Scientific Atlanta
A CISCO COMPANY

Digital Transport

Prisma IP™ E-Series
E500 Optical Access Platform

Description

The Scientific-Atlanta® Prisma IP™ E-Series (E500) Access Platform enables service providers to offer mission critical data, video, and voice services to high revenue customers. The platform's powerful provisioning and management tool enables these services to be quickly and simply deployed maximizing revenue generation and overall customer satisfaction. The Prisma IP network architecture offers reduced complexity and increased scaling capacity, lowering overall cost of deployment and operation.

The Prisma IP E500 is a compact platform, targeted for use by service providers in Small and Medium Enterprises (SME), commercial Multi-Tenant Units (MTUs), and cellular traffic backhaul. Typically deployed in a Resilient Packet Ring (RPR) topology, the platform provides restoration from network outages in less than 50 milliseconds. In addition, the Prisma IP family of products provides full support for circuit TDM services, while enabling a range of new differentiated packet data services through carrier grade functionality.

The Prisma IP E500 platform supports multiple IP, Ethernet, and TDM applications and can be deployed with larger capacity Prisma IP M-Series and C-Series platforms.

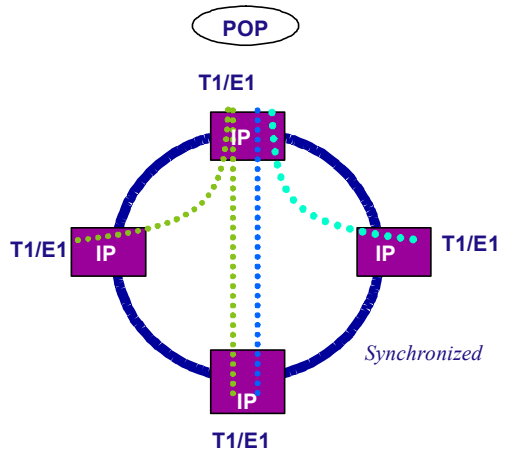
Features

- Optimized for IP and TDM network edge transport
- Eight fixed Fast Ethernet ports
- Variety of optional client interface modules increase configuration flexibility
  - Gigabit Ethernet
  - T1/E1
  - DS3
- Can support up to 254 devices on a single ring
- Deployable in either 1 Gbps or 2.5 Gbps bi-directional packet-based ring networks, or OC-3/12/48 SONET (STM-1/4/16 SDH) networks
- Compact chassis for easy customer premise deployment
- Carrier grade Ethernet for improved reliability and availability
- Affordable solution enabling cost-effective access to a broad customer base
- Rapid service activation for accelerated time-to-market deployments
- Resilient Packet Rings optimize bandwidth usage and network survivability
- T1/E1 and DS3 TDM circuits for delivery of true toll-quality voice services
- Per-port traffic classification and monitoring for flexible service level agreements

CARRIER ETHERNET MEF Certified Compliant

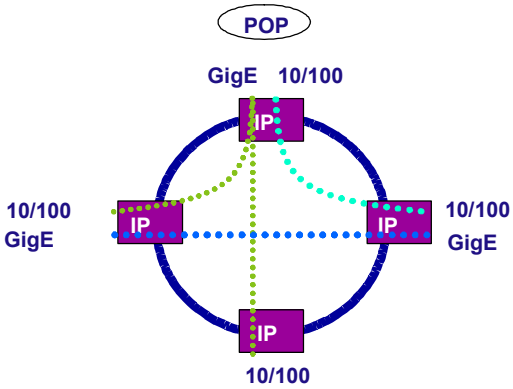
Prisma IP E-Series E500 Platform

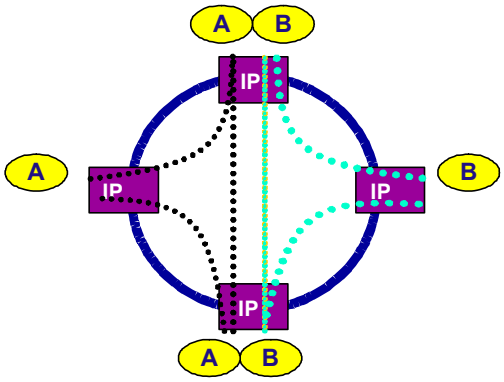
Application Examples



Private Line TDM Transport
The Prisma IP E500 provides complete support for legacy TDM interfaces, such as T1 or E1 voice. Toll-quality voice services are supported with T1/E1 transport, including complete Stratum synchronization coupled with extremely low latency and jitter. Complete support for standard testing functions such as loop-back and BERT is provided. Rapid service provisioning and performance monitoring are supported via point-and-click provisioning and per-port management. Larger Prisma IP M-Series or C-Series nodes can be used as aggregation points (T1/E1 to OC-3/STM-1 or DS3 to OC-3) for an access ring.

