

SuperServer 2028U-TNR4T+ (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](#) ▶ [NVMe Options](#) ▶ [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[†]/ v3 family; QPI up to 9.6GT/s
2. Up to **3TB[†]** ECC 3DS LRDIMM , up to DDR4- **2400[†]**MHz ; 24 DIMM slots
3. 6 PCI-E 3.0 x8 slots (4 FH, 10.5" L, 1 LP, 1 Internal LP)
4. 4x 10GBase-T ports
5. 24 Hot-swap 2.5" Drive Bays:
Default 8 SATA3 ports and 4 NVMe ports;
Optional 24 SAS3 ports via AOC;
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

SYS-2028U-TNR4T+	<ul style="list-style-type: none"> SuperServer 2028U-TNR4T+ (Black)
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Motherboard

Super X10DRU-i+

Processor/Cache

CPU	<ul style="list-style-type: none"> Intel® Xeon® processor E5-2600 v4† / v3 family (up to 160W TDP) * Dual Socket R3 (LGA 2011)
Cores / Cache	<ul style="list-style-type: none"> Up to 22 Cores† / Up to 55MB† Cache
System Bus	<ul style="list-style-type: none"> QPI up to 9.6 GT/s
Note	† 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	<ul style="list-style-type: none"> 24x 288-pin DDR4 DIMM slots Up to 3TB† ECC 3DS LRDIMM, 768GB ECC RDIMM
Memory Type	<ul style="list-style-type: none"> 2400†/2133/1866/1600MHz ECC DDR4 SDRAM 72-bit 2666/2400 ECC DDR4 NVDIMM
DIMM Sizes	<ul style="list-style-type: none"> 64GB, 32GB, 16GB, 8GB, 4GB NVDIMM: 16GB
Memory Voltage	<ul style="list-style-type: none"> 1.2 V
Error Detection	<ul style="list-style-type: none"> Corrects single-bit errors

On-Board Devices

Chipset	<ul style="list-style-type: none"> Intel® C612 chipset
SATA	<ul style="list-style-type: none"> SATA3 (6Gbps) with RAID 0, 1, 5, 10
IPMI	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 4x 10GBase-T ports via AOC-2URN4-i4XT Intel® X540 10GBase-T 1x Realtek RTL8211E PHY (dedicated IPMI)
Graphics	<ul style="list-style-type: none"> ASPEED AST2400 BMC

Input / Output

SATA	<ul style="list-style-type: none"> 8x SATA3 (6Gbps) ports
SAS	<ul style="list-style-type: none"> 24x SAS3 ports support via optional Add-on Cards
NVMe	<ul style="list-style-type: none"> 4x NVMe ports
LAN	<ul style="list-style-type: none"> 4x RJ45 10GBase-T LAN ports 1x RJ45 Dedicated IPMI LAN port
USB	<ul style="list-style-type: none"> 5x USB 3.0 ports (2 rear, 2 onboard header, 1 Type A)

Chassis

Form Factor	<ul style="list-style-type: none"> 2U Rackmount
Model	<ul style="list-style-type: none"> CSE-219UAC-R1K02

Dimensions and Weight

Width	<ul style="list-style-type: none"> 17.2" (437mm)
Height	<ul style="list-style-type: none"> 3.5" (89mm)
Depth	<ul style="list-style-type: none"> 27.76" (705.3mm)
Weight	<ul style="list-style-type: none"> Net Weight: 36 lbs (16.4 kg) Gross Weight: 72 lbs (32.7 kg)
Available Colors	<ul style="list-style-type: none"> Black

Front Panel

Buttons	<ul style="list-style-type: none"> Power On/Off button System Reset button
LEDs	<ul style="list-style-type: none"> Power status LED HDD activity LED 2x Network activity LEDs System information (overheat/UID) LED

Expansion Slots

PCI-Express	<ul style="list-style-type: none"> 6x PCI-E 3.0 x8 slots (4x FH, 10.5" L, 1x LP, 1x Internal LP) <p>(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.)</p>
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Drive Bays

Hot-swap	<ul style="list-style-type: none"> 24x 2.5" Hot-swap drive bays Default 8x SATA3 ports and 4x NVMe ports Optional 24x SAS3 ports via AOC <p>Note: optional storage card is required to support more than 10 drives.</p>
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System Cooling

