Chipset Brief

Intel® 800 Series Chipset with Intel® Core™ Ultra Desktop Processors (Series 2)

Intel® Core™ Ultra desktop processors (Series 2) are the foundation of the AI PC, and Intel® 800 Series Chipsets are designed to enable their intelligent performance and next-gen connectivity. The Intel® 800 Series has something for every user. From the latest technology features that users need to connect and work to the enthusiast-level options for those who demand a powerful rig, the Intel® 800 chipset maximizes the peripheral and connectivity options.

			
Segment	**Value**	**Mainstream**	**Enthusiast**
Users	▪ Home Users ▪ Social	▪ Light Gamers ▪ Light Creatives ▪ Social	▪ Gamers ▪ Creators ▪ Hardware Enthusiasts ▪ Streamers
Use Cases	▪ Email ▪ Social Media ▪ Communication	▪ Light Gaming ▪ Light Content Creation ▪ Social Media ▪ Personal Business	▪ AAA Gaming ▪ Esports ▪ Simulations ▪ Streaming ▪ Digital Art

What Is a Chipset?

Chipsets are embedded on the motherboard and control the interaction between a CPU and every other peripheral system on the motherboard, including RAM, storage, and I/O components. They are a crucial part of your PC, defining not only the connectivity that your PC can support but also what CPU features you have access to.

Package Platform

New Features

Up to 24 PCIe 4.0 Lanes

Up to 8 SATA 3.0 (6G) Ports

Up to 14 USB 2.0 Ports

Up to 10 USB 3.2 Ports
- 5x 20G option
- 10x 10G option
- 5x 5G option

Intel® Rapid Storage Technology 20.x

Up to 34 High-Speed I/O Lanes

Integrated Sensor Hub 5.6

Intel® Smart Sound Controller

Intel® 800 Series Chipset

Intel® Platform Trust Technology:
- SPI
- eSPI
- SMBus
- Intel® HD Audio
- MIPI Soundwire

Discrete Wi-Fi 7 (5 G) Support[1] + Bluetooth 5.4

Integrated Wi-Fi 6E

Discrete 2.5 GbE or Integrated 1 GbE LAN

Intel® Ethernet Connection

Intel® Ethernet Controller

Intel® Boot Guard

Up to 8 DMI Gen 4 Lanes

DeSPI

DG

Up to 16 PCIe 5.0 Lanes

SSD

Up to 4 PCIe 5.0 Lanes

Up to 4 PCIe 4.0 Lanes

Intel® Core™ Ultra Desktop Processor (Series 2)

DDR5 Support up to 6400 MT/s[2]

NPU 13 TOPS[3]

NPU

2 Thunderbolt™ 4 Ports

Intel® 800 Series Chipset Features at a Glance

	Feature	H810	B860	Z890
Chipset I/O	Chipset High-Speed I/O Lanes	16	24	34
	DMI Gen 4 Lanes	4	4	8
	Chipset PCIe 4.0 Lanes	8	Up to 14	Up to 24
	SATA 3.0 Ports	4	4	Up to 8
	USB 2.0 Ports	10	12	14
	Maximum USB 3.2 Ports (20G) or (10G) or (5G)	0 or 2 or 4	2 or 4 or 6	5 or 10 or 10
	eSPI # Chip Select	2	2	4
Processor	Processor PCI 5.0 Lane Configuration Support	1x16	1x16 + 1x4	1x16 + 1x4 or 2x8 + 1x4 or 1x8 + 3x4
	Processor PCI 4.0 Lane Configuration Support	No	No	1x4
	System Memory Channels/DPC	2/1	2/2	2/2
	ECC Memory Support	No	No	No
	Simultaneous Independent Displays Supported	3	4	4
	IA & BLCK Overclocking[4]	No	No	Yes
	Memory Overclocking[4]	No	Yes	Yes

Intel® 800 Series Chipset Features at a Glance

	Feature	H810	B860	Z890
Storage	Intel® Rapid Storage Technology 20.x	Yes	Yes	Yes
	Intel® Volume Management Device	Yes	Yes	Yes
	PCIe Storage Support	Yes	Yes	Yes
	PCIe RAID 0,1,5,10 Support	No	No	Yes
	SATA RAID 0,1,5,10 Support	No	Yes	Yes
Manageability	Intel® Management Engine Firmware	Intel® ME 19.0 Consumer	Intel® ME 19.0 Consumer	Intel® ME 19.0 Consumer
	Intel vPro® with Intel® Active Management Technology[5,6]	No	No	No
	Intel® Standard Manageability[7]	No	No	No
Security	Intel® Platform Trust Technology	Yes	Yes	Yes
	Intel® Boot Guard	Yes	Yes	Yes
Platform	C10 & S0ix Support for Modern Standby	Yes	Yes	Yes
	Intel® Smart Sound Technology	Yes	Yes	Yes
	Integrated Sensor Hub 5.6	No	Yes	Yes
	Intel® Wireless Connectivity	Integrated Intel® Wi-Fi 6E Discrete Intel® Wi-Fi 7[1]	Integrated Intel® Wi-Fi 6E Discrete Intel® Wi-Fi 7[1]	Integrated Intel® Wi-Fi 6E Discrete Intel® Wi-Fi 7[1]
	Intel® Ethernet Connection Integrated 1GbE LAN	I219-V (Cons)	I219-V (Cons)	I219-V (Cons)
	Intel® Ethernet Controller	I226-V (Cons)	I226-V (Cons)	I226-V (Cons)

