

TECHNICAL DATASHEET

SUPERMICRO · RACKMOUNT SERVERS

Supermicro 4U MP Server SYS-440P-TNRT

4U 4-socket system with 48 DIMMs and 24 NVMe/SAS/SATA drive bays

SKU SYS-440P-TNRT

4U

LGA4189

Supermicro



FORM FACTOR

4U

MAX POWER (BASE)

1,034 W

HEAT OUTPUT

3,528 BTU/h

PRICE

On request

REQUEST A QUOTATION ONLINE

serverinvest.com/product/sys-440p-tnrt

01 Product overview

The Supermicro SYS-440P-TNRT is a 4U MP Server built on dual Intel Xeon Scalable 3rd Gen processors with up to 12 TB of memory in 48 DIMM slots.

4U 4-socket system with 48 DIMMs and 24 NVMe/SAS/SATA drive bays.

The chassis accepts up to 6 GPU accelerators for AI, rendering and HPC workloads.

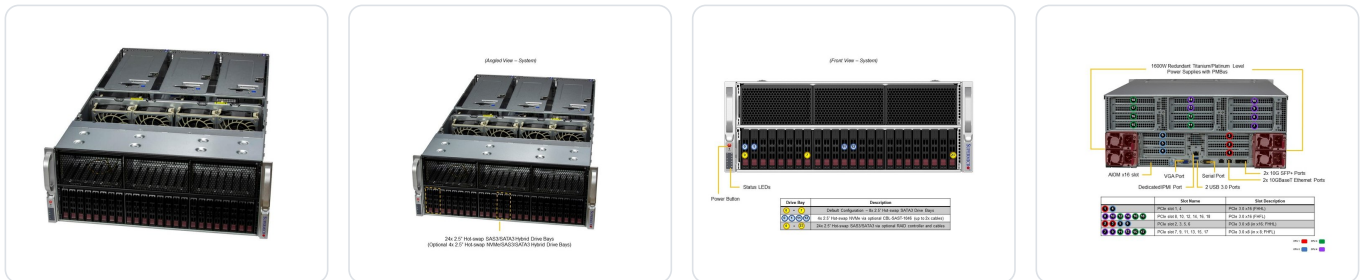
ServerInvest configures every SYS-440P-TNRT to order, updates BIOS and BMC firmware, installs your operating system on request and runs a 48-hour burn-in test before delivery. Every system includes a 3-year warranty.

HIGHLIGHTS

- Dual Intel Xeon Scalable 3rd Gen
- Up to 12 TB memory · 48 DIMM slots
- Total 24 bays 24 front hot-swap 2.5" SAS/SATA drive bays
- Up to 6 GPUs
- Power: 4x 1600W
- Networking: 2 RJ45 10GBASE-T with Intel X710-TM4

KEY SPECIFICATIONS

Form factor	4U
Processor	4× Intel Xeon Scalable 3rd Gen
Socket	LGA4189
Memory	48 DIMM slots, up to 12 TB
Drive bays	52 (52 NVMe)
GPU	Up to 6 GPUs
Power supply	4× 1600 W
Typical power draw	4050 W
Networking	2 RJ45 10GBASE-T with Intel X710-TM4
Dimensions (W×H×D)	437 × 178 mm



02 Power & thermal

Calculated for the base configuration

IDLE	TYPICAL	MAXIMUM	HEAT (MAX)	COOLING	PSU LOAD
209 W	630 W	1034 W	3,528 BTU/h	1 kW	65%

Typical 630 W · max 1034 W · single PSU rating 1600 W

Annual IT energy (24/7)	4,412 kWh
Annual facility energy (PUE 1.5)	6,618 kWh
Annual energy cost	€882 IT · €1,324 incl. cooling (at 0.20 €/kWh)
CO ₂ emissions / year	1.72 t (grid factor 0.26 kg/kWh)
Power supplies	4× 1600 W redundant (N+1)

POWER BY COMPONENT

Chassis, motherboard, fans, BMC

4× CPU (base configuration)

