



EdgeSwitch™ 16 XG

10G 16-Port Managed Aggregation Switch

Model: ES-16-XG

Non-Blocking Throughput Switching

Maximum Performance and Low Latency

10G Ethernet SFP+ and RJ45 Ports





Advanced Switching Technology for the Masses

Build and expand your network with Ubiquiti Networks® EdgeSwitch™ XG, part of the EdgeMAX® line of products. The EdgeSwitch XG is a fully managed, 10G fiber switch that enhances network capacity and provides high-bandwidth services to growing networks.

The EdgeSwitch XG offers an extensive suite of advanced Layer-2 switching features and protocols, and also provides Layer-3 routing capability.

Switching Performance

The EdgeSwitch XG offers the forwarding capacity to simultaneously process traffic on all ports at line rate without any packet loss.

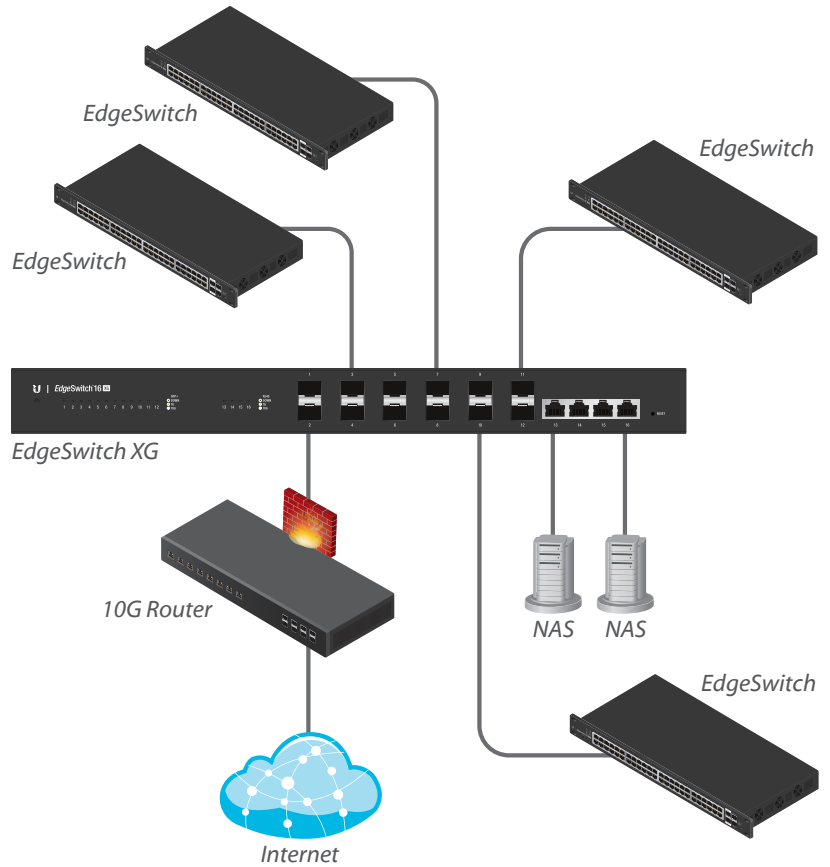
For its total, non-blocking throughput, the EdgeSwitch XG supports up to 160 Gbps.

10G High-Capacity Links

The EdgeSwitch XG offers maximum performance and low latency as an aggregation switch.

For fiber connectivity, it features 12 SFP+ ports. For copper connectivity, the EdgeSwitch XG offers four RJ45 ports that support 10GBASE-T, the standard for 10 Gbps connections using Cat6 (or higher) cabling and RJ45 connectors.

Deployment Example



The EdgeSwitch XG connects to the following:

- Multiple EdgeSwitches and a 10G router via SFP+ ports
- NAS (Network-Attached Storage) devices via 10G RJ45 ports



Comprehensive User Interface

Designed for convenient management, the EdgeSwitch Configuration Interface allows administrators to configure and monitor switch features in a graphical user interface.

