Cisco 12000 Series Four-Port OC-12c/STM-4c ATM Line Card

THE CISCO 12000 SERIES FOUR-PORT OC-12C/STM-4C ATM LINE CARD COMPLEMENTS THE EXISTING SUITE OF ATM LINE CARDS FOR THE CISCO 12000 SERIES ROUTER PRODUCT LINE, PROVIDING INCREASED PORT DENSITY WHILE DELIVERING HIGH-PERFORMANCE PACKET FORWARDING. THE PRIMARY USE OF THIS CARD IS FOR BACKBONE APPLICATIONS. THE NEW LINE CARD PERFORMS THE SEGMENTATION AND REASSEMBLY (SAR) OF IP PACKETS IN ACCORDANCE WITH RFC 1483, MULTIPROTOCOL ENCAPSULATION OVER ATM ADAPTATION LAYER 5 (AAL5).

Feature Summary

Packet Layer

- 2.8-Mpps IP forwarding rate (bidirectional OC-12 line rate for 64 byte packets on all four ports)
- Cisco Express Forwarding (CEF) table that can accommodate up to one million of forwarding entries
- Interleaved IP Version 4 (IPv4) and MPLS (Tag Switching) packets
- Buffering up to 128 MB in both Tx and Rx directions
- Class of service (CoS) of up to eight levels per output port using modified deficit round robin (MDRR)
- Random early detection (RED) on all output queues
- Weighted random early detection (WRED) (per port)
- IP and Multiprotocol Label Switching (MPLS) load balancing for up to six paths
- Packet/byte count, SONET/SDH errors, queue size, and WRED statistics (per port)
- Multicast forwarding
- Maximum transfer unit (MTU) of 9188 bytes
- 64 MB of route table memory, expandable to 256 MB
- 256 MB of packet buffer memory, expandable to 512 MB

ATM Layer

- Unspecified bit rate (UBR) traffic class, simple first-in, first-out (FIFO) queuing
- RFC 1577 classical IP over ATM
- RFC 1483 Multiprotocol Encapsulation over AAL5
- ATM AAL5
- UNI 3.0 and 3.1 (including ILMI)
- OAM F5
- Support for up to 2047 VCs per port
  - Per-VC accounting for both transmitted and received packets
  - Per-port ATM layer dropped packets and CRC error counting
  - Support for 227 simultaneous resembles per port at a 9 KB maximum transmission unit (MTU) size
  - NLPID encapsulation
  - Flexible VP number assignment

CISCO SYSTEMS

SONET/SDH Layer

- Standards-compliant Synchronous Optical Networking/ Synchronous Digital Hierarchy (SONET/SDH) interface
- Alarm processing, which includes loss of signal (LoS), loss of frame (LoF), line alarm indicator signal (LAIS), path alarm indicator signal (PAIS), loss of pointer (LOP), line remote defect indicator (LRDI), path remote defect indicator (PRDI), signal failure (SF), signal degrade (SD), line remote error indicator (Line REI), path remote error indicator (Path REI)
- Synchronization, which includes local (internal) or loop timed (recovered from network), 20 ppm clock accuracy over full operating temperature range, and pointer activity monitoring
- Local (diagnostic) and line (network) loopback

Specifications

Physical

- Occupies a single slot
- Weight: 8lb (3.6 kg)
- Height: 14.5 in. (35.6 cm)
- Depth: 18.5 in. (45.7 cm)

Environmental

- Operating temperature: 32 to 104 F (0 to 40 C)
- Storage temperature: -4 to 149 F (-20 to 65 C)
- Relative humidity: 10 to 90%, non condensing

Regulatory Compliance

SONET/SDH

- Telcordia (Bellcore GR-253 as applicable)
- ITU-T G.957 as applicable
- ITU-T G.958 as applicable

Safety

- UL 1950
- CSA C22.2, No. 950
- EN 60950
- IEC 60950
- ACA TS001
- AS/NZS 3260
- EN 60825 Laser Safety (Class 1)

Electromagnetic Emissions Certification

- FCC Class A
- AS 3548 Class B
- EN 55022 Class B
- VCCI Class 2

Immunity

- IEC-1000-4-2 ESD
- IEC-1000-4-3 Radiated immunity
- IEC-1000-4-4 EFT
- IEC-1000-4-5 Surge
- IEC-1000-4-6 low-frequency common immunity
- IEC-1000-4-11 voltage dips and sags
- IEC-1000-3-2 power line harmonics

Network Equipment Building Systems

- GR-1098-Core (Network Equipment Building Systems (NEBS): EMC and safety

European Telecommunication Standard Institute

- ETS-300386-2

LEDs

- Link status LED per port on front panel
- Active LEDs
- Carrier LEDs
- Rx Cells LEDs
- Alpha-numeric management display

Optical Power Characteristics

Product Number	Output Optical Power		Input Optical Power	
	Min (dBm)	Max (dBm)	Min (dBm)	Max (dBm)
4OC12/AM-MM-SC	-20	-14	-26	-14
4OC12/ATM-IR-SC	-15	-8	-28	-7

Connector

- SC connector (1300nm transceiver for both single-mode and multimode fiber)

Network Management

- CiscoView
- Simple Network Management Protocol (SNMP)
- Management Information Base II (MIB-II)
- SONET Management Information Base (MIB) RFC 1595 supported through SNMP
- ATM MIB (RFC1695)
- CISCO AAL5 MIB

Ordering and Availability

Product Model Number	Product Description	Availability	Cisco IOS™ Release
4OC12/ATM-MM-SC	Four port OC-12/STM-4 ATM, multimode, SC connector	Now	12.0(13)S
4OC12/ATM-IR-SC	Four port OC-12/STM-4 ATM, intermediate reach, SC connector	Now	12.0(13)S
MEM-DFT-GRP/LC-64	Default 64-MB code and route table memory	Now	N/A
MEM-DF-LC1-PKT-256	Default 256-MB packet buffer memory	Now	N/A
MEM-PKT-512-UPG	Optional 512-MB upgrade packet buffer memory	Now	N/A
MEM-GRP/LC-128	Optional 128-MB upgrade for code and route-table memory	Now	N/A
MEM-GRP/LC-256	Optional 256-MB upgrade for code and route-table memory	Now	N/A

Special Note

For additional information, please e-mail cs-12000@cisco.com or visit http://www.cisco.com/gsr.

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