The Intel® W680 Chipset with Intel® Core™ Desktop Processors[3]

Professional creators, product designers, and engineers can trust the Intel® W680 Chipset and Intel® Core processors (14th gen) for advanced, reliable and secure workstation performance. This chipset supports Intel's performance hybrid design: Performance-cores (P-cores) to power the most demanding workloads, and Efficient-cores (E-cores) to enable smooth, seamless multi-tasking. For architecture, engineering and construction (AEC), media and entertainment (M&E), financial services and other professional tasks, turn to the Intel® W680 Chipset, compatible with Intel® Core processors for powerful, smooth performance, vivid, precise visuals and business-grade reliability and security.

Exceptional Performance, Incredible Productivity

Maximize your productivity, creativity and collaboration. With processor P-cores and E-cores, Intel® Core™ processors make advanced professional and creative applications smooth and easy, like VFX, 3D rendering, complex 3D CAD, AI development, and edge deployments. The Intel® W680 Chipset maximizes throughput and responsiveness, with support for 16 Processor PCIe Gen 5.0 lanes and increased DMI (from 3.0 to 4.0) connect throughput over previous generation to drive performance without slowdowns.

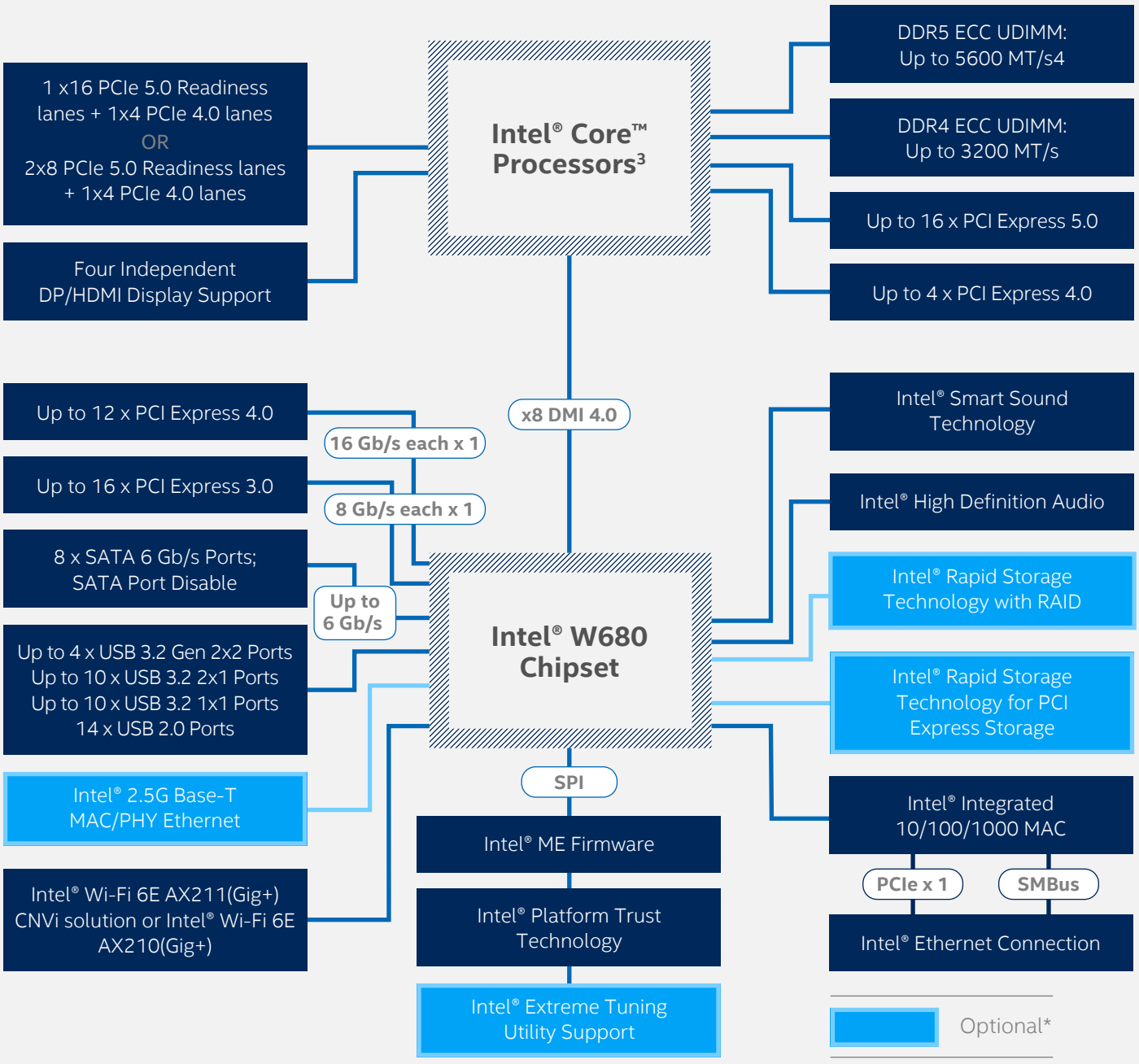
Easy to Secure & Manage

The Intel® W680 Chipset delivers hardened security and trusted reliability. Error Correcting Code (ECC) memory support minimizes errors and helps to deliver a stable engineering and design platform.[1] When paired with the right Intel® Core processors, you can get support for the Intel vPro® platform, which gives businesses the tools to manage and secure workstations.[2] Intel® Hardware Shield provides an evolving set of hardware-based technologies to reduce attack surface, all while reporting the current security configuration to the operating system. Plus, Modern Manageability with Intel® Active Management Technology (Intel ®AMT) and Intel® Endpoint Management Assistant (Intel® EMA) enable IT teams to remotely manage thousands of endpoints through the cloud inside or outside the corporate firewall.

INTEL® W680 CHIPSET FEATURES AT A GLANCE

FEATURE	BENEFIT
Support for Intel® Core™ desktop processors(14th, 13th and 12th gen)	Cross-generation compatibility.
Intel® 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.
Intel® Rapid Storage Technology for SATA storage	With additional SSDs and hard drives added, helps provide quick access to digital photo, video, and data files, and data protection against a hard disk drive failure with RAID 0, 1, 5, and 10.
Intel® Rapid Storage Technology for PCI Express* Storage	Enables Intel® Rapid Storage Technology features such as RAID 0, 1, 5, and 10 with PCI Express-based NVMe SSDs connected via Intel® Core™ processors and the Intel® W680 chipset.
Intel® Wi-Fi 6E Support	Integrated Intel® Wi-Fi 6E AX211(Gig+) CNVi solution or Intel® Wi-Fi 6E AX210(Gig+) solution allowing you to connect up to Gigabit Wi-Fi speeds.