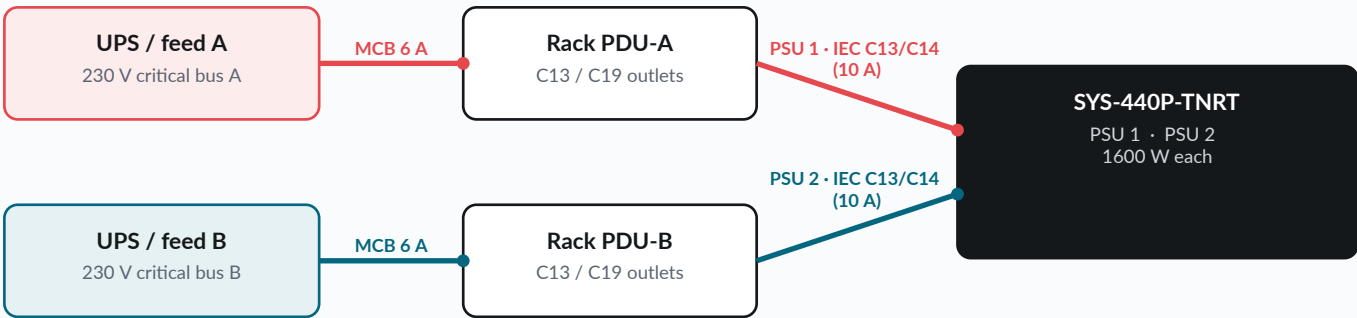
8× Memory (base configuration)

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.

IDLE	TYPICAL	MAX
72 W	112 W	160 W
100 W	440 W	740 W
24 W	40 W	72 W

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: 4.7 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: 1034 W = 3,528 BTU/h (1 kW).

04 Full specifications

MOTHERBOARD	
	Super X12QCH+
PROCESSOR	
CPU	Quad Socket P+ (LGA-4189) 3rd Gen Intel Xeon Scalable processors
Core Count	Up to 28C/56T; Up to 38.5MB Cache per CPU
Note	Supports 120W - 250W TDP CPUs (Air Cooled)
GPU	
Max GPU Count	Up to 6 double-width GPUs
SYSTEM MEMORY	
Memory	Slot Count: 48 DIMM slots Max Memory (2DPC): Up to 12TB 3200MT/s ECC DDR4 RDIMM/LRDIMM Supports Intel Optane persistent memory 200 series View Memory Options
Memory Voltage	1.2V

ON-BOARD DEVICES

Network Connectivity	2 RJ45 10GBASE-T with Intel X710-TM4 2 SFP+ 10GbE with Intel X710-TM4 1 QSFP28 100GbE with AIOM (optional) View AOC Options
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INPUT / OUTPUT

LAN	1 RJ45 1 GbE Dedicated BMC LAN port 2 RJ45 10 GbE LAN ports 2 SFP+ 10 GbE LAN ports
USB	2 USB 3.0 ports (rear)
Video	1 VGA port
Serial	1 COM port (Rear)

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

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	4+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

CERTIFICATIONS

Operating Systems	ESXi 7.0 U2, ESXi 8.0, Hypervisor 8.2.1, Oracle Linux 9.0, RHEL 8.2, Windows Server 2019, Windows Server 2022 View all OS Compatibility and Certification Matrix
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CHASSIS

Form Factor	4U Rackmount
Model	CSE-418HTS-R3K3AWP

DIMENSIONS AND WEIGHT

Height	6.96" (177 mm)
Width	17.3" (440.9 mm)
Depth	29.74" (755.5 mm)
Package	17.12" (H) x 28.34" (W) x 42.5" (D)
Weight	Gross Weight: 132.27 lbs (60 kg) Net Weight: 77.16 lbs (35 kg)
Available Color	Black

FRONT PANEL

Buttons	Power On/Off UID/ BMC Reset (Default)
LED	HDD activity Network activity Power status System information (overheat/UID)

EXPANSION SLOTS

PCI-Express (PCIe) Configuration	Default 2 PCIe 3.0 x16 FHHL slots 6 PCIe 3.0 x16 FHFL slots 4 PCIe 3.0 x8 (in x16) FHHL slots 6 PCIe 3.0 x8 FHFL slots 1 PCIe 3.0 x16 (in x16) AIOM slot (OCP 3.0 compatible) View AOC Options
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DRIVE BAYS / STORAGE

Drive Bays Configuration	Default: Total 24 bays 24 front hot-swap 2.5" SAS/SATA drive bays Option A: Total 24 bays 20 front hot-swap 2.5" SAS/SATA drive bays 4 front hot-swap 2.5" NVMe/SAS/SATA drive bays 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 8x 9cm heavy duty fans with optimal fan speed control
Air Shroud	1 Air Shroud

POWER SUPPLY

4x 1600W
4x 1600W Redundant Titanium Level (96%) Hot-plug power supplies
Dimension (WxHxL)
73.5 x 40 x 203 mm

OPERATING ENVIRONMENT

RoHS

RoHS Compliant

Environmental Spec.

Operating Temperature: 10°C to 35°C (50°F to 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)

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-440p-tnrt/datasheet/manufacturerr

