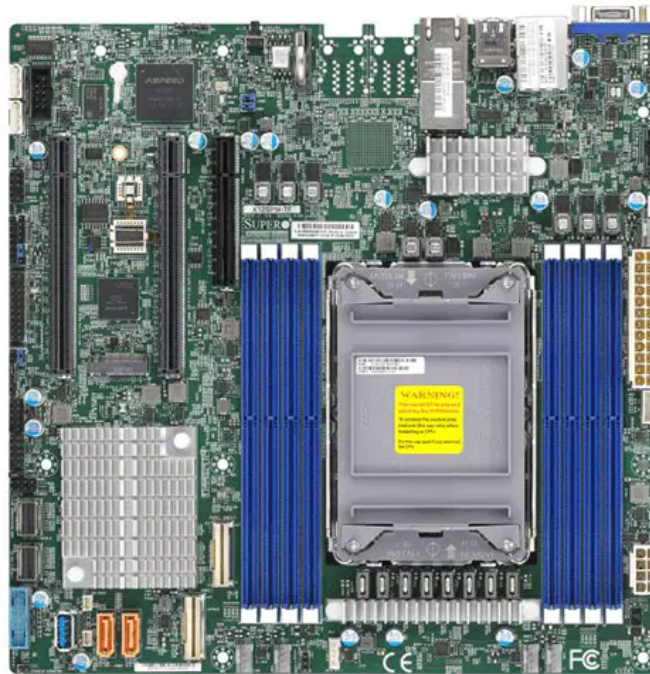


# X12SPM-TF

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**Embedded Ready  
Dual 10GbE**

## Key Features

3rd Gen Intel® Xeon® Scalable processors, Single Socket LGA-4189 (Socket P+) supported, CPU TDP supports Up to 270W TDP

Intel® C621A

Up to 2TB 3DS ECC RDIMM, DDR4-3200MHz; Up to 2TB 3DS ECC LRDIMM, DDR4-3200MHz

Up to 2TB Intel® Optane™ Persistent Memory 200 Series, in 8 DIMM slots

1 PCIe 4.0 x8,

2 PCIe 4.0 x16,

4 PCIe 4.0 NVMe x4 Internal Port(s)

**M.2 Interface:** 1 SATA/PCIe 3.0 x4

**M.2 Form Factor:** 2280, 22110

**M.2 Key:** M-Key

4x NVMe port PCIe 4.0 x4 via SlimSAS connector

Intel® C621A controller for 10 SATA3 (6 Gbps) ports; RAID 0,1,5,10

Dual LAN with 10GBase-T with Intel® X550

Supports 12V DC power input

5 USB 3.2 Gen1 (2 rear, 1 Type-A, 2 via header), 6 USB 2.0 (2 rear, 4 via headers)

## Specifications

## Product SKUs

**MBD-X12SPM-TF**

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## Physical Stats

### Form Factor

microATX

### Dimension

9.6" x 9.6" (24.38cm x 24.38cm)

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## Processor

### CPU

3rd Gen Intel® Xeon® Scalable processors  
Single Socket LGA-4189 (Socket P+)  
supported, CPU TDP supports Up to 270W  
TDP

### Core

Up to 40 cores

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## System Memory

### Memory Capacity

8 DIMM slots

Up to 2TB Intel® Optane™ Persistent  
Memory 200 Series

Up to 2TB 3DS ECC LRDIMM, DDR4-  
3200MHz; Up to 2TB 3DS ECC RDIMM,  
DDR4-3200MHz

### Memory Type

ECC , DDR4 LRDIMM (3DS), RDIMM (3DS)

