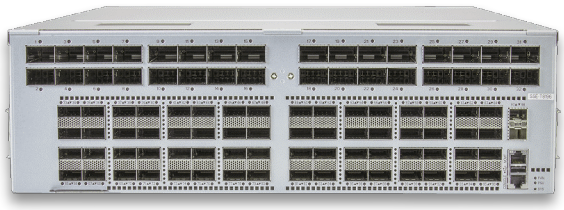
Supermicro SSE-T8196 800G/400G Ethernet Switch

Introducing the Supermicro SSE-T8196, a high-density of both 800G and 400G in one SKU to be the suitable companion with other product offerings such as SSE-T8164 and SSE-T8032 series switches. At the heart of ultra-high-performance applications like hyper-scale cloud computing and AI/ML cluster lies the pivotal role of 800G and 400 Gigabit Ethernet. With advancements in today's datacenter deployments with high capacity and large number of NIC and GPU clusters become feasible, necessitating high bandwidth and low latency, the SSE-T8196 is designed to meet the requirements with proficiency.



SSE-T8196 – 800G/400G Ethernet Switch

With a remarkable throughput of up to 51.2Tbps, the Supermicro SSE-T8196 series stands out for offering the highest density of 400G and 800G in a 3RU formfactor. With proven layer 2 and layer 3 capabilities, advanced adaptive routing, dynamic load balancing, and support for end-to-end congestion control, these switches provide the ideal foundation for large-scale enterprise backbone, AI/ML clusters and cloud computing.

The SSE-T8196 series presents a diverse range of port speeds and densities, supporting 50G, 100G, 200G, 400G, and 800G, facilitating consistent network architectures that seamlessly scale from small, dedicated clusters to the requirements of expansive multi-tier networks. Supermicro has qualified many types of copper and fiber links to the industry's most common AI adapters supporting a wide choice of cluster designs including extending Direct Attached Copper (DAC) links up to 4 meters when used in conjunction with our Supermicro AOC-S400G adapters.

The SSE-T8196 comes with 64 port 400G QSFP112 downlinks and 32 port 800G OSFP uplinks in a 3RU chassis. Depending on the Datacenter cooling options, SSE-T8196 switches come in support with both air cooling and liquid cooling options along with forward and reverse airflow models. And the included rail kit facilitates rack-mounting installation.

With emerging Supermicro Enterprise Advanced SONiC OS support, the SSE-T8196 switch provides greater flexibility to applications such as large-scale enterprises, AI/MI and high-performance cloud computing. Supermicro provides user-friendly enhancements to the OS that suit the various data center application and deployment.

Operating System / NOS

The SSE-T8196 series switch comes with preloaded Supermicro Enterprise Advanced SONiC OS.
This comes in a 3-year or 5-year license and is required for software support including upgrades.

Benefits & Advantages

Target Use Cases

- Data Center Core, Edge, ToR and DCI applications

Key Advantages

- The most optimized ethernet solution with leading low latency for Datacenter, HPC, and AI industry
- Open Network OS supported system to maximize flexibility
- High performance 50G / 100G / 200G / 400G / 800G capable switching in HPC, AI, DC high bandwidth application
- High density, high efficiency, multi rate 800G/400G/200G/100G switching through either direct and/or breakout cables in ToR application access with server/storage data center environments
- Switch capacity with large buffers
- Support AC and DC PSU options with both air cooling and liquid cooling SKUs

Key Switch Specs

- Form Factor: 3RU
- Switch Fabric Capacity: 51.2Tbps
- 165MB memory packet buffer
- Operating System: Supermicro Enterprise Advanced SONiC OS

Download

Manuals	SSE-T8196 Manuals	[Download]
Firmware	SSE-T8196 Firmware	[Download]

Hardware Specifications

Physical Ports

- 64x400GbE QSFP112 and 32x800GbE OSFP ports
- 2x25GbE SFP28 ports
- 1xRJ45 Console and 1xOOB Ethernet Management ports
- 1xUSB 2.0 Type A interface

CPU Engine

- Intel Xeon-D x86 CPU, 8C at 2.3GHz
- 32GB DDR4
- 128GB SSD

Data Forwarding

- 51.2Tbps switching capacity
- Non-Blocking, wire-speed
- 165MB memory packet buffer

Physical and Environmental

- 3RU, Mountable in 19" or 21" racks
- Dimensions: (WxDxH) 438.4 x 650 x 131.1mm
- Weight: 36kg
- Capability for future Direct Liquid Cooling
- Front to Rear/Rear to Front airflow
- Hot Swappable 3+1 redundant Fan Modules
- Temperature:
  SSE-T8196S and SSE-T8196D Operating 0°C to 40°C
  SSE-T8196SR Operating 0°C to 35°C
- Humidity: Operating: 5% to 95% RH

