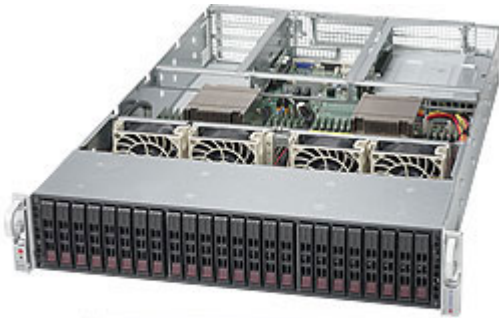


# SuperServer 2028U-TRT+ (Complete System Only)



**Integrated Board**



**Super X10DRU-i+**

**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 2 CPUs and 4 DIMMs).

▶ [Drivers & Utilities](#) ▶ [BIOS](#) ▶ [IPMI](#) ▶ [Tested Memory](#) ▶ [Manuals](#)  
▶ [OS Certification Matrix](#) ▶ [Compatible GPU List](#) ▶ [Quick-References Guide](#) ▶ [Drive Options](#) ▶ [Network Card \(AOC\) Matrix](#)

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

## Key Features

### Flexible Connectivity Options

1. Dual socket R3 (LGA 2011) supports Intel® Xeon® processor E5-2600 v4<sup>†</sup>/ v3 family; QPI up to 9.6GT/s
2. Up to **3TB<sup>†</sup>** ECC 3DS LRDIMM , up to DDR4- **2400<sup>†</sup>**MHz ; 24 DIMM slots
3. 1 PCI-E 3.0 x16 slot (FH, 10.5" L), 7 PCI-E 3.0 x8 slots (5 FH, 10.5" L, 1 LP, 1 Internal LP)
4. 2x 10GBase-T ports
5. 24 Hot-swap 2.5" Drive Bays: 10 SATA3 ports by default; Optional drive support: 24 SAS3; Optional 2 hot-swap 2.5" rear drive bays for SSDs
6. 4 heavy duty fans w/ optimal fan speed control
7. 1000W High efficiency (96%) Redundant PSU; **Titanium Level**

# Specifications

**Product SKUs - Discontinued SKU (EOL). Please contact sales-rep for alternative options.**

**SYS-2028U-TRT+** ■ SuperServer 2028U-TRT+ (Black)

## Motherboard

**Super X10DRU-i+**

## Processor/Cache

**CPU** ■ Intel® Xeon® processor E5-2600 v4<sup>†</sup>/ v3 family (up to 160W TDP) \*  
■ Dual Socket R3 (LGA 2011)

**Cores / Cache** ■ Up to **22 Cores**<sup>†</sup> / Up to **55MB**<sup>†</sup> Cache

**System Bus** ■ QPI up to 9.6 GT/s

**Note** <sup>†</sup> BIOS version 2.0 or above is required

**Note** \* Please contact Supermicro Technical Support for additional information about frequency optimized CPUs and specialized system optimization.

## System Memory

**Memory Capacity** ■ 24x 288-pin DDR4 DIMM slots  
■ Up to 3TB<sup>†</sup> ECC 3DS LRDIMM, 768GB ECC RDIMM

**Memory Type** ■ **2400**<sup>†</sup>/2133/1866/1600MHz ECC DDR4 SDRAM 72-bit  
■ 2666/2400 ECC DDR4 NVDIMM

**DIMM Sizes** ■ RDIMM: 32GB, 16GB, 8GB, 4GB  
■ LRDIMM: 64GB, 32GB  
■ 3DS LRDIMM: 128GB  
■ NVDIMM: 16GB

**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

**IPMI** ■ Support for Intelligent Platform Management Interface v.2.0  
■ IPMI 2.0 with virtual media over LAN and KVM-over-LAN support  
■ ASPEED AST2400 BMC

**Network Connectivity** ■ 2x 10GBase-T ports via [AOC-2UR68-i2XT](#)  
■ Intel® X540 10GBase-T  
■ 1x Realtek RTL8211E PHY (dedicated IPMI)

