SUPERMICRO® Network Solutions

Layer 2 & 3 Ethernet Switches

Open Networking Solutions
SDN Capable Switches

SSE-G3648B
SSE-G3648BR

- Bare Metal - 48 One-GbE RJ45 Ports
- 4 Ten-GbE SFP+ Ports

SSE-X3648S
SSE-X3648SR

- Bare Metal - 48 Ten-GbE SFP+ Ports
- 6 Forty-GbE QSFP+ Ports

SSE-C3632S
SSE-C3632SR

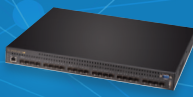- Bare Metal - 32 Forty-GbE/ One-Hundred-GbE QSFP28+ Ports

SSE-X3348T/TR
Layer 2/3 48 Ten-GbE ports - 10GBASE-T
4 Forty-Gigabit Ethernet ports – QSFP+
2 One-Gigabit Ethernet ports - RJ45

SSE-X3348S/SR
Layer 2/3 48 Ten-GbE ports – SFP+
4 Forty-Gigabit Ethernet ports – QSFP+
2 One-Gigabit Ethernet ports - RJ45

SSE-X24S/SR
Layer 2/3; 24 Ten-GbE Ports
1 One-GbE port

SSE-G24-TG4
Layer 2/3; 24 One-GbE Ports;
4 Ten-GbE Ports

SSE-G48-TG4
Layer 2/3; 48 One-GbE Ports;
4 Ten-GbE Ports

SSE-G2252P
Layer 2; 52 One-GbE ports;
48 with Power-over-Ethernet

SSE-G2252
Layer 2; 52 One-GbE ports

Enterprise-Class Performance with Advanced Switching Capabilities for 1GbE, 1/10GbE, 10GbE, 10/40GbE and 25/40/100GbE Networking

- **Standards-based Ethernet with a Full Set of Popular Options**
- **1:1 Non-blocking Connectivity**
- **Data Center Friendly Hardware Configurations (some models)**
    - **Dual Redundant Power Supplies**
    - **Regular and Reverse Airflow Options**
- **Management Ease - CLI - Web-based GUI**
- **1U Form Factor for Flexible Installation**

www.supermicro.com/networking

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Layer 2 *Layer 2*

Rear View

Supermicro extends its "We Keep IT Green®" initiative with a pair of powerful 52-port 1-Gigabit-per-second Energy-Efficient-Ethernet switches. The SSE-G2252 and its companion SSE-G2252P each provide 48 ports of 1-Gbps Ethernet connectivity with RJ45 connections as well as an additional four 1Gbps ports with SFP connectors. The SSE-G2252P model also offers support of IEEE-802.3at-compliant Power-over-Ethernet (PoE) devices with what is perhaps the most flexible power budget allocation in the industry. Up to 30 Watts can be supplied on any RJ45 port (subject to a maximum PoE budget of 400 Watts), thus making the SSE-G2252P capable of supporting the broadest range of commercial PoE devices . Both support the latest Energy Efficient Ethernet standard (IEEE 802.3az).

These Layer 2 switches offer extremely cost-effective networking in SMB or data center environments. They provide a choice of management interfaces using either a Web-based GUI or an industry compatible command-line-interface. The PoE model makes possible rapid installation of PoE-based wireless access points for conferences and shows, support for VoIP phones, as well as PoE surveillance cameras and a myriad of new PoE devices becoming available on the market.

The SSE-G2252 and SSE-G2252P also offer a full range of popular Ethernet features like Jumbo Frames, Link Aggregation, VLANs, and Quality of Service. All of this is done in a compact 1U form factor for maximum flexibility in rack-mount installation.

