

Calix E7-2 GE-24



DESCRIPTION

The Calix E7-2 GE-24 line card delivers high-density point-to-point Ethernet (Active Ethernet) services from the compact 1RU E7-2 platform. Paired with the line of Calix Active Ethernet ONTs, the GE-24 delivers dedicated high-speed services to residential and business subscribers. The GE-24 can also be used to aggregate Calix Ethernet Service Access Nodes, extending the breadth of applications served from a single E7-2 location. High-density central office deployments can leverage the E7-2's modular chassis design to deliver 480 GE ports, all managed as a single logical network element.

CALIX E7-2 GE-24 KEY ATTRIBUTES

POINT-TO-POINT ETHERNET: Point-to-point Ethernet, or Active Ethernet (AE), is a complimentary network design to point-to-multipoint GPON access networks. With point-to-point Ethernet, network operators can provide individual subscribers with very high-bandwidth, dedicated symmetric services utilizing a fiber network that is flexible and simple to design.

The Calix E7-2 GE-24 card provides multiservice capability over IP/Ethernet-based networks. Each GE-24 card provides 24 GE ports and can be paired to aggregate up to 48 point-to-point Ethernet ONT subscribers per 1RU E7-2 chassis. The E7-2's modular chassis design allows equipping the system with twenty GE-24 cards, to aggregate up to 480 Calix 700GX/700GE ONTs. GE interfaces on the GE-24 card can also be used to provide point-to-point and ring protected aggregation of GE-capable network devices.

The GE-24 card includes two 10GE ports supporting industry standard SFP+ modules for use as uplink or transport for the local E7-2 system, or as part of the stacking ring within an E7-2 modular chassis.

IP SERVICES DELIVERY: In conjunction with the Calix family of Active Ethernet ONTs, the E7-2 GE-24 card delivers a full spectrum of access services over point-to-point Ethernet networks.

- IPTV – broadcast and Video on Demand (VoD)
- MEF compliant business services
- High-Speed Internet (HSI) access
- Voice – Native SIP/VoIP and TDM Gateway support
- T1 business services and Mobile Backhaul access

DOUBLE-DENSITY OPTICS MODULES: Industry standard pluggable modules are used for all E7-2 service and network interfaces. The GE-24 supports CSFP (Compact SFP) modules that are mechanically compatible with the industry-ubiquitous SFP module. Each CSFP module supports two independent bidirectional transceivers (1490nm Tx / 1310nm Rx), each capable of operating at a 1 Gbps bi-directional rate.

The E7-2 GE-24 card is compatible with CSFP Option 2 modules. Option 2 of the CSFP Multisource Agreement (MSA) was released in October 2009 and provides backward compatibility to the SFP MSA. As a result, the GE-24 can operate with single-port SFP modules in any of the 12 CSFP module sockets to reach more distant locations. High-density, dual-port CSFP modules have a maximum range of 20km, while single port SFPs can be used to reach AE ONTs and Ethernet Service Access Nodes up to 60 km distant.

The GE-24's 10GE SFP+ ports support all GE SFP modules, extending the versatility of the SFP+ ports to provide additional GE services or GE transport flexibility.

INTEGRATED HIGH-CAPACITY SWITCH: The E7-2 GE-24 card is built on a core Layer 2/3 switch capable of full-duplex, line rate forwarding at all frame sizes and traffic types across all GE and 10GE ports.

SCALABLE IPTV SUPPORT: The GE-24 supports IGMP Snooping for multicast video transport between the set-top box and multicast router, providing efficient, scalable, high-quality IPTV distribution on all Ethernet interfaces.

