FSP 150CC-XG210

10Gbit Carrier Ethernet service demarcation and aggregation

Constantly increasing backhaul bandwidth requirements are exhausting the capacity of connectivity networks. Service providers need edge and aggregation devices that enable a seamless transition from 1Gbit/s to 10Gbit/s services, while also addressing stringent customer demands for secure and assured connectivity.

Our FSP 150CC-XG210 provides a high-capacity 10 Gigabit Carrier Ethernet (GbE) aggregation solution enabling cost-effective delivery of CE 2.0 services and highly accurate synchronization over fiber-based access networks. The non-blocking design supports traffic aggregation for up to sixteen GbE ports and/or two 10GbE ports provided on hot-swappable access interface modules. Designed for flexibility and scalability, our FSP 150CC-XG210 can be deployed in point-to-point, hub-and-spoke and resilient access ring topologies. With its multitude of carrier-class protection and resiliency options, the FSP 150CC-XG210 supports the delivery of differentiated and highly reliable Carrier Ethernet 2.0 services across all access network topologies. What's more our FSP 150CC-XG210 meets stringent privacy and confidentiality requirements by encrypting traffic already at the network edge with our innovative ConnectGuard™ Ethernet technology.



Your benefits

- **High-speed Carrier Ethernet 2.0 applications**
  Optimized for high-speed CE2.0 applications supporting up to 40Gbit/s full-duplex capacity
- **MEF CE2.0 certified UNI/NNI**
  With hierarchical traffic management scaling up to 1024 Ethernet virtual connections simultaneously
- **ConnectGuard™ Ethernet technology**
  Carrier Ethernet networks can be secured and encrypted without any loss of speed and performance
- **Unique timing flexibility**
  Simultaneous support of Synchronous Ethernet and IEEE 1588v2 across packet backhaul networks
- **Advanced demarcation technology**
  Enabling stringent service level agreements and integration with a wide range of back-office tools
- **Ensemble management**
  Fast service roll out and tracking of big amounts of services

High-level specifications

Interfaces

- Hot-swappable access interfaces (two slots):
  - 1x 10GbE XFP or SFP+ module
  - 8x 1GbE SFP or RJ45 module
- Network interface:
  - 2x 10GbE XFP ports with redundancy

Service Assurance

- Compliant with the latest OAM standards such as 802.3ah, 802.1ag, Y.1731 and Y.1564
- Synthetic frame loss and delay measurement for multi-point service monitoring
- SLA verification can be performed on a per-service basis

ConnectGuard™ security

- L2 MACsec encryption at line rate on a per-EVC basis
- Robust AES encryption algorithm
- IEEE 802.1X based key distribut
- Diffie-Hellmann key exchange process
- Tamper resistant

Synchronization

- ITU-T G.8261 / G.8262 / G.8264 SyncE on all interfaces
- Sync Status Message support
- IEEE 1588v2 G.8265.1, G.8275.1 PTP profiles and G.8273.2 BC
- Internal Stratum-3E clock with holdover

VLAN support

- 4096 VLANs and stacked VLANs, 1024 EVCs
- 2-tag mgmt. for c- and s-tag
- IEEE 802.1ad provider bridging
- Ethertype translation
- Jumbo frames support up to 9612 bytes

