

Intel® Xeon® W-3400 & Intel® Xeon® W-2400 Processors and the Intel® W790 Chipset for Workstations

Intel® Xeon® W-3400 and Xeon® W-2400 processors deliver the ultimate workstation platform to power the next generation of compute-intensive professional workloads. Paired with the Intel® W790 Chipset, professionals can experience high performance compute and reliability, in addition to expanded peripherals—high-speed network cards, graphics accelerators, and large volume storage arrays—for increased productivity and configuration flexibility. The multi-die architecture brings a revolutionary increase in core counts to accelerate high-thread computing for workstation tasks like 3D rendering, product visualization and simulation, and scientific computing. Innovative platform capabilities, including up to 112 lanes of PCIe Gen 5.0 connectivity, up to 4TB of DDR5 RDIMM memory support, and up to 5x USB 3.2 Gen 2x2 ports provide the configuration flexibility for professionals to meet intricate compute demands with ease.

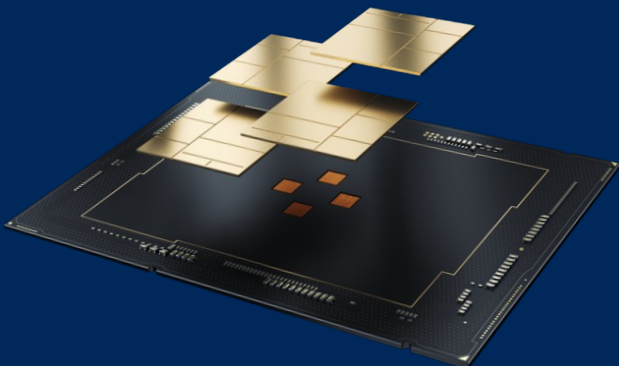


Breakthrough Compute Architecture

Intel® Xeon® W-3400 and Xeon® W-2400 processors represent an architectural turning point in power and scalability for professional high-end compute needs. These processors bring a breakthrough in advanced CPU packaging technology featuring Embedded Multi-die Interconnect Bridge (EMIB) technology which elegantly connects multiple heterogeneous die in a single solution, alleviating processing bottlenecks and enabling up to 56 cores in a single socket. This gives professionals double the core counts over the previous leading generation of Intel® Xeon® W-3400 and Xeon® W-2400 processors to

manage to manage compute-intensive, highly threaded workflows. At the same time, CPU speeds of up to 4.8 GHz with Intel® Turbo Boost Max Technology 3.0 optimize core performance on-demand for lightly-threaded applications, increasing system responsiveness. An expanded Intel® Smart Cache of up to 105MB reduces latency in complex workloads, like code compilation or rendering, by reducing the amount of time spent swapping data between cache and memory. With this all-new compute architecture designed to optimize CPU performance across workloads, creatives, engineers, and data scientists can work at their best.

Multi-Tile Design for Increased Scalability



Designed for Professionals

Workstations based on Intel® Xeon® W-3400 and Xeon® W-2400 platforms provide the world-class features that you need to dive fearlessly into your workflow. Manage complex Machine Learning (ML) & Artificial Intelligence (AI) workloads end-to-end with 3rd Generation Intel® Deep Learning Boost¹ to accelerate training and inferencing of AI models. Support for select Intel vPro® Enterprise technology² enables a seamless, reliable system management experience for uninterrupted workflow productivity. Support for DDR5 RDIMM Error Correction Code (ECC) Memory and reliability, availability, and serviceability (RAS) features guard against system errors to protect critical data integrity and system reliability to maximize uptime. Let Intel Xeon W-3400 and Xeon W-2400 processors for workstation elevate your workflow performance and drive the future of professional excellence.

Cutting-Edge Platform Technologies

Complemented by a full range of next-generation technologies, Intel® Xeon® W-3400 and Xeon® W-2400 processor-based workstation platforms enable professionals to work, connect, analyze, and create like never before. Up to 112 PCIe Gen 5.0 lanes of CPU attached connectivity give you the configuration flexibility to equip the right combination of hardware accelerators like multi-GPUs, SSDs and network cards to take on any task. Additionally, the Intel W790 Chipset features up to 16 PCIe Gen 4.0 lanes for high-speed access to additional SSD storage for your most often used reference files while increased DMI lanes (from x4 to x8) and throughput (from 3.0 to 4.0) between the chipset and processor remove data bandwidth bottlenecks in your workflow. Enhance your productivity with up to 8-channels of DDR5 RDIMM memory for power savings, faster memory speeds, and higher memory bandwidth.³ Access important data on-demand to meet your deadlines with integrated Intel® Wi-Fi 6E and 2.5 GbE wired network connectivity and boost your productivity with support for up to 5 USB 3.2 Gen 2x2 (20G) ports to transfer large videos and project files or larger data sets between devices. With these and other world-class platform innovations, professionals can leverage the flexibility, expandability, and performance that they need to succeed.





