

SuperServer 9029GP-TNVRT (Complete System Only)

10U Dual Processor (Intel) System with Up to 16 NVIDIA V100 GPUs



Integrated Board



X11DPG-HGX2

Views: | [Top View \(GPU\)](#) | [Top View \(CPU\)](#) | [Top View \(Switch\)](#) | [Angled-Rear View](#) | [Angled-Front 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, 512GB memory, 1 HDD, 16 GPUs installed).
Service: Due to complexity, OSNBD3 is highly recommended.

▶ [Drivers & Utilities](#) ▶ [BIOS](#) ▶ [IPMI](#) ▶ [Tested Memory](#) ▶ [Tested M.2 List](#) ▶ [Drive Options](#) ▶ [NVMe Options](#) ▶ [Manuals](#) ▶ [OS Certification Matrix](#)

Note: Image above may show a varied configuration of optional parts. Please refer to parts list for standard parts included.

Key Applications

- AI/ML, Deep Learning Training and Inference
- Big Data Analytics
- High-performance Computing (HPC)
- Research Laboratory/National Laboratory
- Autonomous Vehicle Technology

Key Features

1. Supports 16 NVIDIA® V100 SXM3 350W GPUs with NVSwitch and NVLink
2. Optimized for NVIDIA® GPUDirect™ RDMA
3. Dual Socket P (LGA 3647) support Intel® Xeon® Scalable processors
3 UPI up to 10.4GT/s
4. Up to 3TB 3DS ECC LRDIMM, up to DDR4-2933MHz; 24 DIMM slots
5. 16 PCI-E 3.0 x16 for RDMA via IB EDR; 2 PCI-E 3.0 x16 on board
6. Support 8 NVIDIA V100 with 300GB/s NVLINK
7. Dual 10GBase-T LAN with Intel® X540
8. 16 Hot-swap 2.5" NVMe drives,
6 Hot-swap 2.5" SATA3 drive bays
9. 6x 80mm Hot-swap PWM Fans,
8x 92mm Hot-swap Fans
10. 6x (5+1) 3000W Redundant Power Supplies; **Titanium Level (96%+)**

Specifications

Product SKUs

SYS-9029GP-TNVRT	<ul style="list-style-type: none"> SuperServer 9029GP-TNVRT (Black)
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Motherboard

Super **X11DPG-HGX2**

Processor

CPU	<ul style="list-style-type: none"> Dual Socket P (LGA 3647) Intel® Xeon® Scalable Processors, 3 UPI up to 10.4GT/s Support CPU TDP 205W
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Cores	<ul style="list-style-type: none"> Up to 28 Cores
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GPU

Supported GPUs	<ul style="list-style-type: none"> 16 SXM Socket Based NVIDIA V100 Compatible GPU list
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CPU-GPU Interconnect	<ul style="list-style-type: none"> PCI-E Gen 3 x16 Switch CPU-GPU Interconnect
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GPU-GPU Interconnect	<ul style="list-style-type: none"> NVIDIA® NVLink™ with NVSwitch™ GPU-GPU Interconnect
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System Memory

Memory Capacity	<ul style="list-style-type: none"> 24 DIMM slots Up to 3TB 3DS ECC L/RDIMM, up to DDR4-2933MHz
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Memory Type	<ul style="list-style-type: none"> 2933/2666/2400/2133MHz ECC DDR4 RDIMM/LRDIMM
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On-Board Devices

Chipset	<ul style="list-style-type: none"> Intel® C621 chipset
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SATA	<ul style="list-style-type: none"> SATA3 (6Gbps) with RAID 0, 1, 5, 10
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Network Controllers	<ul style="list-style-type: none"> Dual Port 10GBase-T from Intel X540 Ethernet Controller
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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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Graphics	<ul style="list-style-type: none"> ASPEED AST2500 BMC
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Input / Output

