

TECHNICAL DATASHEET

SUPERMICRO · RACKMOUNT SERVERS

Supermicro 1U UP Server SYS-510P-WTR

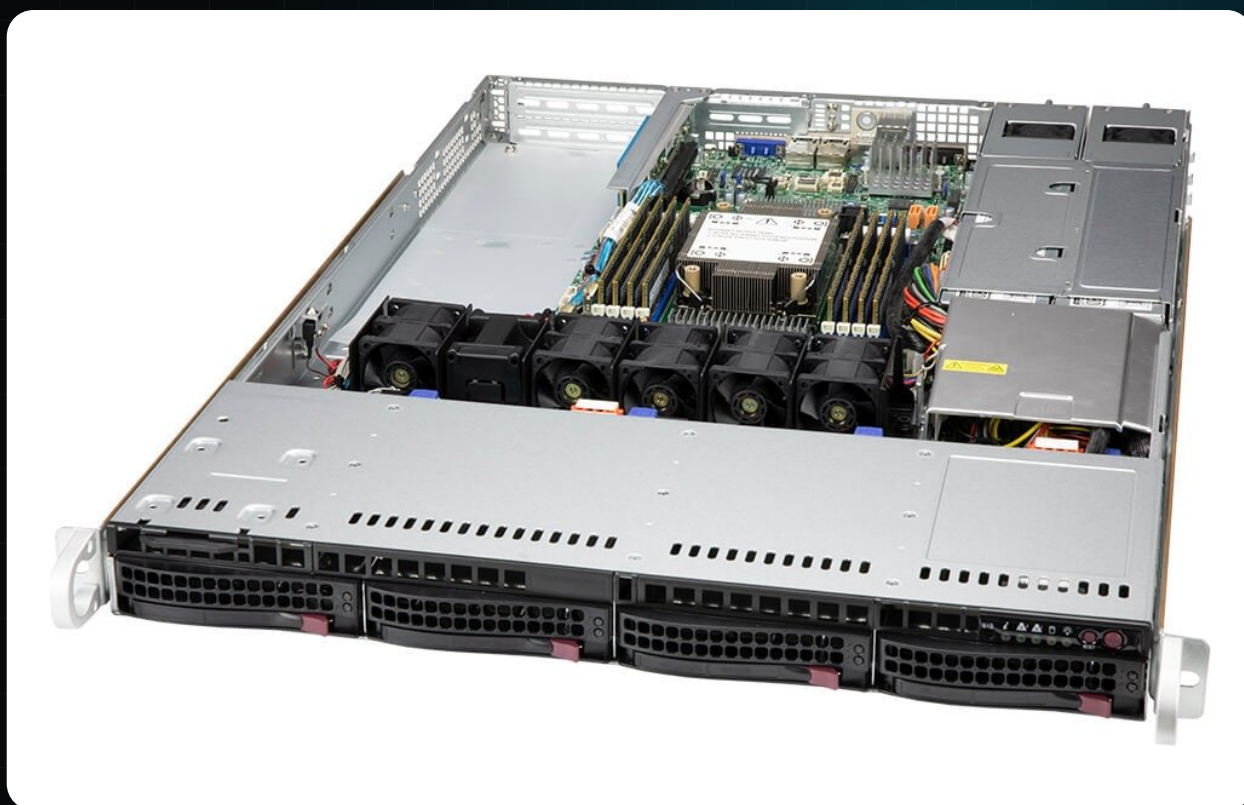
1U WIO with 4 hot-swap 3.5" NVMe/SAS/SATA bays and 3 PCIe 4.0 x16 slots

SKU SYS-510P-WTR

1U

LGA4189

Supermicro



FORM FACTOR

1U

MAX POWER (BASE)

306 W

HEAT OUTPUT

1,044 BTU/h

PRICE

On request

REQUEST A QUOTATION ONLINE

serverinvest.com/product/sys-510p-wtr

01 Product overview

The Supermicro SYS-510P-WTR is a 1U UP Server built on Intel Xeon Scalable 3rd Gen with up to 2 TB of memory in 8 DIMM slots.

1U WIO with 4 hot-swap 3.5" NVMe/SAS/SATA bays and 3 PCIe 4.0 x16 slots.

The chassis accepts up to 1 GPU accelerators for AI, rendering and HPC workloads.

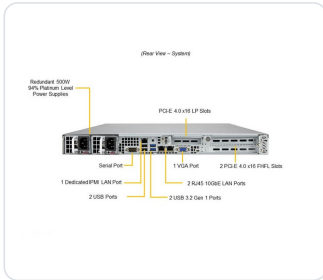
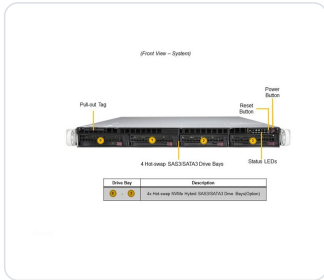
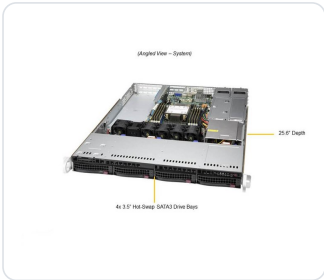
ServerInvest configures every SYS-510P-WTR to order, updates BIOS and BMC firmware, installs your operating system on request and runs a 48-hour burn-in test before delivery. Every system includes a 3-year warranty.