Streamline Security and Manageability with Support for Intel vPro® Enterprise Technology²

Workstations based on new Intel® Xeon® W-3400 and Xeon® W-2400 processors deliver the tools that enterprises need to integrate and manage workstation platforms within their existing networks seamlessly and securely. Boost security for virtualized environments with Intel VT-Redirect Protection (Intel® VT-rp) which offers hardware-enabled protection for the Windows kernel. With Intel® Firmware Version Control (FVC), enterprises benefit from additional system stability that prevents re-installation of older

firmware. Premier system management capabilities—including Intel® Active Management Technology, Intel® Platform Trust Technology, and Intel® Boot Guard—empower IT professionals to manage and secure their enterprise systems from wherever they are. Intel Xeon W-3400 and Xeon W-2400 processor-based workstation platforms make it easy to integrate, manage, and secure hardware and data so that enterprises can operate with peace of mind.

INTEL® XEON® W-3400 AND INTEL® XEON® W-2400 PROCESSORS FEATURES AT A GLANCE

FEATURE	BENEFIT
New Processor Core Architecture	Utilizes Embedded Multi-die Interconnect Bridge (EMIB) packaging technology to deliver a scalable architecture, increasing core-counts in a single socket for the next generation of workstations
Up to DDR5 ECC RDIMM 4800 MT/s ⁴	Delivers up to 4TB of memory support for power savings, faster memory speeds, and higher memory bandwidth
PCIe 5.0 up to 112 Lanes	Offers readiness for up to 224 GT/s for fast access to peripheral devices and networking with up to 112 PCI Express 5.0 lanes
Increased L2 Cache and L3 Shared Intel® Smart Cache	Up to 105MB for increased performance and data management by reducing time spent swapping data between cache and memory
3rd Gen Intel® Deep Learning Boost ¹	Accelerates training and inferencing of AI models enabling developers' end-to-end workflow Solution designed, validated, and tested by Intel data scientists
Support for select Intel vPro® Enterprise Technology ²	Give IT professionals the tools for easy system integration & management of workstation platforms into existing enterprise networks
ECC Memory Support	Error-Correcting Code memory detects and corrects errors and improves the integrity of essential data without workflow interruption
Intel® Turbo Boost Max Technology 3.0	Identifies the processor's fastest cores and directs critical workloads to them
Intel® Turbo Boost Technology 2.0	Intelligently boosts the processor to run faster than its rated frequency as power, heat, and workload allow

INTEL® W790 CHIPSET FEATURES AT A GLANCE

FEATURE	BENEFIT
Support for Intel® Xeon® W-3400 & Intel® Xeon® W-2400 Processors	Supports Intel® Xeon® W-3400 & Intel® Xeon® W-2400 Processors
High Speed I/O Lanes	Up to 38 lanes for configuration flexibility and accelerated performance
PCIe 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 motherboard designs
PCIe Express 4.0 Interface	Offers up to 16 GT/s for fast access to peripheral devices and networking with up to 16 PCI Express 4.0 lanes, configurable as x1, x2, and x4 depending on motherboard designs
DMI	Supports faster data transfer with increased lanes of up to 8 Direct Media Interface Gen 4.0
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
Serial ATA (SATA) 6 Gb/s	High-speed storage interface supporting up to 6 Gb/s transfer rates for optimal data access
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
Modern Manageability with Intel® Active Management Technology (Intel® AMT)	Remote out-of-band management for efficient proactive and reactive system maintenance over Ethernet or Wi-Fi connections
Intel® Boot Guard	Supports cryptographically-verified boot as recommended by Windows best security practices
Intel® Platform Trust Technology	Integrated Trusted Platform Module within Intel chipsets, supporting TPM 2.0 standard

