

# Hyper SuperServer SYS-220HE-FTNRD (Complete System Only )

NEW



## Key Applications

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



## Key Features

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

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2. 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

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3. 4 PCI-E 4.0 x16 slots with GPU/Accelerator support

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

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

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

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7. 1300W redundant DC power supplies

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# Specifications

## Product SKUs

- SYS-220HE-FTNRD**
  - SuperServer SYS-220HE-FTNRD

## Motherboard

### Super X12DHM-6

## Processor

- CPU**
  - Dual Socket P+ (LGA-4189)
  - 3rd Gen Intel® Xeon® Scalable processors
  - Support CPU TDP 270W

- Cores**
  - Up to 40C/80T; Up to 60MB Cache

## System Memory

- Memory**
  - Memory Capacity: 32 DIMM slots
  - Up to 8TB: 32x 256 GB DRAM
  - Up to 12TB: 16x 512 GB PMem and 16x 256 GB DRAM
  - Memory Type: 3200MHz ECC DDR4
  - Intel® Optane™ persistent memory 200 series

- Memory Voltage**
  - 1.2 V

- Error Detection**
  - ECC

## On-Board Devices

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

- NVMe**
  - NVMe; RAID 0/1/5/10 support

- Chipset**
  - Intel® C621A

- Network Connectivity**
  - 2x 1GbE BaseT with Intel® i350-AM2 (optional)
  - 4x 1GbE SFP or 2x 10GbE BaseT with Intel® X550-AT2 (optional)
  - 2x 10GbE SFP+ with Intel® X710-BM2 (optional)
  - 4x 10GbE SFP+ with Intel® XL710-BM1 (optional)
  - 4x 10GbE RJ45/SFP+ with Intel® X710-TM4 (optional)
  - 2x 25GbE SFP28 with Broadcom® BCM57414 (optional)
  - 4x 25GbE RJ45/SFP28 with Mellanox® CX-4 Lx EN Intel® X550-AT2 (optional)
  - 2x 100GbE QSFP28 with Broadcom® BCM57508 (optional)
  - 4x 1GbE BaseT with Intel® i350-AM4 (optional)

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

## 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**
  - N/A

## Front Panel

- Buttons**
  - Power On/Off
  - UID button

- LEDs**
  - HDD activity
  - LAN1 activity
  - Power status
  - System information

## Expansion Slots

- PCI-Express (PCI-E)**
  - Slot 1: PCI-E 4.0 x16 or (Optional) x8 FH, 10.5"L
  - Slot 2: (Optional) PCI-E 4.0 x8 FH, 10.5"L
  - Slot 3: PCI-E 4.0 x16 or (Optional) x8 FH, 10.5"L
  - Slot 4: (Optional) PCI-E 4.0 x8 FH, 10.5"L
  - Slot 5: PCI-E 4.0 x16 or (Optional) x8 FH, 10.5"L
  - Slot 6: (Optional) PCI-E 4.0 x8 FH, 10.5"L
  - Slot 7: PCI-E 4.0 x8 FH, 6.6"L
  - Slot 8: PCI-E 4.0 x8 FH, 6.6"L

- 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; 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

## System Cooling

**Input / Output**

|              |                                 |
|--------------|---------------------------------|
| <b>LAN</b>   | ■ 1 RJ45 Dedicated BMC LAN port |
| <b>USB</b>   | ■ 2 USB 3.0 port(s) (2 front)   |
| <b>Video</b> | ■ 1 VGA port(s)                 |

**System BIOS**

|                  |                       |
|------------------|-----------------------|
| <b>BIOS Type</b> | ■ AMI 256MB SPI Flash |
|------------------|-----------------------|

**Management**

|                 |   |
|-----------------|---|
| <b>Software</b> | <ul style="list-style-type: none"> <li>■ Redfish API</li> <li>■ <u>IPMI 2.0</u></li> <li>■ <u>SSM</u></li> <li>■ Intel® Node Manager</li> <li>■ <u>SPM</u></li> <li>■ KVM with dedicated LAN</li> <li>■ <u>SUM</u></li> <li>■ NMI</li> <li>■ Watch Dog</li> <li>■ SuperDoctor® 5</li> </ul> |
|-----------------|---|

|                             |  |
|-----------------------------|--|
| <b>Power Configurations</b> | <ul style="list-style-type: none"> <li>■ Power-on mode for AC power recovery</li> <li>■ ACPI Power Management</li> </ul> |
|-----------------------------|--|

