

ASUS PRO WS W790E-SAGE SE (90MB1C20-M0EAY0)

ASUS PRO WS W790E-SAGE SE - Motherboard - SSI EEB - LGA4677 Socket-E - W790 Chipset - USB-C 3.2 Gen 2x2, USB 3.2 Gen 2x2, USB-C 3.2 Gen2, USB 3.2 Gen 1 - 10 Gigabit LAN, Gigabit LAN - HD Audio (8-channel)



The Pro WS W790 series workstation motherboard is deftly tailored for creative professionals, developers and engineers, unleashing the dominate performance of the Intel Xeon processors, with CPU and memory overclocking capability. Featuring an optimized memory trace layout, advanced power stage design, server-grade IPMI remote management, and ultrafast PCIe 5.0 and networking connectivity, Pro WS W790 series melds no-compromise engineering with incredible aesthetics. ASUS W790 motherboards go above and beyond hardware validations to help ensure that your workstation build supports a wide variety of memory, cooler, chassis, PSU and other devices.

Key Selling Points

Intel LGA 4677 socket - ready for Intel Xeon processors

CPU and memory overclocking - supports for ECC R-DIMM DDR5 memory (1DPC)

Ultrafast connectivity - 7 PCIe 5.0 x16 slots, Dual Intel X710-AT2 10G LAN, 3 M.2, USB 3.2 Gen 2x2 Type-C and 2 SlimSAS

Robust power and thermal design - 14 + 1 + 1 power stages, 8-pin and 6-pin PCIe power connectors, Massive VRM, chipset, M.2 heatsinks and M.2 backplates

Trusted stability - highly compatible with the latest technologies with solid QVL list and tested for 24/7 operation, validated for extensive compatibility

Product Features

Low-profile professionalism

With metallic black aluminum extrusions, stainless steel black mesh with highlighted details, and a transparent smoky gray I/O cover, Pro WS W790 series presents a professional, low-profile look for content creators.

Multi-GPU support

Pro WS W790E-SAGE SE features seven PCIe 5.0 x16 slots for high-powered graphics cards, enabling enhanced performance for professional design, modeling and simulation, and rendering applications.

E14 + 1 + 1 power stages

Pro WS W790E-SAGE SE's VRM is comprised of 14 + 1 + 1 power stages, and delivers the power and efficiency that the latest Intel processors demand.

8-pin and 6-pin power connectors

Additional PCIe 8-pin and 6-pin power connectors can add power output stability when creators and developers use many graphic cards onboard.

Reliability with supreme memory overclocking

The Pro WS W790E-SAGE SE supports 8-channel 1DPC DDR5 RDIMM ECC memory, allowing automatically to detect and correct data corruption, reducing the chance of system crashes. Being infused with deliberate memory trace layout, this motherboard enables DDR5 memory overclocking with maxed-out speeds to provide better memory performance for a diverse range of workloads.

Intel X710-AT2 Dual 10G Ethernet

Featuring dual onboard 10G LAN ports, the Pro WS W790E-SAGE SE makes short work of multi-terabyte transfers from your creativity with low-latency.

USB 3.2 Gen 2x2 Type-C

The USB standard doubles transfer bandwidth by opening another USB3.2 lane to achieve its maximum throughput of up to 20Gbps. In addition to blazingly fast datatransfer speeds, USB 3.2 offers easy connectivity and ultimate flexibility via USB-C ports.

3 M.2

Three onboard M.2 22110 slots on the Pro WS W790E-SAGE SE, two wired for PCIe 5.0 and one for PCIe 4.0, make it easy to install an initial set of drives. Creators working with massive video files can RAID together multiple NVMe devices for massive I/O bandwidth and seamless playback in their editing bays. All these three M.2 rest under dedicated heatsinks to prevent SSD throttling under heavy loads and comes with ASUS Q-Latch.

More storage

To connect even more high-speed storage, onboard SlimSAS slots let you connect industrial SSDs - not to mention server and networking equipment - through the fast PCIe 4.0 interface.

Front-panel connector

The front panel USB 3.2 Gen 2 connector is ready for next-gen PC cases and devices.

Massive VRM heatsinks

Since mass and airflow are critically important, the VRM heatsinks are manufactured with tall and densely packed fins, and are placed on the MOSFETs and chokes to enhance thermal efficiency. Additional fan bracket allows users to install up to three high-speed fans, drawing heat away from VRM areas to fully unleash the performance of the latest Intel processors

Chipset heatsink

A dedicated and beefy chipset heatsink draws heat away to maintain optimum operating temperatures.

M.2 heatsinks

Three M.2 slots are covered by heatsinks to combat temperature-induced throttling that can affect performance during heavy, sustained storage loads. M.2 backplate blocks on select slots go even further to ensure that you get peak performance from your next-gen drives.

Pre-mounted I/O shield

The patented I/O shield is finished in sleek matte black and comes pre-mounted for easy installation on the motherboard and is designed to allow air flow to keep the heat away from the board.

BIOS Flashback
Users can place a BIOS file onto a FAT32-formatted USB drive and simply plug it into the USB BIOS FlashBack port and press a button to update the (UEFI) BIOS. Updates can be made even if memory or CPU aren't present.

Protect your graphics cards
SafeSlot is a PCIe slot reengineered by ASUS to provide optimized attachment and shearing resistance. Manufactured in a single step using a new insert-molding process, SafeSlot fortifies the slot with metal for enhanced strength and durability.

24/7 reliability
Optimized for around-the-clock operations, The ASUS Pro WS W790 series is tested under temperatures of up to 45°C and humidity of up to 80% in order to ensure it can thrive in different environments.

