

SuperServer 2028U-TNRT+ (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. 7x PCI-E 3.0 x8 slots (5x FH, 10.5" L, 1x LP, 1x Internal LP)
4. 2x 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-TNRT+	▪ SuperServer 2028U-TNRT+ (Black)
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Motherboard

Super X10DRU-i+

Processor/Cache

CPU	▪ Intel® Xeon® processor E5-2600 v3 family (up to 160W TDP) * ▪ Dual Socket R3 (LGA 2011)
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Cores / Cache	▪ Up to 18 Cores / Up to 45MB Cache
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System Bus	▪ QPI up to 9.6 GT/s
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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	▪ 2133/1866/1600MHz ECC DDR4 SDRAM

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
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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

- 7x PCI-E 3.0 x8 slots (5x FH, 10.5" L, 1x LP, 1x Internal LP)

Type	72-bit
DIMM Sizes	<ul style="list-style-type: none"> 64GB, 32GB, 16GB, 8GB, 4GB
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"> 2x 10GBase-T ports via AOC-2UR8N4-i2XT 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"> 2x 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)
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"> SuperDoctor® 5 Intel® Node Manager 3.0 Watch Dog NMI SMCBU and SMM Optional IPMI 1.5 / 2.0
Power Configurations	<ul style="list-style-type: none"> ACPI Power Management Power-on mode for AC power recovery

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

- AC Input**
- 100-127 V, 50-60 Hz
 - 200-240 V, 50-60 Hz
- +12V**
- Max: 62.5A & Min: 0A (100Vac-127Vac)
 - Max: 83A (200Vac-240Vac) & Min: 0A
- 12V SB**
- Max: 2.1A
 - Min: 0A

Certification



Titanium Level
[[Test Report](#)]

PC Health Monitoring

Voltage

- 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

- 8x 4-pin fan headers
- Status monitor for speed control
- Pulse Width Modulated (PWM) fan connectors

Temperature

- 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

- Memory DIMM ECC error LEDs
- CPU / System Overheat LED
- Suspend static indicator LED
- UID/Remote UID

Other Features

- 4x 8-pin GPU power connectors
- Chassis intrusion detection
- Chassis intrusion header
- SDDC Support
- RoHS

Operating Environment / Compliance

RoHS

- RoHS Compliant

Environmental

- Operating Temperature: 10°C to 35°C (50°F to 95°F)
- Non-operating Temperature: -40°C to 60°C (-40°F to 140°F)

Spec.

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

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-2UR8N4-I2XT	1	2U Ultra Riser based on Intel X540 controller with 2 10Gbase-T ports, 4 NVMe ports, 1 internal PCI-E x8 3.0 slot, and 1 PCI-E x8 3.0 (in x16 slot)
Air Shroud	MCP-310-82912-0N	1	
Backplane	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
Cable 1	CBL-SAST-0658	4	Internal Mini-SAS HD cable for PCIe SSD NVMe, 12Gb/s, 60cm,30AWG,RoHS/REACH
Cable 2	CBL-SAST-0657	2	Internal RA side exit (right) miniSAS to miniSAS HD 55cm w/ SB, 30AWG,RoHS/REACH
Cable 3	CBL-PWEX-0673	3	8 pin female to 2x big 4 pin female power, 65/70CM, 18AWG,RoHS/REACH
Parts	MCP-240-82909-0N	1	Ultra I/O bracket for SC829U, 219U (i2XT),RoHS/REACH
Label	LBL-0108	1	CAUTION LABEL FOR REDUNDANT PWR SYSTEMS
Label	LBL-0968	1	Pack of 4 NVMe label for Gen 3, 2.5 inch HDD Tray,RoHS/REACH
Manual	MNL-1695-QRG	1	SYS-2028U-T(N)R(4/4T/TP)+, QRG,HF,RoHS/REACH
Riser Card	RSC-R2UW-4E8	1	RSC-R2UW-4E8-O-P
Riser Card	RSC-R1UW-E8R	1	RSC-R1UW-E8R-O-P
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
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-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
CachVault(s)	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
Onsite Service Program	QS4HR3/2/1	-	3/2/1-year onsite 24x7x4 service
Onsite Service Program	OSNBD3/2/1	-	3/2/1-year onsite NBD service
Software	SFT-OOB-LIC	1	OOB Management Package (per node license)
Software	SFT-DCMS-Single	1	DataCenter Management Package (per node license)