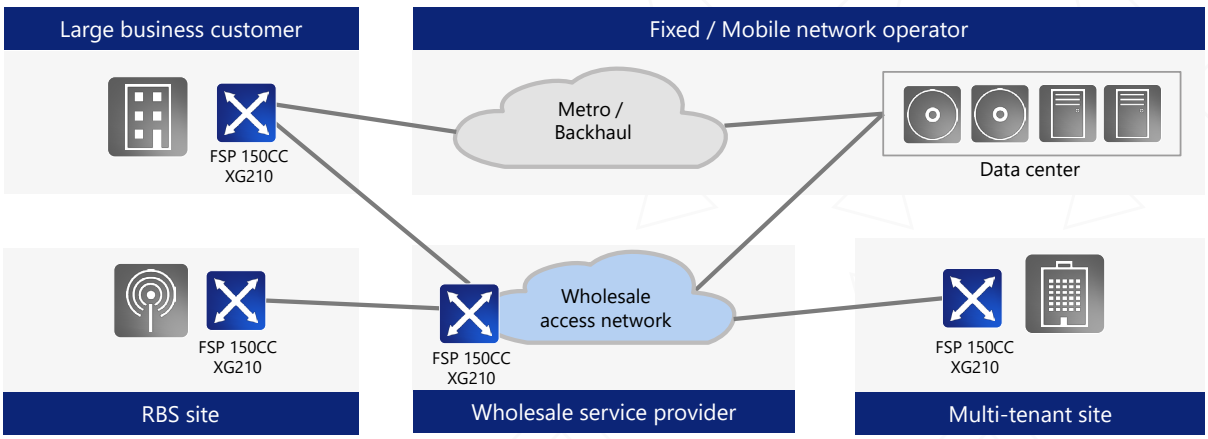
Environmental

- 1RU chassis, ETSI compliant
- Modular AC-PSU or DC-PSU
- Operating temp.: -40 to +65°C (hardened environment)
- Maximum power consumption: 100W

Applications in your network

Differentiated and highly reliable Carrier Ethernet services

- Intelligent Carrier Ethernet 2.0 service demarcation points compliant with the latest OAM standards
- Differentiation through service security in addition to end-to-end service level agreements and bandwidth on demand.
- Transformation of traditional leased lines into secure and encrypted connectivity



For more information please visit us at www.adva.com

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Product specifications are subject to change without notice or obligation.

Access capacity
- Two slots for access interface modules with hot swap support
- 1 x 10GbE XFP module
- 1 x 10GbE SFP+ module
- 8 x 1GbE (SFP) module
- 8 x 1GbE (SFP) module with MACsec capability
- 8 x 1GbE (RJ45) module

Network interface
- Two 10GbE (XFP) ports

Network Interface redundancy
- IEEE 802.3ad Link Aggregation – active/standby mode with optional load balancing
- ITU-T G.8032 Ethernet Ring Protection Switching

Synchronization (optional)
- ITU-T G.8261 / G.8262 / G.8264 Synchronous Ethernet on all interfaces
- Sync Status Message support
- IEEE 1588v2 Precision Time Protocol (G.8265.1 and G.8275.1 PTP Telecom Profiles, G.8273.2 Telecom Boundary Clock)
- BITS-in and BITS-out
- BITS Sync Status Messaging
- Input/output selectable ports for Time of Day, 10MHz clock and Pulse-Per-Second signals (1PPS)
- Internal Stratum-3E clock with holdover

VLAN support
- 4096 VLANs (IEEE 802.1Q customer-tagged) and stacked VLANs (Q-in-Q service provider tagged)
- 2-tag management (push / pop / swap) for c-tag and s-tag
- IEEE 802.1ad Provider Bridging (c-tag, s-tag)
- Ethertype translation
- 1024 Ethernet Virtual Circuits (EVC)
- 9612 byte per frame MTU transparency

Traffic management
- Acceptable client frame policy: tagged or untagged
- Service classification based on 802.1p, 802.1Q and IP-TOS /DSCP
- MEF-compliant policing (CIR / CBS / EIR /EBS) with three-color marking and eight classes of service
- Hierarchical queuing and shaping
- Rate shaping on transmit for both client and network ports
- Broadcast / multicast rate limiting

Ethernet OAM
- IEEE 802.3ah EFM-OAM Link management
- IEEE 802.1ag connectivity fault management (CFM) with hardware assistance
- ITU-T Y.1731 performance monitoring
- ITU-T Y.1564 service activation testing with MEF-compliant SAT PDUs
- Terminal and facility loopbacks on port- and EVC-level for all interfaces
- Embedded RFC 2544 test generator and analyzer (ECPA)
- MEF-compliant Layer 2 control protocol disposition and extensive filter options for Layer 2 packet types
- Link loss forwarding to signal local link and network path failures
- Dying gasp message for power failure alarming (EFM-OAM and SNMP trap option)
- Environmental alarm inputs (dry contacts)