Main specifications

Product Description	ASUS PRO WS W790E-SAGE SE - motherboard - SSI EEB - LGA4677 Socket-E - W790
Product Type	Motherboard - SSI EEB
Chipset Type	Intel W790
Processor Socket	1 x LGA4677 Socket-E
Compatible Processors	Xeon W
Max RAM Size	2048 GB
RAM Supported	8 DIMM slots - DDR5, ECC, registered
Storage Ports	8 x SATA 600 (RAID), 3 x M.2, 2 x SlimSAS
USB / FireWire Ports	1 x USB-C 3.2 Gen 2x2 + 5 x USB 3.2 Gen 2 + 2 x USB 2.0 + (1 x USB-C 3.2 Gen 2 + 1 x USB 3.2 Gen 1 + 2 x USB 2.0 via headers)
Audio	HD Audio (8-channel)
LAN	10 Gigabit Ethernet, Gigabit Ethernet

Extended specification

General

Product Type	Motherboard - SSI EEB
Chipset Type	Intel W790
Processor Socket	LGA4677 Socket-E
Max Processors Qty	1
Compatible Processors	Xeon W

Expansion / Connectivity

Expansion Slots	1 x CPU 8 x DIMM 288-pin 6 x PCIe 5.0 x16 1 x PCIe 5.0 x16 (x8 mode) 4 x PCIe 5.0 x16 2 x PCIe 4.0 x4 (SlimSAS) 3 x M.2 socket (2242/2260/2280/22110 M.2 Key M slot)
Storage Interfaces	SATA-600 -connectors: 8 x 7pin Serial ATA - RAID 0 / RAID 1 / RAID 10 / RAID 5 PCIe 4.0 -connectors: 2 x SlimSAS PCIe 4.0 -connectors: 1 x M.2 - RAID 0 / RAID 1 / RAID 10 / RAID 5 PCIe 5.0 -connectors: 2 x M.2 - RAID 0 / RAID 1 / RAID 10 / RAID 5
Interfaces	1 x USB-C 3.2 Gen2x2 4 x USB 3.2 Gen 2 1 x USB-C 3.2 Gen 2 2 x USB 2.0 1 x microphone - mini-jack 1 x audio line-out (center/subwoofer) - mini-jack 1 x audio line-out (rear) - mini-jack 1 x audio line-in - mini-jack 1 x audio line-out - mini-jack 1 x SPDIF out 1 x VGA 1 x LAN (Gigabit Ethernet) 2 x LAN (10Gigabit Ethernet)
Internal Interfaces	1 x USB-C 3.2 Gen 2 - header 2 x USB 3.2 Gen 1 - header 4 x USB 2.0 - header 1 x serial - header 1 x audio - header 1 x SPI - header
Power Connectors	2 x 24-pin main power connectors, 4 x 8-pin ATX12V connectors, 8-pin PCI Express power connector, 6-pin PCI Express power connector

Miscellaneous

Included Accessories	CPU guard for LGA 4677 E1A, CPU guard for LGA 4677 E1B, 1 x M.2 rubber package, Q-Connector, ACC Express Activation Key Card, M.2 Key E screw package, M.2 backplate rubber package, VRM fan holder, thermistor cable
Cables Included	4 x Serial ATA cable
Software Included	ASUS Control Center Express, Armoury Crate, ASUS Fan Xpert 4, ASUS AI Suite III, ASUS Turbo App, PC Cleaner, ASUS CPU-Z, Adobe Creative Cloud (free trial), Norton 360 Deluxe (60 days trial), WinRAR
Width	30.5 cm

Depth	33 cm
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Audio

Type	HD Audio (8-channel)
Audio Codec	Realtek ALCS1220A
Compliant Standards	High Definition Audio

Features

BIOS Type	AMI
BIOS Features	UEFI BIOS, ASUS EZ Flash
Sleep / Wake Up	Wake on LAN (WOL), wake on PME
Hardware Features	Intel Turbo Boost Max Technology 3.0, Preboot eXecution Environment (PXE), CrashFree BIOS 3, ASUS EZ DIY, ASUS DIGI+ VRM, ESD Guards, ASUS Extreme Engine Digi+, FlexKey button, ReTry button, Safe boot button, Start button, 10K Black Metallic Capacitors, MicroFine Alloy Chokes, ASUS 5X Protection III, LANGuard, overvoltage protection, ASUS SafeSlot, ASUS Stainless Steel Back I/O, ASUS Q-Design, M.2 Q-Latch, Q-Code, ASUS Q-Connector, Q-DIMM, Q-LED, Q-Slot, M.2 heatsink backplate, M.2 heatsink, steel backplate, VRM heatsink design, BIOS FlashBack button, BIOS FlashBack LED, ASUS ProCool II, pre-mounted I/O shield, ASUS SafeDIMM, overcurrent protection, Intel VROC support, Intel Volume Management Device (VMD), 14+1+1 Phase Power Design, BMC remote management, Enlarged Chipset Heatsink

LAN

Network Interfaces	10 Gigabit Ethernet, Gigabit Ethernet
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Supported RAM

Max Size	2048 GB
Technology	DDR5
Bus Clock	4800 MHz, 5200 MHz (O.C.), 5400 MHz (O.C.), 5600 MHz (O.C.), 5800 MHz (O.C.), 6000 MHz (O.C.), 6200 MHz (O.C.), 6400 MHz (O.C.), 6600 MHz (O.C.), 6800 MHz (O.C.)
Supported RAM Integrity Check	ECC
Registered or Buffered	Registered
Features	8-channel memory architecture, Intel Extreme Memory Profiles (XMP)

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