

# IoT SuperServer SYS-220HE-TNR (Complete System Only i )

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(Angled View – System)



## Key Applications

- 5G Core and Edge
- AI Inference and Machine Learning
- Cloud Computing
- Telecom Micro Data Center
- Network Function Virtualization

## Key Features

Dual Socket P+ (LGA-4189) 3rd Gen Intel® Xeon® Scalable Processors

32 DIMM Slots; Up to 8TB DRAM; Up to 8TB Intel® Optane™ Persistent Memory (up to 12TB with DRAM); 3200/2933/2666 ECC DDR4 LRDIMM; RDIMM; Intel® Optane™

Persistent Memory 200 series

3 PCI-E 4.0 x16 slots with GPU/Accelerator support (Default);

1 PCI-E 4.0 x16 expansion slots (Optional)

Flexible networking options with 2 AIOM networking slots (OCP NIC 3.0 compatible)

Up to 6x 2.5" hot-swap drive bays with options to support NVMe/SATA drives

6 heavy duty hot-swap fans with optimal fan speed control Rear I/O, tool-less design

2000W redundant AC power supplies

## Specifications

### Product SKUs

SuperServer **SYS-220HE-TNR** (Silver)

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### Motherboard

**Super X12DHM-6**

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### Processor

#### CPU

Dual Socket P+ (LGA-4189)

3rd Gen Intel® Xeon® Scalable processors

Support CPU TDP 270W

### System Memory

#### Memory

Memory Capacity: 32 DIMM slots

Memory Type: 3200MHz ECC DDR4

RDIMM/LRDIMM

#### Memory Voltage

1.2V

#### Error Detection

ECC

### On-Board Devices

#### SATA

SATA3 (6Gbps); RAID 0/1/5/10 support

#### NVMe

NVMe; RAID 0/1/5/10 support (Intel® VROC

RAID Key required)

#### Chipset

Intel® C621A

### Network Connectivity

Via AIOM

### IPMI

Support for Intelligent Platform

Management Interface v.2.0

IPMI 2.0 with virtual media over LAN and

KVM-over-LAN support

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## Management

## Software

SSM  
SUM  
SPM  
Redfish API  
Intel® Node Manager  
KVM with dedicated LAN  
NMI  
Watch Dog  
SuperDoctor® 5  
IPMI 2.0

## Power Configurations

ACPI Power Management  
Power-on mode for AC power recovery

## PC Health Monitoring

### CPU

Monitors for CPU Cores, Chipset Voltages,  
Memory

### FAN

Fans with tachometer monitoring  
Pulse Width Modulated (PWM) fan  
connectors  
Status monitor for speed control

### Temperature

Monitoring for CPU and chassis  
environment  
Thermal Control for fan connectors

## Chassis

### Form Factor

2U Rackmount

### Model

**CSE-HE211-R000NFP**

### Note

**Standard sliding rail kit: Post to Post  
19.1" ~ 26.4"**

## Dimensions and Weight

### Height

3.5" (88.9mm)

### Width

17.2" (436.88mm)

### Depth

22.6" (574mm)

### Package

9.7" (H) x 23.5" (W) x 36.9" (D)

### Weight

Net Weight: 34.4 lbs (15.6 kg)  
Gross Weight: 47.4 lbs (21.5 kg)

### Available Color

Silver

## Front Panel

### Buttons

Power On/Off

### LEDs

HDD  
LAN1 activity  
LAN2 activity  
Power LED  
Power status  
System information  
UID LED

## Expansion Slots

### PCI-Express (PCI-E)

4 PCI-E 4.0 x16 DW FHFL or 6 x8 SW FHFL  
slot(s)

1 PCI-E 4.0 x16 SW FHHL or 2 x8 SW FHHL  
slot(s)

### Note

**If Slot 1 is configured as PCI-E x16, Slot 2 will be disabled; If Slot 3 is configured as PCI-E x16, Slot 4 will be disabled; If Slot 5 is configured as PCI-E x16, Slot 6 will be disabled; (Optional) If Slot 7 is configured as PCI-E x16, Slot 8 will be disabled.**

## Drive Bays / Storage

### Hot-swap

6x 2.5" hot-swap NVMe/SATA drive bays  
(6x 2.5" NVMe hybrid)

### M.2

2 M.2 NVMe OR 2 M.2 SATA3  
M-Key, 2280/22110

## System Cooling

### Fans

6 Hot-swappable 60x60x56mm Fan(s)

## Power Supply

2000W Redundant Power  
Supplies with PMBus

### Dimension

#### (W x H x L)

73.5 x 40 x 203 mm

### AC Input

1000W: 100-127Vac / 50-60Hz  
1800W: 200-220Vac / 50-60Hz  
1980W: 220-230Vac / 50-60Hz  
2000W: 220-240Vac / 50-60Hz  
2000W: 230-240Vac / 50-60Hz  
2000W: 230-240Vdc (For CCC Only)

### +12V

Max: 83A / Min: 0A (100Vac-127Vac)  
Max: 150A / Min: 0A (200Vac-220Vac)  
Max: 165A / Min: 0A (220Vac-230Vac)  
Max: 166A / Min: 0A (230Vac-240Vac)

