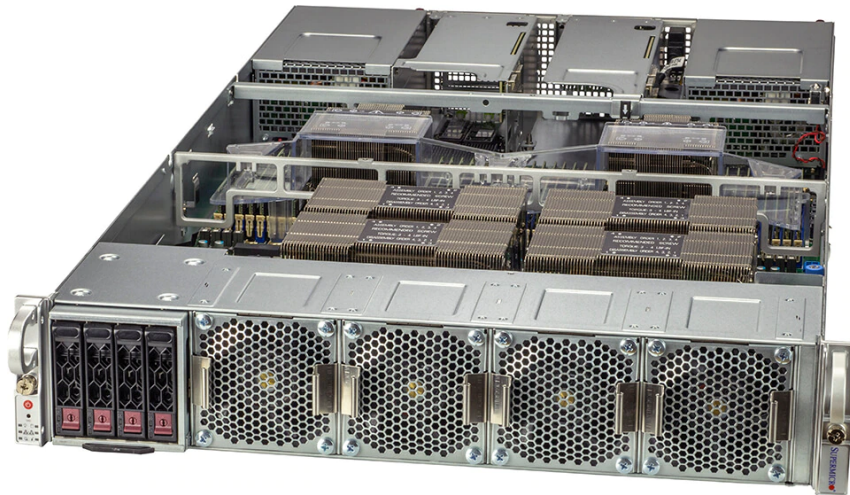


GPU SuperServer SYS-220GQ-TNAR+ (Complete System Only)

NEW

**2U Dual Processor (Intel) GPU System with NVIDIA HGX A100 4-GPU
40GB/80GB, NVLink, Redundant 3000W Titanium Level Power Supplies**



Key Applications

- High Performance Computing
- AI/Deep Learning Training

Key Features

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

2. Intel® C621A Chipset

3. 32 DIMM Slots;
Up to 8TB DRAM;
Up to 8TB Intel® Optane™ Persistent Memory;
3200/2933/2666 ECC DDR4 LRDIMM;RDIMM;
Intel® Optane™ Persistent Memory 200 series
4x PCI-E Gen 4.0 X16 LP Slots

4. Direct connect PCI-E Gen4 Platform with NVIDIA® NVLink™ v3.0 up to 600GB/s interconnect
High density 2U system with NVIDIA® HGX™ A100 4-GPU
Highest GPU communication using NVIDIA® NVLINK™
Supports HGX A100 4-GPU 40GB (HBM2) or 80GB (HBM2e)

5. Flexible networking options

6. 2 M.2 NVMe/SATA via Intel® C621A PCH chipset (for boot drive only)
4x 2.5" Hot-swap SATA drive bays

7. 4 heavy duty fans with optimal fan speed control

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Specifications

Product SKUs

SYS-220GQ-TNAR+	<ul style="list-style-type: none"> SuperServer SYS-220GQ-TNAR+ (Silver Body)
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Motherboard

Super X12DPG-QR

Processor

CPU	<ul style="list-style-type: none"> Dual Socket P+ (LGA-4189) 3rd Gen Intel® Xeon® Scalable processors Support CPU TDP 270W
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Cores	<ul style="list-style-type: none"> Up to 40C/80T; Up to 60MB Cache
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GPU

Supported GPU	<ul style="list-style-type: none"> HGX A100 4-GPU SXM4 Multi-GPU Board
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CPU-GPU Interconnect	<ul style="list-style-type: none"> PCI-E 4.0 x16 CPU-to-GPU Interconnect
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GPU-GPU Interconnect	<ul style="list-style-type: none"> NVIDIA® NVLink™
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System Memory

Memory	<ul style="list-style-type: none"> Memory Capacity: 32 DIMM slots Up to 8TB: 32x 256 GB DRAM and 16x 512 GB PMem Memory Type: 3200/2933/2666MHz ECC DDR4 RDIMM/LRDIMM Intel® Optane™ persistent memory 200 series
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Memory Voltage	<ul style="list-style-type: none"> 1.2 V
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Error Detection	<ul style="list-style-type: none"> ECC
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On-Board Devices