For advanced users, an industry-standard command-line interface (CLI) is available through the serial console port, telnet, and SSH.

```
Last login: Tue May 13 15:25:28 on tty00
root@edge16:~# telnet 10.242.116.2
Trying 10.242.116.2...
Connected to 10.242.116.2.
Escape character is '^]'.

telnet>
telnet> user ubnt
Enter user name: ubnt
telnet>
telnet> enable
Enter user name: ubnt
telnet>
telnet> show
System Information:
  System Description: EdgeSwitch 16-Port 10G, Linux 3.6.5
  System Name: UBNT EdgeSwitch
  System Location:
  System Contact:
  IP Address: 10.17.111.112
  Burned In MAC Address: F09FC2F7F788
  System Up Time: 30 days, 0 hours, 43 mins, 8 secs

Device Information:
  Machine Type: EdgeSwitch 16-Port 10G
  Machine Model: ES-16-XG
  Serial Number: F09FC2F7F788
  Software Version: 1.4.01.4836834

System Resource Usage:
  CPU Utilization (60 Second Average): 13 %
  Memory Usage: 32 %
  Temperature Status: Normal

Logged In Users:
  User Name: ubnt
  Connection From: 10.242.116
  Idle Time: 00:00:00

Recent Log Entries:
  Log Time: Jan 29 00:09:00
  Severity: Info
  Description: HTTP Session 19 started for user ubnt connected from 10.242.116

  Log Time: Jan 28 22:44:42
  Severity: Notice
  Description: Spanning Tree Topology Change Received: MSTID: 0/0/16

  Log Time: Jan 28 22:44:40
  Severity: Notice
  Description: Spanning Tree Topology Change Received: MSTID: 0/0/16

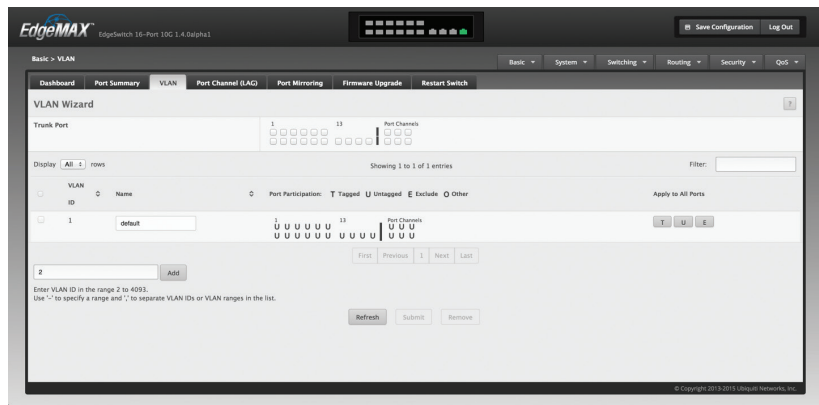
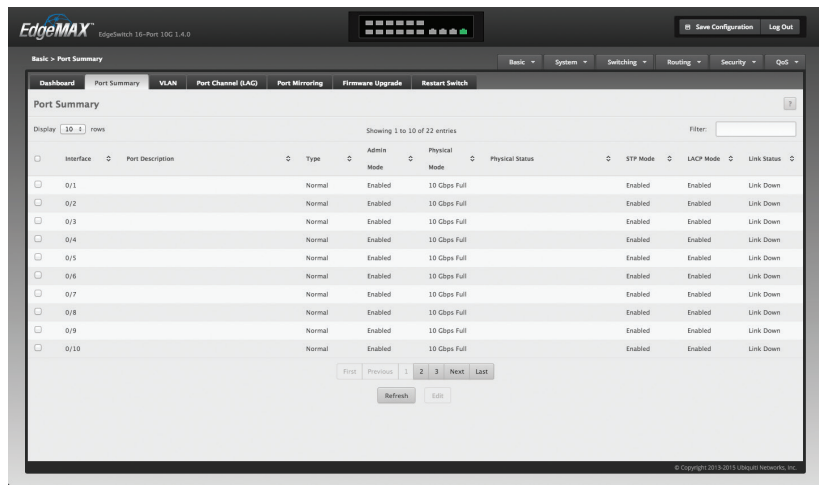
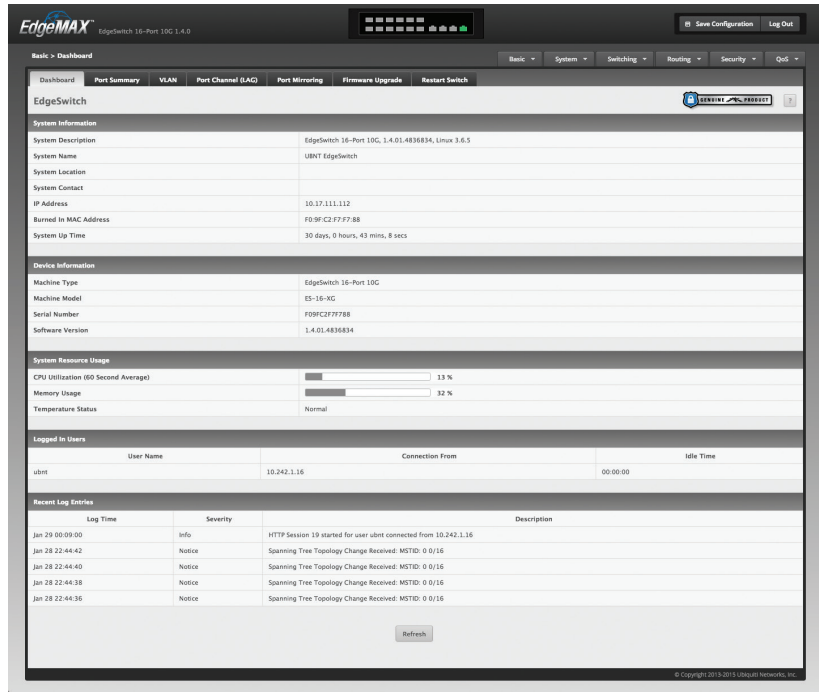
  Log Time: Jan 28 22:44:38
  Severity: Notice
  Description: Spanning Tree Topology Change Received: MSTID: 0/0/16

  Log Time: Jan 28 22:44:36
  Severity: Notice
  Description: Spanning Tree Topology Change Received: MSTID: 0/0/16
```