INTEL VPRO® ENTERPRISE TECHNOLOGY SUPPORTED AT A GLANCE

FEATURE	BENEFIT
Intel® Firmware Version Control (FVC)	Prevents reinstallation of older firmware
Intel® VT-rp (redirect protection) (Formerly HLAT)	Hardware-enhanced protection for OS virtualization
Intel® Virtualization Technology (Intel® VT-x / VT-d)	Accelerates hypervisor and virtual machine switching for OS security services
Intel® Platform Trust Technology	Integrated Trusted Platform Module within Intel SOCs, supporting TPM 2.0 and Intel® TXT
Intel® Trusted Execution Technology (Intel® TXT)	Provides dynamic root of trust for Windows or other system software
Intel® Control Flow Enforcement Technology (Intel® CET)	Hardware-enhanced protection against memory safety attacks, such as malicious code insertion into applications executing in PC memory
Intel® Transparent Supply Chain (Intel® TSC)	Mechanism for confirming authenticity of system components and firmware via digital certificate, an As-Built report, and an Auto Verify Tool
Intel® Boot Guard	Supports cryptographically-verified boot as recommended by Windows best security practices
Intel® BIOS Guard	Helps protect firmware residing in non-volatile memory
Intel's Advanced Programmable Interrupt Controller with Virtualization (APIC-v)	Provides hardware support for task switching including hypervisors and Virtualization-Based Security (VBS) in Windows* 10
Intel® Active Management Technology (Intel® AMT)	Remote out-of-band management for efficient proactive and reactive system maintenance over Ethernet or Wi-Fi connections
Intel® Endpoint Management Assistant (Intel® EMA)	Provides the ability to remotely and securely manage Intel® Active Management Technology (Intel® AMT) devices beyond the firewall
Intel® Unique Platform ID (Intel® UPID)	Creates unique and persistent ownership credentials for Intel vPro® devices to facilitate deployment of services

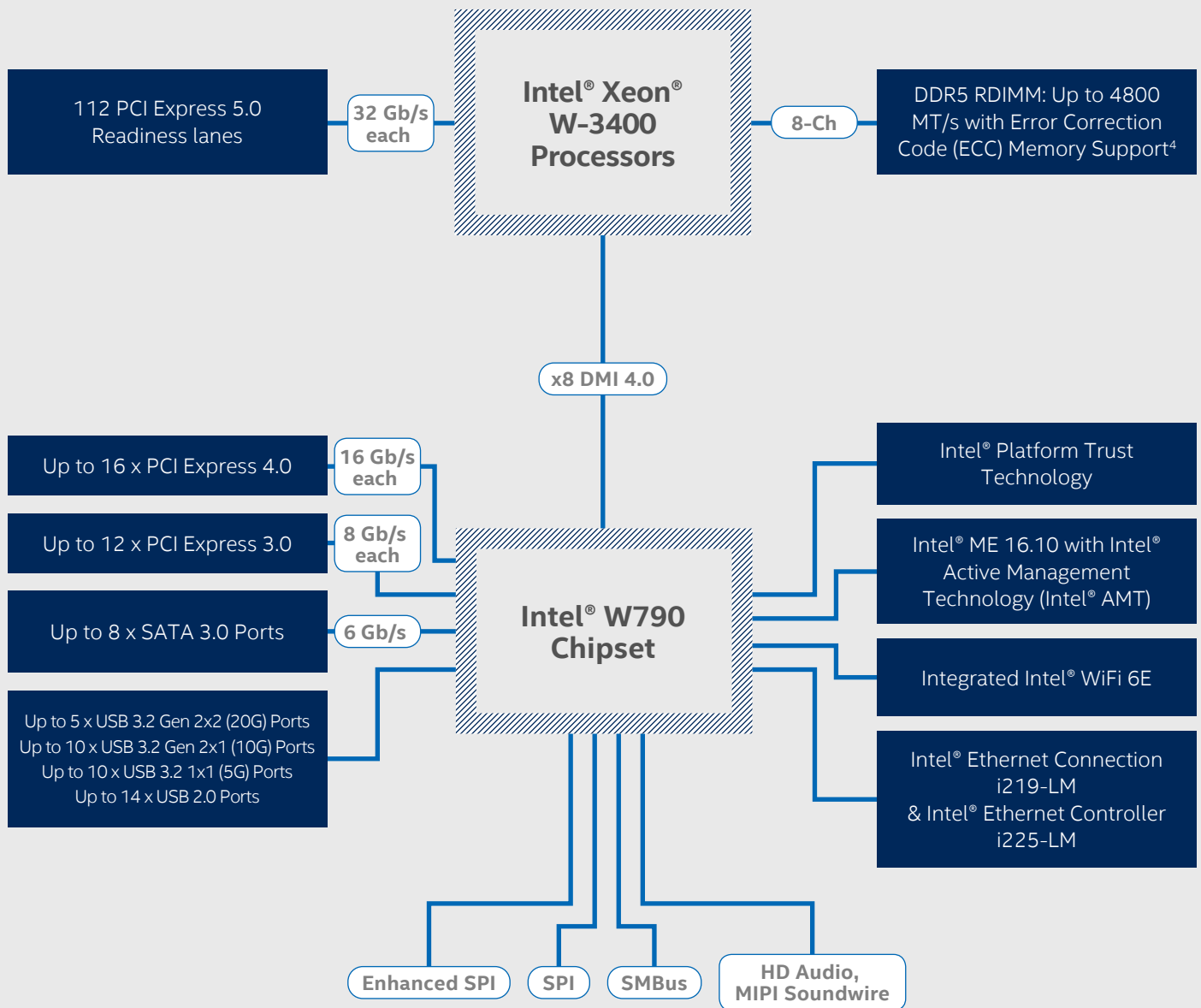
INTEL® XEON® W-3400 PROCESSORS COMPARISON