SPECIFICATIONS

Calix E7-2 GE-24

MINIMUM SOFTWARE RELEASE

Calix E7-2 shelf support only, two
GE-24 line cards per shelf
Calix E7-2 Release 1.2

DIMENSIONS (W x H x L)

14 x 10.1 x 0.78 inches
35.6 x 25.7 x 2 cm

WEIGHT

2.06 lbs. (0.93 kg)

PORTS

24 CSFP 1GE ports (12 CSFP
sockets, also support SFP
modules)
2 SFP+ ports supporting 1GE/10GE

PACKET SWITCHING CAPACITY

Wire speed forwarding across all
10GE and GE ports
32,000 MAC addresses
9,000 byte MTU
4,094 VLANs
2,000 IGMP Multicast channels

QUALITY OF SERVICE

Service classification based on port,
SVLAN-ID, CVLAN-ID, p-bit
Port and flow-based policing to
1Mbps increments
8 CoS queues per port
Strict priority scheduling with
minimum bandwidth guarantee
Congestion avoidance: Tail Drop

STANDARDS AND RFC SUPPORT

TR101 VLAN Service models
IEEE 802.1ag Connectivity Fault
Management (G.8032 support)
IEEE 802.1D Rapid Spanning Tree
IEEE 802.1p CoS Prioritization
IEEE 802.1 MAC Bridges
IEEE 802.1Q VLAN tagging
IEEE 802.1ad VLAN stacking (Q-in-
Q) support
IEEE 802.1w Rapid reconfiguration
of Spanning Tree (RSTP)
IEEE 802.3ad/802.1AX Link
Aggregation
RFC 2236 IGMP v2
RFC 3376 IGMP v3
RFC 3046 DHCP Relay Agent
Information Option ("Option 82")
RFC 4541 IGMP snooping
ITU-T G.8032 Ethernet Ring
Protection Switching

COMPLIANCE

NEBS Level 3 compliance
(GR-63-CORE, GR-1089-CORE,
GR-3028)
UL 60950
FCC Part 15 Class A

POWER SPECIFICATIONS

GE-24 with optics max power: 50
Watts
Heat dissipation: 171 BTU/Hour

OPERATING ENVIRONMENT

Temperature: -40 to +65° C
(-40° F to +149° F)
Humidity: 10 to 95%
(non-condensing)

STORAGE ENVIRONMENT

Temperature: -40 to +85° C
(-40° F to +185° F)
Humidity: 5 to 95%

CALIX ONT s

The E7-2 GE-12 card supports operation with Calix 700GX, 700GE, 836GE, 800G GigaCenters, and T-Series ONTs, including Single Family Unit (SFU), Small Business Unit (SBU), Multi-Dwelling Unit (MDU), and rack-mount models.

ORDERING INFORMATION

CALIX E7-2 LINE CARDS

100-01949E7-2 GE-24 card (24xGE CSFP, 2x10GE SFP+)

CALIX PLUGGABLE TRANSCEIVER MODULES

The E7-2 supports pluggable modules for all service and network interfaces. Refer to the Calix Optical Transceiver Modules Datasheet (#250-00191) for a complete list of modules and specifications.

CSFP Option 2..... 1GE optical dual-port Compact Small Form-factor Pluggable (CSFP) Option 2 modules
SFP 1GE and 2.5GE optical and copper Small Form-factor Pluggable (SFP) modules
SFP+ 10GE optical Enhanced Small Form-factor Pluggable (SFP+) modules
Direct Attach Multi-rate copper Small Form-factor Pluggable (SFP/SFP+) cables

Notes:

- For 10GE SFP+ and 1GE SFP pluggable transceivers, Direct Attach cables, and all transceivers used in CSFP Option 2 sockets, only products purchased directly from Calix are supported. The use of Active Ethernet CSFPs, SFPs and 10GE SFP+ pluggable transceivers and Direct Attach cables not purchased directly from Calix is not supported and will void all product warranties covering the Calix equipment to which such third-party materials are connected.
- SFP modules may also be used in CSFP Option 2 sockets, and in SFP+ sockets at 1GE rate.
- Copper Direct Attach cables can operate in SFP, CSFP Option 2, and SFP+ sockets at 1GE and 10GE data rates as supported by the card type.