ConnectGuard™ security[1]
- L2 MACsec encryption at line rate on a per-EVC basis
- End-to-end encryption mode with one or two VLAN tags transmitted in the clear
- Robust AES encryption algorithm
- Key distribution based on IEEE 802.1X
- Diffie-Hellmann key exchange process
- Tamper resistant and evident enclosure
- Full interoperability with all FSP 150 ConnectGuard™-enabled products

[1]FSP 150CC-XG210(C)

Low-touch provisioning
- DHCP / BOOTP auto-configuration
- IEEE 802.1x port authentication
- Text-based configuration files
- TFTP / SCP for software image upgrade and configuration file copy

Performance monitoring
- RFC 2819 RMON Etherstats on a per-port and per-service basis
- 15-minute and 1-day performance data bins
- IEEE 802.3ah / ITU-T G.8021 PHY level monitoring
- ITU-T Y.1731 single- and dual-ended frame loss measurement
- Synthetic frame loss and delay measurement for multi-point service monitoring
- Multi-CoS monitoring on EVCs scaling up to 4096 simultaneous flows
- Threshold-setting and threshold-crossing alerts
- Physical parameter monitoring for XFP / SFP+ optics, including TCAs
- Temperature monitoring and thermal alarms
- MEF-35/36 SOAM PM collection

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Management and Security

Local management

- Serial connector (RJ45) using CLI
- Local LAN port (RJ45) using CLI, SNMP and Web GUI interfaces

Remote management

- Maintains in-band VLAN and MAC-based management tunnels

Management protocols

- IPv4 and IPv6 DCN protocol stacks, including dual-stack operation and 6-over-4 tunnels
- Telnet, SSH (v1 / v2), HTTP / HTTPS, SNMP (v1 / v2c / v3)

Secure administration

- Configuration database backup and restore
- System software download via FTP, HTTPS, SFTP or SCP (dual flash banks)
- Remote authentication via RADIUS / TACACS
- SNMPv3 with authentication and encryption
- Access control list (ACL)

IP routing

- DHCP, RIPv2, OSPF and static routes, ARP cache access control

System logging

- Alarm log, audit log and security log

Regulatory and standards compliance

- MEF CE 2.0 certified
- IEEE 802.1Q (VLAN), 802.1p (Priority), 802.1ag (CFM), 802.3ah (EFM), 802.1x
- ITU-T Y.1731, G.8010/Y.1306, G.8011.1+2, G.8012, G.8031 (APS)
- MEF-6.1, 9, 10, 11, 14, 20, 21, 22.1, 23.1, 25, 26.1, 30, 33, 35
- IETF RFC 2544 (frame tests), RFC 2863 (IF-MIB), RFC 2865 (RADIUS), RFC 2819 (RMON)
- MEF-compliant ITU-T Y.1564 service activation testing
- ANSI C84.1-1989
- ETSI 300 132-2, BTNR2511, ETS 300-019, ETS 300-019-2-[1,2,3], ETS 300-753
- NEBS Level 3 certified
- Telcordia GR-499, GR-63-CORE, SR-332
- Safety IEC / UL / EN 60950, 21CFR1040.10, EN 60825, EN 50371, EN 300-386, EN 50160, IEC 60320/C14
- EMI EN 300-386, GR-1089-CORE, ETS 300-132, FCC Part 15, Class A, Industry Canada

Environmental

- Dimensions: 1U compact chassis, 439mm x 43mm x 269mm / 17.3” x 1.75” x 10.6” (W x H x D), ETSI-compliant
- Operating temperature: -40 to +65°C (hardened environment)
- Storage temperature: -40 to +70°C (GR-63-CORE)
- Humidity: 5 to 95%, B1 (non-condensing)
- Modular AC-PSU: 90 to 264VAC (47 to 63Hz) with over-voltage and over-current protection
- Modular DC-PSU: -36 to -72VDC or +18 to +30VDC with over-voltage and over-current protection
- Maximum power consumption: 100W

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