Power

- 3200W AC PSU, support 1+1 Hot-pluggable, load balancing, and redundant, Input Voltage: 200-240Vac, 200-277Vac, 50/60Hz
- 1600W DC PSU, Shared, Input Voltage: 48-72 Vdc
- Support Optics/Cables: Up to 18W transceivers, QSFP112 ports up to 10W

Cables and Transceivers

- OSFP DAC options from 2-4m (4m on certain NICs)
- OSFP Active Copper options to 5m
- OSFP Active Electrical Copper to 10m
- OSFP Active Optical to 10m
- Linear Pluggable Optics

Safety and Compliance

Safety

EU:
- EN 62368-1
- IEC 62368-1

North America:
- UL 62368-1
- CAN/CSA-C22.2 No. 62368-1

Taiwan (BSMI):
- NS 15598-1

Environmental

- EU (RoHS)
- EU (REACH)
- EU (WEEE)
- Taiwan (BSMI): CNS 15663

Electromagnetic Compatibility

North America:
- AS/NZS CISPR 32

Australia/New Zealand:
- AS/NZS CISPR 32

Japan:
- AS/NZS CISPR 32

Taiwan (BSMI):
- AS/NZS CISPR 32

EU:
- EN 300 386
- EN 55032
- EN IEC 61000-3-2
- EN 61000-3-3
- EN 55035
- BS EN 55032
- BS EN
- IEC 61000-3-2
- BS EN 61000-3-3
- BS EN 55035

Korea (KCC):
- KS C 9832 KS C 9835

Supermicro Enterprise Advanced Software Features

System and Platform Infrastructure Features

- System Locator and Interface LED
- Hardware Watchdog
- Third-Party Container Management
- Interface Aliasing (IS-Standard and IS-Standard-Extended Interface Naming)
- Maintenance Mode
  - LACP Graceful Shut
  - BGP Graceful Shut
  - OSPFv2 Maximum Metrics
- Multi-Instance Redis DB
- Hardware Resource Allocation and Reservation
- DOM Information Display
- Dynamic Port Breakout
- Port Auto-Breakout and Auto-Detect for Port Speed
- Transceiver Parameter Tuning
- Link Flap Error-Disable
- CPU/Memory Histogram
- System Ready for Services and Applications
- Secure Boot Process and Reference Implementation
- Syslog High Threshold notifications and clear for CPU/Temperature
- Patching Support in SONiC (Patch Host/Containers)
- Media AutoFEC for FEC Type automation

Layer 2 Features

- LAG and MCLAG (Static and LACP)
- LLDP
- UDLD
- PVST, RPVST+, and MSTP
- DHCP Snooping
- IGMP
- IGMP Snooping (v1, v2, v3)

Layer 3 Features

- MCLAG
- DHCP Relay and IP Helper
- Proxy ARP
- VRRP
- VXLAN EVPN
- Route Leaking
- IP SLA (ICMP and TCP tracker)
- IPv4 Unnumbered Interfaces
- Many hashing algorithms to support a range of traffic patterns
- Static Routing, BGP, OSPFv2 and OSPFv3
- BFD
- Fast Link Failover (FLF)
- Multi-Site Data Center Interconnect (DCI)
- RIB/FIB Consistency Checker
- Next Hop Group (NHG)
- L3 PIM (operates on L3 interfaces only)
- IPv4 PIM-SSM
- 1 Million Route Scale

ACL and Flow-Based Services

- PBR and Service Chaining
- Layer 2 and Layer 3 ACLs
- Policy-based Routing (IPv4 and IPv6)
- ACL Consistency Checker

Security Features

- AAA – RADIUS, TACACS, LDAP, MFA
- CAC-PIV over SSH
- Federal Certs Common Criteria
- Role-Based Access Control (RBAC)

Manageability Features

- Industry Standard CLI (IS-CLI)
- NTP Client and Server
- SCP, SFTP, TFTP, FTP
- Syslog and Audit Logs
- Remote Logging
- In-memory Debug Logging
- SPAN/ERSPAN
- Zero Touch Provisioning (ZTP)

QoS

- Configurable Queue and Buffer Size
- L2 and L3 QoS Maps
- Traffic Priority Scheduling
- Rate Limiting
- ACL-based DSCP and PCP remarking
- DSCP Marking Preservation for VXLAN
- CoPP (Control Plane Policing)

Telemetry and Instrumentation

- sFlow
- gNMI
- REST
- SNMP

AI/ML Focused Features

- RoCEv2
- RoCEv2 with Cut-Through mode support
- RoCEv2 over VXLAN
- PFC, ECN, ETS Optimizations
- Enhanced DCQCN
- Adaptive Routing Selection / Dynamic Load Balancing (ARS/DLB)
- Enhanced Hashing and Load Balancing with 100mSec granularity
- Rich Congestion and Load Balancing Telemetry
- LLDP for DCBx
- RoCE Buffer configurable based on cable length per interface

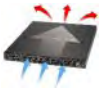
Warranty

SSE-T8196 comes with a standard (3-1-1) warranty which covers 3 years of labor, 1 year of parts and 1 year of cross-shipment warranty. The warranty can be extended up to total 5 years. For more information, please visit the warranty page.