Powerful Functionality

The EdgeSwitch XG uses a sophisticated operating system that provides basic switching features and a variety of advanced features including:

- MSTP/RSTP/STP
- VLAN, Private VLAN, Voice VLAN
- Link Aggregation
- DHCP Snooping, IGMP Snooping
- TACACS+, RADIUS, 802.1X, MAC Filtering, ACL
- DiffServ, CoS
- Static Routing, Policy-Based Routing
- DHCP Server Functionality



Models

EdgeSwitch 16 XG

Model: ES-16-XG

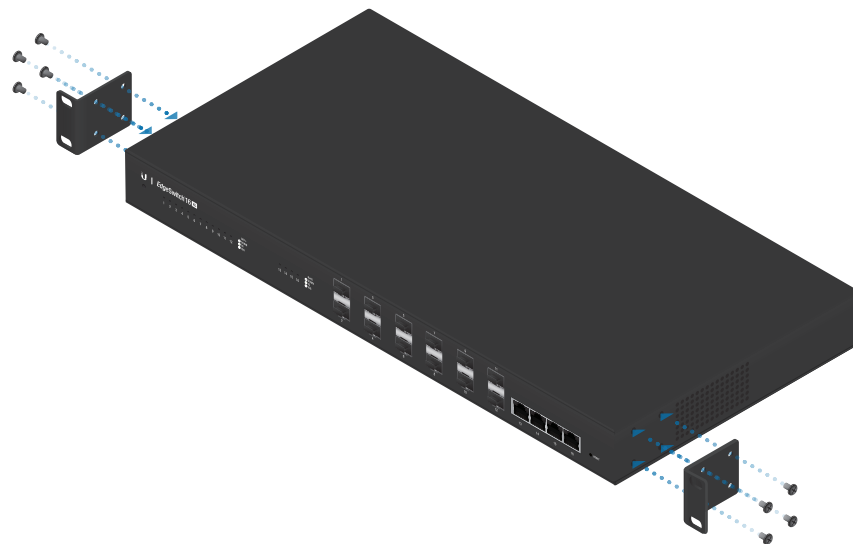
- (12) SFP+ Ports
- (4) 10G RJ45 Ports
- (1) RJ45 Serial Console Port
- Non-Blocking Throughput: 160 Gbps
- Switching Capacity: 320 Gbps
- Forwarding Rate: 238.10 Mpps
- Rack Mountable with Rack-Mount Brackets (Included)
- DC Input Option (Redundant or Stand-Alone)