**PC Health Monitoring**

|                    |   |
|--------------------|---|
| <b>CPU</b>         | ■ Monitors for CPU Cores, Chipset Voltages, Memory  |
| <b>FAN</b>         | <ul style="list-style-type: none"> <li>■ Fans with tachometer monitoring</li> <li>■ Pulse Width Modulated (PWM) fan connectors</li> <li>■ Status monitor for speed control</li> </ul> |
| <b>Temperature</b> | <ul style="list-style-type: none"> <li>■ Monitoring for CPU and chassis environment</li> <li>■ Thermal Control for fan connectors</li> </ul>  |

|             |   |
|-------------|---|
| <b>Fans</b> | ■ 6x 6cm heavy duty fans with optimal fan speed control |
|-------------|---|

|                   |                   |
|-------------------|-------------------|
| <b>Air Shroud</b> | ■ 4 Air Shroud(s) |
|-------------------|-------------------|

**Power Supply**

1300W Redundant DC -48V Power Supplies with PMBus

|                              |                      |
|------------------------------|----------------------|
| <b>Dimension (W x H x L)</b> | ■ 73.5 x 40 x 203 mm |
|------------------------------|----------------------|

|                 |         |
|-----------------|---------|
| <b>DC Input</b> | ■ 1300W |
|-----------------|---------|

|             |               |
|-------------|---------------|
| <b>+12V</b> | ■ Max: 108.3A |
|-------------|---------------|

|               |                       |
|---------------|-----------------------|
| <b>12V SB</b> | ■ Max: 2.1A / Min: 0A |
|---------------|-----------------------|

|                    |                                  |
|--------------------|----------------------------------|
| <b>Output Type</b> | ■ 25 Pairs Gold Finger Connector |
|--------------------|----------------------------------|

**Certification**

[ [Test Report](#) ]