SATA	<ul style="list-style-type: none"> SATA3 (6Gbps); RAID 0/1/5/10 support
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Chipset	<ul style="list-style-type: none"> Intel® C621A
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Network Connectivity	<ul style="list-style-type: none"> 2x 10GbE BaseT with Intel® X540-AT2
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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
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Input / Output

Video	<ul style="list-style-type: none"> 1 VGA port(s)
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System BIOS

BIOS Type	<ul style="list-style-type: none"> AMI 32MB SPI Flash EEPROM
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Chassis

Form Factor	<ul style="list-style-type: none"> 2U Rackmount
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Model	<ul style="list-style-type: none"> CSE-228GTS-R3K02P
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Dimensions and Weight

Height	<ul style="list-style-type: none"> 3.5" (89mm)
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Width	<ul style="list-style-type: none"> 17.2" (437mm)
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Depth	<ul style="list-style-type: none"> 32.7" (830.3mm)
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Package	<ul style="list-style-type: none"> 11" (H) x 22.5" (W) x 45.5" (D)
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Weight	<ul style="list-style-type: none"> Net Weight: 67.5 lbs (30.6 kg) Gross Weight: 86.5 lbs (39.2 kg)
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Available Color	<ul style="list-style-type: none"> Silver Body
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Front Panel

Buttons	<ul style="list-style-type: none"> Power On/Off button System Reset button
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LEDs	<ul style="list-style-type: none"> Hard drive activity LED Network activity LEDs Power status LED System Overheat & Power Fail LED
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Expansion Slots

PCI-Express (PCI-E)	<ul style="list-style-type: none"> Slot 1: PCI-E 4.0 x16 LP Slot 2: PCI-E 4.0 x16 LP Slot 3: PCI-E 4.0 x16 LP Slot 4: PCI-E 4.0 x16 LP
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Drive Bays / Storage

Hot-swap	<ul style="list-style-type: none"> 4x 2.5" hot-swap SATA/SAS drive bays
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M.2	<ul style="list-style-type: none"> 2 M.2 NVMe
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System Cooling

Fans	<ul style="list-style-type: none"> 4 heavy duty fans with optimal fan speed control
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Power Supply

2x 3000W Redundant Power Supplies, Titanium Level

Dimension (W x H x L)	<ul style="list-style-type: none"> 106.5 x 82.4 x 203.5 mm
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AC Input	<ul style="list-style-type: none"> 2880W: 200-207Vac / 15.7A-16A / 50-0Hz 3000W: 207.1-240Vac / 14.5A-16A / 50-0Hz 3000W: 240Vdc / 15A Max (CQC only)
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Output Type	<ul style="list-style-type: none"> Backplanes (connector)
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Certification	<ul style="list-style-type: none">   Titanium Level
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[[Test Report](#)]

Management

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|-----------------|--|
| Software | <ul style="list-style-type: none"> ▪ OOB Management Package (SFT-OOB-LIC) ▪ Redfish API ▪ <u>IPMI 2.0</u> ▪ <u>SSM</u> ▪ Intel® Node Manager ▪ <u>SPM</u> ▪ KVM with dedicated LAN ▪ <u>SUM</u> ▪ NMI ▪ Watch Dog ▪ SuperDoctor® 5 |
|-----------------|--|

- | | |
|-----------------------------|--|
| Power Configurations | <ul style="list-style-type: none"> ▪ ACPI Power Management ▪ Power-on mode for AC power recovery |
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PC Health Monitoring

- | | |
|------------|--|
| CPU | <ul style="list-style-type: none"> ▪ 7 +1 Phase-switching voltage regulator ▪ Monitors for CPU Cores, Chipset Voltages, Memory |
|------------|--|

- | | |
|------------|---|
| FAN | <ul style="list-style-type: none"> ▪ Fans with tachometer monitoring ▪ Pulse Width Modulated (PWM) fan connectors ▪ Status monitor for speed control |
|------------|---|

- | | |
|--------------------|--|
| Temperature | <ul style="list-style-type: none"> ▪ Monitoring for CPU and chassis environment ▪ Thermal Control for fan connectors |
|--------------------|--|