Front Panel



Back Panel



Attaching Rack-Mount Brackets to the EdgeSwitch XG

EdgeSwitch™ 16 XG

Hardware Specifications

| ES-16-XG | | |
|-------------------------------|---|--|
| Dimensions | 443 x 221 x 43 mm (17.44 x 8.70 x 1.69") | |
| Weight | Rack-Mount Brackets Included | Rack-Mount Brackets Excluded |
| | 2.71 kg (5.97 lb) | 2.62 kg (5.78 lb) |
| Enclosure Characteristics | SGCC Steel | |
| Total Non-Blocking Throughput | 160 Gbps | |
| Switching Capacity | 320 Gbps | |
| Forwarding Rate | 238.10 Mpps | |
| Max. DC Power Consumption | 36W (Excludes SFP/SFP+ Modules) | |
| Power Method | AC | DC |
| | 100-240VAC/50-60 Hz, Universal Input | DC 56W, 25 to 16V, with 2.5 mm DC Power Inline Connector |
| Supported Voltage Range | 100 to 240VAC | 25 to 16VDC |
| Power Supply | AC/DC, Internal, 56W DC | |
| LEDs Per Data Port | Speed/Link/Activity | |
| Networking Interfaces | (12) 1/10 Gbps SFP+ Ethernet Ports (4) 1/10 Gbps RJ45 Ethernet Ports | |
| Management Interface | (1) RJ45 Serial Port, Ethernet In/Out Band | |
| Certifications | CE, FCC, IC | |
| Rack Mount | Yes, 1U High | |
| ESD/EMP Protection | Air: ± 24 kV, Contact: ± 24 kV | |
| Operating Temperature | -5 to 40° C (23 to 104° F) | |
| Operating Humidity | 5 to 95% Noncondensing | |
| Shock and Vibration | ETSI300-019-1.4 Standard | |



Software Specifications

| Software Information | |
|---------------------------|--|
| Core Switching Features | <ul style="list-style-type: none">• ANSI/TIA-1057: LLDP-Media Endpoint Discovery (MED)• IEEE 802.1AB: Link Layer Discovery Protocol (LLDP)• IEEE 802.1D: Spanning Tree Compatibility• IEEE 802.1S: Multiple Spanning Tree Compatibility• IEEE 802.1W: Rapid Spanning Tree Compatibility• IEEE 802.1Q: Virtual LANs with Port-Based VLANs• IEEE 802.1p: Ethernet Priority with User Provisioning and Mapping• IEEE 802.1X: Port-Based Authentication with Guest VLAN Support• IEEE 802.3: 10BASE-T• IEEE 802.3u: 100BASE-T• IEEE 802.3ab: 1000BASE-T• IEEE 802.3an-2006: 10GBASE-T• IEEE 802.1ak: Virtual Bridged Local Area Networks - Amendment 07: Multiple Registration Protocol• IEEE 802.3ac: VLAN Tagging• IEEE 802.3ad: Link Aggregation• IEEE 802.3x: Flow Control• IEEE 802.1D-2004: Generic Attribute Registration Protocol: Clause 12 (GARP)• IEEE 802.1D-2004: Dynamic L2 multicast registration: Clause 10 (GMRP)• IEEE 802.1Q-2003: Dynamic VLAN registration: Clause 11.2 (GVRP)• RFC 4541: Considerations for Internet Group Management Protocol (IGMP) Snooping Switches• RFC 5171: Unidirectional Link Detection (UDLD) Protocol |
| Advanced Layer 2 Features | <ul style="list-style-type: none">• Broadcast Storm Recovery• Broadcast/Multicast/Unknown Unicast Storm Recovery• DHCP Snooping• IGMP Snooping Querier• Independent VLAN Learning (IVL) Support• Jumbo Ethernet Frame Support• Port MAC Locking• Port Mirroring• Protected Ports• Static MAC Filtering• TACACS+• Voice VLANs• Unauthenticated VLAN• Internal 802.1X Authentication Server |