**Operating Environment**

|                            |  |
|----------------------------|--|
| <b>Environmental Spec.</b> | <ul style="list-style-type: none"> <li>■ Operating Temperature: 5°C ~ 35°C (41°F ~ 95°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-X12DHM-6        | 1   | Super X12DHM-6 Motherboard   |
|                              | CSE-HE211-R000NFP   | 1   | 2U Chassis   |
| <b>Add-on Card / Module</b>  | AOM-AIOM-2X8-P      | 1   | 2nd AIOM board (cable solution) for Hyper-E 2U system,RoHS                                       |
| <b>Add-on Card / Module</b>  | AOM-HE211-AIOM-P    | 1   | AIOM connection for Hyper-E 2U system,RoHS   |
| <b>Add-on Card / Module</b>  | AOM-HS119-IO-P      | 1   | Hyper IO Board,RoHS  |
| <b>Backplane</b>             | BPN-NVME4-HE211N-S6 | 1   | 1U 6-Slot BPN Supports 6 x SAS3/SATA3/NVMe4 Storage Device,HF,RoHS                               |
| <b>Cable 1</b>               | CBL-GNZ4-1221LP-85  | 1   | Genz4C (STR) to 2x SlimlineLP x8 (STR),21/23CM,85 OHM,R  |
| <b>Cable 2</b>               | CBL-OTHR-1117       | 1   | [NR] 2x15,PH1.0 to 2x15,PH1.0,28AWG,30CM,1A/pin,RoHS   |
| <b>Cable 3</b>               | CBL-PWEX-1088-26    | 3   | 2x4,PH4.2 + 2x2pin,PH3.0 to 2x4,PH3.0,26/54CM,16AWG,9A   |
| <b>Cable 4</b>               | CBL-PWEX-1136-40    | 2   | MicroHi,(2X2 to 2X4) P3.0,40CM,10A/pin,16AWG,RoHS  |
| <b>Cable 5</b>               | CBL-PWEX-1142-40    | 1   | MicroHi,(2x4 to 2x4),PH3.0,40CM,8A/pin,18AWG,RoHS  |
| <b>Cable 6</b>               | CBL-PWEX-1226       | 1   | Microfit,2x4,PH3.0 to Microfit,2x4,PH3.0,30CM,9A/P,16AW  |
| <b>Cable 7</b>               | CBL-SAST-1218LP-85  | 1   | SlimlineLP X8 (STR) to SlimlineLP x8 (STR),INT,19CM,85   |
| <b>Cable 8</b>               | CBL-SAST-1222LP-85  | 1   | SlimlineLP X8 (STR) to SlimlineLP x8 (STR),27CM,85 OHM,  |
| <b>Cable 9</b>               | CBL-SAST-1223LP-85  | 1   | SlimlineLP X8 (STR) to SlimlineLP x8 (STR),INT,12CM,85   |
| <b>Cable 10</b>              | CBL-SAST-1226LP-85  | 1   | SlimlineLP X8 (STR) to SlimlineLP x8 (STR),25CM,85 OHM,  |
| <b>Cable 11</b>              | CBL-SAST-1229LP-85  | 3   | SlimlineLP X8 (STR) to SlimlineLP x8 (STR),INT,28CM,85   |
| <b>Cable 12</b>              | CBL-SAST-1230LP-85  | 1   | SlimlineLP X8 (STR) to SlimlineLP x8 (RA),INT,29CM,85 O  |
| <b>Cable 13</b>              | CBL-SAST-1232LP-85  | 1   | SlimlineLP X8 (STR) to SlimlineLP x8 (RA),INT,32CM,85 O  |
| <b>Cable 14</b>              | CBL-SAST-1243LP-85  | 1   | SlimlineLP x8 (STR to STR),INT,30CM,85 OHM,RoHS  |
| <b>Cable 15</b>              | CBL-SAST-1249LP-85  | 1   | SlimlineLP x8 (STR) tp 2x SlimlineLP x4 (STR),49/61CM,8  |
| <b>FAN 1</b>                 | FAN-0215L4          | 6   | 60x60x56 mm, 17K-17K RPM, Counter-rotating Cooling Fan for 2U Hyper-E (CSE-HE211) Series Servers |
| <b>Power Supply</b>          | PWS-1K30F-1R        | 2   | 1300W -48Vdc single output power supply  |
| <b>Riser Card</b>            | RSC-H2-6888G4       | 1   | 2U LHS Hyper riser card with one PCI-E 4.0 x16 and three PCI                                     |
| <b>Riser Card</b>            | RSC-H2-68G4         | 2   | 2U LHS Hyper riser card with one PCI-E 4.0 x16 and one PCI-E                                     |
| <b>Software</b>              | SFT-OOB-LIC         | 1   | License key for enabling OOB BIOS management   |
| <b>Heatsink / Retention</b>  | SNK-P0078PR         | 2   | 2U Proprietary Passive CPU Heat Sink for X12 Generation Hype-E Series Servers                    |
| <b>*Cable 16</b>             | CBL-CDAT-1290F      | 1   | [NR] FRONT CNTL,20 TO 20 PIN, P0.5, FFC,FLAT, 90CM, STD  |
| <b>*Cable 17</b>             | CBL-PWCD-0160-IS    | 2   | PWCD,US,NEMA5-15P TO IEC60320 C13,6FT,16AWG,RoHS/REACH   |
| <b>*Cable 18</b>             | CBL-PWEX-1104-8     | 1   | [NR] 2x4,PH3.0,M to 2x3,PH2.0,F,3A/pin,22AWG,8CM   |
| <b>*Front Panel</b>          | FPB-FP826-T         | 1   | Chassis front control board for SC826  |
| <b>*Drive Tray(s)</b>        | MCP-220-00178-0B    | 6   | 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

