

TECHNICAL DATASHEET

SUPERMICRO · EDGE & EMBEDDED

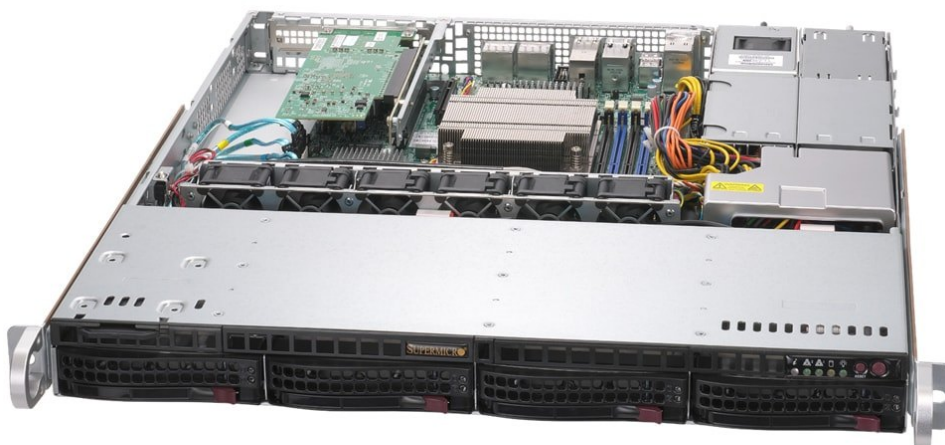
Supermicro 1U Embedded Server SYS-512AR-N4T

1U Compact Edge Server with 4x 3.5" SATA bays

SKU SYS-512AR-N4T

1U

Supermicro



FORM FACTOR

1U

MAX POWER (BASE)

306 W

HEAT OUTPUT

1,044 BTU/h

PRICE

from €3,290

REQUEST A QUOTATION ONLINE

serverinvest.com/product/sys-512ar-n4t

01 Product overview

The Supermicro SYS-512AR-N4T is a 1U Embedded Server built on Intel Core.

1U Compact Edge Server with 4x 3.5" SATA bays.

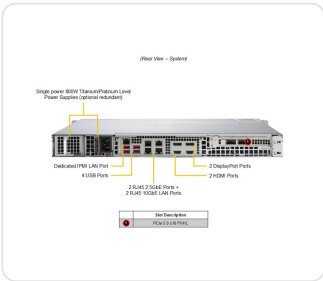
ServerInvest configures every SYS-512AR-N4T to order, updates BIOS and BMC firmware, installs your operating system on request and runs a 48-hour burn-in test before delivery. Every system includes a 3-year warranty.

HIGHLIGHTS

- Intel Core
- Total 4 bays 4 front hot-swap 3.5" SATA drive bays
- Power: 1x 800W
- Networking: 2 RJ45 10GbE with Intel X550

KEY SPECIFICATIONS

Form factor	1U
Processor	Intel Core
Memory	4 DIMM slots
Drive bays	4
Power supply	1x 800 W
Typical power draw	450 W
Networking	2 RJ45 10GbE with Intel X550
Dimensions (W×H×D)	437 × 44 mm



02 Power & thermal

Calculated for the base configuration

IDLE	TYPICAL	MAXIMUM	HEAT (MAX)	COOLING	PSU LOAD
73 W	190 W	306 W	1,044 BTU/h	0.3 kW	38%

Typical 190 W · max 306 W · single PSU rating 800 W

Annual IT energy (24/7)	1,357 kWh
Annual facility energy (PUE 1.5)	2,036 kWh
Annual energy cost	€271 IT · €407 incl. cooling (at 0.20 €/kWh)
CO ₂ emissions / year	0.53 t (grid factor 0.26 kg/kWh)
Power supplies	1x 800 W