SATA	<ul style="list-style-type: none"> 6 SATA3 (6Gbps) ports
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LAN	<ul style="list-style-type: none"> 2 RJ45 10GBase-T LAN ports 1 RJ45 Dedicated IPMI LAN port
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USB	<ul style="list-style-type: none"> 2 USB 3.0 ports (front)
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Video	<ul style="list-style-type: none"> 1 VGA Connector
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COM Port	<ul style="list-style-type: none"> 1 COM port (header)
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System BIOS

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

Form Factor	<ul style="list-style-type: none"> 10U Rackmountable
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Model	<ul style="list-style-type: none"> CSE-1018G-R12KP
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Dimensions

Height	<ul style="list-style-type: none"> 17.2" (437mm)
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Width	<ul style="list-style-type: none"> 17.8" (452mm)
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Depth	<ul style="list-style-type: none"> 27.75" (705mm)
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Weight	<ul style="list-style-type: none"> Net Weight: 298 lbs (135 kg) Gross Weight: 385 lbs (175 kg)
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Available Colors	<ul style="list-style-type: none"> Black
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Drive Bays / Storage

Hot-swap	<ul style="list-style-type: none"> 16 Hot-swap 2.5" NVMe drive bays * 6 Hot-swap 2.5" SATA3 drive bays
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M.2	<ul style="list-style-type: none"> M.2 Interface: 2 PCI-E 3.0 x4 Form Factors: 2280, 22110 Key: M-Key
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Note	<ul style="list-style-type: none"> * NVMe hot-swap feature doesn't work in Windows environment
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Expansion Slots

PCI-Express	<ul style="list-style-type: none"> 16 PCI-E 3.0 x16 for RDMA via IB EDR - supporting 16 V100 GPUs 2 PCI-E 3.0 x16 on motherboard
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System Cooling

Fans	<ul style="list-style-type: none"> 6x 80mm Hot-swap PWM Fans 8x 92mm Hot-swap Fans
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Power Supply

6x 3000W Redundant Titanium Level Power Supplies with PMBus

Total Output Power	<ul style="list-style-type: none"> 2883W with Input 200 - 207Vac 3000W with Input 208 - 240Vac
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Dimension (W x H x L)	<ul style="list-style-type: none"> 68 x 40 x 430 mm
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Input	<ul style="list-style-type: none"> 50-60Hz
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+12V	<ul style="list-style-type: none"> Max: 53.4A & Min: 0.3A (200-207Vac) Max: 55.6A & Min: 0.3A (208-240Vac)
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12Vsb	<ul style="list-style-type: none"> Max: 3A / Min: 0A
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Output Type	<ul style="list-style-type: none"> Backplanes (gold finger)
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Certification	 Titanium Level
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Operating Environment

RoHS	<ul style="list-style-type: none"> RoHS Compliant
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BIOS Features

- Intel® Node Manager
 - IPMI 2.0
 - KVM with dedicated LAN
 - SSM, SPM, SUM
 - SuperDoctor® 5
 - Watchdog
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Environmental Spec.