Intel® Smart Sound Technology	Integrated digital signal processor (DSP) for audio offload and audio/voice features.
Intel® High Definition Audio	Integrated audio support enables premium digital surround sound and delivers advanced features such as multiple audio streams and jack re-tasking.
USB 3.2 Gen 2x2	Integrated USB 3.2 Gen 2x2 support provides data transfer performance with a design data rate of up to 20 Gb/s.
USB 3.2 Gen 2x1	Integrated USB 3.2 Gen 2x1 support provides data transfer performance with a design data rate of up to 10 Gb/s.
USB 3.2 Gen 1x1	Integrated USB 3.2 Gen 1x1 support provides data transfer performance with a design data rate of up to 5 Gb/s.
USB 2.0	High-Speed USB 2.0 support with a design data rate of up to 480 Mb/s.
USB Port Disable	Enables individual USB ports to be enabled or disabled as needed. This feature helps provide added protection of data by preventing malicious removal or insertion of data through USB ports.
Serial ATA (SATA) 6 Gb/s	High-speed storage interface supporting up to 6 Gb/s transfer rates for optimal data access.
SATA Port Disable	Enables individual SATA ports to be enabled or disabled as needed. This feature helps provide added protection of data by preventing malicious removal or insertion of data through SATA ports.
Intel® Platform Trust Technology	Integrated Trusted Platform Module within Intel chipsets, supporting TPM 2.0 standard.
PCI Express 3.0 Interface	Offers up to 8 GT/s for fast access to peripheral devices and networking with up to 16 PCI Express 3.0 lanes, configurable as x1, x2, and x4 depending on motherboard designs.
PCI Express 4.0 Interface	Offers up to 16 GT/s for fast access to peripheral devices and networking with up to 12 PCI Express 4.0 lanes, configurable as x1, x2, and x4 depending on motherboard designs.
Modern Manageability with Intel® AMT and Intel® EMA	Allows hardware-based cloud manageability for your entire PC fleet. Lower Total Cost of Ownership with remote management of devices.
Intel® Integrated 10/100/1000 MAC	Support for the Intel® Ethernet Connection I219-LM.

Intel® W680 Chipset Block Diagram



*The Intel® W680 chipset is compatible with Intel® Core™ processors (14th, 13th, and 12th gen).

Notices & Disclaimers

Performance varies by use, configuration and other factors.
Learn more at www.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. No product or component can be absolutely secure.

Results have been estimated or simulated.

All versions of the Intel vPro® platform require an eligible Intel® Core™ 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.

1. Available on select CPU SKUs when paired with the W680 PCH . ECC routing supported in 4L for all DDR4 and DDR5 configurations.

2. OEMs must enable Intel vPro® platform and be Intel vPro® platform certified. Not all Intel® Core™ processor-based systems are Intel vPro® platform certified.

3. Intel® Core™ Desktop Processors (14th, 13th and 12th gen)

4. Maximum memory speeds are associated with 1 DIMM per Channel (1DPC) configurations. Up to DDR5-5600 MT/s 1DPC UDIMM 1Rx8, 1Rx16 and DDR5-5200 1Rx8, 1Rx16, 2Rx8.