# SuperServer 2048U-RTR4 (Complete System Only)



**Integrated Board**



**Super X10QRH+**

Views: | **Angled View** | **Top View** |
| **Front View** | **Rear View** |

**Complete System Only**: To maintain quality and integrity, this product is sold only as a completely-assembled system (with minimum 4 CPUs, 4 DIMMs and 1 HDD installed).

▸**Drivers & Utilities**   ▸**BIOS**   ▸**IPMI**   ▸**Tested Memory**   ▸**NVMe Options**   ▸**Manuals**   ▸**OS Certification Matrix**   ▸**Drive Options**

Note: Image above may show a varied configuration of optional parts. Please refer to parts list for standard parts included.

## Key Features

**48 DDR4 DIMM Slots, up to 6TB**
**Up to 11 PCI-E 3.0 slots**
**4 Hot-Swap NVMe Bays support**
 **via optional NVMe AOC**
**Flexible Connectivity Options**

1. Quad Socket R3 (LGA 2011) support Intel® Xeon® processor E5-4600 v4/v3 family (up to 22-Core)

2. Up to 6TB 3DS LRDIMM, up to DDR4-2400MHz; 48 DIMM slots

3. 9 PCI-E 3.0 x8 slots, 2 PCI-E 3.0 x16 slots

4. 4 GbE + 1 dedicated IPMI LAN ports

5. 24 Hot-swap 2.5" Drive Bays: 4 Hybrid ports with NVMe support via extra AOC

6. 4x 8cm heavy duty fans

7. 1000W High efficiency (96%) Redundant PSU; **Titanium Level**

# Specifications

## Product SKUs

| | |
|---|---|
| **SYS-2048U-RTR4** | ■ SuperServer 2048U-RTR4 (**Black**) |

## Motherboard

**Super X10QRH+**

## Processor/Cache

| | |
|---|---|
| **CPU** | ■ **Intel® Xeon® processor E5-4600 v4/v3 family (up to 135W TDP) \*** <br> ■ Quad Socket R3 (LGA 2011) |
| **Cores / Cache** | ■ Up to 22 Cores / Up to 55MB Cache |
| **System Bus** | ■ QPI up to 9.6 GT/s |

## System Memory

| | |
|---|---|
| **Memory Capacity** | ■ 48x 288-pin DDR4 DIMM slots <br> ■ Up to 6TB ECC 3DS LRDIMM <br> ■ Up to 3TB ECC LRDIMM <br> ■ Up to 1.5TB ECC RDIMM |
| **Memory Type** | ■ 2400/ 2133/1866/1600MHz ECC DDR4 SDRAM 72-bit |
| **DIMM Sizes** | ■ RDIMM: 32GB, 16GB, 8GB, 4GB <br> ■ LRDIMM: 64GB, 32GB <br> ■ 3DS LRDIMM: 128GB |
| **Memory Voltage** | ■ 1.2 V |
| **Error Detection** | ■ Corrects single-bit errors |

## On-Board Devices

| | |
|---|---|
| **Chipset** | ■ Intel® C612 chipset |
| **SATA** | ■ SATA3 (6Gbps) with RAID 0, 1, 5, 10 |
| **Network Connectivity** | ■ 4x Gigabit Ethernet ports via AOC-2UR66-i4G; Other options |
| **IPMI** | ■ Support for Intelligent Platform Management Interface v.2.0 <br> ■ IPMI 2.0 with virtual media over LAN and KVM-over-LAN support <br> ■ ASPEED AST2400 BMC |
| **Graphics** | ■ ASPEED AST2400 BMC |

## Input / Output

| | |
|---|---|
| **SATA** | ■ 10 SATA3 (6Gbps) ports |
| **SAS** | ■ 24 SAS3 ports support via optional Add-on Cards |
| **NVMe** | ■ 4 Hybrid ports with NVMe support via AOC |
| **LAN** | ■ 4 RJ45 GbE LAN ports <br> ■ 1 RJ45 Dedicated IPMI LAN port |
| **USB** | ■ 5 USB 3.0 ports (2 rear, 2 via header, 1 Type A) <br> ■ 2 USB 2.0 ports (2 via header) |
| **Video** | ■ 1 VGA Connector |
| **Serial Port / Header** | ■ 1 Serial header |
| **DOM** | ■ 2 SuperDOM (Disk on Module) ports |

## Chassis

| | |
|---|---|
| **Form Factor** | ■ 2U Rackmount |
| **Model** | ■ CSE-218U-R1K02P |

