WORKSTATION
DATASHEET

Pro WS X299 SAGE II

Power
Speed
Expansion All in 1

HIGHLIGHTS

- **Intel LGA 2066 socket**: Ready for the latest Intel® Core™ X-series processors
- **AI overclocking**: Quickly optimizes your CPU performance based on the CPU and cooler, achieving results that are extremely close to manual tuning by experts
- **Dual Intel® 2.5G LAN:** Offers increased data throughput and improved efficiency, making it ideal for large file transfers and backup
- **Fits up to 4-way graphics cards**: Includes 7 PCIe Gen 3 x16 slots and supports NVIDIA® SLI and AMD CrossFire™
- **Ultra-efficient VRM** heatsink: Metal-fin-array design maximizes surface area for heat dissipation to enable unthrottled performance
- **Next-gen connectivity**: Next-gen transfer speeds with dual M.2, triple U.2 and USB 3.2 Gen 2 Type-A and Type-C™

Pro WORKSTATION MOTHERBOARD

ASUS Pro Workstation motherboards are designed for professionals in AI training, deep learning, animation, 3D rendering or media production. Featuring expandable graphics, extensive storage, impressive connectivity and exceptional overall performance and reliability, Pro Workstation motherboards are the ideal solution for creative professionals. Each motherboard includes centralized management software with support for out-of-band management, so they're also an efficient and cost-effective option for IT administrators.

Multi-GPU support

Pro WS X299 Sage II fits up to four dual-slot graphics cards and supports both NVIDIA® SLI™ and AMD CrossFire™ 4-way configurations to enable multi-GPU setups that harness the full power of the latest graphics technologies, including NVIDIA® Quadro®. NVIDIA® Quadro® is the perfect complement to Pro WS X299 Sage II, delivering the best performance for design, modeling, medical research, and processing-intensive simulation and rendering applications.

Intel Dual 2.5G Internet

2.5G on-board Ethernet kicks your Ethernet connection up a notch with an up to 2.5X bandwidth improvement. Using your existing Ethernet cable, you can take advantage this networking upgrade to experience smoother, lag-free gaming, immediately stream high-resolution videos and enjoy faster file transfers.

AI Overclocking

Pro WS X299 Sage II simplifies CPU overclocking with software and extensive tweaking options that give beginners and seasoned overclockers alike the tools to build well-tuned machines. A new memory trace layout provides stability and compatibility for both traditional DIMMs and RGB-infused memory, letting you pair a broad choice of DRAM kits with your build.

CPU Potential

We created a proprietary algorithm that evaluates the capabilities of your CPU

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Cooling Capability

The onboard intelligence also watches system vitals like temperatures, fan speeds, and power draw to gauge cooling performance.

M.2 heatsink,Keep your SSD cooler

Pro WS X299 Sage II has an ultra-efficient heatsink to reduce M.2 SSD temperatures for optimal storage performance and improved SSD longevity.