HIGHLIGHTS

- Intel Xeon Scalable 3rd Gen
- Up to 2 TB memory · 8 DIMM slots
- Total 4 bays 4 front hot-swap 3.5" PCIe 4.0 NVMe*/SAS*/SATA drive bays
- Up to 1 GPUs
- Power: 2x 500W
- Networking: 2 RJ45 10GbE with Intel X550

KEY SPECIFICATIONS

Form factor	1U
Processor	Intel Xeon Scalable 3rd Gen
Socket	LGA4189
Memory	8 DIMM slots, up to 2 TB
Drive bays	4 (4 NVMe)
GPU	Up to 1 GPUs
Power supply	2× 500 W
Typical power draw	900 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	61%

Typical 190 W · max 306 W · single PSU rating 500 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	2× 500 W redundant (N+1)

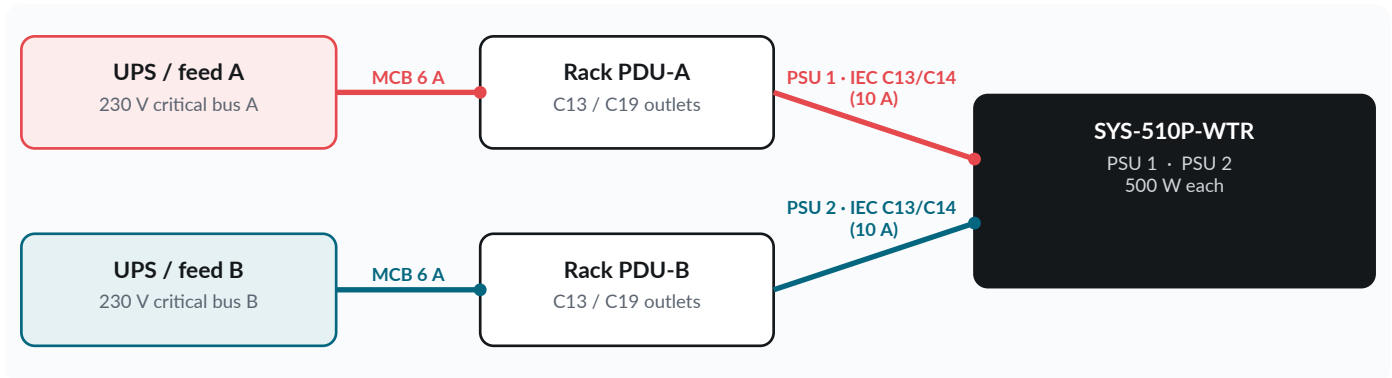
POWER BY COMPONENT

	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 X12SPW-TF

PROCESSOR

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

GPU

Max GPU Count	Up to 1 single-width GPU
Supported GPU	NVIDIA PCIe: A2, T1000, T400
CPU-GPU Interconnect	PCIe 4.0 x16 CPU-to-GPU Interconnect

SYSTEM MEMORY

Memory	Slot Count: 8 DIMM slots Max Memory (1DPC): Up to 2TB 3200MT/s ECC DDR4 RDIMM/LRDIMM Supports Intel Optane persistent memory 200 series 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	2 RJ45 10GbE with Intel X550 View AOC Options

INPUT / OUTPUT

LAN	2 RJ45 10 GbE LAN ports (Intel X550) 1 RJ45 1 GbE Dedicated BMC LAN port (IPMI shared on LAN port 1)
USB	2 USB 3.2 Gen1 Type-A ports (rear) 2 USB 2.0 Type-A ports (rear) 2 USB 3.2 Gen1 ports (Header) 1 USB 3.2 Gen1 Type-A port 1 USB 2.0 port (Header)
Video	1 VGA 2 port
Serial	1 COM port (Rear) 1 COM port (Header)
DOM	2 Super DOM (Disk on Module) portswith built-in power
TPM	1 TPM header

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	ACPI/APM 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	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
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CERTIFICATIONS

Operating Systems	ESXi 6.7 U3, ESXi 7.0 U2, ESXi 8.0, Hypervisor 8.2, Oracle Linux 8.3, RHEL 8.2, RHEL 9.0, SLES 12 SP5, SLES 15 SP2, SLES 15 SP3, Windows Server 2019, Windows Server 2022 View all OS Compatibility and Certification Matrix
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CHASSIS

Form Factor	1U Rackmount
Model	CSE-815TS-R504WBP6

DIMENSIONS AND WEIGHT

Height	1.7" (43 mm)
Width	17.2" (437 mm)
Depth	25.6" (650 mm)
Package	8.5" (H) x 23.5" (W) x 33.7" (D)
Weight	Gross Weight: 48 lbs (21.77 kg) Net Weight: 24 lbs (10.89 kg)
Available Color	Black

FRONT PANEL

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

EXPANSION SLOTS

PCI-Express (PCIe) Configuration	Default 2 PCIe 4.0 x16 FHFL slots 1 PCIe 4.0 x16 LP slot View AOC Options
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DRIVE BAYS / STORAGE

Drive Bays Configuration	Default: Total 4 bays 4 front hot-swap 3.5" PCIe 4.0 NVMe*/SAS*/SATA drive bays (*NVMe/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	1 M.2 PCIe 3.0 x4 NVMe/SATA slot (M-key 2280/22110) View M.2 Options
Peripheral Bays	2 slim bays (optional)

SYSTEM COOLING

Fans	Up to 5 counter-rotation PWM 40x40x56mm Fan(s) Up to 1 AOC cooling Fan(s) (optional)
Air Shroud	1 Air Shroud

POWER SUPPLY

2x 500W
2x 500W Redundant (1 + 1) Platinum Level (94%) power supplies
Dimension (WxHxL)
54.5 x 40.25 x 320 mm

OPERATING ENVIRONMENT

Environmental Spec. Operating Temperature: 10°C to 35°C (50°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-510p-wtr/datasheet/manufactur

