

# ES4710BD

## Chassis Core Routing Switch



### Product Overview

The Edge-Core ES4710BD is a high performance, 10-slot, Layer 3 chassis switch. It can work in single or redundant management module mode. Slot configuration can be any combination of network interface modules and 1 or 2 management modules. Furthermore, management modules also include network interfaces so total port density and slot usage is increased.

With redundant power supply, fans, and management modules, the Edge-Core ES4710BD ensures continuous operation and is a fully redundant system. Moreover, all parts are hot swappable. They can be added or exchanged without interrupting the whole system.

The ES4710BD is ideal for the core layer of campuses, enterprise networks and the aggregation layer of IP metropolitan networks..

### Key Features and Benefits

#### Performance and Scalability

The ES4710BD supports up to 16 10G ports or 192 Gigabit ports. Support IEEE-802.3, IEEE-802.3u, IEEE-802.3ab providing flexibility and high port density. The ES4710BD delivers Wire-speed and Non-blocking switching performance on all gigabit ports.

10G modules support 1 or 2 ports for downlink to L3 Gigabit distribution layer switches or L2 Gigabit switches, aggregating them to the core layer, and preventing port bottlenecks in Gigabit switches. Furthermore, the optional 10Gigabit Ethernet XFP transceivers can be chosen for different distance fiber uplinks.

Backup Master ensures the availability of a master controller for network control at any time.

Every module is hot swappable, ensuring continued operation of the system while adding or removing a module.

Firmware & configuration are automatically upgraded from master to slave units for management simplicity.

\*Intensive protocol support is included for MPLS, MPLS-VPN, MPLS-TE and IPv6 policy routing ensuring future investment protection.

Broadcast Storm Control prevents faulty end stations from degrading overall system performance.

#### Continuous Availability

IEEE 802.1w Rapid Spanning Tree Protocol provides a loop-free network and redundant links to the core network with rapid convergence.

IEEE 802.1s Multiple Spanning Tree Protocol runs STP per VLAN base, providing Layer 2 load sharing on redundant links.

IEEE 802.3ad Link Aggregation Control Protocol (LACP) increases bandwidth by automatically aggregating several physical links together as a logical trunk and providing load balancing and fault tolerance for uplink connections.

IGMP snooping prevents flooding of IP multicast traffic, and limits bandwidth intensive video traffic to only the subscribers.

#### L3 Features

The ES4710BD delivers high-performance hardware based IP routing.

RIP and OSPF provide dynamic routing by exchanging routing information with other Layer 3 switches or routers.

DVMRP, PIM-DM Multicast Routing Protocols send IP multicast traffic from one subnet to another.

VRRP prevents your system from failing by dynamically backing up multiple L3 switches for routing.

#### Comprehensive QoS

8 egress queues per port enable differentiated management of up to 8 traffic types.

Traffic is prioritized according to 802.1p, DSCP, IP precedence and TCP/UDP port number, giving optimal performance to real-time applications such as voice and video.

Bidirectional rate-limiting, per port or traffic class, preserves network bandwidth and allows full control of network resources.

#### Enhanced Security

IEEE 802.1X port-based access control ensures (Login) all users are authorized before being granted access to the network. Port Security ensures access to a switch port based on MAC address, Filter or limits the total number of devices from using a switch port and protects from MAC flooding attacks.

Access Control Lists (ACLs) can be used to restrict access to sensitive network resources by denying packets based on L2/L3/L4 headers.

SSL, Web Management Encryption, RADIUS and TACACS+ authentication protect data communication and ensure data privacy.

#### Simple Management

Industry standard Command Line Interface (CLI) via console port or Telnet can be used for switch management. Embedded user friendly web interface helps users quickly and simply configure switches.

Backup and restore Firmware and configuration files via TFTP.