### 12V SB

Max: 3.5A / Min: 0A

### Output Type

25 Pairs Gold Finger Connector

### Certification



**Titanium Level**

**[ Test Report ]**

## Operating Environment

### Environmental Spec.

Operating Temperature:  
5°C ~ 35°C (41°F ~ 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

## Standard Parts (Parts Included)

### Motherboard / Chassis

Part Number	MBD-X12DHM-6	CSE-HE211-R000NFP
Qty	1	1
Description	Super X12DHM-6 Motherboard	2U Chassis

### Add-on Card / Module

Part Number	AOM-AIOM-2X8-P	AOM-HE211-AIOM-P	AOM-HS119-IO-P
Qty	1	1	1
Description	2nd AIOM board (cable solution) for Hyper-E 2U system,RoHS	AIOM connection for Hyper-E 2U system,RoHS	Hyper IO Board,RoHS

### Backplane

Part Number	BPN-NVME4-HE211N-S6
Qty	1
Description	1U 6-Slot BPN Supports 6 x SAS3/SATA3/NVMe4 Storage Device,HF,RoHS

### Cable

Part Number	CBL-CDAT-1060-30	CBL-GNZ4-1221LP-85	CBL-OTHR-1117	CBL-PWEX-1136-40	CBL-PWEX-1142-40
	CBL-SAST-1218LP-85	CBL-SAST-1222LP-85	CBL-SAST-1223LP-85	CBL-SAST-1226LP-85	CBL-SAST-1229LP-85
	CBL-SAST-1230LP-85	CBL-SAST-1232LP-85	CBL-SAST-1243LP-85	CBL-SAST-1249LP-85	CBL-CDAT-1290F
	CBL-PWCD-0160-IS	CBL-PWEX-1104-8			
Qty	1	1	1	2	1
	1	1	1	1	3
	1	1	1	1	1
	2	1			
Description	2x15,PH1.0 to 2x15,PH1.0,28AWG,30CM,1A/pin,RoHS	Genz4C (STR) to 2x SlimlineLP x8 (STR),21/23CM,85 OHM,R	[NR] 2x15,PH1.0 to 2x15,PH1.0,28AWG,30CM,1A/pin,RoHS	MicroHi,(2X2 to 2X4) SP3.0,40CM,10A/pin,16AWG,RoHS	MicroHi,(2x4 to 2x4),PH3.0,40CM,8A/pin,18AWG,RoHS
	SlimlineLP X8 (STR) to SlimlineLP x8 (STR),INT,19CM,85	SlimlineLP X8 (STR) to SlimlineLP x8 (STR),27CM,85 OHM,	SlimlineLP X8 (STR) to SlimlineLP x8 (STR),INT,12CM,85	SlimlineLP X8 (STR) to SlimlineLP x8 (STR),25CM,85 OHM,	SlimlineLP X8 (STR) to SlimlineLP x8 (STR),INT,28CM,85
	SlimlineLP X8 (STR) to SlimlineLP x8 (RA),INT,29CM,85 O	SlimlineLP X8 (STR) to SlimlineLP x8 (RA),INT,32CM,85 O	SlimlineLP x8 (STR) to SlimlineLP x8 (STR),INT,30CM,85 OHM,RoHS	SlimlineLP x8 (STR) tp 2x SlimlineLP x4 (STR),49/61CM,8	[NR] FRONT CNTL,20 TO 20 PIN,P0.5,FLAT,90CM,STD,RoHS
	PWCD,US,NEMA5-15P TO IEC60320 C13,6FT,16AWG,RoHS/REACH	[NR] 2x4,PH3.0,M to 2x3,PH2.0,F,3A/pin,22AWG,8CM			

### Fan

Part Number	FAN-0224L4
Qty	6
Description	60x60x56 mm, 17K-17K RPM, Counter-rotating Cooling Fan for Hyper-E Rear I/O Series Servers

### Air Shroud

Part Number	MCP-310-21103-0B
Qty	1
Description	HE211 Mylar air shroud for X12DHM PWS,RoHS

### Power Supply

Part Number	PWS-2K08A-1R
Qty	2
Description	1U 2000W 100-240VAC Titanium Ultra power supply 73.5x40x203mm

### Riser Card

Part Number	RSC-H2-6888G4	RSC-H2-68G4
Qty	1	2
Description	2U LHS Hyper riser card with one PCI-E 4.0 x16 and three PCI	2U LHS Hyper riser card with one PCI-E 4.0 x16 and one PCI-E

### Software

Part Number	SFT-OOB-LIC
Qty	1
Description	License key for enabling OOB BIOS management

### Heatsink / Retention

Part Number	SNK-P0078PR
Qty	2
Description	2U Proprietary Passive CPU Heat Sink for X12 Generation Hype-E Series Servers

### \*Front Panel

Part Number	FPB-FP826-T
Qty	1
Description	Chassis front control board for SC826

### \*Drive Tray(s)

Part Number	MCP-220-00178-0B
Qty	6
Description	2.5 thin profile drive tray, Orange tab (for hotswap NVMe drive), for SC119UH

### Notes:

1. Parts with \* are inside the chassis
2. Excessive parts might not be shipped, including but not limited to excessive drive trays, fans, riser brackets, air shrouds, IO shields, cables.....etc.