Software Information

| | |
|--------------------------------|---|
| <p>Platform Specifications</p> | <ul style="list-style-type: none"> • DHCP Server <ul style="list-style-type: none"> • Maximum Number of Pools: 128 • Maximum Number of Leases (Total): 2048 • Routing <ul style="list-style-type: none"> • Number of Routes: 16 • Number of Routing Interfaces: 15 • VLANs: 255 • MAC Addresses: 8k • MSTP Instances: 4 • LAGs: 6 • ACLs: 100 with 10 Rules per Port • Traffic Classes (Queues): 8 |
| <p>System Facilities</p> | <ul style="list-style-type: none"> • Event and Error Logging Facility • Run-Time and Configuration Download Capability • PING Utility • FTP/TFTP Transfers via IPv4/IPv6 • Malicious Code Detection • BootP and DHCP • RFC 2021: Remote Network Monitoring Management Information Base Version 2 • RFC 2030: Simple Network Time Protocol (SNTP) • RFC 2819: Remote Network Monitoring Management Information Base • RFC 2865: RADIUS Client • RFC 2866: RADIUS Accounting • RFC 2868: RADIUS Attributes for Tunnel Protocol Support • RFC 2869: RADIUS Extensions • RFC 3579: RADIUS Support for EAP • RFC 3580: IEEE 802.1X RADIUS Usage Guidelines • RFC 3164: BSD Syslog Protocol |
| <p>Management</p> | <ul style="list-style-type: none"> • Web UI • Industry-Standard CLI • IPv6 Management • Password Management • Autoinstall Support for Firmware Images and Configuration Files • SNMP v1, v2, and v3 • SSH 1.5 and 2.0 • SSL 3.0 and TLS 1.0 • Secure Copy (SCP) • Telnet (Multi-Session Support) |
| <p>Layer 3 Routing</p> | <ul style="list-style-type: none"> • Static Routing • Policy Based Routing |

Software Information

| | |
|-----|--|
| QoS | <ul style="list-style-type: none"> • Access Control Lists (ACLs), Permit/Deny Actions for Inbound IP and Layer 2 Traffic Classification Based on: <ul style="list-style-type: none"> • Time-Based ACL • Source/Destination IP Address • TCP/UDP Source/Destination Port • IP Protocol Type • Type of Service (ToS) or Differentiated Services (DSCP) Field • Source/Destination MAC Address • EtherType • IEEE 802.1p User Priority • VLAN ID • RFC 1858: Security Considerations for IP Fragment Filtering • Optional ACL Rule Attributes <ul style="list-style-type: none"> • Assign Flow to a Specific Class of Service (CoS) Queue • Redirect Matching Traffic Flows • Differentiated Services (DiffServ) <ul style="list-style-type: none"> • Classify Traffic Based on Same Criteria as ACLs • Mark the IP DSCP or Precedence Header Fields, Optional • Police the Flow to a Specific Rate with Two-Color Aware Support • RFC 2474: Definition of the Differentiated Services Field (DS field) in the IPv4 and IPv6 Headers • RFC 2475: An Architecture for Differentiated Services • RFC 2597: Assured Forwarding Per-Hop Behavior (PHB) Group • RFC 3246: An Expedited Forwarding PHB • RFC 3260: New Terminology and Clarifications for DiffServ • Class of Service (CoS) Queue Mapping Configuration <ul style="list-style-type: none"> • AutoVoIP: Automatic CoS Settings for VoIP • IP DSCP-to-Queue Mapping • Configurable Interface Trust Mode (IEEE 802.1p, DSCP, or Untrusted) • Interface Egress Shaping Rate • Strict Priority versus Weighted Scheduling per Queue |
|-----|--|