

Supermicro SSE-F3648 10G/25G Ethernet Switch

SSE-F3648 is an advanced 48-port 10/25GbE switch designed to deliver high performance and non-blocking operation with a 2.0Tbps switching capacity, ideal for data center top-of-rack, enterprise edge/aggregation, and broadband deployments. The SSE-F3648 features a compact 1RU form factor with robust layer 2 and layer 3 capabilities.

The Enterprise SONiC distribution provides high performance and simplicity, leveraging industry-leading merchant silicon and standards-based IP CLOS architecture. It also offers agility through a flexible management framework with programmatic APIs and an extensible, container-based architecture.

SSE-F3648 supports multiple speed configurations, including 48x25GbE SFP28 or 48x10GbE SFP+ plus 8x100GbE QSFP28. The switch includes dual, redundant power supplies and FRU-capable fans, with an included rail kit for seamless rack-mounting.

Pre-loaded with Supermicro Enterprise Advanced SONiC OS, the SSE-F3648 delivers extensive networking features and hardware-accelerated routing and switching functions. Software support is included in the switch's standard warranty at no additional cost.



SSE-F3648 – 10G/25G Ethernet Switch

Operating System / NOS

The SSE-F3648 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

- Enterprise and Data Center Leaf and ToR applications

Key Advantages

- Optimized Ethernet solution with low latency for data center and enterprise applications
- Open Network OS support for maximum flexibility and customization
- High-density, multi-rate 100G/40G/25G/10G switching with direct or breakout cable support for top-of-rack (ToR) server and storage access in data center environments
- High switch capacity with large buffers for efficient traffic management
- Supports both AC and DC PSU options with air cooling SKUs

Key Switch Specs

- Form Factor: 1 RU
- Switch Fabric Capacity: 2.0Tbps
- Supported Configurations: 48x25/10GbE, 8x40/100GbE interfaces
- 32MB memory packet buffer
- Operating System: Supermicro Enterprise Advanced SONiC OS

Download

Firmware SSE-F3648 Firmware [[Download](#)]

Hardware Specifications

Physical Ports

- 48x25/10GbE SFP28/SFP+ ports and 8x100GbE QSFP28 ports
- 1xRJ45 Console and 1xOOB Ethernet management ports
- 1x USB 2.0 Type A interface

CPU Engine

- INTEL Atom C1.6GHz quad-core CPU
- 8GB DDR4 DRAM with ECC
- 16GB SSD

Data Forwarding

- Switch Fabric Capacity: 2.0Tbps
- Non-blocking, wire-speed
- 32MB memory packet buffer

Power

- 550W AC PSU, support 1+1 Hot-pluggable, redundant, Input Voltage: 100-240Vac, 47-63Hz

Physical and Environmental

- 1RU, Mountable in 21" racks
- Dimensions: (WxDxH) 438 x 520 x 44 mm (17.3 x 20.5 x 1.73 inches)
- Weight: (Switch Unit) 8.8kg
- Front-to-Rear and Rear-to-Front airflow versions available
- Hot Swappable 3+1 redundant Fan Modules
- Input Voltage: 100 to 240VAC at 47-63Hz
- 550W Maximum Power (with Pluggable Optic)
- Temperature: Operating 0°C to 45°C (32°F to 113°F)
- Humidity: Operating: 5% to 95% RH

Safety and Compliance

Safety

International:

- IEC60950-1
- CB (IEC System for Conformity Assessment Schemes for Electrotechnical Equipment and Components)

China (CCC):

- GB4943

North America:

- UL/CSA

Electromagnetic Compatibility

China:

- GB9254-2008

EU:

- EN55022
- EN55024

North America:

- FCC

Japan:

- VCCI

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)
- ESI-based Multihoming
- LLDP
- UDLD
- PVST, RPVST+, and MSTP
- DHCP Snooping
- IGMP
- IGMP Snooping (v1, v2, v3)

Layer 3 Features

- MLAG
- ESI-based Multihoming
- DHCP Relay and IP Helper
- Proxy ARP
- VRRP
- VXLAN EVPN
- NAT
- 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
- Multi-Site Data Center Interconnect (DCI)
- RIB/FIB Consistency Checker
- Next Hop Group (NHG)
- L3 PIM (operates on L3 interfaces only)
- IPv4 PIM-SSM

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

Warranty

SSE-F3648 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 10G/25G Ethernet Switch	 SSE-F3648S	48 port 10/25G SFP+/SFP28 & 8 port 40/100G QSFP28 - 100-240VAC PSU, Front-to-rear airflow - Air Cooling
	 SSE-F3648SR	48 port 10/25G SFP+/SFP28 & 8 port 40/100G QSFP28 - 100-240VAC PSU, Rear-to-front airflow - Air Cooling