**Graphics** ■ ASPEED AST2400 BMC

## Input / Output

**SATA** ■ 10x SATA3 (6Gbps) ports

**SAS** ■ 24x SAS3 ports support via optional Add-on Cards

**LAN** ■ 2x 10GBase-T LAN ports  
■ 1x RJ45 Dedicated IPMI LAN port

## Chassis

**Form Factor** ■ 2U Rackmount

**Model** ■ **CSE-219UAC-R1K02**

## Dimensions and Weight

**Width** ■ 17.2" (437mm)

**Height** ■ 3.5" (89mm)

**Depth** ■ 27.76" (705.3mm)

**Weight** ■ Net Weight: 36 lbs (16.4 kg)  
■ Gross Weight: 72 lbs (32.7 kg)

**Available Colors** ■ Black

## Front Panel

**Buttons** ■ Power On/Off button  
■ System Reset button  
■ UID button

**LEDs** ■ Power status LED  
■ HDD activity LED  
■ 2x Network activity LEDs  
■ System information (overheat/UID) LED

## Expansion Slots

**PCI-Express** ■ 1x PCI-E 3.0 x16 slot (FH, 10.5" L)  
■ 7x PCI-E 3.0 x8 slots (5x FH, 10.5" L, 1x LP, 1x Internal LP)

**(Both CPUs need to be installed for full access to PCI-E slots and onboard controllers. See manual block diagram and [AOC Support](#) for details.)**

## Drive Bays

**Hot-swap** ■ 24x Hot-swap 2.5" Drive Bays:  
10x SATA3 ports by default  
■ Optional drive support: 24x SAS3

**Note: optional storage card is required to support more than 10 drives.**

## Backplane

2U SAS/SATA backplane

## System Cooling

**Fans** ■ 4x 8cm heavy duty PWM fans

## Power Supply

1000W Redundant Power Supplies with PMBus

**Total Output Power** ■ 800W: 100 – 127Vac  
■ 1000W: 200 – 240Vac  
■ 1000W: 200 – 240Vdc (for CCC only)

**Dimension (W x H x L)** ■ 73.5 x 40 x 203 mm


<b>USB</b>	<ul style="list-style-type: none"> <li>5x USB 3.0 ports (2 rear, 2 onboard header, 1 Type A)</li> </ul>
<b>Video</b>	<ul style="list-style-type: none"> <li>1x VGA Connector</li> </ul>
<b>Serial Port / Header</b>	<ul style="list-style-type: none"> <li>1x Serial header</li> </ul>
<b>DOM</b>	<ul style="list-style-type: none"> <li>2x SuperDOM (Disk on Module) ports</li> </ul>

#### System BIOS

<b>BIOS Type</b>	<ul style="list-style-type: none"> <li>128Mb SPI Flash EEPROM with AMI BIOS</li> </ul>
<b>BIOS Features</b>	<ul style="list-style-type: none"> <li>Plug and Play (PnP)</li> <li>APM 1.2</li> <li>PCI 2.3</li> <li>ACPI 1.0 / 2.0 / 3.0 / 4.0</li> <li>USB Keyboard support</li> <li>SMBIOS 2.7.1</li> <li>UEFI 2.3.1</li> </ul>

#### Management

<b>Software</b>	<ul style="list-style-type: none"> <li><u>SuperDoctor® 5</u></li> <li>Intel® Node Manager 3.0</li> <li>Watch Dog</li> <li>NMI</li> <li><u>SUM</u> and <u>SSM</u></li> <li>Optional IPMI 1.5 / 2.0</li> </ul>
<b>Power Configurations</b>	<ul style="list-style-type: none"> <li>ACPI Power Management</li> <li>Power-on mode for AC power recovery</li> </ul>

<b>Input</b>	<ul style="list-style-type: none"> <li>100-127Vac / 9.8 - 7A / 50-60Hz</li> <li>200-240Vac / 7 - 5A / 50-60Hz</li> <li>200-240Vdc / 7 - 5A (for CCC only)</li> </ul>
<b>+12V</b>	<ul style="list-style-type: none"> <li>Max: 66.7A / Min: 0A (100-127Vac)</li> <li>Max: 83A / Min: 0A (200-240Vac)</li> <li>Max: 83A / Min: 0A (200-240Vdc)</li> </ul>
<b>12Vsb</b>	<ul style="list-style-type: none"> <li>Max: 2.1A / Min: 0A</li> </ul>
<b>Output Type</b>	<ul style="list-style-type: none"> <li>25 Pairs Gold Finger Connector</li> </ul>
<b>Certification</b>	 <b>Titanium Level [ Test Report ]</b>

