FSP 150-XG400 Series

Service demarcation and aggregation for 100Gbit/s edge networks

The demand for bandwidth in the metro space is constantly rising. It's being fueled by the boom in cloud computing and the hunger for mobile broadband, both of which create the need for traffic aggregation. As a result, business and mobile network operators are rolling out 10Gbit/s services in their networks, driving the demand for 100Gbit/s demarcation and aggregation at the metro edge. Our FSP 150-XG400 Series is a family of carrier-class packet edge products that enable MEF 3.0 CE 100Gbit/s demarcation and high-scale 10Gbit/s service aggregation in a compact form factor.

Our FSP 150-XG400 Series is designed for high-density aggregation and demarcation of MEF 3.0 CE services. The products feature 25GbE, 40GbE and 100GbE interfaces for high-speed connectivity to the metro core and support hardware-based time distribution on all traffic ports (Synchronous Ethernet and IEEE 1588). The XG400 Series provides standard Ethernet OAM and Y.1564 for service activation testing up to 100Gbit/s. It supports network overlay capabilities, such as VXLAN, for the delivery of MEF services over IP networks. It also features a wide range of traffic protection mechanisms including IEEE 802.1AX DRNI for high service availability. A common software stack assures consistent operation with any member of this series. What's more, the FSP 150-XG400 Series has been designed to work in locations with no temperature control.

Your benefits

- **MEF 3.0 CE 100GbE UNI**
  Ultra-compact 100Gbit/s UNI demarcation solution for large enterprises
- **Compact design**
  100Gbit/s UNI demarcation in 1RU
  High port count, low footprint aggregation: 1RU or 2RU height and 227.4mm depth
- **Versatile deployment**
  Compact size and extended operating temperature range (-40°C to 65°C) enable deployment in street cabinets and harsh environments
- **High-density 10GbE service aggregation**
  Seamless transition from 1Gbit/s to 10Gbit/s services with 25GbE and 100GbE trunk capacity
- **Timing distribution**
  Hardware-based timing support on all traffic interfaces enabling accurate frequency and phase distribution using Sync-E and 1588v2 PTP
- **Carrier class**
  Standard Ethernet OAM and Y.1564 service activation testing for delivery of MEF 3.0 Carrier Ethernet services up to 100GbE

High-level specifications

Switching capacity

- 1.6Tbit/s (800Gbit/s full duplex) switching capacity (XG480)
- 600Gbit/s (300Gbit/s full duplex switching capacity (XG404 and XG418)

Advanced Ethernet OAM

- Y.1564 SAT up to 100GbE
- MEF-48/49 SAT IEEE 802.1ag CFM
- IEEE 802.3ah/ITU-T G.8021 PHY level monitoring
- Y.1731 AIS and PM
- MEF-35 SOAM PM

Synchronization

- Synchronous Ethernet
- IEEE 1588-2008
- PTP telecom profiles for time/phase distribution (G.8275.1, G.8275.2)
- Telecom boundary clock and telecom transparent clock

Advanced service capabilities

- HQoS with advanced policing and scheduling mechanisms
- NETCONF/YANG open control
- Egress hierarchical shaping and scheduling; ingress hierarchical policing MEF 10.3
- Counters per shaper

Ethernet Layer 2 services

- Highly scalable and resilient Layer 2 solution
- MEF E-LINE, E-TREE, E-LAN, E-ACCESS services
- E-LINE/VPWS, E-LAN/VPLS services, statics labels