Onsite Services

Supermicro Hardware Maintenance provides flexible and customizable Service Level Agreements for remote help desk and rapid onsite support to cover Supermicro hardware solutions. Our Onsite Service Programs offer up to a 4-hour Onsite Response time option for mission-critical uptime or any tailored solution that will meet your specific business requirements. For more details, please visit the Onsite Services page.

Switch Hardware SKUs

	Part Number	Description
Layer 2/3 800G/400G Ethernet Switch	 SSE-T8196S	64 port 400G QSFP112 & 32 port 800G OSFP - 200-240VAC PSU, Front-to-rear airflow - Air Cooling
	 SSE-T8196SR	64 port 400G QSFP112 & 32 port 800G OSFP - 200-240VAC PSU, Rear-to-front airflow - Air Cooling
	 SSE-T8196D	64 port 400G QSFP112 & 32 port 800G OSFP - 48-72VDC PSU, Front-to-rear airflow - Air Cooling

Switch Software SKUs

Product SKU	Description
SFT-BCM800G-3YR	Supermicro Enterprise Advanced 3-year Software Support
SFT-BCM800G-5YR	Supermicro Enterprise Advanced 5-year Software Support
**A 3-year or 5-year software SKU is mandatory per switch and will need renewal for software support including upgrades*	

Optics & Cables Supported

SMC P/N	Length	Description
CBL-NTWK-1107-20M-G	2m	800G OSFP to OSFP, DAC, 2m
CBL-NTWK-1226-25M-H	2.5m	800G OSFP to OSFP, AEC, 2.5m
CBL-NTWK-1226-35M-H	3.5m	800G OSFP to OSFP, AEC, 3.5m
CBL-NTWK-1109-50M-E	5m	800G OSFP to OSFP, AOC, 5m
CBL-NTWK-1109-100M-E	10m	800G OSFP to OSFP, AOC, 10m
CBL-NTWK-0976-20M-G	2m	800G OSFP to 2x400G QSFP112, DAC, 2m
CBL-NTWK-0976-30M-G	3m	800G OSFP to 2x400G QSFP112, DAC, 3m (Inner Ports + Thor2 NIC)
CBL-NTWK-0976-40M-G	4m	800G OSFP to 2x400G QSFP112, DAC, 4m (Inner Ports + Thor2 NIC)
CBL-NTWK-1110-20M-G	2m	800G OSFP to 2x400G OSFP RHS, DAC, 2m
CBL-NTWK-1120-25M-H	2.5m	800G OSFP to 2x400G OSFP RHS, AEC, 2.5m
CBL-NTWK-1119-25M-H	2.5m	800G OSFP to 2x400G QSFP112, AEC, 2.5m
CBL-NTWK-1120-50M-H	5m	800G OSFP to 2x400G OSFP RHS, AEC, 5m
CBL-NTWK-1115-20M-G	2m	800G OSFP to 4x200G QSFP112, DAC, 2m
CBL-NTWK-1115-30M-G	3m	800G OSFP to 4x200G QSFP112, DAC, 3m (Inner Ports + Thor2 NIC)
CBL-NTWK-1115-40M-G	4m	800G OSFP to 4x200G QSFP112, DAC, 4m (Inner Ports + Thor2 NIC)
CBL-SRK-MCA7J75-N004	4m	Nvidia 800G OSFP to 4x200G QSFP112, AEC, 4m
CBL-SRK-MCA7J75-N005	5m	Nvidia 800G OSFP to 4x200G QSFP112, AEC, 5m
CBL-NTWK-1105-20M-G	2m	400G OSFP to OSFP, DAC, 2m
CBL-NTWK-1105-30M-G	3m	400G OSFP to OSFP, DAC, 3m (Inner Ports + Thor2 NIC)
CBL-NTWK-1105-40M-G	4m	400G OSFP to OSFP, DAC, 4m (Inner Ports + Thor2 NIC)
CBL-NTWK-0960-20M-G	2m	400G OSFP to 2x200G QSFP112, DAC, 2m
CBL-NTWK-0960-30M-G	3m	400G OSFP to 2x200G QSFP112, DAC, 3m (Inner Ports + Thor2 NIC)
CBL-NTWK-0960-40M-G	4m	400G OSFP to 2x200G QSFP112, DAC, 4m (Inner Ports + Thor2 NIC)
CBL-NTWK-1106-30M-E	3m	400G OSFP to 2x200G QSFP112, ACC, 3m
CBL-NTWK-0963-50M-R	5m	400G OSFP to 2x200G QSFP112, AOC, 5m
CBL-NTWK-0963-100M-R	10m	400G OSFP to 2x200G QSFP112, AOC, 10m