#### PC Health Monitoring

<b>Voltage</b>	<ul style="list-style-type: none"> <li>Monitors for CPU Cores, +1.8V, +3.3V, +5V, +12V, +3.3V Standby, +5V Standby, VBAT, Memory Voltages.</li> <li>5+1 Phase-switching voltage regulator</li> </ul>
<b>FAN</b>	<ul style="list-style-type: none"> <li>8x 4-pin fan headers</li> <li>Status monitor for speed control</li> <li>Pulse Width Modulated (PWM) fan connectors</li> </ul>
<b>Temperature</b>	<ul style="list-style-type: none"> <li>Support to monitor Supermicro AOC temperatures from IPMI or SD 5</li> <li>Monitoring for CPU and chassis environment</li> <li>CPU thermal trip support</li> <li>Thermal Control for 8x Fan Connectors</li> <li>Thermal Monitor 2 (TM2) support</li> <li>PECI</li> </ul>
<b>LED</b>	<ul style="list-style-type: none"> <li>Memory DIMM ECC error LEDs</li> <li>CPU / System Overheat LED</li> <li>Suspend static indicator LED</li> <li>UID/Remote UID</li> </ul>
<b>Other Features</b>	<ul style="list-style-type: none"> <li>4x 8-pin GPU power connectors</li> <li>Chassis intrusion detection</li> <li>Chassis intrusion header</li> <li>SDDC Support</li> <li>RoHS</li> </ul>

#### Operating Environment / Compliance

<b>RoHS</b>	<ul style="list-style-type: none"> <li>RoHS Compliant</li> </ul>
<b>Environmental Spec.</b>	<ul style="list-style-type: none"> <li>Operating Temperature: 5°C to 40°C (41°F to 104°F)</li> <li>Non-operating Temperature: -40°C to 70°C (-40°F to 158°F)</li> <li>Operating Relative Humidity: 8% to 90% (non-condensing)</li> <li>Non-operating Relative Humidity: 5% to 95% (non-condensing)</li> </ul>

## Parts List

### Parts List - (Items Included)

	Part Number	Qty	Description
<b>Motherboard / Chassis</b>	MBD-X10DRU-i+	1	Super X10DRU-i+ Motherboard
	CSE-219UAC-R1K02	1	2U Chassis
<b>Add-on Card / Module</b>	AOC-2UR68-I2XT	1	2U Ultra Riser based on Intel X540 controller with 2 10Gbase-T ports, 1 internal PCI-E x8 3.0 slot, 1 PCI-E x16 3.0, and 1 PCI-E x8 3.0 (in x16 slot)
<b>Air Shroud</b>	MCP-310-82912-0N	1	
<b>Backplane</b>	BPN-SAS3-216A	1	24-port 2U SAS3 12Gbps direct-attached backplane, support up to 24x 2.5-inch SAS3/SATA3 HDD/SSD
<b>Cable 1</b>	CBL-SAST-0657	2	MINI SAS HD(ST)-MINI SAS(RA-RS EXIT),6G,INT,55CM,SB,30AWG
<b>Cable 2</b>	CBL-SAST-0591	1	MINI SAS HD-4 SATA,6G,INT,RF,Cross Over,75CM,75CM SB,30AWG
<b>Cable 3</b>	CBL-PWEX-0673	3	8 pin female to 2x big 4 pin female power, 65/70CM, 18AWG,RoHS/REACH
<b>Parts</b>	MCP-240-82909-0N	1	Ultra I/O bracket for SC829U, 219U (i2XT),RoHS/REACH
<b>Label</b>	LBL-0108	1	CAUTION LABEL FOR REDUNDANT PWR SYSTEMS
<b>Manual</b>	MNL-1695-QRG	1	SYS-2028U-T(N)R(4/4T/T/TP)+, QRG,HF,RoHS/REACH
<b>Riser Card</b>	RSC-R2UW-4E8	1	2U LHS WIO Riser card with four PCI-E x4 slots
<b>Riser Card</b>	RSC-R1UW-E8R	1	1U RHS WIO Riser card with one PCI-E x8 slot
<b>Heatsink / Retention</b>	SNK-P0058PSU	2	2U Passive CPU Heat Sink for X10 2U 24-DIMM Ultra Series Servers,RoHS/REACH
<b>Power Supply</b>	PWS-1K02A-1R	2	1U 1000W Redundant Power Supply 73.5mm width Titanium Level,RoHS/REACH
<b>Mounting Rails</b>	MCP-290-00053-0N	1	Inner/outer rail set, quick-release type, 26.5" to 36.4"
	MCP-290-00060-0N	1	Threaded rail adapter default for round hole rack

