

Performance. Productivity. Flow.

# The Intel® Q670 Chipset with 12<sup>th</sup> Generation Intel® Core™ Processors for Business Desktops

Desktop computing devices based on the Intel® Q670 Chipset and 12<sup>th</sup> Generation Intel® Core™ processors provide all the capabilities for professionals to maximize productivity and immerse in their workflow. The Intel® Q670 Chipset is an essential companion to Intel's new performance hybrid processors, providing I/O and other system-critical functions to computing devices such as towers, all-in-ones, and small form factor desktops. As part of the Intel vPro® platform, the Intel® Q670 Chipset enables high performance connectivity, modern manageability, and security technologies foundational to Windows\* devices. The comprehensive suite of technologies in the Intel® Q670 Chipset enables workers to focus, perform, and achieve more on their business computing devices.





## Business-Class Performance

Modern business workflows require elegant hardware that excels at both data consumption and creation. The Intel® Q670 Chipset can keep up with 12<sup>th</sup> Generation Intel® Core™ processors with ultra-fast connectivity to both wired and wireless networks. New for this generation, the Intel® Q670 Chipset integrates the latest Wi-Fi 6E standard. When combined with the Intel® Wi-Fi 6E AX211 (Gig+) RF component, business desktops are primed for the next wave of wireless networking, with the flexibility to be physically placed anywhere in a business environment regardless of whether a wired network drop is available. For traditional wired connectivity, the Intel® Q670 Chipset also supports the Intel® Ethernet Connection with both 1 Gbps and 2.5 Gbps options. For fast connectivity to local devices, desktops with a discrete Intel Thunderbolt™ controller provide up to 40 Gbps bandwidth over a USB Type-C port that is also USB 4.0 compliant.

In addition, the chipset amplifies throughput and responsiveness with support for PCIe 4.0 (maximum of 16 Giga-Transfers per Second), additional USB 3.2 Gen 2x2 ports (20 Gbps), SATA 3.2 (6 Gbps per port) and all I/O communications between the Intel® Q670 Chipset and the processor flow through an upgraded 8-lane Direct Media Interface (DMI 4.0). Other features such as Intel® High Definition Audio and an Integrated Sensor Hub (ISH) complete the business computing experience.



## Modern Manageability

The Intel® Q670 Chipset supports two types of out-of-band manageability, giving IT professionals options based on the level of remote control desired for proactive and reactive maintenance of computing endpoints. Intel® Standard Manageability (ISM) provides a set of tools compliant with the DASH standard to remotely power-on desktops, program wake up times for maintenance, re-image systems using USB Redirection, and various other capabilities. New for this generation, ISM is upgraded with the ability to manage systems over Wi-Fi and with support for client initiated remote access (CIRA). CIRA enables endpoints to be managed over the cloud with a console based on the Intel® Endpoint Management Assistant.



The Intel® Q670 Chipset also supports Intel® Active Management Technology (Intel® AMT), a superset of ISM that uniquely features out-of-band remote keyboard-video-mouse (KVM), which allows IT technicians to remotely control a computing endpoint as if they were sitting right in front of the device. Remote KVM control also applies to UEFI menus, which means a technician can remotely trigger or re-configure any capability programmed into the BIOS. This includes a new feature called Intel® One-Click Recovery. When implemented by the device manufacturer, Intel® One-Click Recovery can remediate a disabled system by re-installing a last known good image as defined by the OEM, by the IT technician, or even by the Windows Recovery Environment.





## Platform Security Features

As with prior platforms, the Intel® Q670 Chipset incorporates the Intel® Converged Security and Management Engine (Intel® CSME). The Intel® CSME is responsible for executing the Intel® Standard Manageability and Intel® AMT use cases, as well as security capabilities integral to a Windows business PC. The crypto engine in the Intel CSME is FIPS 140/2 Level 2 compliant, thus raising the security posture for features such as Intel® Boot Guard and Intel® Platform Trust Technology (Intel® PTT). Intel® Boot Guard provides cryptographically verified boot to ensure the system only boots trusted software. Intel® PTT provides an integrated Trusted Platform Module compatible with the TPM 2.0 standard. TPM 2.0 is required for a variety of services within the Windows operating system. On business desktops, the Intel® CSME requires the corporate version of the Intel® Management Engine Firmware, which is also validated with the rest of the Intel® Hardware Shield suite of security technologies, making the Intel® Q670 Chipset integral to desktops based on the Intel vPro® platform.