|   | Part Number                                  | Qty   | Description   |
|---|--|-------|---|
| <b>48VDC Input Power Cable for PWS-1K60D-1R, 4M, 8AWG, RoHS/REA</b>   | CBL-PWEX-0710                                | 2     | 48VDC Input Power Cable for PWS-1K60D-1R, 4M, 8AWG, RoHS/REA  |
| <b>6 Drive Bay Configuration (6 SAS/SATA)</b>   | AOC-S3808L-L8IT-O + CBL-SAST-1273LP-100      | 1     | 6 SAS/SATA (HBA/IT Mode) via Broadcom 3808 for drive bays 0-5   |
|   | AOC-S3908L-H8IR-16DD-O + CBL-SAST-1273LP-100 | 1     | 6 SAS/SATA (HW RAID) via Broadcom 3908 (RAID 0, 1, 5, 6, 10, 50, 60) for drive bays 0-5   |
| <b>Cable Management Arm for Hyper-E</b>   | MCP-290-00168-0N                             | 1     | Cable Management Arm for Hyper-E  |
| <b>CacheVault SuperCap</b>  | BTR-CVPM05                                   | 1     | CacheVault Flash Cache Protection Module for Broadcom 3916/3908 RAID controller (CVPM05)  |
| <b>CacheVault SuperCap to PCIe Card Bracket</b>   | BKT-BBU-BRACKET-05                           | 1     | CacheVault Flash Cache Protection Module for Broadcom 3916/3908 RAID controller (CVPM05)  |
| <b>Drive Tray Label</b>   | LBL-0968                                     | -     | Pack of 4 "NVMe" labels for hot-swap drive tray   |
| <b>Global Services &amp; Support</b>  | <u>QSND3/2/1</u>                             | -     | Silver Level, 3/2/1-year onsite NBD SLA   |
|   | <u>QS4HR3/2/1</u>                            | -     | Gold Level, 3/2/1-year onsite 24x7x4 SLA  |
|   | <u>SMSAD3/2/1</u>                            | -     | Bronze Level, 3/2/1-year 3BD SLA  |
| <b>Intel® VROC RAID Key Options</b>   | <u>AOC-VROCPREMOD</u>                        | 1     | Intel VROC Premium, RAID 0, 1, 5, 10  |
|   | <u>AOC-VROCSTNMOD</u>                        | 1     | Intel VROC Standard, RAID 0, 1, 10  |
|   | <u>AOC-VROCINTMOD</u>                        | 1     | Intel VROC, RAID 0, 1, 5, 10 (Intel SSD Only)   |
| <b>Optional Hyper-E RSC for slot 5 &amp; 7 for 2 PCI-E 4.0 x16</b>  | RSC-H2-668G4S                                | 1     | Hyper-E RSC for slot 5 & 7 for 2 PCI-E 4.0 x16  |
| <b>Optional RSC and GPU AUX power cable: PCI-E Auxiliary 6 pin or 8 pin for RTX GPU, Intel N3000, Xilinx U200</b> | CBL-PWEX-1086-26                             | 1,2,3 | RSC and GPU AUX power cable: PCI-E Auxiliary 6 pin or 8 pin for RTX GPU, Intel N3000, Xilinx U200                                 |
| <b>Optional sliding rail kit</b>  | MCP-290-11903-0N                             | 1     | Optional sliding rail kit for Post to Post: 24" ~ 35.3"   |
| <b>Slim AIOM module</b>   | <u>AOC-ATG-i2TM</u>                          | 1     | AIOM 2-port 10GBase-T, Intel X550,RoHS  |
|   | <u>AOC-AG-i4M</u>                            | 1     | AIOM Quad-Port 1GbE RJ45, based on i350-AM4 with 0.5U Bracket, RoHS   |
|   | AOC-A100G-m2CM                               | 1     | AIOM 2-port 100GbE QSFP28, Mellanox CX-6 DX w/ 0.5U bracket,RoHS  |
|   | <u>AOC-AG-i2M</u>                            | 1     | AIOM Dual-Port 1GbE RJ45, based on i350-AM2 with 0.5U Bracket, RoHS   |
|   | <u>AOC-AH25G-m2S2TM</u>                      | 1     | AIOM Dual-Port 25GbE SFP28 based on Mellanox CX-4 Lx EN, and Dual-Port 10GbE RJ45 based on Intel X550-AT2 with 0.5U Bracket, RoHS |
|   | <u>AOC-AG-i4SM</u>                           | 1     | AIOM 4-port GbE SFP, Intel i350-AM4 with 0.5U bracket,RoHS  |
|   | <u>AOC-A25G-b2SM</u>                         | 1     | AIOM 2-port 25GbE SFP28, Broadcom BCM57414 with 0.5U bracket,RoHS   |
|   | AOC-ATG-i4SM                                 | 1     | AIOM Quad-Port 10GbE SFP+, based on Intel XL710-BM1 with 0.5U Bracket,RoHS  |
|   | AOC-ATG-i2SM                                 | 1     | AIOM Dual-Port 10GbE SFP+, based on X710-BM2 with 0.5U Bracket,RoHS   |
| <b>Software</b>   | <u>SFT-DCMS-Single</u>                       | 1     | DataCenter Management Package (per node license)  |
| <b>TPM security module</b>  | AOM-TPM-9671V-O                              | -     | SPI capable TPM 1.2 with Infineon 9671 controller with vertical form factor   |
|   | AOM-TPM-9670V-O                              | -     | SPI capable TPM 2.0 with Infineon 9670 controller with vertical form factor   |
| <b>Trusted Platform Module Options</b>  | AOM-TPM-9670V-S-FIPS-O                       | 1     | AOM-TPM-9670V-S-FIPS TPM 2.0 support TAA and FIPS   |

|                 |   |                              |
|-----------------|---|------------------------------|
| AOM-TPM-9671V-O | 1 | SPI capable vertical TPM 1.2 |
| AOM-TPM-9670V-O | 1 | SPI capable vertical TPM 2.0 |