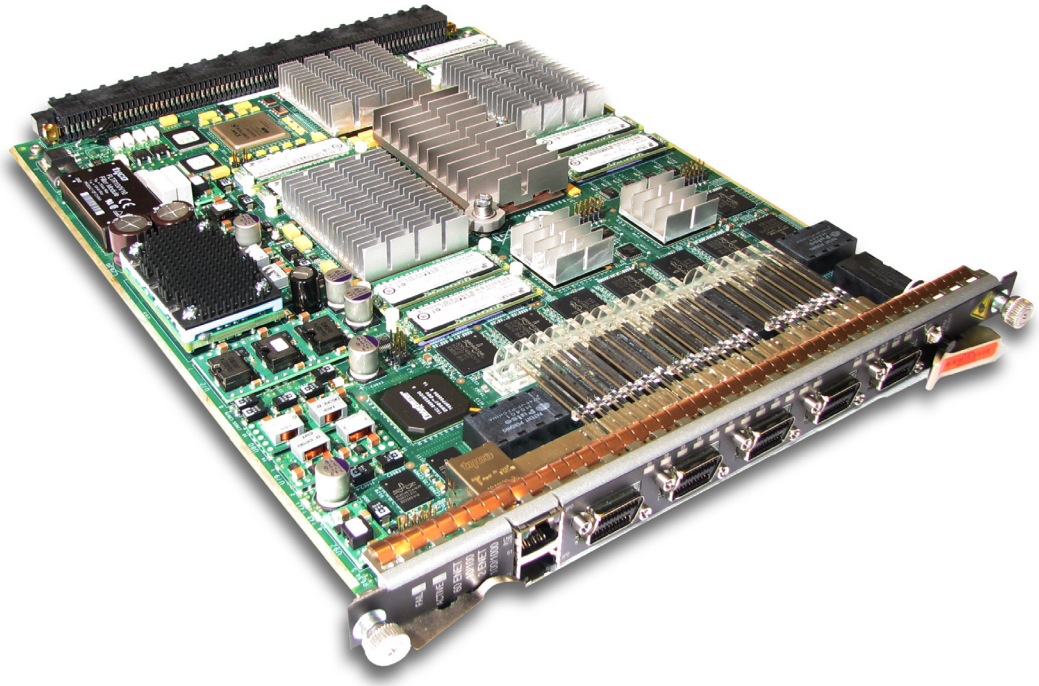
SMARTEDGE® 60-PORT FAST ETHERNET LINE CARD

Carrier-class line card provides high concentration of Fast Ethernet Ports for Business and Consumer Service Delivery; Simplifies Network Architecture by eliminating the need for separate layer 2 switches



Key benefits

- Supported in SmartEdge 400/800/1200 – all line cards can be 60-port FEs, if required; 2880 Fast Ethernet ports per seven foot rack
- 2 x Gigabit Ethernet (100/1000) using 2 x RJ-45 copper ports and 60 x Fast Ethernet (10/100) using 5 x Mini RJ-21connectors. Each connector has an octopus cable of 12 FE copper connectors
- Supports up to 5 breakout cables per card; Each cable has 1 x MRJ-21 to 12 x RJ-45 connectors [Category 5 UTP Cable; 2 Meter Length and 24 AWG]
- Hot swappable for in-service insertion and removal; In-Service Software Upgrade for on-demand reconfiguration and in-service ASIC microcode updates
- Highly scalable and flexible architecture with the ability to disable unused ports for maximum efficiency
- Wire-speed, high-performance MPLS Provider and Provider Edge functionality
- High-capacity, efficient multicast replication for high-performance, large scale IP Video deployments
- Distributed processing with no single-point-of-failure and local, wire-speed services and forwarding including RIP, OSPF, BGP4 and IS-IS
- Dynamically configurable queues per module with up to eight (8) queues per subscriber
- Subscriber awareness and control for up to 256,000 individual subscribers per chassis (SmartEdge 1200 with XCRP4)
- All ports can be used for downlink or uplink purposes

Ericsson has enhanced its SmartEdge Multi-Service Edge Router (MSER) with a high performance, high density Fast Ethernet line card that further simplifies service provider's network architecture and operation. This line card has 60 Fast Ethernet ports and 2 Gigabit Ethernet ports. It has

ERICSSON

the same size as all the other SmartEdge line cards and occupies a single slot. It has 5 times the capacity of the other Fast Ethernet line cards in SmartEdge. Multiple line cards can be deployed within a SmartEdge chassis and eliminate the need for layer 2 aggregation switches [all of SmartEdge line card slots can be populated with the 60-port FE cards simultaneously].

All of SmartEdge advanced services, such as advanced traffic engineering with hierarchical QoS, policing, shaping, and granular rate limiting on a per subscriber per service basis. Subscriber management, L2/L3 VPNs (e.g., VPLS, H-VPLS, IP/VPN) and application-aware QoS management, including Layer 2 to Layer 3 QoS mapping. By utilizing this line card, service providers are now able to simplify their network architecture to deliver business and consumer services including Virtual Leased Lines, VPLS, and Triple Play services, as well as infrastructure services in Metro Networks, such as bridging and Layer 2 aggregation.

The flexibility of the 60-port FE card allows for the use of any link (FE or GE) to be configured as user-side or the network-side. In addition, the uplink (network-side) ports can be on any other card, per normal SmartEdge configuration and operation. Other important features include the ability to place unused port in the “isolate” mode to disable them for operational optimization, cable diagnostic support, loopback mode for diagnostic, and configurability of jumbo packet mode on each port.