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SPECIFICATION

CPU	Intel® Socket 2066 Core™ X-Series Processors Supports Intel® Virtual RAID on CPU (VROC) * Refer to www.asus.com for CPU support list * The Intel® Turbo Boost Technology 3.0 Support Depends on the CPU types.
Chipset	Intel® X299 Chipset
Memory	Intel® Core™ X-series Processors (6-core above) 8 x DIMM, Max. 256GB, DDR4 4266(O.C.)/4200(O.C.)/4133(O.C.)/4000(O.C.)/3600(O.C.)/2933/2666/2400 MHz Non-ECC, Un-buffered Memory Supports Intel® Extreme Memory Profile (XMP) * Hyper DIMM support is subject to the physical characteristics of individual CPUs. * Actual memory frequency differs from Intel CPU types and memory module. Please check Intel official site for more detail about the memory types supported by each CPU.
Expansion Slots	7 x PCIe 3.0/2.0 x16 (single x16 or dual x16/x16 or triple x16/x16/x16 or quad x16/x16/x16/x16 or seven x16/x8/x8/x8/x8/x8/x8)*1
Multi-GPU support	Supports NVIDIA® 4-Way/Quad-GPU SLI® Technology * (with 4 PCIex16 graphics card) Supports AMD® 4-Way/Quad-GPU CrossFireX™ Technology* (with 4 PCIex16 graphics card) * Actual number of Multi-graphic supported differs per Vendors' Graphic cards. Please check with Vendor beforehand.
Storage	Intel® X299 Chipset : 1 x M.2_1 socket 3, with M Key, type 2242/2260/2280/22110 storage devices support (both SATA & PCIE mode)*2 1 x M.2_2 socket 3, with M Key, type 2242/2260/2280 storage devices support (PCIE mode only) 8 x SATA 6Gb/s port(s) 3 x U.2 connector*3 Support Raid 0, 1, 5, 10 Support Intel® Rapid Storage Technology enterprise 5.1 for X-Series(6-core and above) CPU RAID Supports Intel® Smart Response Technology Intel® Rapid Storage Technology 15 support Intel® Optane™ Memory Ready Intel® Virtual RAID (VROC) support for CPU RAID
LAN	Intel® I225-LM
Audio	Realtek® S1200A 7.1-Channel High Definition Audio CODEC - Impedance sense for front and rear headphone outputs - Internal audio Amplifier to enhance the highest quality sound for headphone and speakers - Supports : Jack-detection, Multi-recording, Front Panel MIC Jack-retasking - High quality 120 dB SNR stereo playback output (Line-out at rear) and 113 dB (Line-in) Audio Feature : - DTS Connect - DTS Headphone:X - DTS X®:Ultra - Audio amplifier: Provides the highest-quality sound for headphone and speakers - Premium Japanese-made audio capacitors: Provide warm, natural and immersive sound with exceptional clarity and fidelity - Unique de-pop circuit: Reduces start-up popping noise to audio outputs Separate layer for left and right track, ensuring both sound deliver equal quality
USB	Intel® X299 Chipset : 8 x USB 3.2 Gen 1 port(s) (6 at back panel, , 2 at mid-board) Intel® X299 Chipset : 4 x USB 2.0 port(s) (4 at back panel,) ASMedia® USB 3.2 Gen 2 controller : 2 x USB 3.2 Gen 2 port(s) (2 at back panel, , Type-A + USB Type-C™) ASMedia® USB 3.2 Gen 2 controller : 1 x USB 3.2 Gen 2 port(s) (1 at mid-board)
Back Panel I/O Ports	2 x LAN (RJ45) port(s) 1 x USB 3.2 Gen 2(teal blue)Type-A 1 x USB 3.2 Gen 2 (black)USB Type-CTM, 6 x USB 3.2 Gen 1 (blue) 4 x USB 2.0 (one port can be switched to USB BIOS FlashBack™) 1 x Optical S/PDIF out 1 x USB BIOS FlashBack™ Button(s) 1 x 8-channel Audio I/O
Internal I/O Connectors	2 x Addressable RGB header,1 x AAFP connector,2 x Aura RGB Strip Headers,1 x M.2 Socket 3 with M key, type 2242/2260 storage devices support (both SATA & PCIE mode),1 x M.2 Socket 3 with M Key, type 2242/2260/2280 storage devices support (PCIE mode only),1 x TPM header,8 x SATA 6Gb/s connector(s),1 x VROC_HW_Key,2 x CPU Fan connector(s),2 x Chassis Fan connector(s),1 x AIO_PUMP connector,1 x Thunderbolt header(s),1 x 24-pin EATX Power connector(s),2 x 8-pin ATX 12V Power connector(s),1 x EZ XMP switch,1 x Power-on button(s),1 x Reset button(s),1 x Clear CMOS button(s),3 x U.2 connector,1 x System panel connector,1 x COM port header,1 x W_Pump+ Header,1 x Thermal sensor connector,1 x CPU_OV jumper,1 x M.2 Fan Header.1x 6-pin ATX 12V Power connector,1 x USB 3.2 Gen 2 (up to 10Gbps) connector,1 x USB 3.2 Gen 1 (up to 5Gbps) connector support additional 2 USB ports,3 x U.2 LED switch header
Form Factor	CEB Form Factor 12 inch x 10.5 inch (30.5 cm x 26.7 cm)
Note	*1 Please refer to the block diagrams in the Appendix for more details in the manual. *2 M.2 PCIE RAID support,M.2_1 socket shares bandwidth with SATA6G_1 port. When M.2_1 socket runs in SATA mode, SATA6G_1 port will be disabled. *3 The U.2 connectors are only supported on 48/44-Lane CPUs