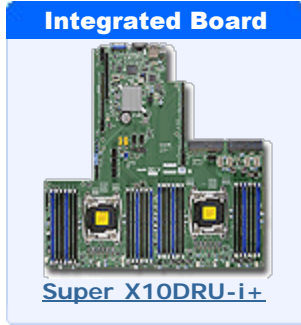


# SuperServer 2028U-TNR4T+ (Complete System Only)



## Key Features

### • Flexible Connectivity Options

1. Dual socket R3 (LGA 2011) supports Intel® Xeon® processor E5-2600 v3 family; QPI up to 9.6GT/s
2. Up to 1.5TB ECC, up to DDR4 2133MHz; 24x DIMM slots
3. 6x PCI-E 3.0 x8 slots (4x FH, 10.5" L, 1x LP, 1x Internal LP)
4. 4x 10GBase-T ports
5. 24x Hot-swap 2.5" Drive Bays: Default 8x SATA3 ports and 4x NVMe ports; Optional 24x SAS3 ports via AOC
6. 4x heavy duty fans w/ optimal fan speed control
7. 1000W High efficiency (96%) Redundant PSU; **Titanium Level**

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

## Specifications

### Product SKUs

- SYS-2028U-TNR4T+** ■ SuperServer 2028U-TNR4T+ (**Black**)

### Motherboard

**Super X10DRU-i+**

### Processor/Cache

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

- Cores / Cache** ■ Up to 18 Cores / Up to 45MB Cache

- System Bus** ■ QPI up to 9.6 GT/s

**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 1.5TB ECC LRDIMM, RDIMM

- Memory Type** ■ 2133/1866/1600MHz ECC DDR4 SDRAM 72-bit

### 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

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

### Expansion Slots

- 6x PCI-E 3.0 x8 slots (4x FH, 10.5" L, 1x LP, 1x Internal LP)

<b>DIMM Sizes</b>	<ul style="list-style-type: none"> <li>64GB, 32GB, 16GB, 8GB, 4GB</li> </ul>
<b>Memory Voltage</b>	<ul style="list-style-type: none"> <li>1.2 V</li> </ul>
<b>Error Detection</b>	<ul style="list-style-type: none"> <li>Corrects single-bit errors</li> </ul>

#### On-Board Devices

<b>Chipset</b>	<ul style="list-style-type: none"> <li>Intel® C612 chipset</li> </ul>
<b>SATA</b>	<ul style="list-style-type: none"> <li>SATA3 (6Gbps) with RAID 0, 1, 5, 10</li> </ul>
<b>IPMI</b>	<ul style="list-style-type: none"> <li>Support for Intelligent Platform Management Interface v.2.0</li> <li>IPMI 2.0 with virtual media over LAN and KVM-over-LAN support</li> <li>ASPEED AST2400 BMC</li> </ul>
<b>Network Connectivity</b>	<ul style="list-style-type: none"> <li>4x 10GBase-T ports via <a href="#">AOC-2URN4-i4XT</a></li> <li>Intel® X540 10GBase-T</li> <li>1x Realtek RTL8211E PHY (dedicated IPMI)</li> </ul>
<b>Graphics</b>	<ul style="list-style-type: none"> <li>ASPEED AST2400 BMC</li> </ul>

#### Input / Output

<b>SATA</b>	<ul style="list-style-type: none"> <li>8x SATA3 (6Gbps) ports</li> </ul>
<b>SAS</b>	<ul style="list-style-type: none"> <li>24x SAS3 ports support via optional Add-on Cards</li> </ul>
<b>NVMe</b>	<ul style="list-style-type: none"> <li>4x NVMe ports</li> </ul>
<b>LAN</b>	<ul style="list-style-type: none"> <li>4x RJ45 10GBase-T LAN ports</li> <li>1x RJ45 Dedicated IPMI LAN port</li> </ul>
<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>SuperDoctor® 5</li> <li>Intel® Node Manager 3.0</li> <li>Watch Dog</li> <li>NMI</li> <li>SMCBBU and SMM</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>

#### PCI-Express

**(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

- 24x 2.5" Hot-swap drive bays
- Default 8x SATA3 ports and 4x NVMe ports
- Optional 24x SAS3 ports via AOC

