



**1U Optimized**

## Key Features

3rd Gen Intel® Xeon® Scalable processors, Single Socket LGA-4189 (Socket P+) supported, CPU TDP supports Up to 270W TDP

Intel® C621A

Up to 2TB 3DS ECC RDIMM, DDR4-3200MHz; Up to 2TB 3DS ECC LRDIMM, DDR4-3200MHz  
Up to 2TB Intel® Optane™ Persistent Memory, in 8 DIMM slots

1 PCI-E 4.0 x16,  
2 PCI-E 4.0 NVMe x8 Internal Port(s)

**M.2 Interface:** 2 SATA/PCI-E 3.0 x4

**M.2 Form Factor:** 2280/22110

**M.2 Key:** M-Key

Intel® C621A controller for 10 SATA3 (6 Gbps) ports; RAID 0,1,5,10

Dual LAN with Intel® i350 Gigabit Ethernet Controller

Supports 4x NVMe drives via SlimSAS connectors

## Product SKUs

- MBD-X12SPO-F ■ X12SPO-F

## Physical Stats

- **Form Factor** ■ ATX
- **Dimension** ■ 12" x 10" (30.48cm x 25.4cm)

## Processor

- **CPU** ■ 3rd Gen Intel® Xeon® Scalable processors
  - Single Socket LGA-4189 (Socket P+) supported, CPU TDP supports Up to 270W TDP
- **Core** ■ Up to 40 cores

## System Memory

- **Memory Capacity** ■ 8 DIMM slots
  - Up to 2TB Intel® Optane™ Persistent Memory 200 Series
  - Up to 2TB 3DS ECC LRDIMM, DDR4-3200MHz; Up to 2TB 3DS ECC RDIMM, DDR4-3200MHz
- **Memory Type** ■ 3200/2933/2666MHz ECC , DDR4 LRDIMM (3DS), RDIMM (3DS)
- **DIMM Sizes** ■ 8GB, 16GB, 32GB, 64GB, 128GB, 256GB
- **Memory Voltage** ■ 1.2V
- **Error Detection** ■ Corrects single-bit errors

## On-Board Devices

- **Chipset** ■ Intel® C621A
- **SATA** ■ Intel® C621A controller for 10 SATA3 (6 Gbps) ports; RAID 0,1,5,10
- **IPMI** ■ ASPEED AST2600 BMC
- **Graphics** ■ ASPEED AST2600 BMC
- **Network Controllers** ■ Dual LAN with Intel® i350 Gigabit Ethernet Controller

## Input / Output

- **SATA** ■ 10 SATA3 (6Gbps) port(s)
- **LAN** ■ 2 RJ45 Gigabit Ethernet LAN ports
- **USB** ■ 6 USB 2.0 port(s) (4 via header; 2 rear)
  - 5 USB 3.2 Gen1 port(s) (2 via header; 2 rear; 1 type A)
- **Video Output** ■ 1 VGA port(s)
- **Serial Port** ■ 2 COM Port(s) (1 header; 1 rear)
- **DOM** ■ 2 SATA DOM (Disk on Module) power connector support
- **TPM** ■ 1 TPM Header

## Expansion Slots

- **PCI-E** ■ 1 PCI-E 4.0 x16
- **M.2** ■ M.2 Interface: 2 SATA/PCI-E 3.0 x4
  - Form Factor: 2280/22110
  - Key: M-Key

## System BIOS

- **BIOS Type** ■ AMI UEFI
- **BIOS Features** ■ ACPI 6.2
  - SMBIOS 3.0 or later
  - UEFI 2.7

## Management

- **Software** ■ SuperDoctor® 5, SUM, KVM with dedicated LAN, SPM, Intel® Node Manager, SSM, IPMI2.0, Watchdog
- **Power Configurations** ■ Power-on mode for AC power recovery, ACPI Power Management, CPU thermal trip support for processor protection

## PC Health Monitoring

- **Voltage** ■ VBAT, System temperature, Monitors CPU voltages, HT, Chassis intrusion header, 3.3V standby, +5V standby, +5V, +3.3V, +12V, +1.8V, 7-fan status
- **LED** ■ UID/Remote UID
  - Suspend static indicator LED
  - CPU / System Overheat LED
- **Temperature** ■ CPU thermal trip support
  - PECI
- **FAN** ■ 7x 4-pin fan headers (up to 7 fans)
  - System level control
  - PWM fan speed control
  - Fan speed control
  - Overheat LED indication
- **Other Features** ■ WOL, UID, RoHS, Chassis intrusion header, Chassis intrusion detection, ATX Power connector, ACPI power management, RoT

## Operating Environment

- **Operating Temperature Range** ■ 0°C - 50°C (32°F - 122°F)
- **Non-Operating Temperature Range** ■ -40°C - 70°C (-40°F - 158°F)
- **Operating Relative Humidity Range** ■ 10% - 85% (non-condensing)
- **Non Operating Relative Humidity Range** ■ 10% - 95% (non-condensing)