Model	SSE-G2252 (52 ports)	SSE-G2252P (52 ports; 48 with Power-over-Ethernet)	

General Specifications	• 48 RJ45 10/100/1000 Mbps Ports
	• 4 One-Gigabit Ports
	• Non-Blocking
	• Standard L2 Features
	• IPv4 and IPv6
	• RJ45 Console Port: Web Management GUI, CLI
		• 48 RJ45 10/100/1000 Mbps Ports
		• 4 One-Gigabit Ports
		• Non-Blocking
		• Standard L2 Features
		• IPv4 and IPv6
		• RJ45 Console Port: Web Management, CLI
		• Power-over-Ethernet (802.3at)
		  - Up to 30W per port
		  - Up to 400W total PoE budget	

Switching Capacity	• 104 Gb/s	• 104 Gb/s	
Energy Efficient Ethernet	• 802.3az	• 802.3az	
Stacking Performance	-	-	
Power Consumption	• 65W	• 500W	
Weight	• 6.8 lbs / 3.1kg	• 11.7 lbs / 5.3kg	
Dimensions (WxDxH)	• 440 x 279 x 43mm (17.3" x 11" x 1.7")	• 440 x 379 x 43mm (17.3" x 14.9" x 1.7")	
Availability	• Spanning Tree (802.1D) • Rapid Spanning Tree (802.1w)	• Multiple Spanning Trees (802.1s)	
VLAN	• 4K VLANs • Voice VLAN support	• 802.1Q tagging, port and protocol based • Dynamic VLAN Support (GVRP)	

Quality of Service and DiffServ	• IPv4/v6 DiffServ
	• Per port bandwidth management
	  - Resolution 64KB
	• Packet prioritization based on ingress/
	  egress ports using pre-defined value
	• Ingress/Egress metering at 64KB
	  increments
	  - Ingress/egress policer
	  - Ingress and egress co-work
		• L2/L3/L4Traffic Classification/Priority
		  Management
		• Deficit WRR and Strict Priority Scheduling
		• Traffic shaping
		  - IP based (all ports)
		  - Port based (all ports)
		  - Port based shaping QoS aware
		• 4 priority queues per port	

Security Features	• 802.3x Port-Based Authentication • Switch access password protection • Layer 2, 3, 4 Access Control List (512 rules)	• RADIUS and TACACS+ Authentication • SSH/SSL Encryption	

Management	• Web-based management interface –
	  HTTP/HTTPS
	  - Telnet (4 sessions)
	  - SNMP
		• Industry standard CLI with telnet, SSH,
		  or local management port
		  - Scripting capability
		  - Command completion
		  - Context-sensitive "Help"	

Switch Features	• Link Aggregation
	  - 802.3ad with LACP
	  - Up to 12 aggregation groups
	  - up to 8 ports per group
	• Double tagging:
	  - 802.1 Q-in-Q
	  - 802.1ad provider bridge
	  - Unqualified learning and forwarding
		• Storm protection
		  - Broadcast
		  - Multicast
		• IGMP:
		  - IGMP snooping v1/v2/v3
		• 16K MAC address entries	

Routing Features			

PoE Features		• Compliant with IEEE 802.3af-2003 & IEEE 802.3at-2009
		• Power start/stop (remote sense)
		• Power feeding over 1/2 and 3/6 data twisted pair of
		  Cat. 5 UTP/STP cable
		• Independent overload and short-circuit protection
		  for each port
		• LED indicators for power status per port
		• Per port configuration
		• IEEE 802.3af/IEEE 802.3at MIB for Power over Ethernet
		  function	