Run by powerful on-board advanced Packet Processing ASIC 2 (PPA2) (one for ingress and one for egress traffic), external 1G DDR memory and separate memory channels (32 bit wide running @ 200MHz DDR2), this card is capable of packet pre-classification, packet re-ordering, processing multicast packets, and packet scheduling. Advanced circuitry allows for low level monitoring and/or control of on-board voltages, LEDs, and temperature for enhanced reliability. Each 60-port line card is hot-swappable and the use of PPA2 enables In Service Software Upgrade (ISSU).

Other features include:

1. Programmable maximum frame length
2. Support for VLAN tagged frame transmission
3. Uses industry standard Mini RJ-21 connectors on the faceplate to fan out
4. Reporting can all be conducted via Ericsson NetOp Element Manager

Applications

SmartEdge 60 port Ethernet Aggregation line cards are ideal for building highly optimized networks for DSLAM, CMTS, wireless or FTTx aggregation, ATM to Ethernet Migration, and Metro Ethernet Aggregation. L2/L3 VPN services can be delivered to numerous medium to large enterprises with security and bandwidth management (e.g., P2P rate limiting). The service creation capabilities of the SmartEdge platform combined with the flexibility and cost efficiency of Ethernet results in a Smart Broadband Network that is personalized, adaptive, and efficient.

Technical specifications for SmartEdge 60-Port Fast Ethernet line card

Module specifications

- Packet Forwarding Engine: PPA2 programmable ASIC with 32 RISC core processor providing local routing and IP services in hardware.
- Interface Types: 100BaseTX and 1000BaseTX compliant with IEEE 802.3 specifications.

Ethernet features and interfaces

- Media Access Control (MAC) with full-duplex operation
- Compliant with Ethernet standards, including: 802.1d, 802.1p/q, 802.3, 802.3i, 802.3u, 802.3x, 802.3z

High availability and redundancy

- H-VPLS, VRRP, RSTP, and Link Aggregation (802.3ad)
- In Service Software Upgrade

LEDs

Fast Ethernet Ports

- OFF – No link, No Activity, or Disabled
- YELLOW (solid) – 10 Mbps + Link
- YELLOW(blinking)– 10 Mbps + Link + Activity
- GREEN (solid) – 100 Mbps + Link
- GREEN (blinking) – 100 Mbps + Link + Activity

Gigabit Ethernet Ports

- LINK/ACTIVE (Left side of RJ45 Connector)
  - OFF – Link not present
  - GREEN(solid) – Link present
  - GREEN(blinking) – Link and Activity
- SPEED (Right Side of RJ45 Connector)
  - YELLOW – 100 Mbps
  - GREEN – 1000 Mbps
- FAIL
  - OFF - Normal operation
- ACTIVE
  - GREEN - Normal Operation
- FE Faceplate Pushbutton:
  - PORT (12 Color LEDs)
  - Labeled 1-12;13-24;25-36;37-48;49-60
  - Indicates the port status within a single Mini-RJ21

Physical specifications

- Dimensions (H x W x D): 16.0 x 1.12 x 9.97 in. (40.64 x 2.83 x 25.32 cm)
- Weight:: 4.86 lbs (2.2 kg)

Environmental specifications

- Operating temperature, nominal: 41° to 104°F (5° to 40°C)
- Operating temperature, short term: 23° to 131°F (-5° to 55°C)
- Storage temperature: -38° to 150°F (-40° to 70°C)
- Operating relative humidity: 5% to 90% RH
- Storage relative humidity: 5% to 95% RH
- Operating altitude: 60 to 4000 meters

Regulatory compliance

- UL 60950-1: 2001 - Safety of information technology equipment
- CSA 22.2 No. 60950-1-03 1st Ed, April 1, 2003 - Safety of information technology equipment
- EN 60950-1: 2001 + IEC 60950-1: 2001 - Safety of information technology equipment
- ACA TS001 - Safety Requirement for customer equipment
- 21CRF1040, EN60825-1, EN60825-2 – ROHS-5 compliant

Emission
- FCC CFR 47 Part 15 Class A
- EN55022: Class A
- CISPR 22:Class A
- VCCI V-3/97.04 Class A
- AS/NZS 3548: Class A
- CNS-13438 Class A - BSMI in Taiwan

Immunity
- EN61000-4-2 ESD immunity
- EN61000-4-3 Radiated RF field immunity
- EN61000-4-4 Immunity to electrical fast transients
- EN61000-4-5 Surge immunity
- EN61000-4-6 RF conducted immunity

European Telecommunication Standards Institute
- ETSI EN 300 386 : Electromagnetic compatibility and radio spectrum Matters (ERM); Telecommunication network equipment; electromagnetic Compatibility (EMC) requirements

Ericsson
100 Headquarters Drive
San Jose, CA 95134-1362 USA
Tel: +1 408 750 5000
Fax: +1 408 750 5599
www.ericsson.com

© 2008 to 2009, Ericsson AB. All rights reserved.
Redback and SmartEdge are trademarks registered at the U.S. Patent & Trademark Office and in other countries. AOS, NetOp, SMS, and User Intelligent Networks are trademarks or service marks of Redback Networks Inc. All other products or services mentioned are the trademarks, service marks, registered trademarks or registered service marks of their respective owners. All rights in copyright are reserved to the copyright owner. Company and product names are trademarks or registered trademarks of their respective owners. Neither the name of any third party software developer nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission of such third party.