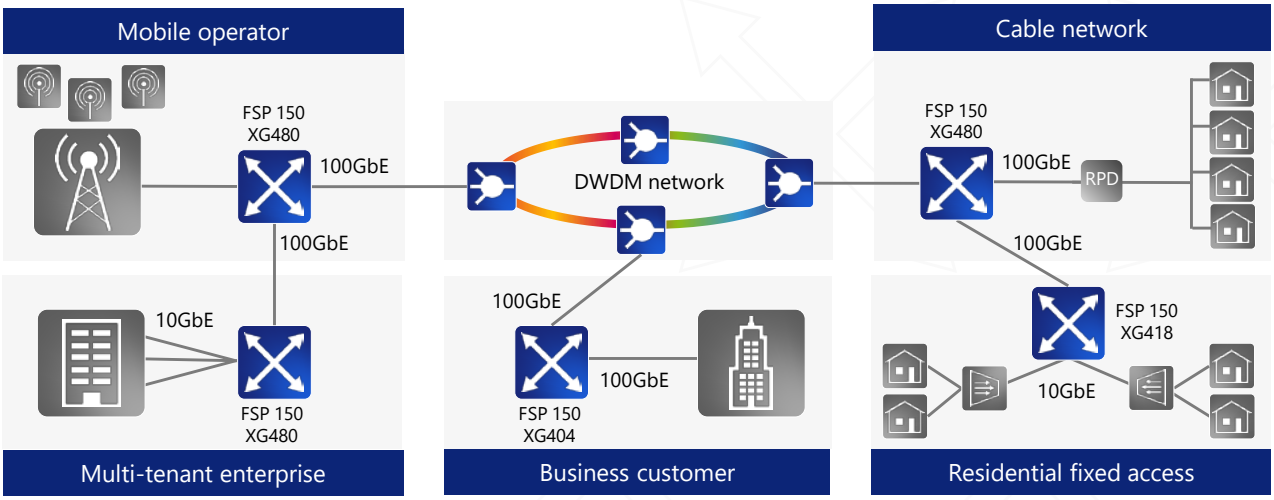
Environmental specifications

- 1RU for XG404/418 and 2RU for XG480; 227.4mm deep
- Operating temp: -40°C to 65°C
- Redundant fans and dual hot-swappable AC and/or DC power supplies

Applications in your network

Aggregation of high-bandwidth business and wholesale services

- Highly resilient, SLA-based 10, 25 and 100GbE MEF 3.0 CE service aggregation featuring ENNI and UNI
- Growing mobile backhaul and fronthaul networks to 10Gbit/s and 25Gbit/s at the base station
- Aggregating DSLAM traffic in metro networks for residential and multi-tenant applications



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

Product specifications are subject to change without notice or obligation.

Switching capacity and traffic ports

	FSP 150-XG404 variants	
		
Traffic ports:	4x QSFP+/QSFP28 25GbE, 40GbE and 100GbE data rates	2x QSFP+/QSFP28 + 2x CFP2 25GbE, 40GbE and 100GbE data rates
Switching capacity:	600Gbit/s (300Gbit/s full duplex) switching capacity	600Gbit/s (300Gbit/s full duplex) switching capacity

	FSP 150-XG418 variants	
		
Traffic ports:	4x 1/10G (SFP/SFP+) + 8x 10G (SFP+) + 4x 10/25G (SFP+/SFP28); 2x 40/100G (QSFP+/QSFP28)	4x 1/10G (SFP/SFP+) + 8x 10G (SFP+) + 4x 10/25G (SFP+/SFP28); 2x 100G (CFP2)
Switching capacity:	600Gbit/s (300Gbit/s full duplex) switching capacity	600Gbit/s (300Gbit/s full duplex) switching capacity

	FSP 150-XG480 variants		
			
Traffic ports:	40x 1/10G (SFP/SFP+) + 12x 10G (SFP+); 4x 100G (QSFP28)	40x 1/10G (SFP/SFP+) + 12x 10G (SFP+); 4x 100G (2 QSFP28, 2 CFP2)	40x 1/10G (SFP/SFP+) + 12x 10G (SFP+) + 8x 10G/25G (SFP+/SFP28); 2x 100G (QSFP28)
Switching capacity:	1.6Tbit/s (800Gbit/s full duplex) switching capacity	1.6Tbit/s (800Gbit/s full duplex) switching capacity	1.6Tbit/s (800Gbit/s full duplex) switching capacity

Services
- E-Line, E-LAN, E-Tree, E-Access
- VRF-Lite

Layer 2 features
- IEEE 802.1ad provider bridging (C-Tag and S-Tag)
- Acceptable client frame policy: tagged or untagged
- Port VLAN ID (pvid) and Priority VID
- MAC learning and switching with split-horizon
- MAC table limit per bridge domain
- Up to 500,000 MAC addresses with XG480 and 250.000 MAC addresses with XG404/418
- VLAN tag manipulation (push/pop and swap)
- CE-VLAN ID/EVC Map
- L2 control protocols disposition (MEF-45)
- Jumbo frame support
- IGMP snooping
- IEEE 802.1AX