			
	Intel® Xeon® w9	Intel® Xeon® w7	Intel® Xeon® w5
Processor Cores	Up to 56 (56P+0E)	Up to 28 (28P+0E)	Up to 16 (16P+0E)
Intel® Hyper-Threading Technology	Yes		
Total Processor Threads	Up to 112	Up to 56	Up to 32
Intel® Smart Cache (L3)	Up to 105MB	Up to 75MB	Up to 45MB
Intel® Turbo Boost Max Technology 3.0 Frequency (GHz)	Up to 4.8		Up to 4.7
Processor Base Frequency	Up to 2.2	Up to 2.6	Up to 3.2
CPU PCIe 5.0 Lanes	112		
Maximum Memory Speed (MT/s)	DDR5 4800 ²		
Memory Channels	8		
Maximum Memory Capacity ²	4TB		
Maximum Turbo Power (W)	Up to 420	Up to 360	up to 324
Processor Base Power (W)	Up to 350	Up to 300	Up to 270
Reliability, Availability & Serviceability	ECC, Standard RAS		
Intel vPro® Enterprise Technology ⁶	Yes		
Intel® Boot Guard	Yes		
Intel® Platform Trust Technology	Yes		
3rd Gen Intel® Deep Learning Boost	Yes		
Intel® Data Streaming Accelerator (Intel® DSA)	Yes		
Intel® Advanced Matrix Extensions (Intel® AMX)	Yes		
Intel® Advanced Vector Extensions 2 (Intel® AVX2)	Yes		
Intel® Advanced Vector Extensions 512 (Intel® AVX-512)	Yes		
Intel® Advanced Vector Extensions 512 (Intel® AVX-512) FMA Units	2		

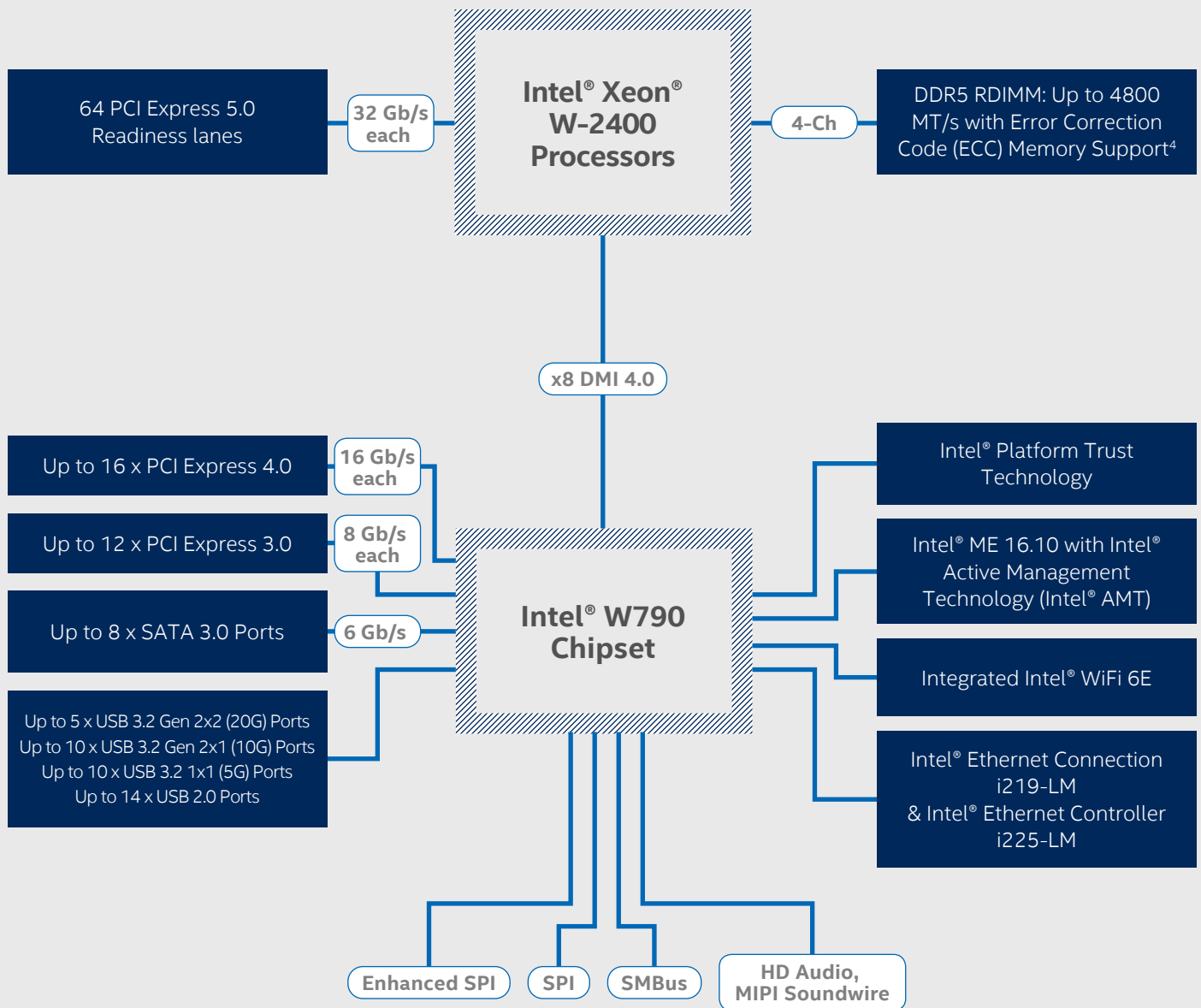
INTEL® XEON® W-2400 PROCESSORS COMPARISON