## Dimensions and Weight

| | |
|---|---|
| **Width** | ■ 17.2" (437mm) |
| **Height** | ■ 3.5" (89mm) |
| **Depth** | ■ 30.7" (780mm) |
| **Weight** | ■ Net Weight: 43 lbs (19.4 kg) <br> ■ Gross Weight: 69 lbs (31.2 kg) |
| **Available Colors** | ■ Black |

## Front Panel

| | |
|---|---|
| **Buttons** | ■ Power On/Off button <br> ■ System Reset button |
| **LEDs** | ■ Power status LED <br> ■ HDD activity LED <br> ■ Network activity LEDs <br> ■ System information (overheat/UID) LED |

## Expansion Slots

| | |
|---|---|
| **PCI-Express** | ■ 9 PCI-E 3.0 x8 slots (include 4 PCI-E 3.0 x8 internal slots) <br> ■ 2 PCI-E 3.0 x16 slots <br><br> **(4 CPUs need to be installed for full access to PCI-E slots and onboard controllers. See AOC Support for details.)** |

## Drive Bays

| | |
|---|---|
| **Hot-swap** | ■ 24x 2.5" Hot-swap drive bays <br> ■ Default 10 SATA3 ports (2 SATA3 ports for SATA DOM or internal HDD) <br> ■ Optional 24 SAS3 ports via AOC <br> ■ Optional 20 SAS3 ports via AOC + 4 NVMe ports via AOC <br><br> **Note: optional storage card is required to support more than 8 drives through backplane.** |

## System Cooling

| | |
|---|---|
| **Fans** | ■ 4x 8cm heavy duty PWM fans |

## Power Supply

1000W Redundant Power Supplies with PMBus

| | |
|---|---|
| **Total Output Power** | ■ 800W: 100 – 127Vac <br> ■ 1000W: 200 – 240Vac <br> ■ 1000W: 200 – 240Vdc (for CCC only) |
| **Dimension (W x H x L)** | ■ 73.5 x 40 x 203 mm |
| **Input** | ■ 100-127Vac / 9.8 - 7A / 50-60Hz <br> ■ 200-240Vac / 7 - 5A / 50-60Hz <br> ■ 200-240Vdc / 7 - 5A (for CCC only) |
| **+12V** | ■ Max: 66.7A / Min: 0A (100-127Vac) <br> ■ Max: 83A / Min: 0A (200-240Vac) <br> ■ Max: 83A / Min: 0A (200-240Vdc) |

## System BIOS

| | |
|---|---|
| **BIOS Type** | ▪ 128Mb SPI Flash EEPROM with AMI BIOS |
| **BIOS Features** | ▪ Plug and Play (PnP)<br>▪ APM 1.2<br>▪ PCI 2.3<br>▪ ACPI 1.0 / 2.0 / 3.0 / 4.0<br>▪ USB Keyboard support<br>▪ SMBIOS 2.7.1<br>▪ UEFI 2.3.1 |

## Management

| | |
|---|---|
| **Software** | ▪ SuperDoctor® 5<br>▪ Intel® Node Manager 3.0<br>▪ Watch Dog<br>▪ NMI<br>▪ SUM and SSM<br>▪ Optional IPMI 1.5 / 2.0 |
| **Power Configurations** | ▪ ACPI Power Management<br>▪ Power-on mode for AC power recovery |

| | |
|---|---|
| **12Vsb** | ▪ Max: 2.1A / Min: 0A |
| **Output Type** | ▪ 25 Pairs Gold Finger Connector |
| **Certification** | **Titanium Level**<br>**[ Test Report ]** |

## PC Health Monitoring

| | |
|---|---|
| **Voltage** | ▪ Monitors for CPU Cores, +1.8V, +3.3V, +5V, +12V, +3.3V Standby, +5V Standby, VBAT, Memory Voltages.<br>▪ 5+1 Phase-switching voltage regulator |
| **FAN** | ▪ 8x 4-pin fan headers<br>▪ Status monitor for speed control<br>▪ Pulse Width Modulated (PWM) fan connectors |
| **Temperature** | ▪ Support to monitor Supermicro AOC temperatures from IPMI or SD 5<br>▪ Monitoring for CPU and chassis environment<br>▪ CPU thermal trip support<br>▪ Thermal Control for 8x Fan Connectors<br>▪ Thermal Monitor 2 (TM2) support<br>▪ PECI |
| **LED** | ▪ Memory DIMM ECC error LEDs<br>▪ CPU / System Overheat LED<br>▪ Suspend static indicator LED<br>▪ UID/Remote UID |
| **Other Features** | ▪ 4x 8-pin GPU power connectors<br>▪ Chassis intrusion detection<br>▪ Chassis intrusion header<br>▪ SDDC Support<br>▪ RoHS |