Tech Explainer

Feature	Benefit
NPU	A neural processing unit is a processor built for handling AI & machine learning tasks. Select Intel® Core™ Ultra processors include a CPU, a GPU, and an NPU.
TOPS[3]	Trillions of operations per second. A calculated technical specification of the theoretical maximum an AI accelerator can achieve if it is 100% efficient with software and workload.
Volume Management Device (Intel® VMD)	User-friendly way to manage your storage devices that allows direct control and management of NVMe SSDs from the PCIe bus without additional hardware adaptors.
Memory Overclocking Support[4]	Enables memory overclocking so that new and experienced users can get more from their unlocked processors.
Intel® Rapid Storage Technology	With additional SSDs and hard drives added, it helps provide quick access to digital photos, videos, and data files, and data protection against a hard disk drive failure with RAID 0, 1, 5, and 10.
Discrete Wi-Fi 7 Support[1]	The next step in the evolution of wireless connectivity, helping provide extreme speed, responsiveness, and reliability.
Integrated Wi-Fi 6E	Integrated Intel® Wi-Fi 6E (Gig+) through CNVi and Intel® Killer™ Wi-Fi 6E (Gig+) so that you can enjoy wired and wireless connectivity at gigabit Wi-Fi speeds.
Serial ATA (SATA) 8 Gb/s	High-speed storage interface that supports up to 8 Gb/s transfer rates for optimal data access.
Intel® Platform Trust Technology	Integrated chipset hardware and firmware solution that delivers a trusted element of the platform execution to provide enhanced security against viruses and malicious software attacks.
Intel® Smart Sound Technology	Integrated digital signal processor (DSP) for audio offload and audio/voice features.

Notices & Disclaimers

1. Discrete Wi-Fi 7: While Wi-Fi 7 is backward compatible with previous generations, new Wi-Fi 7 features require PCs configured with Intel® Wi-Fi 7 solutions, PC OEM enabling, operating system support, and use with appropriate Wi-Fi 7 routers/APs/gateways. 6 GHz Wi-Fi 7 may not be available in all regions. Performance varies by use, configuration, and other factors. For details on performance claims, learn more at www.intel.com/performance-wireless.
2. Memory Support: Maximum memory speeds are associated with 1 DIMM per Channel (1DPC) configuration. Additional DIMM loading on any channel may impact maximum memory speed. Up to DDR5-6400 MT/s 1DPC CUDIMM 1Rx8, 1Rx16, 2Rx8. Maximum memory capacity is achievable with 2DPC configurations. For additional 2DPC configuration details, refer to the Arrow Lake-S and Arrow Lake-HX Processor External Design Specification (EDS), Doc ID 729037.
3. TOPS: All TOPS are "up to" and approximate until final IP frequency defined, different SKUs with different frequency & power targets will have different TOPS.
4. Overclocking: Altering clock frequency or voltage may void any product warranties and reduce stability, security, performance, and life of the processor and other components. Check with system and component manufacturers for details.
5. Intel vPro® Platform Support (1): All versions of the Intel vPro® platform require an eligible Intel® processor, a supported operating system, Intel® LAN and/or WLAN silicon, firmware enhancements, and other hardware and software necessary to deliver the manageability use cases, security features, system performance, and stability that define the platform. See intel.com/performance-vpro for details.
6. Intel vPro® Platform Support (2): Intel vPro® Enterprise with Intel® Active Management Technology (Intel® AMT).
7. Reliability, Availability, Serviceability / Intel vPro® / Intel® Standard Manageability (ISM): When paired with the eligible Intel® W880 Series chipset SKU, a motherboard with supporting hardware and software, and potential service activation.

Performance varies by use, configuration, and other factors. Learn more at intel.com/PerformanceIndex.

Performance results are based on testing as of dates shown in configurations and may not reflect all publicly available updates. See backup for configuration details. Results that are based on systems and components as well as results that have been estimated or simulated using an Intel Reference Platform (an internal example new system), internal Intel analysis or architecture simulation or modeling are provided to you for informational purposes only. Results may vary based on future changes to any systems, components, specifications, or configurations.

No product or component can be absolutely secure. Your costs and results may vary. Intel technologies may require enabled hardware, software, or service activation.

All Intel® Evo™ branded designs are verified based on specific hardware and other requirements and must meet demanding thresholds for key mobile user experiences. Details at www.intel.com/performance-evo.

All versions of the Intel vPro® platform require an eligible Intel® processor, a supported operating system, Intel® LAN and/or WLAN silicon, firmware enhancements, and other hardware and software necessary to deliver the manageability use cases, security features, system performance, and stability that define the platform. See www.intel.com/PerformanceIndex for details.

AI features may require software purchase, subscription, or enablement by a software or platform provider or may have specific configuration or compatibility requirements. Details at intel.com/AIPC.

Intel is committed to the continued development of more sustainable products, processes, and supply chain as we strive to prioritize greenhouse gas reduction and improve our global environmental impact. Where applicable, environmental attributes of a product family or specific SKU will be stated with specificity. Refer to Intel Corporate Responsibility Report 2022-2023 or visit www.intel.com/2030goals for further information.