Multicast	• IGMP Snooping v1, v2, v3		
Operating Temperature	• 0 ~ 50°C		

Layer 2/3 Ethernet Aggregation Switches

Layer 2/3 *Layer 2/3*

SSE-G24-TG4	SSE-G48-TG4
• 24 One-Gigabit Ethernet ports - 24 RJ45 Copper ports - Four fiber SFP combo ports • Up to four 10-Gigabit Ethernet uplinks • Up to two stacking ports • Out-of-band RS-232 Management port	• 48 One-Gigabit Ethernet ports - 48 RJ45 Copper ports - Four fiber SFP combo ports • Up to four 10-Gigabit Ethernet uplinks • Up to two stacking ports • Out-of-band RS-232 Management port
• 136 Gbps	• 184 Gbps
-	-
• Up to 48 Gbps	• Up to 48 Gbps
• 105W	• 145W
• 12.6 lbs / 5.70 kg (w/ modules) • 12.2 lbs /5.54 kg (w/o modules)	• 13.7 lbs / 6.20 kg (w/ modules) • 13.4 lbs / 6.06 kg (w/o modules)
• 440 x 387 x 43mm (17.3" x 15.2" x 1.7")	• 440 x 387 x 43mm (17.3" x 15.2" x 1.7")
• Spanning Tree (802.1D) • Rapid Spanning Tree (802.1w)	• Multiple Spanning Trees (802.1s) • Virtual Redundant Routing Protocol (VRRP)
• 802.1Q tagging, port and protocol based • Dynamic VLAN Support (GVRP)	• 1K static VLANs
• 8 priority queues per port • Adjusted WRR and Strict Priority Scheduling • Marking	• Metering / Rate limiting • Layer 2, 3, 4 Prioritization
• 802.3x Port Based Authentication • Switch access password protection • Layer 2, 3, 4 Access Control Lists (256 rules)	• RADIUS and TACACS+ Authentication • SSH, SSL Encryption
• Web-based management interface – HTTP/HTTPS - Telnet (7 sessions) - SNMP	• Industry standard CLI with telnet, SSH, or local management port - Scripting capability - Command completion - Context-sensitive "Help"
• Link Aggregation - 802.3ad with LACP - Up to 24 aggregation groups - Up to 8 ports per group	• Link Layer Discovery Protocol (802.1AB) • Jumbo Frames up to 9KB • Port Mirroring – N to 1. Tx & Rx Configurable
• Static Routing, RIP v1/v2, RIPng, OSPF v1/v2/v3 and BGP • IPv4 and IPv6 Routing	• VRRP (Virtual Router Redundancy Protocol) • DVMRP (Distance Vector Multicast Routing Protocol
• IGMP Snooping v1, v2, v3 • IGMP v1, v2, v3	• PIM SM, PIM DM • PIM SMv6
• 0 ~ 40°C	

The Supermicro 1/10-Gigabit Layer 3 Ethernet Switches offer aggregation of 24 or 48 ports of 10/100/1000 BASE-T Gigabit Ethernet onto up to four 10-Gigabit Ethernet uplinks. Options for the physical 10G connections are XFP, SFP+(direct-attach copper or fiber), or CX4 (used primarily for stacking). This allows connectivity to 10GE routers, servers, backbones, and data centers.

The 1U form factor gives users the ability to optimize deployment in wiring closet or top-of-rack environments. A comprehensive routing and protocol software suite ensures optimal performance in even the most demanding enterprise-class networking environments. It is ideal for organizations with growing and consolidated data centers. Supermicro Blade server customers will further appreciate the common set of features and a management interface that matches those of the Supermicro 1/10G Layer 3 Ethernet Switch for the Blade.

Options *(order at least one, maximum two with each SSE-G24-TG4 or SSE-G48-TG4)*

AOM-SSE-X2C
Two-port CX4 connector module for copper connections

AOM-SSE-X2F
Two-port XFP connector module for fiber connections

AOM-SSE-X2S
Two-port SFP+ connector module for copper or fiber connections

Cabling Options:

CX4 Cables - For Stacking or 10GE Interconnect
- CBL-0474L - One Meter Length
- CBL-0389L-01 - Three Meter Length

SFP+ Direct Attach Cables
• CBL-0347L - One-Meter length
• CBL-0348L - Three-Meter length
• CBL-0349L - Five-Meter length

SFP+ Transceiver for use with fiber cable connections
• AOC-E10GSFPSR - SFP+ Transceiver; or
• AOC-TSR-FS   - SFP+ Transceiver

Optional Rail Kit

For Secure Rack-Mount of 10G Switches (SSE-X24S/SR, SSE-X3348S/SR, and SSE-X3348T/TR):

• CSE-PT52L

Layer 2/3

Rear View

The Supermicro 10-Gigabit Ethernet switch models provide top-of-rack interconnection for high-speed server and storage systems as well as access to corporate or data center backbone networks. They offer high-speed connectivity between high-capacity servers and backbone networks. Data center friendly features like dual redundant hot-swappable power supplies and reverse airflow cooling options make these a switches a favorite for Data Center, High Performance Computing, and Enterprise applications. The latest series of 10/40 Gigabit Ethernet switches take data center networking to a new level of performance.