			
	Intel® Xeon® w7	Intel® Xeon® w5	Intel® Xeon® w3
Processor Cores	Up to 24 (24P+0E)	Up to 16 (16P+0E)	Up to 8 (8P+0E)
Intel® Hyper-Threading Technology	Yes		
Total Processor Threads	Up to 48	Up to 32	Up to 16
Intel® Smart Cache (L3)	Up to 45MB	Up to 33.75MB	Up to 22.5MB
Intel® Turbo Boost Max Technology 3.0 Frequency (GHz)	Up to 4.8	Up to 4.7	Up to 4.5
Processor Base Frequency	Up to 2.6	Up to 3.2	Up to 3.1
CPU PCIe 5.0 Lanes	64		
Maximum Memory Speed (MT/s)	DDR5 4800 ²		DDR5 4400 ⁷
Memory Channels	4		
Maximum Memory Capacity ²	2TB		
Maximum Turbo Power (W)	270	Up to 240	Up to 198
Processor Base Power (W)	225	Up to 200	Up to 165
Reliability, Availability & Serviceability	ECC, Standard RAS		
Intel vPro® Enterprise Technology ⁶	Yes		
Intel® Boot Guard	Yes		
Intel® Platform Trust Technology	Yes		
3rd Gen Intel® Deep Learning Boost	Yes		
Intel® Data Streaming Accelerator (Intel® DSA)	Yes		
Intel® Advanced Matrix Extensions (Intel® AMX)	Yes		
Intel® Advanced Vector Extensions 2 (Intel® AVX2)	Yes		
Intel® Advanced Vector Extensions 512 (Intel® AVX-512)	Yes		
Intel® Advanced Vector Extensions 512 (Intel® AVX-512) FMA Units	2		

Intel® Xeon® W-3400 Platform Block Diagram



Intel® Xeon® W-2400 Platform Block Diagram



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.

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 www.intel.com/Performance-vPro for details.

For more information, please visit intel.com/workstation

1. 3rd Generation Intel Deep Learning boost consists of AVX-512, TMUL, and Bfloat16 instruction sets.
2. For a full list of Intel vPro platform technologies by product line visit <https://www.intel.com/content/www/us/en/products/details/processors/vpro.html>
3. Compared to previous generation workstation platforms, Xeon W-3200 with 6 channels of DDR4 RDIMM Memory Support.
4. Maximum memory speeds are associated with 1 DIMM per Channel (1DPC) configurations. Additional DIMM loading on any channel may impact maximum memory speed. Maximum memory capacity is achievable with 2DPC configurations.
5. Overclocking Disclaimer: Unlocked features are present with select chipsets and processor combinations. 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.
6. Intel vPro® Enterprise with Intel® Active Management Technology (Intel® AMT) or Intel® Standard Manageability (Intel® ISM) when paired with a motherboard with supporting hardware and software, and potential service activation.
7. DDR5 4400 MT/s memory speed supported with 1DPC and 2DPC configurations.

*Other names and brands may be claimed as the property of others.