

TECHNICAL DATASHEET

SUPERMICRO · RACKMOUNT SERVERS

Supermicro 8U AI Training Server SYS-820GH-TNR2

8U AI training platform with 8 Gaudi2 accelerators

SKU SYS-820GH-TNR2

8U

LGA4189

Supermicro



FORM FACTOR

8U

MAX POWER (BASE)

709 W

HEAT OUTPUT

2,419 BTU/h

PRICE

On request

REQUEST A QUOTATION ONLINE

serverinvest.com/product/sys-820gh-tnr2

01 Product overview

The Supermicro SYS-820GH-TNR2 is a 8U AI Training Server built on dual Intel Xeon Scalable 3rd Gen processors with up to 8 TB of memory in 32 DIMM slots.

8U AI training platform with 8 Gaudi2 accelerators.

The chassis accepts up to 8 GPU accelerators for AI, rendering and HPC workloads.

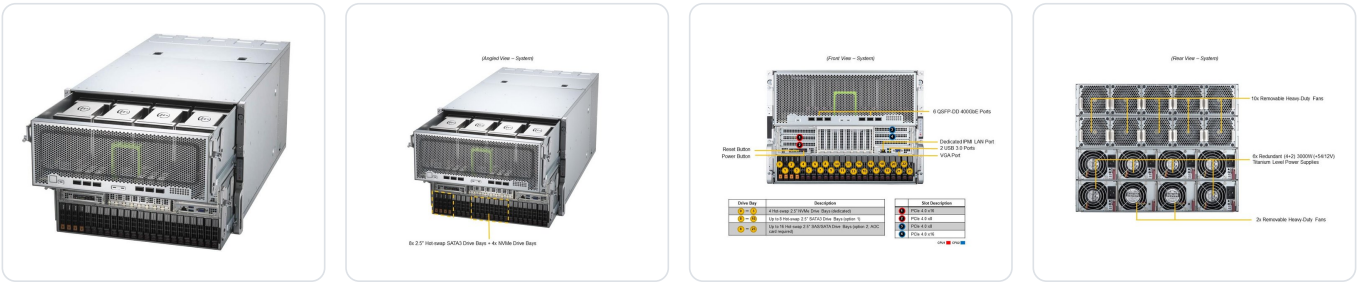
ServerInvest configures every SYS-820GH-TNR2 to order, updates BIOS and BMC firmware, installs your operating system on request and runs a 48-hour burn-in test before delivery. Every system includes a 3-year warranty.

HIGHLIGHTS

- Dual Intel Xeon Scalable 3rd Gen
- Up to 8 TB memory · 32 DIMM slots
- Total 12 bays 4 front hot-swap 2.5" NVMe drive bays
- Up to 8 GPUs
- Power: 6x 3000W
- Networking: 6 QSFP-DD 400GbE

KEY SPECIFICATIONS

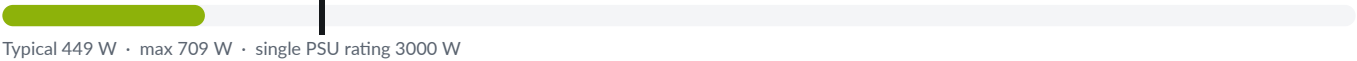
Form factor	8U
Processor	2× Intel Xeon Scalable 3rd Gen
Socket	LGA4189
Memory	32 DIMM slots, up to 8 TB
Drive bays	56 (56 NVMe)
GPU	Up to 8 GPUs
Power supply	6× 3000 W
Typical power draw	4350 W
Networking	6 QSFP-DD 400GbE
Dimensions (W×H×D)	437 × 356 mm



02 Power & thermal

Calculated for the base configuration

IDLE	TYPICAL	MAXIMUM	HEAT (MAX)	COOLING	PSU LOAD
190 W	449 W	709 W	2,419 BTU/h	0.7 kW	24%



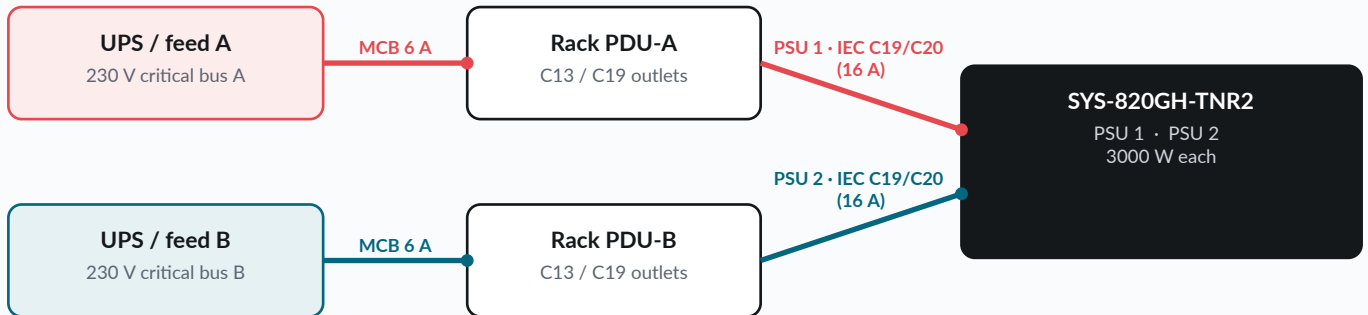
Annual IT energy (24/7)	3,253 kWh
Annual facility energy (PUE 1.5)	4,880 kWh
Annual energy cost	€651 IT · €976 incl. cooling (at 0.20 €/kWh)
CO ₂ emissions / year	1.27 t (grid factor 0.26 kg/kWh)
Power supplies	6× 3000 W redundant (N+1)

POWER BY COMPONENT	IDLE	TYPICAL	MAX
Chassis, motherboard, fans, BMC	117 W	182 W	260 W
2× CPU (base configuration)	50 W	220 W	370 W
4× Memory (base configuration)	12 W	20 W	36 W

DC loads converted to wall power at 94% PSU efficiency; typical load assumed 70% of the time. Engineering estimates — confirm with the manufacturer's power calculator for critical designs.