### Optional Parts List

	Part Number	Qty	Description
<b>Mounting Rails</b>	MCP-290-00053-0N	-	Inner/outer rail set, quick-release type, 26.5" to 36.4"
	MCP-290-00060-0N	-	Threaded rail adapter default for round hole rack
<b>2U Ultra optional rear drive kit</b>	MCP-240-82922-0N-OEM & MCP-240-82915-0N-OEM	1	Rear 2x2.5" HDDs riser bracket kit for SC829U/219U, tool-less
<b>2U Cable Management Arm</b>	MCP-290-00128-0N & MCP-290-00127-0N	1	2U Supermicro Cable Management Arm 2nd Gen (Compatible for racks that are 42" in depth)
<b>Storage Control Card and Cable(s)</b>	AOC-S3008L-L8e & 2x CBL-SAST-0593	-	Std LP, 8 internal ports, 12Gb/s per port- Gen3, 122HDD, HBA; Internal Mini-SAS HD to Mini-SAS HD 60cm,30AWG,12Gb/s
	AOC-S3008L-L8i & 2x CBL-SAST-0593	-	Std LP, 8 internal ports, 12Gb/s per port- Gen3, 63HDD, RAID 0,1,1E; Internal Mini-SAS HD to Mini-SAS HD 60cm,30AWG,12Gb/s
	AOC-S3108L-H8iR & 2x CBL-SAST-0593	-	Std LP, 8 internal ports, 12Gb/s per port- Gen3, 240HDD, RAID 0, 1, 5, 6, 10, 50, 60; Internal Mini-SAS HD to Mini-SAS HD 60cm,30AWG,12Gb/s
<b>Network Card(s)</b>	AOC-SGP-i2/4	-	Standard LP, 2/4x GbE RJ45, PCI-E x4, Intel i350
	AOC-STGN-i1S/i2S	-	Standard LP, 1/2x 10GbE SFP+, PCI-E x8, Intel 82599EN
	AOC-STG-b4S	-	Standard LP, 4x 10GbE SFP+, PCI-E x8, Broadcom BCM57840S
	AOC-STG-i2T	-	Standard LP, 2x 10GbE RJ45, PCI-E x8, Intel X540
	AOC-STG-i2	-	Standard LP, 2x 10GbE CX4, PCI-E x8, Intel 82598EB
	AOC-S40G-i2Q	-	Standard LP 2-port 40GbE controller, based on Intel Fortville XL710
	More	-	<a href="#">AOC Compatibility Matrix</a>
<b>CacheVault(s)</b>	BTR-CV3108-U1	-	CacheVault for Broadcom 3108 with Supercap mounting for 2U Ultra
<b>Global Services &amp; Support</b>	<a href="#">OS4HR3/2/1</a>	-	3/2/1-year onsite 24x7x4 service
	<a href="#">OSNBD3/2/1</a>	-	3/2/1-year onsite NBD service

<b>Software</b>	<a href="#">SFT-OOB-LIC</a> • <a href="#">eStore</a>	1	OOB Management Package (per node license)
<b>Software</b>	<a href="#">SFT-DCMS-Single</a>	1	DataCenter Management Package (per node license)