Switch Software SKUs

Product SKU	Description
SFT-BCM25G-3YR	Supermicro Enterprise Advanced 3-year Software Support
SFT-BCM25G-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-0943-SQ28C05M	0.5m	100G QSFP28 to QSFP28, DAC, 0.5m
CBL-NTWK-0943-SQ28C10M	1m	100G QSFP28 to QSFP28, DAC, 1m
CBL-NTWK-0943-SQ28C20M	2m	100G QSFP28 to QSFP28, DAC, 2m
CBL-NTWK-0943-SQ28C30M	3m	100G QSFP28 to QSFP28, DAC, 3m
CBL-NTWK-0943-SQ28C50M	5m	100G QSFP28 to QSFP28, DAC, 5m
CBL-QSFP28AOC-10M-CO	10m	100G QSFP28 to QSFP28, AOC, 10m
CBL-QSFP28AOC-FE-10M	10m	100G QSFP28 to QSFP28, AOC, 10m
CBL-QSFP28AOC-FE-15M	15m	100G QSFP28 to QSFP28, AOC, 15m
CBL-NTWK-0417-01	1m	40G QSFP+ to QSFP+, DAC, 1m
CBL-NTWK-0325-02	2m	40G QSFP+ to QSFP+, DAC, 2m
CBL-NTWK-0446-01	3m	40G QSFP+ to QSFP+, DAC, 3m
CBL-NTWK-0422-01	4m	40G QSFP+ to QSFP+, DAC, 4m
CBL-QSFP+AOC-7M	7m	40G QSFP+ to QSFP+, AOC, 7m
CBL-QSFP+AOC-10M	10m	40G QSFP+ to QSFP+, AOC, 10m
CBL-NTWK-1215-10M-G	1m	25G SFP28 to SFP28, DAC, 1m
CBL-NTWK-1215-20M-G	2m	25G SFP28 to SFP28, DAC, 2m
CBL-NTWK-1215-30M-G	3m	25G SFP28 to SFP28, DAC, 3m
CBL-NTWK-1215-50M-G	5m	25G SFP28 to SFP28, DAC, 5m
SMC P/N	Length	Description
TRX-100GbE-SR4-FIN	upto 100m	100G QSFP28 SR4 Transceiver, 850nm, MMF, MPO
TRX-100G-DR1-03	upto 500m	100G QSFP28 DR1 Transceiver, 500m, SMF, LC
AOM-SFP28-25GBE-SR-1-MLMN	upto 100m	25G SFP28 SR1 Transceiver, 850nm, MMF, LC
AOC-E10GSFP28	upto 300m	10G SFP+ SR Transceiver, 850nm, MMF, LC
TRX-10GSFP-RJ45	upto 30m	10G SFP+ Copper RJ45 Transceiver
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 5m APC
CBL-NTWK-0973-150M-P	15m	MPO12/MPO12, OM4, MMF, 50/125 5m APC
CBL-NTWK-0973-200M-P	20m	MPO12/MPO12, OM4, MMF, 50/125 5m APC
CBL-NTWK-0973-300M-P	30m	MPO12/MPO12, OM4, MMF, 50/125 5m APC
CBL-NTWK-0973-500M-P	50m	MPO12/MPO12, OM4, MMF, 50/125 5m APC
CBL-NTWK-0982-50M-P	5m	LC/LC, SMF, 5m
CBL-NTWK-0982-100M-P	10m	LC/LC, SMF, 10m
CBL-NTWK-0982-150M-P	15m	LC/LC, SMF, 15m
CBL-NTWK-0982-200M-P	20m	LC/LC, SMF, 20m
CBL-NTWK-0982-300M-P	30m	LC/LC, SMF, 30m
CBL-NTWK-0982-500M-P	50m	LC/LC, SMF, 50m
CBL-NTWK-0982-1K-P	100m	LC/LC, SMF, 100m
CBL-NTWK-0982-5K-P	500m	LC/LC, SMF, 500m
CBL-NTWK-0857-30M-P	3m	LC/LC, OM4 MMF, 3m
CBL-NTWK-0857-100M-P	10m	LC/LC, OM4 MMF, 10m
CBL-NTWK-0857-150M-P	15m	LC/LC, OM4 MMF, 15m
CBL-NTWK-0857-200M-P	20m	LC/LC, OM4 MMF, 20m
CBL-NTWK-0857-300M-P	30m	LC/LC, OM4 MMF, 30m
CBL-NTWK-0857-500M-P	50m	LC/LC, OM4 MMF, 50m
CBL-NTWK-0857-1K-P	100m	LC/LC, OM4 MMF, 100m
CBL-NTWK-0857-1K5-P	150m	LC/LC, OM4 MMF, 150m