## Features

### Physical Ports

10 open slots  
 1 AC power supply and 2 additional open slot for optional power supply  
 Max. number of 10 Gigabit ports: 16  
 Max. number of Gigabit ports: 192

### Performance

Backplane Capacity: 320Gbps  
 Forwarding Rate: 238Mpps  
 Mac Address Table Size: 16K

### L2 Features

Auto-negotiation for port speed and duplex mode  
 Flow Control: Store & Forward switching methods  
 ■ Provides IEEE 802.3x for full duplex mode  
 ■ Back-Pressure flow control for half duplex mode  
 Spanning Tree Protocol:  
 ■ IEEE 802.1D Spanning Tree Protocol (STP)  
 ■ IEEE 802.1w Rapid Spanning Tree Protocol (RSTP)  
 ■ IEEE 802.1s Multiple Spanning Tree Protocol (MSTP)  
 VLANs:  
 ■ Supports 4K IEEE 802.1Q VLANs  
 ■ Port-based VLANs  
 ■ Private VLAN  
 ■ GVRP  
 Link Aggregation:  
 ■ Static Trunk  
 ■ IEEE 802.3ad Link Aggregation Control Protocol  
 ■ Load Balancing for both Unicast and Multicast  
 ■ Number of port trunks : 6 per module  
 ■ Number of ports per trunk: 2~8 ports  
 IGMP Snooping:  
 ■ IGMP v1/v2/v3 snooping  
 ■ IGMP Query

### L3 Features

IPv4/IPv6 Routing  
 ARP  
 Multi-netting, Multi-casting  
 Super-netting (CIDR)  
 BGP4+  
 RIPv1/v2, RIPng  
 OSPF v2/v3  
 DVMRP, PIM-DM, PIM-SM  
 VRRP  
 DHCP/BootP relay, DHCP server  
 DNS proxy

### QoS Features

Priority Queues: 8 hardware queues per-port  
 Traffic classification based on IEEE 802.1p CoS, IP Precedence, DSCP,  
 TCP/UDP port number  
 Supports Marking and Re-marking  
 Supports WRR and Strict scheduling  
 Bandwidth Control:  
 ■ Egress rate limiting, Ingress rate limiting

### Security

Supports IEEE 802.1x port-based and MAC-based access control  
 RADIUS authentication  
 TACACS+ authentication\*  
 Access Control List  
 SSH (v1.5/v2.0), SSL

### Management

Switch Management:  
 ■ CLI via console port or Telnet  
 ■ WEB management  
 ■ SNMP v1, v2c, v3  
 Firmware & Configuration:  
 ■ Dual firmware images  
 ■ Firmware upgrade via TFTP server  
 ■ Multiple configuration files  
 ■ Configuration file upload/download via TFTP server  
 Support Port Mirroring  
 Supports RMON (groups 1, 2, 3 and 9)  
 Supports BOOTP, DHCP for IP address assignment  
 Supports SNMP  
 Event/Error Log/Syslog

### Mechanical

Dimensions (H x W x D): 797 x 436 x 478 mm (19RU)  
 AC Power Input: (19"rack-mount metal case)  
 ■ 90 ~ 264VAC, 50 ~ 60Hz /LED Indicators: Power, Diagnostic, Link/Act, 1000M  
 ■ Built-in Universal Power Supplies  
 ■ Power Output for single power Supply:600W (max)

### Safety

CSA/NRTL (UL60950, CSA 22.2.No 60950-00)  
 TUV/GS (EN60950)  
 CB

### Electromagnetic Compatibility

CE Mark  
 FCC Class A  
 VCCI Class A

### Environmental Specifications

Temperature:  
 ■ IEC 68-2-14  
 ■ 0°C to 40°C (Standard Operating)  
 ■ -40°C to 70°C (Non-Operating)  
 Humidity: 10% to 90% (Non-condensing)

### Warranty

Limited lifetime warranty

\*: Check for availability

## Ordering Information

EM4710BD-AC  
 EM4710BD-AGENT  
 EM4700BD-12GT-RJ45  
 EM4700BD-12GX-SFP  
 EM4700BD-8GC16GX  
 EM4700BD-8GC16GX2XG

EM4700BD-48GT  
 EM4700BD-4GX-XFP

220V AC Power Supply (Hot Swap)  
 Management module  
 12 10/100/1000Base-Tx ports module (RJ-45 interface)  
 12 1000Base-X ports module (SFP interface)  
 8 Comb G ports(RJ-45/SFP) with 16 1000Base-X ports (SFP interface)  
 8 Comb G ports(RJ-45/SFP) with 16 1000Base-X ports (SFP interface)  
 and 2 10G XFP ports  
 48-port 10/100/1000Base-T (RJ-45)  
 4-port 10G Module (XFP interface)