## Operating Environment / Compliance

| | |
|---|---|
| **RoHS** | ▪ RoHS Compliant |
| **Environmental Spec.** | ▪ Operating Temperature: 10°C to 35°C (50°F to 95°F)<br>▪ Non-operating Temperature: -40°C to 70°C (-40°F to 158°F)<br>▪ Operating Relative Humidity: 8% to 90% (non-condensing)<br>▪ Non-operating Relative Humidity: 5% to 95% (non-condensing) |

# Список деталей

## Parts List - (Items Included)

| | Part Number | Qty | Description |
|---|---|---|---|
| **Motherboard / Chassis** | MBD-X10QRH+ | 1 | Super X10QRH+ Motherboard |
| | CSE-218UTS-R1K02P | 1 | 2U Chassis |
| **Add-on Card / Module** | AOC-2UR66-I4G | 1 | 2U Ultra Riser with 4 GbE ports and 2 PCI-E x16 3.0, Intel i350 |
| **Air Shroud** | MCP-310-21804-0B | 1 | Black Mylar air shroud for X10QRH+ in SC218U,HF,RoHS/REACH |
| **Backplane** | BPN-SAS3-216A-N4 | 1 | 24-port 2U SAS3 12Gbps hybrid backplane, support up to 20x 2.5-inch SAS3/SATA3 HDD/SSD and 4x SAS3/SATA3/NVMe Storage Devices |
| **Cable 1** | CBL-SAST-0701 | 2 | MINI SAS HD(ST)-MINI SAS(RA-RS EXIT),6G,INT,85CM,SB,30AWG,Ro |
| **Cable 2** | CBL-PWEX-0673 | 3 | 8 pin female to 2x big 4 pin female power, 65/70CM, 18AWG,RoHS/REACH |
| **Label** | LBL-0108 | 1 | CAUTION LABEL FOR REDUNDANT PWR SYSTEMS |
| **Riser Card** | RSC-R2UW-4E8 | 1 | 2U LHS WIO Riser card with four PCI-E x4 slots |
| **Riser Card** | RSC-R1UW-E8R | 1 | 1U RHS WIO Riser card with one PCI-E x8 slot |
| **Riser Card** | RSC-S2-88 | 2 | RSC-S2-88 |
| **Heatsink / Retention** | SNK-P0047PS | 4 | 1U Passive CPU Heat Sink for X9, X10 Systems Equipped w/ a Narrow ILM MB |
| **Power Supply** | PWS-1K02A-1R | 2 | 1U 1000W Redundant Power Supply 73.5mm width Titanium Level,RoHS/REACH |

## Optional Parts List

| | Part Number | Qty | Description |
|---|---|---|---|
| **2000w power supply kit** | MCP-250-21802-0N | - | Power adapter bracket for 2K03P in SC218U,HF,RoHS/REACH |
| | PWS-2K03P-1R | - | 1U 2000W Redundant Power Supply Platinum 73.5mm width |
| **CacheVault(s)** | BTR-TFM8G-LSICVM02 & BKT-BBU-BRACKET-05 | - | CacheVault for Broadcom 3108; Supercap mounting bracket for PCI-E location |
| | BTR-TFM8G-LSICVM02 & MCP-240-00127-0N | - | CacheVault for Broadcom 3108; Supercap mounting bracket for 2.5" HDD location |
| **Network Card(s)** | AOC-S40G-i2Q | - | Standard LP 2-port 40GbE controller, based on Intel Fortville XL710 |
| | AOC-SGP-i2 | - | Standard LP, 2x GbE RJ45, PCI-E x4, Intel i350AM2 |
| | AOC-SGP-i4 | - | Standard LP, 4x GbE RJ45, PCI-E x4, Intel i350 |
| | AOC-STG-b4S | - | Standard LP, 4x 10GbE SFP+, PCI-E x8, Broadcom BCM57840S |
| | AOC-STGN-i2S | - | Standard LP, 2x 10GbE SFP+, PCI-E x8, Intel 82599ES |
| | AOC-STGN-i1S | - | Standard LP, 1x 10GbE SFP+, PCI-E x8, Intel 82599EN |
| | AOC-STG-i2T | - | Standard LP, 2x 10GbE RJ45, PCI-E x8, Intel X540 |
| **Storage Options** | See Details | - | SAS3 and NVMe Options |
| **Global Services & Support** | OS4HR3/2/1 | - | 3/2/1-year onsite 24x7x4 service |
| | OSNBD3/2/1 | - | 3/2/1-year onsite NBD service |
| **Software** | SFT-OOB-LIC • eStore | 1 | OOB Management Package (per node license) |
| **Software** | SFT-DCMS-Single | 1 | DataCenter Management Package (per node license) |