

TECHNICAL DATASHEET

SUPERMICRO · EDGE & EMBEDDED

Supermicro 2U IoT Server SYS-220HE-TNRD

X12 DP 2U Short-depth rear I/O System with 6 NVMe/SATA bays and redundant DC PSU

SKU SYS-220HE-TNRD

2U

LGA4189

Supermicro



FORM FACTOR

2U

MAX POWER (BASE)

549 W

HEAT OUTPUT

1,873 BTU/h

PRICE

On request

REQUEST A QUOTATION ONLINE

serverinvest.com/product/sys-220he-tnrd

01 Product overview

The Supermicro SYS-220HE-TNRD is a 2U IoT Server built on dual Intel Xeon Scalable 3rd Gen processors with up to 8 TB of memory in 32 DIMM slots.

X12 DP 2U Short-depth rear I/O System with 6 NVMe/SATA bays and redundant DC PSU.

The chassis accepts up to 3 GPU accelerators for AI, rendering and HPC workloads.

ServerInvest configures every SYS-220HE-TNRD 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 6 bays 6 front hot-swap 2.5" NVMe/SAS*/SATA drive bays
- Up to 3 GPUs
- Power: 1x 1300W
- Networking: Via AIOM

KEY SPECIFICATIONS

Form factor	2U
Processor	2× Intel Xeon Scalable 3rd Gen
Socket	LGA4189
Memory	32 DIMM slots, up to 8 TB
Drive bays	6 (6 NVMe)
GPU	Up to 3 GPUs
Power supply	1× 1300 W
Typical power draw	2100 W
Networking	Via AIOM
Dimensions (W×H×D)	437 × 89 mm



02 Power & thermal

Calculated for the base configuration

IDLE	TYPICAL	MAXIMUM	HEAT (MAX)	COOLING	PSU LOAD
119 W	337 W	549 W	1,873 BTU/h	0.5 kW	42%

Typical 337 W · max 549 W · single PSU rating 1300 W

Annual IT energy (24/7)	2,379 kWh
Annual facility energy (PUE 1.5)	3,569 kWh
Annual energy cost	€476 IT · €714 incl. cooling (at 0.20 €/kWh)
CO ₂ emissions / year	0.93 t (grid factor 0.26 kg/kWh)
Power supplies	1× 1300 W

POWER BY COMPONENT

Chassis, motherboard, fans, BMC

2× CPU (base configuration)

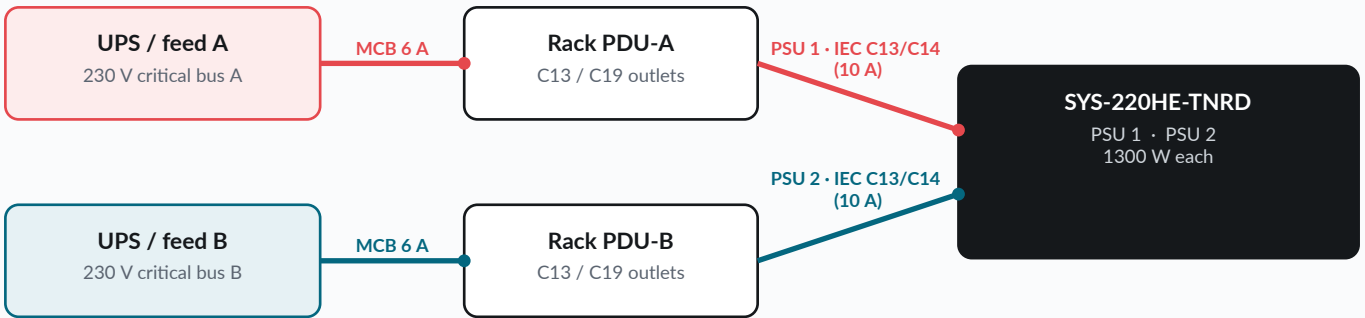
4× Memory (base configuration)

IDLE	TYPICAL	MAX
50 W	77 W	110 W
50 W	220 W	370 W
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 C13/C14 (10 A) power cords.
- Maximum current per feed: 2.5 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: 549 W = 1,873 BTU/h (0.5 kW).