Metro Ethernet Transport
The Prisma IP E500 is optimized for IP/Ethernet transport, and provides full Layer 2 support for switching. Aggregation of multiple Ethernet services via Gigabit Ethernet interfaces provides carriers with efficient, high-bandwidth LAN/edge to MAN/core interconnect services. Flexible provisioning enables aggregated fractional Ethernet services delivered in private line or routed applications. Packet classification is provided for up to four different classes of service.





Transparent LAN Services
Another powerful Prisma IP E500 application is the deployment of Virtual Private Networks (VPNs) through Transparent LAN Services (TLS). TLS is a multi-point to multi-point switched Ethernet service that forwards unicast packets directly to other nodes/ports based upon learning of Layer 2 MAC addresses. Broadcast and multi-cast packets are also carried to all subscribing TLS nodes/ports as a single RPR broadcast stream.

Innovative Prisma IP Architecture

E500 Optical Access Platform Delivers Reliability and Flexibility to the Edge
The modular E500 leverages the M-Series and C-Series architecture with a compact 1.5 rack unit (1.5 RU) height design for customer premise deployments. There are currently three members of the E500 family, the E510, the E520, and the ES520. The E510 features dual 1 Gbps MPLS/RPR ring interfaces, while the E520 features dual MPLS/RPR ring interfaces that operate at 1 Gbps or 2.5 Gbps. The ES520 supports OC-3, OC-12, or OC-48 (STM-1, STM-4, or STM-16) rings. The platform also features eight 10/100Base-T Ethernet fixed user interface ports and two expansion slots for support of optional interface modules. High-speed Gigabit Ethernet and low-speed T1/E1 modules are also available. These modules allow carriers to customize the E500's configuration based on end customer requirements for maximum flexibility. Its high capacity switching fabric and packet processing engine ensures service prioritization and optimum performance with mixed traffic loads. The E500 supports dual redundant field-replaceable AC or DC power supplies and redundant fans for enhanced reliability. Stratum-level timing for synchronizing TDM circuits is a standard feature for all Prisma IP solutions. This fundamental component enables service providers to seamlessly evolve to more cost-effective packet architectures, while simultaneously supporting revenue-generating circuit-switched TDM services.

Complete System Management
Prisma IP networks incorporate all the Fault, Configuration, Accounting, Performance, and Security (FCAPS) management capabilities demanded by public carriers. The NOS (Network Operating System) and software feature set supports the Prisma IP product family. For seamless control, the Element Management System (EMS) provides quick, flexible provisioning, monitoring, and maintenance of multi-service MPLS/RPR networks.

Fiber Ring Access - A Last Mile Plant Architecture
On a production basis, advanced terminal equipment and networking functionality is valuable to the service provider only if it is associated with an access media architecture that is reliable, leverages existing access-fiber infrastructure, and efficiently adapts to the widely varying circumstances encountered in last mile physical plant deployment. The combination of MPLS/RPR and fiber access rings routed through targeted market areas results in an access architecture that contrasts sharply to alternative approaches to enterprise networks. The advent of MPLS over a layer 2 resilient ring networking protocol that enables carrier grade networking functionality and structured subscriber access fairness provides the plant engineer the options that are needed to achieve efficient, flexible and cost-effective fiber access. MPLS/RPR access rings:

- Make efficient use of feeder fiber by allowing up to 254 RPR terminals per ring with an unlimited number of subscriber ports.
- Simplify engineering, reduces construction cost and ensures fiber plant design life by:
    - Eliminating multiple home-run fiber routes
    - Eliminating the need for optical couplers and splitters
    - Eliminating custom dedicated host terminal equipment
    - Eliminating the need for customized outdoor fiber management devices and enclosures
    - Utilizing industry standard point-to-point optical interfaces
    - Providing support for both single and multi-mode fiber
    - Allowing the arbitrary insertion or removal of a subscriber terminal anywhere on the ring without the need for initial engineering or plant construction accommodations or planned service outages
- Ensure that service reliability is at parity or superior to any competitive offering through the elimination of active network elements, signal path diversity and 50 ms ring recovery.
- Maximize allocatable bandwidth, by routing ring traffic in both directions while enabling the full statistical multiplexing gain of Ethernet to gain an equivalent bandwidth of many times more than the physical transport bandwidth.

