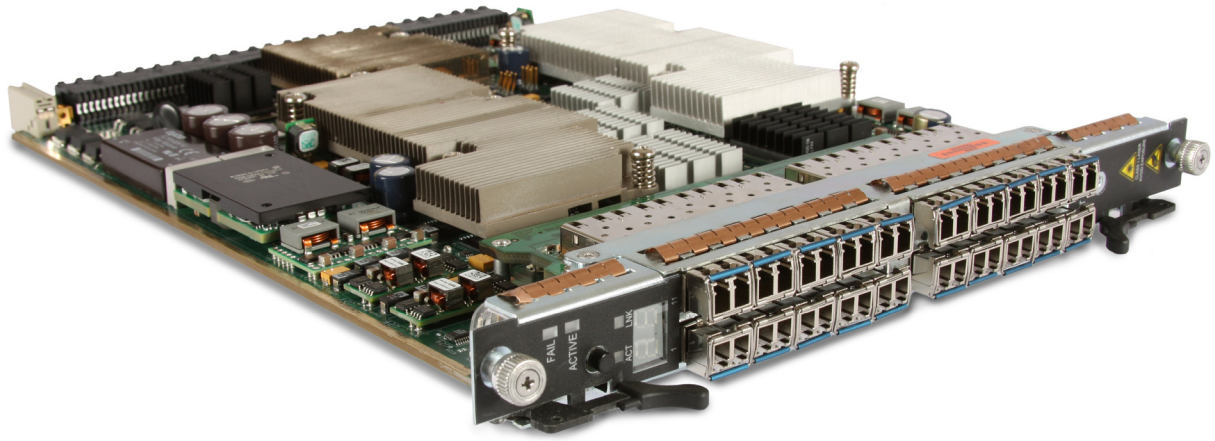
SMARTEDGE® 20X1G LINE CARD

Carrier-class high density line card provides consolidation of network architecture and delivery of bandwidth intensive applications to subscribers



Key benefits

- Supported in SmartEdge 1200 –chassis can be completely populated by this line card
- Gigabit Ethernet and FX-100 fast Ethernet. Optical interfaces supported: SX, LX, ZX, TX, bi-directional, CWDM and DWDM; Copper interface also supported.
- Supports up to 8000 Virtual Router configurations (Context); Supports 32,000 circuits and 256,000 Queues. 16,000 circuits are supported per port.
- Hot swappable for in-service insertion and removal; In-Service Software Upgrade for on-demand reconfiguration and in-service ASIC microcode updates
- Wire-speed, high-performance MPLS Provider and Provider Edge functionality
- High-capacity, efficient multicast replication for high-performance, large scale HD-IPTV 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 queue sizes with up to 4 queues per port
- Supports 64 byte packets to Jumbo packet at 9,198
- All ports can be used for downlink or uplink purposes
- Managed by Ericsson's NetOp EMS and Policy Manager

The SmartEdge Multi-Service Edge Router (MSER) offers this high performance, high density 20-port Gigabit Ethernet line card to address the current and expected service provider's requirements for IP/MPLS network applications and services. HD-IPTV is an application with expectations of high growth rates, and requires an efficient metro Ethernet network for delivery of various video streams to numerous subscriber sites. Ericsson's efficient multicast replication scheme within the SmartEdge was designed to specifically address this application.

ERICSSON

Other relevant service delivery features, such as Quality of Service, with per subscriber per service QoS using DHCP, VLAN and PPPoE connections are also supported. Traffic Management (TM) is supported in this card and can be turned on or off using configuration commands on a per port basis. In addition to supporting Gigabit Ethernet, this card also supports 100-FX ports (100Mbps optical Ethernet). The 20x1GE line card line card benefits from all of the existing features that are available in SmartEdge. It can be used as a base to design a high speed metro Ethernet edge network replacing, potentially, multiple independent separate layer 2 switches. This 20x1GE card has the same size as all the other SmartEdge line cards and occupies a single slot in the chassis.

This line card is powered by two new ASICs on board: PPA3 and PMA3 which were designed in-house, by Ericsson. Two Packet Processing ASIC III (PPA3) chips provide packet processing – one for ingress and one for egress traffic, required for routing incoming and outgoing packets. It is capable of addressing up to 2 GB of memory. The Packet Mesh ASIC III (PMA3) provides a high bandwidth bi-directional link across the SmartEdge backplane. This advanced chip increases the inter-card communication speed within SmartEdge by 300% or higher relative to previous generation ASICs, for faster packet processing and higher overall throughput.

This card is also MEF-compliant (MEF 9, 14) per-VLAN policing, statistics, classification, and tagging. All of SmartEdge advanced services are available on this card, such as advanced traffic engineering with hierarchical QoS, policing, shaping, and granular rate limiting on a per subscriber per service basis. Support for 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 are also available. By utilizing this line card, service providers are now able to simplify their network architecture to deliver bandwidth intensive applications and services to their subscribers.

The flexibility of this card allows for the use of any link 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.

Applications

SmartEdge 20x1GE Ethernet Aggregation line cards are ideal for building highly optimized networks for delivery of bandwidth intensive streams such as HD-IPTV. Advanced multicast replication are designed in to ensure an optimized data flow within the chassis. Multicast packets are replicated and can be delivered to multiple egress cards simultaneously. In addition, Ericsson's Dual PIM Joint protocol enables additional resiliency and fault-tolerant for multicast applications. Other services such as 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 20x1G line card

Module specifications

- Packet Forwarding Engine: PPA3 programmable ASIC with 32 RISC core processor providing local routing and IP services in hardware.

Ethernet features and interfaces

- Media Access Control (MAC) with full-duplex operation;
- 20 x 1 Gigabit Ethernet and FX-100 fast Ethernet, IEEE 802.3 compatible with SX, LX, LH, ZX, TX, bi-directional, CWDM and DWDM optical interfaces

High availability and redundancy

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

LEDs

- Two character displays for port status and 2 LEDs for link status display:
  Port LEDs:
  – GREEN – Active Link
  – If there is LOS, GREEN goes off to show that the port is in DOWN state
  –YELLOW – for receive signal; blinking state is use to indicate the port is transmitting or receiving data
  Status LEDs:
  – RED – Board Failure
  – GREEN - Normal operation
- ACTIVE
  – GREEN – Board in Normal Operation
- Faceplate Pushbutton: enables status cycling on port LED

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)

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

NEBS level III compliance

- GR-1089-CORE
- GR-63-CORE
- SR-3580

Regulatory compliance

- Safety
- UL 60950-1
- CAN/CSA-C22.2 No. 60950-1
- EN 60950-1
- IEC 60950-1
- AS/NZS 60950-1

Emission

- ETSI EN 300 386
- FCC CFR 47 Part 15 Class A
- ICES-003 Class A
- EN55022 Class A
- CISPR 22 Class A
- VCCI Class A
- AS/NZS 3548 Class A
- DT 1TR9 Class A

Immunity

- EN 50082-1
- 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

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