03 Power connection diagram

Dual-feed (A/B) connection for redundant power supplies



- Connect PSU 1 to PDU-A and PSU 2 to PDU-B (independent feeds) using IEC C19/C20 (16 A) power cords.
- Maximum current per feed: 3.2 A at 230 V — each feed must be able to carry the full load if the other fails.
- Recommended protection per PDU circuit: MCB 6 A, curve C; RCD according to local regulations.
- Heat to remove at full load: 709 W = 2,419 BTU/h (0.7 kW).

04 Full specifications

MOTHERBOARD

Super X12DPG-OA6-GD2

PROCESSOR

CPU	Dual Socket P+ (LGA-4189) 3rd Gen Intel Xeon Scalable processors
Core Count	Up to 40C/80T; Up to 60MB Cache per CPU
Note	Supports up to 270W TDP CPUs (Air Cooled)

GPU

Max GPU Count	Up to 8 double-width GPUs
Supported GPU	Intel OAM: Gaudi 2
CPU-GPU Interconnect	PCIe Gen4 x16
GPU-GPU Interconnect	21x 100GbE PAM4 SerDes Links

SYSTEM MEMORY

Memory	Slot Count: 32 DIMM slots Max Memory (2DPC): Up to 8TB 3200MT/s ECC DDR4 RDIMM/LRDIMM
Memory Voltage	1.2V

ON-BOARD DEVICES

Chipset	Intel C621A
Network Connectivity	6 QSFP-DD 400GbE 1 RJ45 1GbE View AOC Options

INPUT / OUTPUT

LAN	1 RJ45 1 GbE LAN port
USB	2 USB 3.0 ports
Video	1 VGA port

SYSTEM BIOS

BIOS Type	AMI 32MB SPI Flash EEPROM
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MANAGEMENT

Software	SuperCloud Composer (SCC) Supermicro Server Manager (SSM) Supermicro Update Manager (SUM) Supermicro SuperDoctor 5 (SD5) Super Diagnostics Offline (SDO) Supermicro Thin-Agent Service (TAS) SuperServer Automation Assistant (SAA) New!
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Power configurations	Power-on mode for AC power recovery ACPI Power Management
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SECURITY

Hardware	Trusted Platform Module (TPM) 2.0 Silicon Root of Trust (RoT) – NIST 800-193 Compliant
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Features	Cryptographically Signed Firmware Secure Boot Secure Firmware Updates Automatic Firmware Recovery System Lockdown
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PC HEALTH MONITORING

CPU	7+1 Phase-switching voltage regulator 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	8U Rackmount
Model	CSE-GP802TS-R000NP

DIMENSIONS AND WEIGHT

Height	14" (356 mm)
Width	17.6" (447 mm)
Depth	31.5" (800 mm)
Package	26.8" (H) x 40" (W) x 55.2" (D)
Weight	Gross Weight: 282 lbs (128 kg)

Available Color	Silver
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FRONT PANEL

Buttons	Power On/Off button Reset button
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LED	HDD Information LED Information LED Power Failed LED Power On LED PSU Failed LED
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EXPANSION SLOTS

PCI-Express (PCIe) Configuration	Default 2 PCIe 4.0 x16 FHFL slots 2 PCIe 4.0 x8 FHFL slots View AOC Options
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DRIVE BAYS / STORAGE

Drive Bays Configuration	Default: Total 12 bays 4 front hot-swap 2.5" NVMe drive bays 8 front hot-swap 2.5" SATA drive bays Option A: Total 20 bays 4 front hot-swap 2.5" NVMe drive bays 16 front hot-swap 2.5" SATA* drive bays (*SATA support may require additional storage controller and/or cables, please see the optional parts list for details) View NVMe Options View Drive Options
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M.2	2 M.2 NVMe/SATA slots (M-key) View M.2 Options
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SYSTEM COOLING

Fans	Up to 2 Removable Heavy-Duty 106.5 x 203.5 x 82.4mm Fan(s) Up to 10 Removable Heavy-Duty 80 x 80 x 80mm Fan(s)
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POWER SUPPLY

6x 3000W
6x 3000W Redundant Titanium Level (96%) power supplies
Dimension (WxHxL)
106.5 x 82.4 x 203.5 mm

OPERATING ENVIRONMENT

Environmental Spec.	Operating Temperature: 10°C to 35°C (50°F to 95°F) Non-operating Temperature: -30°C to 60°C (-22°F to 140°F) Operating Relative Humidity: 8% to 80% (non-condensing) Non-operating Relative Humidity: 8% to 90% (non-condensing)
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05 Built, tested & supported by ServerInvest

Engineered configuration

Every option validated for socket, memory channels, PCIe lanes, power and cooling.

48-hour burn-in

Assembled, firmware-updated and stress-tested before it leaves our workshop.

3-year warranty

Standard on every system, with on-site next-business-day upgrades available.

Rack-ready delivery

Rails, cable management and labelling included — delivered across Europe.



Interested in this solution?

Request a quotation online or talk to a solutions engineer — we reply within one business day.
office@serverinvest.com

Official manufacturer datasheet: serverinvest.com/product/sys-820gh-tnr2/datasheet/manufacture

