

TECHNICAL DATASHEET

SUPERMICRO · TOWER SERVERS & WORKSTATIONS

Supermicro Compact Mini-Tower IoT Server SYS-521AD-TN2

Compact Mini-tower with 12th/13th Gen Intel Core i9/i7/i5/i3/Pentium/Celeron processor

SKU SYS-521AD-TN2

Tower

Supermicro



FORM FACTOR

Tower

MAX POWER (BASE)

306 W

HEAT OUTPUT

1,044 BTU/h

PRICE

On request

REQUEST A QUOTATION ONLINE

serverinvest.com/product/sys-521ad-tn2

01 **Product overview**

The Supermicro SYS-521AD-TN2 is a Compact Mini-Tower IoT Server built on Intel Core with up to 64 GB of memory in 2 DIMM slots.

Compact Mini-tower with 12th/13th Gen Intel Core i9/i7/i5/i3/ Pentium/Celeron processor.

ServerInvest configures every SYS-521AD-TN2 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
- Up to 64 GB memory · 2 DIMM slots
- Total 4 bays 4 front hot-swap 3.5" SATA drive bays
- Power: 1x 350W
- Networking: 1 RJ45 1GbE with Intel I210-AT

KEY SPECIFICATIONS

Form factor	Tower
Processor	Intel Core
Memory	2 DIMM slots, up to 64 GB
Drive bays	4
Power supply	1× 350 W
Typical power draw	450 W
Networking	1 RJ45 1GbE with Intel I210-AT



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	87%

Typical 190 W · max 306 W · single PSU rating 350 W

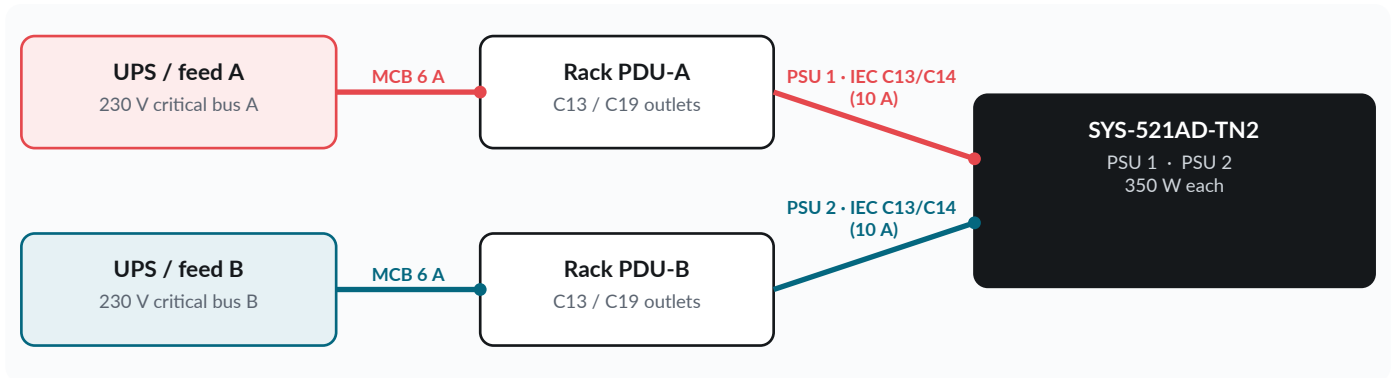
Annual IT energy (24/7)	1,357 kWh
Annual facility energy (PUE 1.5)	2,036 kWh
Annual energy cost	€271 IT · €407 incl. cooling (at 0.20 €/kWh)
CO ₂ emissions / year	0.53 t (grid factor 0.26 kg/kWh)
Power supplies	1× 350 W

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
2× 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 X13SAV-LVDS

SYSTEM MEMORY

Memory Slot Count: 2 DIMM slots
 Max Memory (2DPC): Up to 64GB 3200MT/s non-ECC DDR4 SO-DIMM
[View Memory Options](#)

Memory Voltage 1.2V

ON-BOARD DEVICES

SATA SATA (6Gbps)

Network Connectivity 1 RJ45 1GbE with Intel I210-AT
 1 RJ45 2.5GbE with Intel I225-LM
[View AOC Options](#)

INPUT / OUTPUT

LAN 1 RJ45 2.5 GbE LAN port (Intel I225-LM)
 1 RJ45 1 GbE LAN port (Intel I210-AT)

USB 2 ports (front)
 4 ports (rear)

Video 1 HDMI 2.0b port(s)
 1 HDMI 1.4 port(s)
 2 ports

SYSTEM BIOS

BIOS Type AMI 256MB SPI Flash

BIOS Features	ACPI 6.1 SMBIOS 3.0 or later PCI FW 3.0 UEFI 2.7 RTC (Real Time Clock) Wakeup
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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	ACPI Power Management
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SECURITY

Hardware	Trusted Platform Module (TPM) 2.0
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PC HEALTH MONITORING

CPU	Monitors for CPU Cores, Chipset Voltages, Memory
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Fan	Fans with tachometer monitoring Pulse Width Modulated (PWM) fan connectors Status monitor for speed control
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Temperature	Monitoring for CPU and chassis environment Platform Environmental Control Interface (PECI) Thermal Control for 4x 4-pin fan connectors
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CERTIFICATIONS

Operating Systems	RHEL 8.6, Windows 10 View all OS Compatibility and Certification Matrix
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CHASSIS

Form Factor	Compact Mini-Tower
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Model	CSE-721TQ-350B2
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DIMENSIONS AND WEIGHT

Height	9.45" (240.03 mm)
Width	8.27" (210.06 mm)
Depth	11" (279.4 mm)
Package	13.78" (H) x 12.4" (W) x 16.14" (D)
Weight	Gross Weight: 15 lbs (6.8 kg) Net Weight: 13.5 lbs (6.12 kg)
Available Color	Black

FRONT PANEL

Buttons	Power On/Off button System Reset button
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LED	Fan Fail/System Over Heat LED HDD activity LED Network activity LEDs Power status LED
Port	USB 3.0 Port(s)

EXPANSION SLOTS

PCI-Express (PCIe) Configuration	Default 1 PCIe 5.0 x16 LP slot View AOC Options
M.2	1 M.2 NVMe slot (E-key 2230)

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 4.0 x4 NVMe slot (M-key 2280) View M.2 Options
Peripheral Bays	1 slim DVD bay (optional)

SYSTEM COOLING

Fans	Up to 1x 4-PIN PWM 12cm Fan(s)
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POWER SUPPLY

	1x 350W 1x 350W Gold Level (92%) power supply Dimension (WxHxL) 81.5 x 40.5 x 150 mm
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OPERATING ENVIRONMENT

Environmental Spec.	Operating Temperature: 0°C to 35°C (32°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)
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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-521ad-tn2/datasheet/manufacturere