- 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:
10% to 85% (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-X11DPG-HGX2	1	Super X11DPG-HGX2 Motherboard
	MBD-X11DPG-HGX2-SW	2	HGX2 PCIe switch board
	CSE-1018G-R12KP	1	CSE-1018G-R12KP Chassis
Software	SFT-OOB-LIC • eStore	1	OOB Management Package (per node license)
Add-on Card / Module	AOM-HGX2-NVL-P	12	HGX2 NVLINK board,HF,RoHS
Add-on Card / Module	AOM-SBL-SAS3	1	AOM-SBL-SAS3
Backplane	BPN-GPU-1018G	1	Midplane for 10U CSE-1018G HGX-2 project,RoHS
Riser Card	RSC-G-66-HGX2	8	1U LHS Passive GPU RSC w/ 2 PCI-Ex16 slots HGX-2 sys,HF,RoHS
Riser Card	RSC-G-A66	1	1U LHS Active GPU Riser card with two PCI-E x16 Slots,HF,RoH
Heatsink / Retention	SNK-P0067PS	2	1U Passive CPU Heat Sink for X11 Purley Platform Equipped with a Narrow Retention Mechanism
Heatsink / Retention	SNK-P0071VS	2	1U Proprietary Passive CPU Heat Sink (124 mm Long) for SYS-2029BZ-HNR Series Servers (X11 2U4N 3UPI Big Twin)
* Power Supply	PWS-3K01G-1R	6	AC-DC 3000W, Titanium efficiency output: 54Vdc/55.6A, 12Vsb/
* Backplane	BPN-PDB-1018G	1	54V PDB for 10U CSE-1018G HGX-2 project, support 6x Delta 54Vdc/3KW PSU, RoHS
* Cable 1	CBL-0223L	6	BLADE PWS POWER CORD C19 to C20, PBF. 1.8m. 12AWG, 20A, 250V
* FAN 1	FAN-0196L4	8	92x92x76 mm, 13.3K-12.2K RPM Counter-rotating Fan for HGX2 P
* FAN 2	FAN-0197L4	6	80x80x80 mm, 12K-11.3K RPM Counter-rotating Fan for HGX2 Pro
* Front Panel	FPB-FP1018G	1	Front control board 4.59x2.59 inches for SC1018G,RoHS
* Drive Tray(s)	MCP-220-00169-0B	6	Black hot swap tool-less 2.5
* Drive Tray(s)	MCP-220-00170-0B	16	Black hot swap tool-less NVMe 2.5
* Rail Set	MCP-290-41803-0N	1	Fat twin F418 / F424 Static Rail set support 28-33.5 inch depth rail,RoHS/REACH,PBF
* Parts	MCP-620-00022-0N	6	Blade Server Front Blade Light Pipe for MB

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
NVMe RAID 1 (Require Intel VROC Key)	AOC-SLG3-2M2	1	Low Profile PCI-E x8 add-on card supports 2 PCI-E 3.0 x4 M-Key
	Tested M.2 List	2	M.2 NVMe Modules NVMe M.2 Module
Network Card(s)	AOC-MCX455A-ECAT-MLN	-	Mellanox ConnectX-4 VPI adapter card, EDR IB (100Gb/s) and 100GbE, single-port QSFP28, PCIe3.0 x16, tall bracket, ROHS R6
	AOC-MCX456A-ECAT-MLN	-	Mellanox ConnectX-4 VPI adapter card, EDR IB (100Gb/s) and 100GbE, dual-port QSFP28, PCIe3.0 x16, tall bracket, ROHS R6
	AOC-MCX515A-CCAT	-	Mellanox ConnectX-5 EN network interface card, 100GbE single-port QSFP28, PCIe3.0 x16, HF, RoHSket, HF, RoHS
	AOC-MCX516A-CCAT	-	Mellanox ConnectX-5 EN network interface card, 100GbE dual-port QSFP28, PCIe3.0 x16, tall bracket, HF, RoHS
	AOC-MCX555A-ECAT	-	Mellanox ConnectX-5 VPI adapter card, EDR IB (100Gb/s) and 100GbE, single-port QSFP28, PCIe3.0 x16, tall bracket, HF, RoHS
	AOC-MCX556A-ECAT	-	Mellanox ConnectX-5 VPI adapter card, EDR IB (100Gb/s) and 100GbE, dual-port QSFP28, PCIe3.0 x16, tall bracket, HF, RoHS
TPM Security Module	AOM-TPM-9670V	1	SPI capable vertical TPM 2.0 provisioned for client,RoHS

Global Services & Support	<u>OS4HR3/2/1</u>	-	3/2/1-year onsite 24x7x4 service
	<u>OSNBD3/2/1</u>	-	3/2/1-year onsite NBD service
Software	<u>SFT-DCMS-Single</u>	1	DataCenter Management Package (per node license)