Model	SSE-X24S SSE-X24SR	

General Specifications	•24 Ten-Gigabit Ethernet ports
	  - SFP+ Connectors
	•1 One-Gigabit Ethernet port
	  - RJ45 Connector
	•Out-of-band RS-232 Management port	

Switching Capacity	•480 Gb/s	
Energy Efficient Ethernet	-	
Power Consumption	•176W (Redundant Power Supplies) •Reverse airflow model available	
Weight	•16.7 lbs / 7.58 kg	
Dimensions (WxDxH)	•440 x 387 x 43mm (17.3" x 15.2" x 1.7")	
Availability	•Spanning Tree (802.1D) •Rapid Spanning Tree (802.1w)	•Multiple Spanning Trees (802.1s) •Virtual Redundant Routing Protocol (VRRP)
VLAN	•802.1Q tagging, port and protocol based •Dynamic VLAN Support (GVRP)	•4K Static VLANs
Quality of Service and DiffServ	•8 priority queues per port •Adjusted WRR and Strict Priority Scheduling •Layer 2, 3, 4 Prioritization	•Marking •Metering / Rate limiting
Security Features	•802.3x Port Based Authentication •Switch access password protection •Layer 2, 3, 4 Access Control Lists (256 rules)	•RADIUS and TACACS+ Authentication •SSH, SSL Encryption

Management	•Web-based management interface – HTTP/HTTPS
	  - Telnet (7 sessions)
	  - SNMP
		•Industry standard CLI with telnet, SSH, or local management port
		  - Scripting capability
		  - Command completion
		  - Context-sensitive "Help"

Switch Features	•Link Aggregation
	  - 802.3ad with LACP
	  - Up to 24 aggregation groups
	  - Up to 8 ports per group
	•MLAG
		•Link Layer Discovery Protocol (802.1AB)
		•Jumbo Frames up to 9KB
		•Port Mirroring – N to 1. Tx & Rx Configurable
		•DCBx

Routing Features	•Static Routing, RIP v1/v2, RIPng, OSPF v1/v2/v3 and BGP •IPv4 and IPv6 Routing	•VRRP (Virtual Router Redundancy Protocol) •DVMRP (Distance Vector Multicast Routing Protocol
Multicast	•IGMP Snooping v1, v2, v3 •IGMP v1, v2, v3	•PIM SM, PIM DM •PIM SMv6
Operating Temperature	•0 ~ 40°C	

Layer 2/3   *Layer 2/3*

SSE-X3348S SSE-X3348SR	SSE-X3348T SSE-X3348TR

• 48 Ten-Gigabit Ethernet ports
  - SFP+ Connectors
• 4 Forty-Gigabit Ethernet ports
  - QSFP Connectors
• 2 One-Gigabit Ethernet ports
  - RJ45 Connectors
• Out-of-band RS-232 Management port
	• 48 Ten-Gigabit Ethernet ports
	  - 10GBASE-T RJ45 connectors
	• 4 Forty-Gigabit Ethernet ports
	  - QSFP Connectors
	• 2 One-Gigabit Ethernet ports
	  - RJ45 Connectors
	• Out-of-band RS-232 Management port

• 1284 Gb/s	• 1284 Gb/s
–	• IEEE 802.3az
• 326W (Redundant Power Supplies) • Reverse airflow model available	• 357W (Redundant Power Supplies) • Reverse airflow model available
• 18.1 lbs / 8.2 kg	• 18.1 lbs / 8.2 kg
• 438 x 473 x 43mm (17.3" x 18.6" x 1.7")	• 438 x 473 x 43mm (17.3" x 18.6" x 1.7")
• Spanning Tree (802.1D) • Rapid Spanning Tree (802.1w)	• Multiple Spanning Trees (802.1s) • Virtual Redundant Routing Protocol (VRRP)
• 802.1Q tagging, port and protocol based • Dynamic VLAN Support (GVRP)	• 4K Static VLANs
• 8 priority queues per port • Adjusted WRR and Strict Priority Scheduling • Layer 2, 3, 4 Prioritization	• Marking • Metering / Rate limiting
• 802.3x Port Based Authentication • Switch access password protection • Layer 2, 3, 4 Access Control Lists (256 rules)	• RADIUS and TACACS+ Authentication • SSH, SSL Encryption