Operating Environment

- | | |
|----------------------------|---|
| Environmental Spec. | <ul style="list-style-type: none"> ▪ Operating Temperature: 10°C ~ 35°C (50°F ~ 95°F) ▪ Non-operating Temperature: -40°C to 60°C (-40°F to 140°F) ▪ Operating Relative Humidity: 8% to 90% (non-condensing) ▪ Non-operating Relative Humidity: 5% to 95% (non-condensing) |
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Parts List

Parts List - (Items Included)

	Part Number	Qty	Description
Motherboard / Chassis	MBD-X12DPG-QR	1	Super X12DPG-QR Motherboard
	CSE-228GTS-R3K02P	1	2U Chassis
Add-on Card / Module	AOM-228G-FAN-P	1	Fan board for SC228G,RoHS
Add-on Card / Module	AOM-PCIE4-SXM4-Q-P	1	PCIe Transition board for nVidia, Redstone, GPU module,RoHS
Add-on Card / Module	AOM-PIO-I2XT-P	1	AOM-PIO-I2XT
Backplane	BPN-NVMe4-228N-S4	1	2U 4-Slot SFF BPN Supports 4xSAS3/SATA3/NVMe4 Storage Device
Cable 1	CBL-0223L	2	BLADE PWS POWER CORD C-19 TO C-20, PBF
Cable 2	CBL-PWEX-1092-23	1	MiniFit,2x2, P4.2,F to MiniFit,2x2, P4.2,F,23CM,10A/pin
Cable 3	CBL-PWEX-1093-36	1	MicroFit,2x2, P3.0,F to MicroFit,2x2,P3.0,F,36CM,10A/pin
Cable 4	CBL-PWEX-1094-43	1	MicroFit,2x4, P3.0,F to MicroFit,2x4,P3.0,F,43CM,9A/pin
Cable 5	CBL-PWEX-1096-43	1	Surlok 5.7MM and RA-PD 3.6MM harness,Left Exit,4AWG,43.
Cable 6	CBL-PWEX-1114-30	2	Microfit,PH3.0,(2x4F to 2x4F),30CM,9A/pin,16AWG,RoHS
Cable 7	CBL-SAST-1216LP-85	7	SlimlineLP x8 (STR) to SlimlineLP x8 (RE),16CM,85 OHM,R
Cable 8	CBL-SAST-1224LP-85	1	SlimlineLP x8 (STR) to SlimlineLP x8 (RE),24CM,85 OHM
Cable 9	CBL-SAST-1229LP-85	2	SlimlineLP X8 (STR) to SlimlineLP x8 (STR),INT,28CM,85
Cable 10	CBL-SAST-1262LP-85	6	SlimlineLP x8 (STR) to SlimlineLP x8 (STR),60CM,85 OHM,
Cable 11	CBL-SAST-1272-100	1	Slimline x4 (STR) to Slimline x4 (STR),72CM,100 OHM,RoH
Drive Tray(s)	MCP-220-00187-0B	4	2.5 thin profile drive tray, standard color tab, for SC119UH
Riser Card	RSC-G-66G4	2	1U LHS GPU Riser card with two PCI-E 4.0 x16 slots,RoHS
Software	SFT-OOB-LIC	1	License key for enabling OOB BIOS management
Heatsink / Retention	SNK-P0078P	2	2U Passive CPU Heat Sink for X12 Generation Intel Whitley and Cedar Island Platforms
Heatsink / Retention	SNK-P4006PV	4	2U Passive GPU Heat Sink for NVIDIA Redstone SXM4 Module
*Power Supply	PWS-3K02G-2R	2	2U 3000W, Titanium efficiency for GPU 54V(2430W)+12V(1100W)
*Cable 12	CBL-OTHR-0794	1	VGA,DB 15pin,F to 2x8,PH2.54,10CM,30 AWG,RoHS
*FAN 1	FAN-0197L4-1	4	80x80x80 mm, 12K-11.3K RPM Counter-rotating Fan, w/ SMC Fan Board, louver for AS-2124GQ-NART (CSE-228G Chassis)
*Rail Set	MCP-290-00144-1N	1	2U fixed rail set, quick release, default for 2,3U 17.6"W, 26.5-33.5