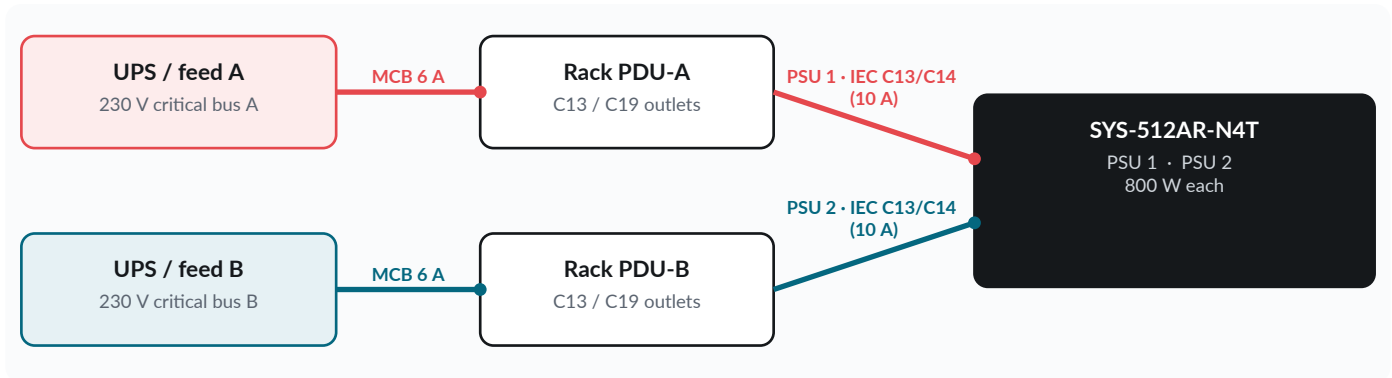
POWER BY COMPONENT

	IDLE	TYPICAL	MAX
Chassis, motherboard, fans, BMC	38 W	59 W	85 W
CPU (base configuration)	25 W	110 W	185 W
2x Memory (base configuration)	6 W	10 W	18 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: 1.4 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: 306 W = 1,044 BTU/h (0.3 kW).

04 Full specifications

MOTHERBOARD

Super X14SAZ-TLN4F

PROCESSOR

CPU	Single LGA-1851 Intel Core Ultra 9/7/5 (Series 2) processors
Core Count	24C/24T; 36MB Cache
Note	Supports up to 95W TDP CPUs (Air Cooled)

SYSTEM MEMORY

Memory	Slot Count: 4 DIMM slots/2 Channels Max Memory (1DPC): 192GB 5600MT/s ECC/non-ECC DDR5 UDIMM Max Memory (2DPC): 192GB 4400MT/s ECC/non-ECC DDR5 UDIMM View Memory Options
Memory Voltage	1.1V

ON-BOARD DEVICES

SATA	SATA (6Gbps) via Intel W880; RAID 0/1/5/10 support(Port 1 to 4)
Network Connectivity	2 RJ45 10GbE with Intel X550 View AOC Options

INPUT / OUTPUT

LAN	1 RJ45 1 GbE Dedicated BMC LAN port 2 RJ45 10 GbE LAN ports (Intel X550-AT2) 2 RJ45 2.5 GbE LAN ports (Intel I226)
USB	4 USB 3.2 Gen2 Type-A ports (Rear)

Video	2 DisplayPort 1.4 ports (Rear) 2 HDMI 2.1 port(s) (Rear)
TPM	1 TPM header 1 TPM Onboard/port 80

SYSTEM BIOS

BIOS Type	AMI 32MB SPI Flash EEPROM
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MANAGEMENT

Software	SuperCloud Composer (SCC) Supermicro Server Manager (SSM) 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
Features	Cryptographically Signed Firmware Secure Boot Secure Firmware Updates Automatic Firmware Recovery System Lockdown

PC HEALTH MONITORING

CPU	Monitors for CPU Cores, +3.3V, +5V, +12V, +3.3V Standby, +5V Standby, VBAT, Memory, Chipset Voltages.
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
Voltage	Voltage, VBAT, Memory temperature, CPU temperature, 3.3V standby, +5V standby, +5V, +3.3V, +12V, VRM temperature, CPU thermal trip support, 1.8V standby

CERTIFICATIONS

Operating Systems	RHEL 10.0, Windows 11 View all OS Compatibility and Certification Matrix
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CHASSIS

Form Factor	1U Rackmount
Model	CSE-813MF2TS-R000CNBP-2

DIMENSIONS AND WEIGHT

Height	1.7" (43 mm)
Width	17.2" (437 mm)
Depth	19.98" (507 mm)

Package	8.5" (H) x 24" (W) x 29.5" (D)
Weight	Gross Weight: 30.4 lbs (13.8 kg) Net Weight: 17.6 lbs (8 kg)
Available Color	Black

FRONT PANEL

Buttons	Power On/Off System Reset
LED	Device Activity LAN 1 Activity LAN 2 Activity Power status System information

EXPANSION SLOTS

PCI-Express (PCIe) Configuration	Default 1 PCIe 5.0 x16 FHHL slot View AOC Options
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DRIVE BAYS / STORAGE

Drive Bays Configuration	Default: Total 4 bays 4 front hot-swap 3.5" SATA drive bays View Drive Options
M.2	1 M.2 PCIe 5.0 x4 NVMe slot (M-key 2280/22110) View M.2 Options

SYSTEM COOLING

Fans	Up to 6x 4cm heavy duty fans with optimal fan speed control
Air Shroud	1 Air Shroud

POWER SUPPLY

1x 800W
 1x 600W
 1x 800W
 1x 800W Redundant Platinum Level (94%) power supply
 Dimension (WxHxL)
 54.5 x 40.25 x 220 mm

OPERATING ENVIRONMENT

Environmental Spec.	Operating Temperature: 0°C to 40°C (32°F to 104°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)
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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-512ar-n4t/datasheet/manufacturerr