• Web-based management interface – HTTP/HTTPS
  - Telnet (7 sessions)
  - SNMP
	• Industry standard CLI with telnet, SSH, or local management port
	  - Scripting capability
	  - Command completion
	  - Context-sensitive "Help"

• Link Aggregation
  - 802.3ad with LACP
  - Up to 24 aggregation groups
  - Up to 8 ports per group
• MLAG
	• Link Layer Discovery Protocol (802.1AB)
	• Jumbo Frames up to 9KB
	• Port Mirroring – N to 1. Tx & Rx Configurable

• Static Routing, RIP v1/v2, RIPng, OSPF v1/v2/v3 and BGP • IPv4 and IPv6 Routing	• VRRP (Virtual Router Redundancy Protocol) • DVMRP (Distance Vector Multicast Routing Protocol
• IGMP Snooping v1, v2, v3 • IGMP v1, v2, v3	• PIM SM, PIM DM • PIM SMv6
• 0 ~ 47°C	

New! *Layer 2/3*   **New!** *Layer 2/3*   **New!** *Layer 2/3*

Cumulus® Linux® Ready

Rear View

Model	SSE-G3648B SSE-G3648BR	SSE-X3648S SSE-X3648SR	SSE-C3632S SSE-C3632SR
Port Specifications	• 48 x One-Gigabit Ethernet RJ45 ports • 4 x Ten-Gigabit Ethernet SFP+ ports • RJ45 Ethernet management port • RJ45 (for console cable)	• 48x Ten-Gigabit Ethernet ports – SFP+ • 6x Forty-Gigabit Ethernet ports – QSFP+ • RJ45 (for console cable) • RJ45 1G Ethernet Management Port • USB	• 32 x Forty-Gigabit Ethernet QSFP28 ports • 32 x One-Hundred-Gigabit Ethernet QSFP28 ports • 1 x Ten-Gigabit Ethernet SFP+ ports • RJ45 Gigabit Ethernet management port • RJ45 serial console • Type A USB 2.0 port
Data Forwarding	• Switching Capacity – 176 Gbps • Broadcom Helix4 Switch Chip • Wire-speed Layer 3 Routing • 1:1 Non-blocking connectivity	• Switching Capacity - 1440 Gbps • Broadcom Trident II Switch Chip • Wire-speed Layer 3 Routing • 1:1 Non-blocking connectivity	• Full Duplex 3.2Tbps Switching Capacity • Broadcom Tomahawk Switch Chip • Wire-speed Layer 3 Routing • 1:1 Non-blocking connectivity
Control Plane	• Intel Rangeley CPU • 2Gbyte DRAM • 8Gbyte SSD • ONIE • Cumulus Linux Ready	• Intel Rangeley CPU • 4G DRAM • 16G SSD • ONIE • Cumulus Linux Ready	• Intel Rangeley CPU • 4G DRAM • 16G SSD • ONIE • Cumulus Linux Ready
Power	• Hot-pluggable 200W power supply • Optional second redundant power supply[1] • AC Input: 100-127/200-240 V, 50/60 Hz • Power Consumption: < 85.2 Watts	• Redundant, hot-pluggable, 460W power supplies • AC Input: 100-127/200-240 V, 50/60 Hz • Power Consumption: 305 Watts	• Redundant, hot-pluggable, • 800W power supplies • AC Input: 100-127/200-240 V, 50/60 Hz • Power Consumption: 650 Watts
Physical/ Environmental	• Weight: Net weight: 8.18kg (with 2 PSUs) • Regular and Reverse Airflow Models • Size (W x D x H): 434 x 320 x 44 mm (17.1 x 11.2 x 1.73 in.) • Temperature: Operating 0°C to 45 °C (32°F to 113°F) • Humidity -Operating: 5% to 95% (non-condensing)	• Weight: Net weight: 10.13kg (22.29 lb with 2 PSUs) • Regular and Reverse Airflow Models • Size (W x D x H): 434 x 550 x 44 mm (17.1 x 21.6 x 1.73 inches) • Temperature: Operating 0°C to 40 °C (32°F to 104°F) • Humidity - Operating: 5% to 95% (non-condensing)	• Weight: Net weight: 10.18kg (22.29 lb with 2 PSUs) • Regular and Reverse Airflow Models • Size (W x D x H): 434x 520 x 44 mm (17.1 x 20.47 x 1.73 inches) • Temperature: Operating 0°C to 40 °C (32°F to 104°F) • Humidity - Operating: 5% to 95% (non-condensing)
General	• Bare metal - ONIE Installed • 1U form factor for flexible installation • Mounting Flanges (included)	• Bare metal - ONIE Installed • 1U form factor for flexible installation • Mounting Rails (included)	• Bare metal - ONIE Installed • 1U form factor for flexible installation • Mounting Rails (included)