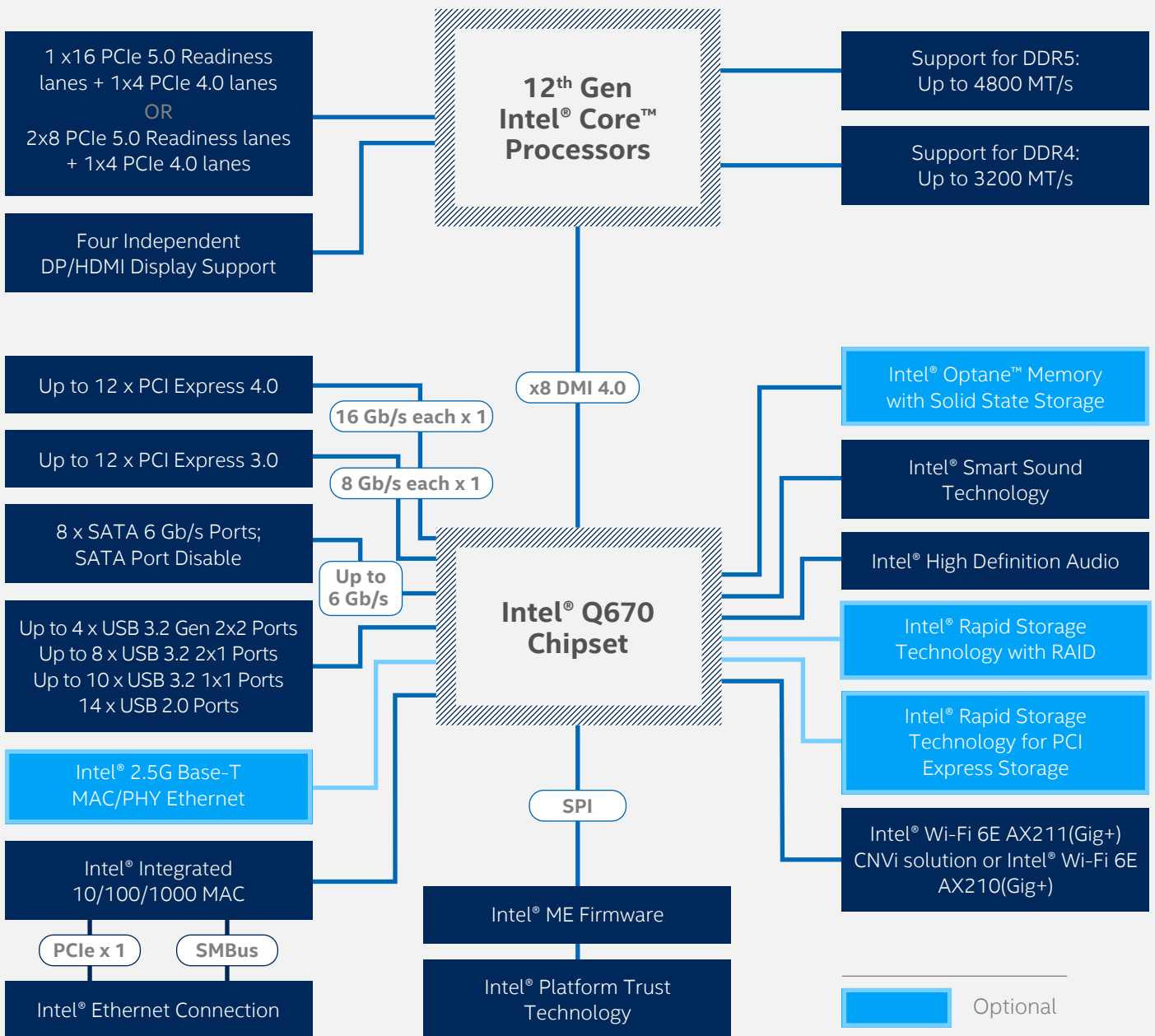


## INTEL® Q670 CHIPSET FEATURES AT A GLANCE

FEATURE	BENEFIT
Support for 12 <sup>th</sup> Gen Intel® Core™ processors	Supports 12 <sup>th</sup> Gen Intel® Core™ processors.
Intel® Volume Management Device	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 12 <sup>th</sup> Gen Intel® Core™ processors and the Intel® Q670 chipset.
Intel® Optane™ Memory H20 with SSD Support <sup>4</sup>	Provides performance improvements as well as fast app response times for system acceleration and responsiveness when paired with an Intel® Optane memory module.
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.
Intel® Boot Guard	Supports cryptographically-verified boot as recommended by Windows best security practices.
PCI Express 3.0 Interface	Offers up to 8 GT/s for fast access to peripheral devices and networking with up to 12 PCI Express 3.0 lanes, configurable as x1, x2, and x4 depending on desktop 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.
Intel® Integrated 10/100/1000 MAC	Support for the Intel® Ethernet Connection I219-LM.



# Intel® Q670 Chipset Block Diagram





### Notices & Disclaimers

<sup>1</sup>Gigabit Wi-Fi speeds based on IEEE theoretical maximum bandwidth enabled by 2x2 802.11ac 160MHz (1.733Mbps) and requires the use of similarly configured router.

<sup>2</sup>Intel technologies' features and benefits depend on system configuration and may require enabled hardware, software or service activation. Performance varies depending on system configuration. No computer system can be absolutely secure. Check with your system manufacturer or retailer or learn more at [www.intel.com](http://www.intel.com).

Performance varies by use, configuration and other factors. Learn more at [www.Intel.com/PerformanceIndex](http://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.

Your costs and results may vary.

Intel technologies may require enabled hardware, software or service activation.

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