, and services to automate the design, simulation, verification, and manufacturing of electronic systems like integrated circuits and printed circuit boards
“eMMC”	embedded multi-media card, a type of integrated, non-volatile storage that combines NAND flash memory and a controller on a single chip, soldered directly to a device’s circuit board
“Fabless”	a business model in the semiconductor industry where a company designs and sells hardware devices and semiconductor chips but outsources the fabrication of the devices to a specialized manufacturer called a foundry
“FLASH”	flash memory, a type of non-volatile semiconductor memory IC, which retains stored information even when powered off, featuring the ability to be repeatedly read, erased and written, and is considered a major category of memory products

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“ Foundry ”	factories and enterprises specializing in wafer processing and contract manufacturing
“ Gigabit Ethernet ”	a computer network technology with a standard transmission rate of 1 gigabit per second
“ H.264/AVC ”	a video compression standard, also known as Advanced Video Coding, which is proposed by the joint video group composed of ITU-T video expert group (VCEG) and ISO/ISE moving picture expert group (MPEG) and is widely used for encoding and decoding video data
“ H.265/HEVC ”	new generation of video compression standard following H.264
“ H.266/VVC ”	the latest generation of video compression standard
“ H3A ”	the functions of AE, AF and AWB are completed by hardware
“ HD ”	high definition, a high degree of detail in an image or screen, with a resolution of 720p or above
“ HDMI ”	high-definition multimedia interface, a digital interface for transmitting high-quality video and audio signals between devices like TVs, computers, and gaming consoles using a single cable
“ IC ”	integrated circuit, a set of electronic circuits on a small semiconductor chip, typically made of silicon, that functions as the essential building block for most electronic devices. In the semiconductor industry, ICs are designed, manufactured, and assembled to enable a wide range of applications, including computers, mobile phones, and various digital and analog devices
“ IoT ”	internet of things, a network of interconnected devices that communicate and exchange data with each other over the internet
“ IPC ”	IP camera, a type of digital video camera that receives control data and sends image data via an IP network
“ IR-CUT FREE ”	a technical solution to resolve the problem of day and night image switching, which is used to save traditional mechanical IR-CUT filters and achieve all-day output of natural color and sufficient brightness monitoring images without relying on physical switching filters
“ ISP ”	image signal processing, a specialized processor used to convert raw image data captured by a camera sensor into a high-quality, viewable image

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“KGD”	known good die, unpackaged chips that are fully tested and confirmed to meet the standards of packaged products in terms of functionality, performance, and reliability
“LiDAR”	light detection and ranging, an option technology that measures distances by sending and receiving laser light
“Mask”	the graphic negative used for the process steps that are realized by photolithography technology in the manufacture of IC
“MIPI”	a set of open standards developed by the MIPI Alliance, which defines a series of high-speed serial interface specifications
“NAS”	network-attached storage, a dedicated centralized storage device that provides data access over a network. It uses file-level protocols to provide a centralized shared storage space for authorized users and client computers on the network
“NPU”	neural-network processing unit, a specialized processor designed to accelerate AI and machine learning tasks, especially those involving neural networks, by efficiently handling the complex matrix and vector arithmetic required by these algorithms
“ODM”	original design manufacturer, which designs and produces a product that a client then sells under their own brand, often with only minor customizations
“OEM”	original equipment manufacturer, which produces a product using another company’s design and specifications
“OMS”	occupant monitoring system, which uses sensors and AI to detect and interpret the presence, position, and behavior of people inside a vehicle to enhance safety and convenience
“ONNX”	an open model format standard, which defines a universal intermediate representation that enables seamless conversion and deployment of deep learning models across different frameworks such as PyTorch and TensorFlow, and hardware platforms, thereby addressing the fragmentation of the AI ecosystem and improving model interoperability and deployment efficiency
“Packaging”	the course that assembles the integrated circuit into the final product of the chip, including the process course of chip installation, fixing, sealing, etc.
“PCIe”	peripheral component interconnect express, a high-speed standard used to connect hardware components inside computers

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“PHY”	physical layer, the lowest level of a network, responsible for the actual transmission of raw data bits over a physical medium like cables or radio waves
“PyTorch”	an open source Python machine learning library, based on Torch library, and the bottom layer is implemented by C++, which is applied to AI fields such as CV and natural language processing
“P&R”	place and route
“RGBIR/RGB-IR”	red/green/blue and infrared sensor, an image sensing technology that replaces some pixels in the traditional Bayer filter array with filters that specifically sense infrared light, simultaneously capturing color images and infrared information on a single chip
“RISC-V”	an open standard instruction set architecture based on established reduced instruction set computer principles
“RTOS”	real time operating, a specialized operating system designed for applications with critical timing constraints
“RTL Freeze”	finalization of register-transfer level code functionality and interfaces
“SaaS”	software as a service, a cloud-based software delivery model in which providers host application and make them available to users over the internet
“SATA”	serial advanced technology attachment, a computer bus interface that connects host bus adapters to mass storage devices such as hard disk drives, optical drives, and solid-state drives
“Semiconductor”	refers to materials with conductivity between conductor and insulator at normal temperature. Semiconductor is the foundation of integrated circuit. Semiconductor Industrials belongs to electronic information industry and hardware industry
“SDK”	software development kit, a package of tools, including libraries, APIs, code samples, and documentation, that developers use to build applications for a specific platform or system, such as an operating system, hardware, or programming language
“smart IoT”	artificial intelligence of things, a deep convergence of AI and IoT, where everything is connected through the IoT by collecting data and AI is used to analyze, process and intelligently utilize the massive data, enabling autonomous decision making, optimize control and predictive maintenance for equipment

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“SoC(s)”	system on chip(s), a single integrated circuit that combines most or all of the main components of a computer or electronic system onto one microchip
“SYN&DFT”	SYN is the process of converting high level, behavioral level descriptions into low level, structural level gate circuit netlists. DFT is the process of pre-inserting special hardware structures during the chip design phase so that fault detection can be performed efficiently after the chip is manufactured
“Tape out”	the crucial final step in designing an integrated circuit, where the completed and verified design data is sent to a manufacturing facility, i.e., foundry, to produce physical chips or boards
“TensorFlow”	an open source software library for machine learning of various perceptual and language understanding tasks
“USB”	universal serial bus, an industry-standard interface for connecting electronic devices, enabling both high-speed data transfer and power delivery
“VGA”	video graphics array, an analog display interface standard that uses a 15-pin connector to connect computers to displays like monitors and TVs
“VR”	virtual reality, a simulated, three-dimensional, computer-generated environment that immerses a user in a virtual world using specialized electronic devices like headsets and controllers, creating a sense of “being there” through sensory stimuli like sights and sounds
“Wafer”	a silicon semiconductor integrated circuit wafer with specific circuit functions can be manufactured into an IC finished product after being processed by specific processes such as cutting, packaging and the like
“WDR”	wider dynamic range, is to optimize the overexposure and underexposure in the picture by corresponding technical means, thus providing a panoramic image with both brightness and darkness in the above environment