### DIMM Sizes

LRDIMM 3DS: 128GB, 256GB

LRDIMM: 64GB, 128GB

RDIMM: 8GB, 16GB, 32GB, 64GB

### Memory Voltage

1.2V

### Error Detection

Corrects single-bit errors

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## On-Board Devices

### Chipset

Intel® C621A

### SATA

Intel® C621A controller for 10 SATA3 (6  
Gbps) ports; RAID 0,1,5,10

### IPMI

ASPEED AST2600 BMC

### Graphics

1 ASPEED AST2600 BMC port(s)

### Network Controllers

Dual LAN with 10GBase-T with Intel® X550

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## Input / Output

## Expansion Slots

### PCIe

2 PCIe 4.0 x16,

1 PCIe 4.0 x8

### M.2

M.2 Interface: 1 SATA/PCIe 3.0 x4

Form Factor: 2280, 22110

Key: M-Key

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## System BIOS

### BIOS Type

AMI UEFI

### BIOS Features

ACPI 6.0

RTC (Real Time Clock) Wakeup

SMBIOS 3.0 or later

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## Management

### Software

SuperDoctor® 5, NMI, SUM, KVM with  
dedicated LAN, SPM, Intel® Node

Manager, IPMI2.0, Watchdog

### Power Configurations

Power-on mode for AC power recovery,  
ACPI Power Management

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## PC Health Monitoring

### Voltage

VBAT, Supports system management  
utility, Monitors CPU voltages, Chassis  
intrusion header, 5 -fan status, 3.3V  
standby, +5V standby, +5V, +3.3V, +12V,  
+1.8V

### LED

UID/Remote UID

Suspend static indicator LED

CPU / System Overheat LED

### Temperature

CPU thermal trip support

PECI

### FAN

5x 4-pin fan headers (up to 5 fans)

System level control

PWM fan speed control

5 fans with tachometer status monitoring

Pulse Width Modulated (PWM) fan

connectors

**SATA**

10 SATA3 (6Gbps) port(s)

**LAN**

2 RJ45 10GBase-T ports

**USB**

6 USB 2.0 port(s) (4 via header; 2 rear)

5 USB 3.2 Gen1 port(s) (2 via header; 2 rear; 1 type A)

**Video Output**

1 VGA port(s)

**Serial Port**

1 COM Port(s) (1 header)

**DOM**

2 SATA **DOM** (Disk on Module) power connector support

**TPM**

1 TPM Header

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**Other Features**

WOL, UID, RoHS, M.2 NGFF connector, CPU thermal trip support for processor protection, Control of power-on for recovery from AC power loss, ACPI power management

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**Operating Environment****Operating Temperature Range**

0°C - 60°C (32°F - 140°F)

**Non-Operating****Temperature Range**

-20°C - 60°C (-4°F - 140°F)

**Operating Relative****Humidity Range**

10% - 85% (non-condensing)

**Non Operating Relative****Humidity Range**

10% - 95% (non-condensing)

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## Parts List

### Standard Parts (Bulk Package)

CPU carrier

Part Number	SKT-1205L-P4IC-FXC
Qty	1
Description	CPU carrier for 3rd Gen Intel Xeon Scalable Processors

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I/O Cables

Part Number	CBL-0044L • <a href="#">eStore</a>
Qty	2
Description	57.5 cm SATA FLAT S-S PBF

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I/O Shield

Part Number	MCP-260-00130-0N
Qty	1
Description	STD I/O Shield for X12SPM-TF with EMI Gasket

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### Standard Parts (Retail Package)

CPU carrier

Part Number	SKT-1205L-P4IC-FXC
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Qty 1  
Description CPU carrier for 3rd Gen Intel Xeon Scalable Processors

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I/O Cables

Part Number CBL-0044L • [eStore](#)  
Qty 2  
Description 57.5 cm SATA FLAT S-S PBF

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I/O Shield

Part Number MCP-260-00130-0N  
Qty 1  
Description STD I/O Shield for X12SPM-TF with EMI Gasket

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QRG

Part Number MNL-2271-QRG  
Qty 1  
Description Motherboard Quick Reference Guide

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## Optional Parts

1U I/O Shield

Part Number MCP-260-00131-0N  
Qty --  
Description Standard 1U I/O Shield with EMI Gasket

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I/O Cables

Part Number CBL-SAST-0809A-100  
Qty --  
Description SlimSAS x4 to 4 SATA cable

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TPM security module

Part Number	AOM-TPM-9671V	AOM-TPM-9670V
Qty	--	--
Description	SPI capable TPM 1.2 with Infineon 9670 controller with vertical form factor	SPI capable TPM 2.0 with Infineon 9670 controller with vertical form factor

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