#### Hot-swap

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

#### System Cooling

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

#### Power Supply with Digital Switching Control

1000W Redundant Titanium Level (96%) Single Output Power Supplies

- |                 |  |
|-----------------|--|
| <b>AC Input</b> | <ul style="list-style-type: none"> <li>100-127 V, 50-60 Hz</li> <li>200-240 V, 50-60 Hz</li> </ul>   |
| <b>+12V</b>     | <ul style="list-style-type: none"> <li>Max: 62.5A &amp; Min: 0A (100Vac-127Vac)</li> <li>Max: 83A (200Vac-240Vac) &amp; Min: 0A</li> </ul> |
| <b>12V SB</b>   | <ul style="list-style-type: none"> <li>Max: 2.1A</li> <li>Min: 0A</li> </ul>   |

#### Certification



**Titanium Level**  
[ [Test Report](#) ]

#### 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</b> | <ul style="list-style-type: none"> <li>Operating Temperature: 10°C to 35°C (50°F to 95°F)</li> <li>Non-operating Temperature: -40°C to 60°C (-40°F to 140°F)</li> </ul> |

**Spec.**

- Operating Relative Humidity:  
8% to 90% (non-condensing)
- Non-operating Relative Humidity:  
5% to 95% (non-condensing)

Parts List			
	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-2URN4-I4XT	1	2U Ultra Riser based on Intel X540 controller with 4 10Gbase-T ports, 4 NVMe ports, and 1 internal PCI-E x8 3.0 slot
<b>Air Shroud</b>	MCP-310-82912-0N	1	
<b>Backplane</b>	BPN-SAS3-216A-N4	1	2U 24 Ports Hybrid Backplane support up to 20 x 2.5" SAS3/SATA3 HDD/SSD and 4x2.5" NVMe/SAS3/SATA3 Storage Devices, HF, RoHS/REACH
<b>Cable 1</b>	CBL-SAST-0658	4	Internal Mini-SAS HD cable for PCIe SSD NVMe, 12Gb/s, 60cm, 30AWG, RoHS/REACH
<b>Cable 2</b>	CBL-SAST-0657	2	Internal RA side exit (right) miniSAS to miniSAS HD 55cm w/ SB, 30AWG, RoHS/REACH
<b>Cable 3</b>	CBL-PWEX-0673	3	8 pin female to 2x big 4 pin female power, 65/70CM, 18AWG, RoHS/REACH
<b>Label</b>	LBL-0108	1	CAUTION LABEL FOR REDUNDANT PWR SYSTEMS
<b>Label</b>	LBL-0968	1	Pack of 4 NVMe label for Gen 3, 2.5 inch HDD Tray, RoHS/REACH
<b>Manual</b>	MNL-1695-QRG	1	SYS-2028U-T(N)R(4/4T/TP)+, QRG, HF, RoHS/REACH
<b>Riser Card</b>	RSC-R1UW-E8R	1	RSC-R1UW-E8R-O-P
<b>Riser Card</b>	RSC-R2UW-4E8	1	RSC-R2UW-4E8-O-P
<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>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-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
	AOC-STG-i2	-	Standard LP, 2x 10GbE CX4, PCI-E x8, Intel 82598EB
<b>CacheVault(s)</b>	BTR-CV3108-U1	-	CacheVault for LSI 3108 with Supercap mounting for 2U Ultra
	BTR-TFM8G-LSICVM02 & BKT-BBU-BRACKET-05	-	CacheVault for LSI 3108; Supercap mounting bracket for PCI-E location
	BTR-TFM8G-LSICVM02 & MCP-240-00127-0N	-	CacheVault for LSI 3108; Supercap mounting bracket for 2.5" HDD location
<b>Onsite Service Program</b>	<a href="#">QS4HR3/2/1</a>	-	3/2/1-year onsite 24x7x4 service
<b>Onsite Service Program</b>	<a href="#">OSNBD3/2/1</a>	-	3/2/1-year onsite NBD service
<b>Software</b>	SFT-OOB-LIC	1	OOB Management Package (per node license)
<b>Software</b>	SFT-DCMS-Single	1	DataCenter Management Package (per node license)