## Optional Parts List

6 Drive Bay Configuration (6 SAS/SATA)

Part Number	AOC-S3808L-L8IT-O + CBL-SAST-1273LP-100	AOC-S3908L-H8IR-16DD-O + CBL-SAST-1273LP-100			
Qty	1	1			
Description	6 SAS/SATA (HBA/IT Mode) via Broadcom 3808 for drive bays 0-5	6 SAS/SATA (HW RAID) via Broadcom 3908 (RAID 0, 1, 5, 6, 10, 50, 60) for drive bays 0-5			
Cable Management Arm for Hyper-E					
Part Number	MCP-290-00168-0N				
Qty	1				
Description	Cable Management Arm for Hyper-E				
CacheVault SuperCap					
Part Number	BTR-CVPM05				
Qty	1				
Description	CacheVault Flash Cache Protection Module for Broadcom 3916/3908 RAID controller (CVPM05)				
CacheVault SuperCap to PCIe Card Bracket					
Part Number	BKT-BBU-BRACKET-05				
Qty	1				
Description	CacheVault Flash Cache Protection Module for Broadcom 3916/3908 RAID controller (CVPM05)				
Optional Hyper-E RSC for slot 5 & 7 for 2 PCI-E 4.0 x16					
Part Number	RSC-H2-668G4S				
Qty	1				
Description	Hyper-E RSC for slot 5 & 7 for 2 PCI-E 4.0 x16				
Optional RSC and GPU AUX power cable for A40, A100 GPU					
Part Number	CBL-PWEX-1172-2654				
Qty	1,2,3				
Description	RSC and GPU AUX power cable for A40, A100 GPU				
Optional RSC and GPU AUX power cable: PCI-E Auxiliary 6 pin or 8 pin for RTX GPU, Intel N3000, Xilinx U200					
Part Number	CBL-PWEX-1171-2654				
Qty	1,2,3				
Description	RSC and GPU AUX power cable: PCI-E Auxiliary 6 pin or 8 pin for RTX GPU, Intel N3000, Xilinx U200				
Optional sliding rail kit					
Part Number	MCP-290-11903-0N	MCP-290-11901-0N	MCP-290-11902-0N		
Qty	1	1	1		
Description	30.5" ball-bearing rail set, without auto latch for Hyper 1U & 2U Project	Optional sliding rail kit for Post to Post: 26.5" ~ 41.2"	Optional sliding rail kit for Post to Post: 24" ~ 35.3"		
Slim AIOM module					
Part Number	<u>AOC-AG-i4SM</u> AOC-ATG-i2SM <u>AOC-AG-i2M</u>	<u>AOC-A25G-b2SM</u> <u>AOC-ATG-i2TM</u> <u>AOC-AH25G-m2S2TM</u>	AOC-A25G-m2SM <u>AOC-AG-i4M</u> AOC-A25G-i2SM	AOC-ATG-i4SM AOC-A100G-m2CM	AOC-ATGC-i2TM <u>AOC-A100G-b2CM</u>
Qty	1 1 1	1 1 1	1 1 1	1 1	1 1
Description	AIOM 4-port GbE SFP, Intel i350-AM4 with 0.5U bracket,RoHS  AIOM Dual-Port 10GbE SFP+, based on X710-BM2 with 0.5U Bracket,RoHS  AIOM Dual-Port 1GbE RJ45, based on i350-AM2 with 0.5U Bracket, RoHS	AIOM 2-port 25GbE SFP28, Broadcom BCM57414 with 0.5U bracket,RoHS  AIOM 2-port 10GBase-T, Intel X550,RoHS  AIOM Dual-Port 25GbE SFP28 based on Mellanox CX-4 Lx EN, and Dual-Port 10GbeE RJ45 based on Intel X550-AT2 with 0.5U Bracket, RoHS	AIOM 2-port 25GbE SFP28, Mellanox CX-6 LX w/ 0.5U height bracket,RoHS  AIOM Quad-Port 1GbE RJ45, based on i350-AM4 with 0.5U Bracket, RoHS  AIOM 2-Port 25GbE SFP28, based Intel E810-XXVAM2 w/ 0.5U height bracket,RoHS	AIOM Quad-Port 10GbE SFP+, based on Intel XL710-BM1 with 0.5U Bracket,RoHS  AIOM 2-port 100GbE QSFP28, Mellanox CX-6 DX w/ 0.5U bracket,RoHS	AIOM 2-port 10GBase-T RJ45, based on Intel Carlsville X710-AT2, w/ 0.5U BKT,RoHS  AIOM Dual Port 100GbE QSFP28, based on Broadcom BCM57508 with 0.5U Bracket,RoHS
TPM security module					
Part Number	AOM-TPM-9671V-O	AOM-TPM-9670V-O			
Qty	1	1			
Description	SPI capable TPM 1.2 with Infineon 9671 controller with vertical form factor	SPI capable TPM 2.0 with Infineon 9670 controller with vertical form factor			