IP Routing (VRF-Lite)
- Wire-speed L3 forwarding
- DHCP Relay Agent
- Static routes
- OSPFv2
- IS-IS
- BGP
- ECMP IPv4/IPv6
- VRRP

Network overlay
- MPLS layer 2 VPNs, E-LAN,
  - Static labels
- VxLAN

Ethernet OAM
- IEEE 802.3ah Link OAM
- IEEE 802.1ag connectivity fault management (CFM)
- ITU-T Y.1731 SLM/SLR and DMM/DMR
- ITU-T Y.1564 service activation testing (MEF-48/49)
- Port level and VLAN level loopback
- Link loss forwarding
- Dying gasp
- Port mirroring

Performance monitoring

- RFC 2819 RMON Etherstats on a per-port and per-service basis
- 15-min and 1-day performance data bins
- Threshold-setting and threshold-crossing alerts
- Physical parameters monitoring for optics
- Temperature monitoring and thermal alarms
- ITU-T Y.1731 dual-ended synthetic frame loss and delay measurement
- MEF-35 SOAM PM
- TWAMP sender/reflector

Management features

- Local LAN ports (RJ45)
- Console port
- USB Type A interface
- eSATA
- In-band management over management VLAN
- IPv4 and IPv6 protocol stacks, including dual-stack operation
- Telnet, SSHv2, https, SNMP (v1/v2c, v3)
- Netconf/YANG
- Netconf Zero Touch
- Database backup and restore
- System software download via FTP, https, SFTP or SCP (dual flash banks)
- Remote authentication via TACACS+/RADIUS
- Access control lists
- OSPF
- Network time protocol (NTP)
- Link layer discovery protocol (LLDP)
- Time of day + time zone
- Alarm log, audit log and security log (local and remote via syslog protocol)
- DHCP client

Traffic protection

- IEEE 802.1AX Link Aggregation with DRNI
- ITU-T G.8031 Ethernet linear protection switching
- ITU-T G.8032 Ethernet ring protection

Traffic management

- Port level broadcast/multicast rate limiting on receive
- Large flows policing (XG404 and XG480)
- Class of service identifier: 802.1P, IP-TOS/DSCP
- MEF-10.3 hierarchical metering with token-share envelopes
- Strict priority (SP) and weighted round robin scheduling mechanisms
- Congestion-avoidance mechanism WRED
- COS level shaping per-port and per flow point
- Hierarchical shaping per flow point
- Port level rate limiting on transmit
- L2-L4 ACLs

Synchronization

- ITU-T G.8261 / G.8262 / G.8264 Synchronous Ethernet on all traffic interfaces
- Synchronization status messages (ESMC)
- IEEE 1588-2008
- PTP Telecom Profiles (G.8275.1, G.8275.2)
- Telecom boundary clock, telecom transparent clock
- BITS-IN/OUT
- Combined 1PPS and ToD interface
- Stratum 3E OCXO

Environmental

- Dimensions (including mounting brakets)
  - Chassis variant without rear DC inlet (W x D x H): 482.6mm x 216mm x 88.1mm (XG480) 445.4mm x 216mm x 44.05mm (XG404/XG418)
  - Chassis variant with rear DC inlet (W x D x H): 482.6mm x 256.5mm x 88.1mm (XG480)
- Weight:
  - Chassis variant without rear DC inlet: 10Kg
  - Chassis variant without rear DC inlet: 10.4Kg
- Operating temperature: -40°C to 65°C
- Storage temperature: -40°C to +70°C
- Humidity: 5 to 90%, non-condensing
- Power supply: 750W (AC and DC)
- Max Power Consumption: 750W
- Typical power consumption: 440W

Compliance

- Safety: EN 62368-1, UL/CSA 62368-1, IEC 62368-1, emissions: AS/NZS CISPR 22: Class A, ICES-003, Issue Class A, EN 55022: Class A, VCCI Class A, FCC CFR 47 Part 15, Subpart B Class A
- Immunity: EN 300 386, EN55024, EN 61000-3-2, EN 61000 3-3, EN 61000-4-2, EN 61000-4-3, EN 61000-4-5, EN 61000 4-6, EN61000-4-8, EN61000-4-11
- EU RoHS compliant