



**High Performance  
Embedded  
Dual 10GbE  
vPro AMT  
IPMI**

## Key Features

10th Generation Intel® Core™ i9/Core™ i7/Core™ i5/Core™ i3 Processor, Intel® Xeon® W-1200 Processors  
Single Socket LGA-1200 (Socket H5) supported, CPU TDP supports Up to 125W TDP

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Intel® W480E

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Up to 128GB Unbuffered ECC/non-ECC UDIMM, DDR4-2933MHz, in 4 DIMM slots

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1 PCI-E 3.0 x16,  
1 PCI-E 3.0 x4 (in x8 slot),  
1 PCI-E 3.0 x4  
1 M.2 M-Key SATA/PCI-E 3.0 x4, 2280/22110  
1 M.2 E-Key CNVi/PCI-E 3.0 x1, 2230

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Intel® W480E controller for 4 SATA3 (6 Gbps) ports; RAID 0,1,5,10

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Dual LAN with Intel® X550 10GBase-T Ethernet Controller  
Single LAN with Intel® PHY I219LM LAN controller  
Single LAN with Intel® Ethernet Controller I210-AT

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1 VGA D-Sub Connector port, 2 DP++(Dual-Mode DisplayPort) ports, 1 DVI - D port

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## Product SKUs

- MBD-X12SCZ-TLN4F
- X12SCZ-TLN4F

## Physical Stats

- **Form Factor** Micro-ATX
- **Dimension** 9.6" x 9.6" (24.38cm x 24.38cm)

## Processor

- **CPU** Intel® Xeon® W-1200 Processors, 10th Generation Intel® Core™ i9/Core™ i7/Core™ i5/Core™ i3 Processor
- Single Socket LGA-1200 (Socket H5) supported, CPU TDP supports Up to 125W TDP
- A graphic integrated CPU is required to have onboard video from the DVI and DP ports

- **Core** Up to 10 cores

- **Note** \*\* Motherboard supports this maximum TDP. Please verify your system can thermally support.  
\*\*The X12SCZ does not support the Intel 10th/11th generation processor 2M cache SKUs. These processors will not boot with the latest BIOS version.

## System Memory

- **Memory Capacity** 4 DIMM slots
- Up to 128GB ECC/non-ECC UDIMM, DDR4-2933MHz
- **Memory Type** 2933/2666/2400/2133MHz
- **DIMM Sizes** 4GB, 8GB, 16GB, 32GB
- **Memory Voltage** 1.2V
- **Error Detection** Corrects single-bit errors
- Detects double-bit errors (using ECC memory)

## On-Board Devices

- **Chipset** Intel® W480E
- **SATA** Intel® W480E controller for 4 SATA3 (6 Gbps) ports; RAID 0,1,5,10
- **IPMI** ASPEED AST2500
- **Audio** ALC 888S HD Audio
- **Graphics** Intel® HD Graphics
- ASPEED AST2500 BMC
- **Network Controllers** Single LAN with Intel® PHY I219LM LAN controller
- Single LAN with Intel® Ethernet Controller I210-AT
- Dual LAN with Intel® X550 10GBase-T Ethernet Controller

## Input / Output

- **SATA** 4 SATA3 (6Gbps) port(s)
- **LAN** 2 RJ45 Gigabit Ethernet LAN ports
- 2 RJ45 10 Gigabit Ethernet LAN ports
- **USB** 6 USB 3.2 Gen2 port(s) (4 rear type A; 2 via header)
- 6 USB 2.0 port(s) (6 via header)
- **Video Output** 1 DVI - D port(s), 1 VGAD-Sub Connector port(s), 2 DP++(Dual-Mode DisplayPort) port(s)
- **Serial Port** 1 COMPort(s) (1 header)
- **DOM** 1 SATA DOM (Disk on Module) power connector support
- **TPM** 1 TPM Header & Chip both

## Expansion Slots

- **PCI-E** 1 PCI-E 3.0 x16,
- 1 PCI-E 3.0 x4,
- 1 PCI-E 3.0 x4 (in x8 slot)
- **M.2** M.2 Interface: 1 SATA/PCI-E 3.0 x4; 1 CNVi/PCI-E 3.0 x1
- Form Factor: 2280/22110, 2230
- Key: M-Key, E-Key

## System BIOS

- **BIOS Type** AMI UEFI
- **BIOS Features** ACPI 6.1
- SMBIOS 3.1
- PCI FW 3.0
- UEFI 2.6
- RTC (Real Time Clock) Wakeup

## Management

- **Software** SuperDoctor® 5, SUM, AMT, vPro, Watchdog, IPMI (Intelligent Platform Management Interface) v2.0 with KVM support
- **System Management Software** IPMI (Intelligent Platform Management Interface) v1.5 / 2.0 with KVM support
- **Power Configurations** ACPI Power Management, ATX Power connector, +12V DC Power Input

## PC Health Monitoring

- **Voltage** VBAT, PCH temperature, Memory temperature, CPU, Chassis intrusion header, 5 -fan status, 1.2V (VDIMM), 1.05 (PCH), +5V standby, +5V, +3.3V, +12V
- **LED** UID/Remote UID
- Power LED
- BMC/IPMI Heartbeat LED
- **Temperature** Thermal Control for 5 Fan Connectors
- **FAN** 5x 4-pin fan headers (up to 5 fans)
- Fan speed control
- Dual Cooling Zone
- 5 fans with tachometer status monitoring
- **Other Features** UID, RoHS, M.2 NGFF connector, Dual Cooling Zones, Chassis intrusion detection, ATX Power connector, ACPI power management, 8-pin 12v DC power connector, 12V DC or ATX Power Source

## Operating Environment

- **Operating Temperature Range** 0°C - 60°C (32°F - 140°F)
- **Non-Operating Temperature Range** -40°C - 85°C (-40°F - 185°F)
- **Operating Relative Humidity Range** 10% - 85% (non-condensing)
- **Non Operating Relative Humidity Range** 5% - 95% (non-condensing)