

C-DOT CTX 1000 Series of Routers



C-DOT CTX Series of Routers are carrier-class; IP/MPLS routers capable of providing secure packet data transfer over IP/MPLS backbone and access networks for providing NGN/IMS Services.

The CTX 1000 Router is based on modular OS and distributed architecture supporting high availability feature (greater than 99.99%) with built-in fault tolerance and redundancy to avoid single point of failure. It has a modular chassis which is rack-mountable for easy expansion. Modular architecture of router elements makes it easy to configure them as per capacity requirements at a particular site and expand, as needed, in future. The solution can be provided in various sizes, ranging from 2-slot ATCA to 14-slot ATCA chassis. The interface modules are packaged as Rear Transition Modules (RTM), to provide various kind of interfaces from the rear side of the chassis. However, it is also possible to provide additional interfaces and value added functions through Advanced Mezzanine Card (AMC), which can be plugged in from the front side of chassis on an ATCA line/switch carrier card.

The product family provides a scalable solution for carrying voice, data and video traffic generated in the network. These routers can be used as core routers for the backbone connectivity or as gateways and can be deployed as a Customer Edge, Provider Edge or Core Routers. To meet future requirements, upgrades can be carried out as and when required, without affecting the services. These routers have a switching fabric and backplane capacity up to 960 Gbps in dual-star fabric backplane chassis. In full-mesh fabric backplane chassis, this capacity can go upto 6 Tbps. The design is based on NEBS-compliant hardware elements. These routers deliver exceptional performance with high availability, interoperability and easy maintainability in diverse deployment scenarios.

Support is provided for IP Networking, Multi Protocol Label Switching (MPLS) and VPN Technology for offering various services. The core can carry multiple VPN services, which may be provided through the MPLS Edge Routers. There are optical/ electrical interfaces (LAN and WAN) supporting IP/MPLS which can be used with Gateways for connectivity to the existing legacy networks. All interface cards support line rate throughputs. The IP/MPLS network of Routers can be managed through CLI/EMS/NMS. The routers provide a suite of Bridging, IPv4, IPv6 and MPLS protocols along with features like Non-Stop Forwarding, Hot Swappable field replaceable

units. There are built-in security mechanisms to prevent unauthorized access to the system.

The system design ensures that all the cards are capable of non-disruptive hot-swap for insertion and removal.

The CTX-1000 Router Software known as C-DOT Router OS (CROS) is a reliable, high-performance carrier class network operating system used in routing, switching, and security products developed by C-DOT. It exploits the capabilities of the underlying hardware platform, so that the Router can process data packets at the line rate.



Salient Features and Product Specifications

Protocols Supported

- Ethernet
- IPv4
- IPv6
- MPLS

Layer 3 Routing Protocols

- Static Routing
- OSPF
- BGP
- ISIS
- RIP
- PIM
- IGMP
- MLD

Layer 2 Features

- VLAN
- Jumbo Frames
- Spanning Tree (STP/RSTP/MSTP)
- IGMP snooping
- Integrated routing and bridging

MPLS Features

- Static MPLS LSPs
- LDP LSPs
- Layer 2 MPLS VPNs
- Layer 3 MPLS VPNs

QoS/Traffic Engineering

- RSVP TE
- MPLS TE
- DiffServ QoS
- IEEE 802.1Q QoS

Security Features

CROS System implements comprehensive security features at L2 (VLAN) and L3 (IPv4, IPv6). Security software design integrates hardware features for implementing security framework without affecting device performance. Security framework features include:

- IEEE 802.1Q QoS
- Authentication, Authorization and Accounting (AAA)- RADIUS/TACACS
- Access Control List (ACL)
- Packet filtering, RPF, Rate limiting for protection against DoS/DDoS attacks

Load Balancing

- Link Aggregation / Ethernet bundling for FE and GE as per 802.3ad
- ECMP
- VRRP

OAM Support

- Ethernet OAM
- MPLS OAM

Timing & Synchronization

- NTP
- PTP
- Sync E

Throughput / Latency Supported

- Upto 960 Gbps in 14-slot dual-star fabric backplane ATCA Chassis
- Upto 6 Tbps, in 14-slot full-mesh fabric backplane ATCA chassis
- Packet latency of less than 100 micro second (with ACL and filtering enabled)

High Availability Features

- Carrier grade operating system
- Critical modules (Control/Switch/Shelf Management/fans/power) in active-backup mode
- Bidirectional Forwarding Detection (BFD)
- Graceful restart
- Non-Stop Forwarding (NSF)
- **Access Control and management**
- In-band management
- Out of Band management Interface
 - Ethernet
 - RS232 Console
 - SNMP v1/v2/v3
 - SSH, SFTP, SCP

Interface Support

- 10/100/1000BaseT, 100Base-FX
- 1G :1000Base-SX/-LX/-EX/-ZX, 1000Base-T
- 10G :10GBase-SR/-LR/-ER/-ZR
- 40G: 40G Base -SR4/-LR4

Monitoring

- S-Flow
- Port Mirroring

Power Supply

- -48 V DC, redundant power supply
- 220V AC, redundant power supply

Environmental Conditions

- Operating Temperature 0 °C to 40 °C



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