Fans	<ul style="list-style-type: none"> 4x 8cm heavy duty PWM fans
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Power Supply

1000W Redundant Power Supplies with PMBus	
Total Output Power	<ul style="list-style-type: none"> 800W: 100 – 127Vac 1000W: 200 – 240Vac 1000W: 200 – 240Vdc (for CCC only)
Dimension (W x H x L)	<ul style="list-style-type: none"> 73.5 x 40 x 203 mm
Input	<ul style="list-style-type: none"> 100-127Vac / 9.8 - 7A / 50-60Hz 200-240Vac / 7 - 5A / 50-60Hz 200-240Vdc / 7 - 5A (for CCC only)
+12V	<ul style="list-style-type: none"> Max: 66.7A / Min: 0A (100-127Vac) Max: 83A / Min: 0A (200-240Vac) Max: 83A / Min: 0A (200-240Vdc)



Video	<ul style="list-style-type: none"> 1x VGA Connector
Serial Port / Header	<ul style="list-style-type: none"> 1x Serial header
DOM	<ul style="list-style-type: none"> 2x SuperDOM (Disk on Module) ports

System BIOS

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

Management

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

12Vsb	<ul style="list-style-type: none"> Max: 2.1A / Min: 0A
Output Type	<ul style="list-style-type: none"> 25 Pairs Gold Finger Connector
Certification	  Titanium Level [Test Report]

PC Health Monitoring

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

Operating Environment / Compliance

RoHS	<ul style="list-style-type: none"> RoHS Compliant
Environmental Spec.	<ul style="list-style-type: none"> Operating Temperature: 10°C to 35°C (50°F to 95°F) Non-operating Temperature: -40°C to 70°C (-40°F to 158°F) Operating Relative Humidity: 8% to 90% (non-condensing) Non-operating Relative Humidity: 5% to 95% (non-condensing)

Parts List

Parts List - (Items Included)

	Part Number	Qty	Description
Motherboard / Chassis	MBD-X10DRU-i+	1	Super X10DRU-i+ Motherboard
	CSE-219UAC-R1K02	1	2U Chassis
Add-on Card / Module	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
Air Shroud	MCP-310-82912-0N	1	
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-0658	4	MINI SAS HD,INT,PCIe NVMe SSD, 60CM,30AWG
Cable 2	CBL-SAST-0657	2	MINI SAS HD(ST)-MINI SAS(RA-RS EXIT),6G,INT,55CM,SB,30AWG
Cable 3	CBL-PWEX-0673	3	8 pin female to 2x big 4 pin female power, 65/70CM, 18AWG,RoHS/REACH
Drive Tray(s)	MCP-220-00127-0B	4	Black gen-3 2.5 NVMe drive tray, Orange tab with lock (for hotswap NVMe drive),HF,RoHS/REACH
Label	LBL-0108	1	CAUTION LABEL FOR REDUNDANT PWR SYSTEMS
Manual	MNL-1695-QRG	1	SYS-2028U-T(N)R(4/4T/T/TP)+, QRG,HF,RoHS/REACH
Riser Card	RSC-R1UW-E8R	1	1U RHS WIO Riser card with one PCI-E x8 slot
Riser Card	RSC-R2UW-4E8	1	2U LHS WIO Riser card with four PCI-E x4 slots
Heatsink / Retention	SNK-P0058PSU	2	2U Passive CPU Heat Sink for X10 2U 24-DIMM Ultra Series Servers,RoHS/REACH
Power Supply	PWS-1K02A-1R	2	1U 1000W Redundant Power Supply 73.5mm width Titanium Level,RoHS/REACH
Mounting Rails	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
Mounting Rails	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
2U Ultra optional rear drive kit	MCP-240-82922-0N-OEM & MCP-240-82915-0N-OEM	1	Rear 2x2.5" HDDs riser bracket kit for SC829U/219U, tool-less
2U Cable Management Arm	MCP-290-00128-0N & MCP-290-00127-0N	1	2U Supermicro Cable Management Arm 2nd Gen (Compatible for racks that are 42" in depth)
Storage Control Card and Cable(s)	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
Network Card(s)	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	-	AOC Compatibility Matrix
CacheVault(s)	BTR-CV3108-U1	-	CacheVault for Broadcom 3108 with Supercap mounting for 2U Ultra
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)