Notes:

- Parts with * are inside the chassis
- 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
GPU Baseboard *	GPU-NVTHGX-A100-SXM4-4	1	NVIDIA Redstone GPU Baseboard, 4 A100 40GB SXM4
	GPU-NVTHGX-A100-SXM4-48	1	NVIDIA Redstone GPU Baseboard, 4 A100 80GB SXM4
Network Cards	AOC-S25G-M2S-O	1	Standard low-profile 2-port 25GbE SFP28, Mellanox ConnectX-4 LX EN

	AOC-MCX556A-ECAT	1	MCX556A-ECAT, CX-5 VPI,EDR IB,100GbE,2p,QSFP28,PCIe3x16
	AOC-STGS-i2T	1	Intel X550-AT2 2 RJ45 (10Gb/port) Gen3 x4 Standard Low Profile
	AOC-S100GC-i2C	1	Standard PCIe Gen4 dual port 100GbE- Intel Columbiaville 810-CAM2
	AOC-S25G-I2S	1	Standard Low Profile 25G dual port SFP28, based on Intel XXV710
	AOC-STG-I4S	1	Intel XL710-BM1 4-port SFP+ (10Gb/port) Gen3 x8, Standard Low Profile
	AOC-STGN-I2S	1	Intel 82599ES 2-port SFP+ 10G Gen2 x8 Standard Low Profile
	AOC-653106A-ECAT	1	Mellanox MCX653106-ECAT ConnectX-6 VPI card. 100Gb/s InfiniBand & Ethernet Adapter Card, dual port, QSFP56, PCIe 3.0/4.0 x16
	AOC-STG-I2T	1	Std LP 2-port 10G RJ45, Intel X540
	AOC-STGF-i2S-O	1	Standard Low profile, 10GbE controller with dual SFP+ ports and NC-SI function support by connector, based on Intel X710-BM2.,RoHS
	AOC-653105A-HDAT	1	Mellanox ConnectX-6 VPI 200Gb/s InfiniBand & Ethernet Adapter Card single port, QSFP56 PCIe 3.0/4.0 x16.
	AOC-MCX512F-ACAT	1	Mellanox MCX512F-ACAT PCIe 2-port 25GbE SFP28 Gen3x16, RoHS
	AOC-653106A-HDAT	1	Mellanox ConnectX-6 VPI 200Gb/s InfiniBand & Ethernet Adapter Card dual ports, QSFP56 PCIe 3.0/4.0 x16.
	AOC-653105A-ECAT	1	Mellanox MCX653105A-ECAT PCIe 1-port IB-HDR100 & 100GbE QSFP56 Gen3.0/4.0 x16 CX-6 VPI. HF, RoHS
	AOC-MCX512A-ACAT	1	Mellanox MCX512A-ACAT PCIe 2-port 25GbE SFP28 Gen3x8 CX-5 EN. RoHS
Storage Controller Cards and Cables	CBL-SAST-1281-100 (for S3908L&3808L)	1	Slimline x8 (STR) to 2x Slimline x4 (STR),80CM,100 OHM,
	<u>AOC-S3908L-H8IR-32DD</u>	1	8 int 12Gb/s ports, x8 Gen4, ROC - LP, 32 HDD w/ exp,RoHS
	AOC-S3808L-L8iT	1	8 int 12Gb/s SAS3 ports, x8 Gen4, HBA - LP, 122 HDD w/exp
	CBL-SAST-1285-100 (for S3108L)	1	Slimline x4 (STR) to MiniSAS HD (STR) x4,85CM,100 OHM,R
	<u>AOC-S3108L-H8iR-16DD</u>	1	8 int 12Gb/s ports, 8xGen3, ROC - LP,16 HDD w/ exp
TPM Security Module	AOM-TPM-9670V-S-FIPS-P	1	AOM-TPM-9670V-S-FIPS TPM 2.0 support TAA and FIPS,RoHS