Prisma IP E-Series E500 Platform

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Specifications

Network Specifications		
Ring Interface	1 Gbps or 2.5 Gbps MPLS/RPR ring (E510 / E520) OC-3/12/48 (STM-1/4/16) (ES520) Small form factor pluggable (SFP) ring optics Sub-50 ms restoration time for protection switching	
Fixed Ethernet 10/100Base-T Interfaces	8x 10/100Base-T autosensing ports (RJ-45) Packet classification/rate limiting/policing IEEE 802.1Q, TLS	
Ethernet Interface Expansion Modules	1x 1000Base-F/SX/LX interface, with SFP optics, or 2x 1000Base F/SX/LX interface, with SFP optics - IEEE 802.1Q, TLS	
TDM Interface Expansion Modules	24x T1 or 21x E1 ports (software selectable) 8 x T1/E1 ports - G.703, G.706, G.823, ANSI T1.403 compliant	
Protocols	RPR, 802.1Q, MPLS	
Management		
Interfaces	RS-232c craft port Ethernet 10/100Base T (RJ-45) management port	
Management Software	Element Management System (EMS) Local CLI access via RS232 console Remote CLI Access via Telnet SNMP manageable Java RMI northbound interface (via EMS)	
Physical Specifications		
Dimensions	Height: 2.6 in. (6.6 cm) (1.5 RU) Width: 17.2 in. (43.7 cm) Depth: 17.0 in. (43.2 cm) Weight: 22 lb. (10.0 kg) estimate 19” Rack and wall mountable	
Power	**AC Power Option:**	**-48 V DC Power Option:**
	90 - 264 V AC, 140 Watts	-36 to -72 V DC, 144 Watts
Environmental	Operating temperature: -40°C to 65°C / -40°F to 149°F Storage temperature: -40°C to 70°C / -40°F to 158°F Relative humidity-storage: 5 to 95%, non-condensing Relative humidity-operating: 5 to 95%, non-condensing	
Agency Compliance		
Emissions	FCC Part 15B Class A EN 300 386	
Safety	UL 60950, EN 60950, cUL CSA 950 EN 60825-1, EN 60825-2	
Telecom	FCC Part 68 CTR, ETSI TBR 012 and 013	

Ordering Information

Description	Part Number
E510A, 1 Gbps RPR, with 8 10/100BT outputs (must also order 2 power supplies or 1 power supply and 1 fan tray)	1002889
E520A, 1 Gbps / 2.5 Gbps RPR, with 8 10/100BT outputs (must also order 2 power supplies or 1 power supply and 1 fan tray)	1002881
ES520, OC-3/12/48 (STM-1/4/16) RPR, with 8 10/100BT outputs	1002275
E500 AC Power Supply	4003874
E500 DC Power Supply	4016323
E500 Fan Module	4003875
E500 Gigabit Ethernet Module, 1 port	4003876
E500 Gigabit Ethernet Module, 2 port	4012477
E500 T1/E1 Module, 24 T1 or 21 E1 ports	4003877
E500 T1/E1Module 8 port	4011773
E500 DS3 CC Module, 2 port	6990746
Patch Panel, 24 x T1	4012341
Cable, 12 port T1/E1	4012342
SFP, 1.25Gbps, 850nm, 300m	1003270
SFP, 1.25Gbps, 1310nm, 10km	1003271
SFP, 1.25Gbps, 1310nm, 40km	1002400
SFP, 1.25Gbps, 1550nm, 80km	1002393
SFP, 3.125Gbps, 1310nm, 10km	1002033
SFP, 3.125Gbps, 1470nm, 70km (CWDM)	1002415
SFP, 3.125Gbps, 1490nm, 70km (CWDM)	1002416
SFP, 3.125Gbps, 1510nm, 70km (CWDM)	1002417
SFP, 3.125Gbps, 1530nm, 70km (CWDM)	1002418
SFP, 3.125Gbps, 1550nm, 70km (CWDM)	1002026
SFP, 3.125Gbps, 1570nm, 70km (CWDM)	1002419
SFP, 3.125Gbps, 1590nm, 70km (CWDM)	1002420
SFP, 3.125Gbps, 1610nm, 70km (CWDM)	1002421
SFP, 3.125Gbps, 100kM, DWDM, Ch 17 – Ch 62	Call

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