

Riverstone ES 10170 Ethernet Aggregation Switch

Ethernet Aggregation Switch: ES 10170

The ES 10170 is a Layer-3 Ethernet aggregation switch designed for wiring closets and Carrier data centers. The ES 10170 can deliver 448 Fast Ethernet + 4 Gigabit Ethernet or 60 Gigabit Ethernet ports at wire-speed in a 5U chassis. This high port density helps save rack space and can decrease operational complexity by reducing the number of deployed network elements. In addition, the ES 10170 allows network capacity to scale further by supporting 8 Gigabit trunked links over CWDM optical fiber connections.

The ES 10170 features full-function hardware-based switching & routing capabilities. It also has an unmatched range of features such as packet filtering, rate limiting, prioritization and accounting which combine to give pinpoint bandwidth control and monitoring. Equipped with carrier class reliability and redundancy features, the ES 10170 is ideally suited for mission-critical networks.

KEY APPLICATIONS

- High Availability L2/L3 LAN Core Switch
 - Full function routing with carrier class reliability for non stop mission-critical environments
- High Density Wiring Closet Switch - 448 Fast Ethernet + 4 Gigabit Ethernet or 60 Gigabit Ethernet ports in 5 rack units
- Highly Reliable and Resilient Server Farm Switch - full redundancy features such as HPS and VRRP



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CUSTOMER CHALLENGES AND SOLUTIONS	
Challenge	Solution
Sustain high-availability while supporting high-density traffic aggregation for mission critical business network cores	<ul style="list-style-type: none"> Carrier-class availability through the Hitless Protection System & VRRP for full redundancy and failover Upgrade system software without network disruption Collapse the distribution layer and wiring closet into one scalable L2/L3 switching platform
Aggregate Fast and Gigabit Ethernet in a wiring closet while reducing operational complexity & rack space utilization	<ul style="list-style-type: none"> Highest Ethernet density available means fewer deployed network elements, lowering space usage and management costs Modular design allows growth to match the user density
Non-stop server farm with maximum uptime	<ul style="list-style-type: none"> Resilient and scalable server aggregation platform through the Hitless Protection System & VRRP for full redundancy and failover

Platform Features:

Service Enablers

- IP routing - OSPF, IS-IS, BGP
- VLANs based on port or protocol
- Multicast
- Distributed routing in hardware on each line card
- Security (ACLs, IEEE 802.1x, L2 filters)
- QoS - prioritization and filtering based on L2 or L3 flows, Hardware-based Rate Limiting
- Jumbo Frame support

System, Software and Hardware Fault Tolerance

- Redundant power supplies
- Redundant control modules
- Hot-swappable interface modules
- Spanning Tree Protocol, Rapid STP, Per VLAN STP
- VRRP
- Link Aggregation, Smarttrunking
- Hitless Protection System for software upgrades and control module failovers

Extensive Management

- RMON/RMON2
- SNMP
- SSH v1 and v2
- RADIUS
- TACACS+
- RS-232 (out-of-band management)
- Command Line Interface (CLI)
- Riverstone Management Center

Interfaces

- 10/100 Ethernet (TX , via RJ-21 mini telco connectors)
- Gigabit Ethernet
- 4 GbE Lambda on bi-directional CWDM (intermediate range)

Capacity and Performance

- Up to 4,096 VLANs
- Up to 250,000 routes
- Up to 20,000 security/access control filters
- Up to 16,000,000 Layer 2 MAC addresses
- Up to 170 Gbps non-blocking switching fabric
- Up to 90 million packets-per-second routing throughput
- MTBF (predicted) > 200,000 hours

Standards Support

- For a complete list of standards supported, including RFCs and MIBs, please refer to http://www.riverstonenet.com/rs_stds.shtml

Physical Specifications:

Dimensions:	Height: 8.75 in. / 22.2 cm
	Width: 17 in. / 43.2 cm
	Depth: 21.25 in. / 54 cm
Weight :	Empty: 56 lbs / 25.5 kg
	Loaded: 126 lbs / 57.2 kg

Environmental Specifications:

Operating Altitude:	10000 ft (3000 m) maximum
Operating Temp.:	+0° to +40°C (32° to 104°F)
Non-Op. Temp.:	-40° to +70°C (-40° to 158°F)
Operating Humidity:	10 to 90% (non-condensing)
Non-Op. Humidity:	5 to 95% maximum (non-condensing)
Shock and Vibration:	Telcordia GR63

Power Specifications:

AC Power
Input Current 6-12 A
Input Voltage 100-240 V
Frequency 50-60 Hz
DC Power
Input Current 30 A
Input Voltage -48 to -60 V

Agency Standards and Specifications

Safety: Meets the requirements of UL1950, CSA C22.2 No. 950, EN60950, IEC950 and 73/23/EEC.
 Electromagnetic Compatibility: Compliant with the requirements of FCC Part 15, CSA C108.8, EN55022, VCCI, EN50082-1 and 89/336/EEC.

Ordering Information

Part No.	Product Description
E10-170B	ES 10170 System (Chassis, fan, switch fabric in the backplane, Full Layer 3 software with 32 MB PCMCIA card)
E10-CM4	ES 10170 Control Module 4 (512 MB of memory) with 4 Gigabit Ethernet ports (requires GigE SFPs)
E10-AC	ES 10170 AC power supply (up to 2 required for a full load, 3rd for redundancy)
E10-DC	ES 10170 DC power supply (up to 2 required for a full load, 3rd for redundancy)
E10-FED-64	ES 10170 64-port 10/100 line card with mini-RJ21 connectors
E10-GEF-08	ES 10170 8-port Gigabit Ethernet line card (requires GigE SFPs)
E10-WDEB-02	ES 10170 2-port CWDM line card (4 x GigE per port)
SFPGE-11	1000BaseSX Single Gigabit Ethernet Small Form-factor Pluggable (SFP)
SFPGE-19	1000BaseLX Single Gigabit Ethernet SFP
SFPGE-18	1000Base-LH (70 km typical reach over SMF) Gigabit Ethernet SFP

All products above are available with a light encryption option, to comply with US export laws. Please contact Riverstone Networks for details. For availability and complete ordering information, including specific modules, contact your Riverstone Representative at (408) 878-6500. You may also visit our website at www.riverstonenet.com



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