Optics & Cables Supported

SMC P/N	Length	Description
TRX-1107-DR8-R	upto 500m	800G OSFP DR8 Transceiver, Dual MPO12, 500m
TRX-1222-DR8-R	upto 500m	800G OSFP DR8 Transceiver, MPO16, 500m
TRX-1107-VR8-R	upto 50m	800G OSFP VR8 Transceiver, Dual MPO12, 50m
TRX-1222-VR8-R	upto 500m	800G OSFP VR8 Transceiver, MPO16, 50m
TRX-1105-DR4-R	upto 500m	400G QSFP112 DR4 Transceiver, MPO12, 50m
TRX-1105-VR4-R	upto 50m	400G QSFP112 VR4 Transceiver, MPO12, 50m
SMC P/N	Length	Description
CBL-NTWK-0973-50M-P	5m	MPO12/MPO12, OM4, MMF, 50/125 5m APC
CBL-NTWK-0973-100M-P	10m	MPO12/MPO12, OM4, MMF, 50/125 10m APC
CBL-NTWK-0973-150M-P	15m	MPO12/MPO12, OM4, MMF, 50/125 15m APC
CBL-NTWK-0973-200M-P	20m	MPO12/MPO12, OM4, MMF, 50/125 20m APC
CBL-NTWK-0973-300M-P	30m	MPO12/MPO12, OM4, MMF, 50/125 30m APC
CBL-NTWK-0973-500M-P	50m	MPO12/MPO12, OM4, MMF, 50/125 50m APC
CBL-NTRK-1217-30M-P	3m	MPO12/2xMPO12, OM4, MMF, 50/125 3m APC
CBL-NTRK-1217-50M-P	5m	MPO12/2xMPO12, OM4, MMF, 50/125 5m APC
CBL-NTRK-1217-100M-P	10m	MPO12/2xMPO12, OM4, MMF, 50/125 10m APC
CBL-NTRK-1217-150M-P	15m	MPO12/2xMPO12, OM4, MMF, 50/125 15m APC
CBL-NTRK-1217-200M-P	20m	MPO12/2xMPO12, OM4, MMF, 50/125 20m APC
CBL-NTRK-1217-300M-P	30m	MPO12/2xMPO12, OM4, MMF, 50/125 30m APC
CBL-NTRK-1217-500M-P	50m	MPO12/2xMPO12, OM4, MMF, 50/125 50m APC
CBL-NTWK-0983-50M-P	5m	MTP/MPO12, SMF, 5m APC
CBL-NTWK-0983-100M-P	10m	MTP/MPO12, SMF, 10m APC
CBL-NTWK-0983-150M-P	15m	MTP/MPO12, SMF, 15m APC
CBL-NTWK-0983-200M-P	20m	MTP/MPO12, SMF, 20m APC
CBL-NTWK-0983-300M-P	30m	MTP/MPO12, SMF, 30m APC
CBL-NTWK-0983-500M-P	50m	MTP/MPO12, SMF, 50m APC
CBL-NTWK-0983-1K-P	100m	MTP/MPO12, SMF, 100m APC
CBL-NTRK-1219-50M-P	5m	MTP/2xMPO12, SMF, 5m APC
CBL-NTRK-1219-100M-P	10m	MTP/2xMPO12, SMF, 10m APC
CBL-NTRK-1219-150M-P	15m	MTP/2xMPO12, SMF, 15m APC
CBL-NTRK-1219-200M-P	20m	MTP/2xMPO12, SMF, 20m APC
CBL-NTRK-1219-300M-P	30m	MTP/2xMPO12, SMF, 30m APC
CBL-NTRK-1219-500M-P	50m	MTP/2xMPO12, SMF, 50m APC
CBL-NTWK-0984-30M-P	3m	MPO12/4xLC, SMF, 3m APC
CBL-NTWK-0984-150M-P	15m	MPO12/4xLC, SMF, 15m APC
CBL-NTWK-0984-300M-P	30m	MPO12/4xLC, SMF, 30m APC

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