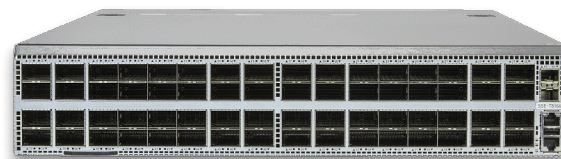


Supermicro SSE-T8164 800G Ethernet Switch

Designed specifically to enhance data center networks, the SSE-T8164 offers 64 ports of 800 gigabits per second. These switches ensure accelerated Ethernet connectivity across all data center environments, maintaining top-notch performance and feature richness.

Perfect for implementing AI clustering and cloud-scale infrastructures regardless of data center size, the SSE-T8164 series delivers high performance and ultra-low latency Ethernet with extensive support for advanced data center networking functionalities. The SSE-T8164 is an optimal choice for AI clusters and cloud-based networks by supporting capabilities such as RoCEv2, Dynamic Load Balancing, lossless Ethernet, advanced traffic engineering, and congestion avoidance.



SSE-T8164 800G Ethernet Switch

Leveraging cutting-edge switch silicon, the SSE-T8164 series boasts many technologies to support AI/ML needs, and other software innovations to enable the highest performance networks with the lowest cost and lowest energy consumption.

The SSE-T8164 comes with 64 OSFP 800G ports in 2RU form factor to meet the leaf, spine and super spine datacenter architectures. The interfaces provide flexibility to meet a variety of speeds and use cases such as 400G, 200G, 100G using splitter cables and appropriate transceivers. The SSE-T8164 also has two additional 25G SFP28 ports to support added connectivity options. 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.

With an Industry-Standard CLI in Supermicro Enterprise Advanced SONiC OS on the SSE-T8164, we are providing greater flexibility to applications such as large-scale enterprises' high bandwidth needs, AI/ML, and high-performance cloud computing. Supermicro provides user friendly enhancements to the OS that suits the various data center application and deployment scenarios.

The SSE-T8164 provides both front to back (copper to power) airflow and back to front options, designed for future addition of Direct Liquid Cooling. This solution utilizes multiple AC and DC Power supply options, and the included rail kit facilitates simple rack-mounting installation.

Operating System / NOS

The SSE-T8164 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: 2RU
- Switch Fabric Capacity: 51.2Tbps
- 165MB memory packet buffer
- Operating System: Supermicro Enterprise Advanced SONiC OS

Download

Datasheet SSE-T8164 Datasheet [[Download](#)]

Firmware SSE-T8164 Firmware [[Download](#)]

Manuals SSE-T8164 Manuals [[Download](#)]

Hardware Specifications

Physical Ports

- 64x800GbE OSFP ports
- 2x25GbE SFP28 ports
- 1xRJ45 Console and 1xOOB Ethernet management ports
- 1x USB 2.0 Type A interface

CPU Engine

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

Data Forwarding

- Switch Fabric Capacity: 51.2Tbps
- Non-blocking, wire-speed
- 165MB memory packet buffer

Physical and Environmental

- RU, Mountable in 19" or 21" racks
- Dimensions: (WxDxH) 438.4 x 650 x 87.4mm
- Weight: 22kg
- Capability for future Direct Liquid Cooling
- Front to Rear/Rear to Front airflow
- Hot Swappable 3+1 load balancing Fan Modules
- Temperature:
Operating 0C to 40C
Storage -40C to 70C
- Humidity: Operating: 5% to 95%

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

IEEE compliance

- 802.1p QOS/COS
- 802.1Q VLAN Tagging
- 802.1AB Link Layer Discovery Protocol
- 802.3ad Link Aggregation with LACP
- 802.3ae 10 Gigabit Ethernet
- 802.3-2022 25 Gigabit Ethernet
- 802.3cd 50 Gigabit Ethernet
- 802.3ba 100 Gigabit Ethernet
- 802.3bs 400 and 200 Gigabit Ethernet
- 802.3cm 400 Gigabit over multimode fiber
- 802.3df 800 Gigabit Ethernet
- 802.1Qbb PFC 802.1Qaz ETS
- 802.3x Flow Control

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
- SR4/SR8/VR4/VR8 MMF transceivers to 50m
- DR4/DR8 SMF transceivers to 2km
- 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:

- FCC 47 CFR Part 15 Subpart B, ICES-003 Issue 7

Australia/New Zealand:

- AS/NZS CISPR 32

Japan:

- VCCI CISPR 32

Taiwan (BSMI):

- CNS 15936

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

Layer 3 Features

- MLAG
- 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-T8164 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 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-T8164S | 64 port 800G OSFP - 200-240VAC PSU, Front-to-rear airflow - Air Cooling |
| |  SSE-T8164SR | 64 port 800G OSFP - 200-240VAC PSU, Rear-to-front airflow - Air Cooling |
| |  SSE-T8164D | 64 port 800G OSFP - 48-72VDC PSU, Front-to-rear airflow - Air Cooling |

Switch Software SKUs

| Product SKU | Description |
|-----------------|---|
| SFT-BCM800G-3YR | Supernano Enterprise Advanced 3-year Software Support |
| SFT-BCM800G-5YR | Supernano 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 |
| 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 |
| 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 |
| 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 |