04 Full specifications

MOTHERBOARD

Super X12DHM-6

PROCESSOR

CPU Dual Socket P+ (LGA-4189)
3rd Gen Intel Xeon Scalable processors

Note Supports up to 270W TDP CPUs (Air Cooled)

GPU

Max GPU Count Up to 3 double-width or 3 single-width GPUs

Supported GPU NVIDIA PCIe: A10, A100, A40, T4
View GPU Options

CPU-GPU Interconnect PCIe 4.0 x16 CPU-to-GPU Interconnect

GPU-GPU Interconnect PCIe

SYSTEM MEMORY

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

Memory Voltage 1.2V

ON-BOARD DEVICES

SATA	SATA (6Gbps) ; RAID 0/1/5/10 support
NVMe	NVMe; RAID 0/1/5/10 support(Intel VROC RAID key required) View NVMe Options
Network Connectivity	Via AIOM View AIOM Options View AOC Options
BMC	ASPEED AST2600 BMC

INPUT / OUTPUT

LAN	1 RJ45 1 GbE Dedicated BMC LAN port
USB	2 USB 2.0 ports (front)
Video	1 VGA port

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!
Power configurations	ACPI Power Management Power-on mode for DC power recovery

SECURITY

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

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

CERTIFICATIONS

Operating Systems	Windows Server 2019, Windows Server 2022 View all OS Compatibility and Certification Matrix
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CHASSIS

Form Factor	2U Rackmount
Model	CSE-HE211-R000NFP

DIMENSIONS AND WEIGHT

Height	3.5" (88.9 mm)
Width	17.2" (436.88 mm)
Depth	22.6" (574 mm)
Package	9.7" (H) x 23.5" (W) x 36.9" (D)
Weight	Gross Weight: 47.4 lbs (21.5 kg) Net Weight: 34.4 lbs (15.6 kg)
Available Color	Silver

FRONT PANEL

Buttons	Power On/Off Power On/Off UID button
LED	HDD activity LED LAN1 activity LAN2 activity Power Fail Power status LED System information

EXPANSION SLOTS

PCI-Express (PCIe) Configuration	Default 2 PCIe 4.0 x8 FH/10.5"L slots 2 PCIe 4.0 x8 FHH L slots 2 PCIe 4.0 x16 AIOM slots (OCP 3.0 compatible) Option A 1 PCIe 4.0 x16 FH/10.5"L slot 1 PCIe 4.0 x16 FHH L slot 2 PCIe 4.0 x16 AIOM slots (OCP 3.0 compatible) Option B 6 PCIe 4.0 x8 FH/10.5"L slots 2 PCIe 4.0 x8 FHH L slots 2 PCIe 4.0 x16 AIOM slots (OCP 3.0 compatible) Option C 3 PCIe 4.0 x16 FH/10.5"L slots 1 PCIe 4.0 x16 FHH L slot 2 PCIe 4.0 x16 AIOM slots (OCP 3.0 compatible) View AOC Options
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DRIVE BAYS / STORAGE

Drive Bays Configuration	Default: Total 6 bays 6 front hot-swap 2.5" NVMe/SAS*/SATA drive bays (*SAS support may require additional storage controller and/or cables, please see the optional parts list for details) View NVMe Options View Drive Options
M.2	2 M.2 NVMe/SATA slots (M-key 2280/22110) View M.2 Options

SYSTEM COOLING

Fans	Up to 6 Hot-swappable 60x60x56mm Fan(s)
Air Shroud	4 Air Shrouds

POWER SUPPLY

1x 1300W
1x 1300W Redundant power supply
Dimension (WxHxL)
73.5 x 40 x 203 mm

OPERATING ENVIRONMENT

Environmental Spec.

Operating Temperature: 5°C to 35°C (41°F to 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)

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-220he-tnrd/datasheet/manufacture