[1]Optional Power Supply	
PWS-FRU-G3648-1F	• Second (for redundancy) power supply for SSE-G3648B Ethernet Switch. Forward Airflow
PWS-FRU-G3648-1R	• Second (for redundancy) power supply for SSE-G3648BR Ethernet Switch. Reverse Airflow

Supermicro Bare Metal Ethernet Switches for Open Networking/SDN

Supermicro embraces the Open Networking arena with its line of "bare metal" Ethernet switches:
- Offering forty-eight 1Gbps RJ45 Ethernet ports and four 10Gbps SFP+ uplinks, the SSE-G3648B switch allows connectivity at 1Gbps to servers while aggregating traffic for high speed connection to high-bandwidth servers, to routers, and/or to other backbone network switches.
- For higher performance the SSE-X3648S extends the product line - providing forty-eight 10-Gigabit Ethernet ports, thus allowing connectivity to 10GEservers, routers, and backbones. It also offers six ports operating at 40Gbps for access to high-speed backbone networks or storage servers.
- At the top of the Supermicro bare metal switch line is the powerful SSE-C3632S. With thirty-two Ethernet ports that can be configured at either 40Gbps or 100Gbps, this switch enables a robust layer-3 IP fabric for flexible layer-2 overlay in an optimized Ethernet architecture. For modern scale-out, leaf-and-spine data center network deployments, it is well-suited to provide the high-speed spine layer, giving scalable bi-sectional fabric bandwidth for leaf layer switches like the SSE-X3648S or even the SSE-G3648B. The ability to configure the physical Ethernet QSFP28 as either 40Gbps or 100Gbps port, gives optimum flexibility in high-speed physical connectivity between the spine and leaf layers in the data center Ethernet fabric.

Adoption Expands to the Mainstream

Two important trends are reshaping the networking industry today: software defined networking (SDN) and software defined data center (SDDC). There is a wide range of approaches to SDN, but all approaches involve separating the control of how network resources are used (the "control plane") from the management of the physical hardware devices within the underlay network (the "data plane").

These trends are forcing major changes in the IT industry – changes that improve data center networking and allow organizations of all sizes to leverage efficient technology that was developed by the world's largest cloud operators. The resulting data center networks scale more easily, enable faster innovation, and cost significantly less to build and operate. Adoption is expanding to the mainstream market with solutions available worldwide from IT solution providers and integrators as well as from bare metal switch vendors like Supermicro.

"Open networking" refers to the disaggregation of switching hardware and software.   It consists of (1) bare metal switches (or white boxes or "brite boxes"), (2) a true Linux operating system, and (3) use of standard tools for automation and other functions. The use of a true Linux operating system enables the same deployment model used with servers: open choices for customers, lower total cost of ownership, and the ability to rapidly innovate via customized, open source and/or commercial tools and applications. Indeed, the very same automation tools used for servers may now be used for the network as well. Open networking enables platform choice and affordable capacity.

Open networking allows data center switches to be managed in the same manner as servers. Network administrators who adopt open networking leverage familiar switching and routing features provided by the Linux OS. Server administrators use their existing Linux tools as they deploy open networking to support VMware vSphere, OpenStack, big data, and other application environments. DevOps teams benefit from the ability to innovate at a faster pace.

The Supermicro Open Networking Advantage

Enter the SSE-G3648B/SSE-G3648BR, SSE-X3648S/SSE-X3648SR, and SSE-C3632S/SSE-C3632SR switches. They are ideal for deployment in Data Center, Cloud and Enterprise environments with the capability of handling access for the most demanding applications. All are available as a reverse-airflow model for use in large data centers with alternating hot and cold equipment aisles. And all are equipped with a second, redundant power supply (optional on SSE-G3648B/SSE-G3648BR).   Pre-loaded with the Open Network Install Environment (ONIE), all three are ready for your networking operating system of choice. Supermicro recommends the use of Cumulus Linux – these switches are all listed on the Hardware Compatibility List (HCL) of Cumulus Networks. Cumulus Linux is an OS for open networking incorporating a true Linux distribution with extensive networking features plus hardware acceleration of routing and switching functions. By using many of the same tools employed for servers, Cumulus Linux enables affordable scalability with clear CapEx savings and even greater OpEx savings; it unleashes rapid innovation via custom, open source or commercial Linux tools and applications. The embedded X86 Linux-based controller is particularly well suited for running the provisioning tools which are typically used for servers. Contact Cumulus Networks (www.cumulusnetworks.com) for more details and ordering information.

With these bare metal switches Supermicro customers have the opportunity to choose the hardware/software combination that best suits their own networking environment. And with Supermicro product reliability and support customers can rest assured that their investment is truly protected.

Supermicro Ethernet Switches – Ideal for Data Center, HPC, and Enterprise Networks

In today's computing environments, applications require access to more and more data – and they need it quickly. Supermicro paves the way for this data superhighway with its range of powerful and cost-effective Ethernet switching products.

Layer 2 switches can be used in stand-alone environments for 1G interconnect – including consolidation of server IPMI management connections. A PoE model gives robust support for IP Phones, security systems, portable wireless access points, and other systems requiring this capability. For servers with lower-speed Ethernet connectivity the aggregation switches with up to four 10-Gigabit uplinks give a cost-effective access ramp onto the 10-Gigabit Ethernet superhighway; 10-Gigabit Ethernet routers, servers, backbones and data centers can all benefit from these cost-effective solutions. Bare metal switch products offer best-of-breed selection options for leaf and spine fabric architectures with connectivity options up to 100Gbps. These switches are ideal for organizations with growing and consolidated data centers.

SFP+ and QSFP+ Direct Attach Cables

Part Number	Part Description
CBL-0347L	1M 10GbE SFP+ TO SFP+, Twinax copper cable
CBL-0456L	2M 10GbE SFP+ TO SFP+, Twinax copper cable
CBL-0348L	3M 10GbE SFP+ TO SFP+, Twinax copper cable
CBL-0349L	5M 10GbE SFP+ TO SFP+, Twinax copper cable
CBL-0417L	1M QSFP+ to QSFP+
CBL-0325L	2M QSFP+ to QSFP+
CBL-0419L	2.5M QSFP+ to QSFP+
CBL-0446L	3M QSFP+ to QSFP+
CBL-0422L	5M QSFP+ to QSFP+

For more details and an up-to-date list of available cables, visit:
https://www.supermicro.com/support/resources/AOC/
Networking_Cables_Transceivers_Compatibility.cfm

CX4 Cables - For Stacking or 10GE Interconnect - SSE-G24-TG4 and SSE-G48-TG4

Part Number	Part Description
CBL-0474L	1M
CBL-0389L-01	3M

Optional Rail Kit

For Secure Rack-Mount of 10G Switches
(SSE-X24S/SR, SSE-X3348S/SR, and SSE-X3348T/TR):

- CSE-PT52L

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