Calix E7-20 Switch Control Processor (SCP-10GE)

D E S C R I P T I O N

The Calix E7-20 Switch Control Processor (SCP-10GE) is the core of the EXA Powered E7-20 Ethernet Service Access Platform (ESAP). Each SCP-10GE provides 240Gbps of switching capacity – 10Gbps to each of the 20 line cards slots plus four 10GE network ports across the two SCP cards. The SCP provides all common control functions and management interfaces for the E7-20 as well as the centralized switching to all line card slots. Along with the E7 family of optical access line cards, the SCP-10GE enables service providers to deliver high capacity / high bandwidth differentiated services to residential and business subscribers.

K E Y   A T T R I B U T E S

SWITCHING CAPACITY: The Calix E7-20 SCP provides 240Gbps of switching capacity, with 10Gbps of capacity to each line card slot in an equipment-protected configuration. When configured for maximum capacity, the E7-20 can enable a total of 20Gbps to each line card slot, 10Gbps from each of the two SCPs.

UPLINK EXPANSION: The E7-20 supports dual SCPs for redundancy and enables up to four 10GE uplinks across the two SCP cards. The system however supports the ability to easily expand the number of uplinks available with the use of additional uplink expansion cards.

LINE CARD SUPPORT: The E7-20 ESAP chassis and SCPs are designed to support a large variety of technologies and line card types. Supported E7-20 cards include the GPON-4x and GE-24x cards. E7 cards designed for both the E7-2 and E7-20 are physically interchangeable and will be enabled to operate in both chassis.

UPLINK PORTS: Each SCP-10GE has two 10GE port – an XFP port enabling distances up to 80km and an SFP+ port which brings cost effective short reach 10GE capability to service providers. In addition the SCP-10GE supports 4 SFP based 1GE ports. Each port supports a range of copper and fiber based SFP modules.

MANAGEMENT: The SCP-10GE enables management of the E7-20 via the Calix Management system (CMS). In addition SCP-10GE supports an embedded web GUI, Command Line Interface (CLI), and SNMPv2/v3 for flexible management options of a single system.

Each SCP-10GE includes a face plate RJ-45 port for local craft access to the system, in addition to the rear chassis connectors for out-of-band management access.

DEPLOYABLE STANDARDS: The SCP-10GE is the core of the EXA Powered E7-20 system and delivers all network connections to the system. The E7-20 utilizes the latest generation of deployable standards for aggregation, ring based transport and uplink applications. SCP-10GE network resiliency is provided by:

- ITU G.8032 Ethernet Ring Protection Switching (ERPS)
- IEEE 802.1w Rapid Spanning Tree Protocol (RSTP)
- IEEE 802.3ad/802.1AX Link Aggregation

INDUSTRY STANDARDS COMPLIANCE: The E7-20 meets all applicable industry compliance standards including NEBS Level 3, UL and FCC.

Calix

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MINIMUM SYSTEM REQUIREMENTS

Calix E7-20 shelf support only
Calix E7 Software Release 2.0

SLOT COMPATIBILITY

Compatible with E7-20 Slots A & B

UPLINK PORTS

1x 10GE XFP port (supports Calix XFP Modules)
1x 10GE SFP+ port (supports Calix 10GE SFP+ Modules)
4x GE SFP ports (copper and fiber SFPs)

SWITCHING CAPACITY

240 Gbps total switching
10 Gbps per line card slot
40 Gbps SCP networking ports
32K MAC addresses
9,000 byte MTU
4,094 VLANs
800 IGMP multicast channels

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 (QinQ)
IEEE 802.1w Rapid reconfiguration of Spanning Tree (RSTP)
IEEE 802.1AX Link Aggregation
RFC 2236 IGMP v2
RFC 3046 DHCP Relay Agent Information Option ("option 82")
RFC 4541 IGMP Snooping
ITU-T G.8032 Ethernet Ring Protection Switching

QUALITY OF SERVICE

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

POWER SPECIFICATIONS

Max power with optics: 67 Watts
Heat dissipation: 171 BTU/Hour

WEIGHT

2lbs., 5.5 oz
1.1 kg

OPERATING ENVIRONMENT

Temperature: −5 to +55° C
Humidity: 10 to 95% (non-condensing)
Operating altitude: 10,000 ft (3,049 m)

STORAGE ENVIRONMENT

Temperature: −40ºC to +85 ° C
Humidity: 5 to 95% (non-condensing)

COMPLIANCE

UL-60950, Standard for Safety, Issue 1, April 1, 2003
UL 60950-21 (±190 Vdc remote/line power safety)
NEBS Level 3 compliance (GR-63-CORE, GR-1089-CORE, GR-3028)
FCC Part 15 Class A

O R D E R I N G   I N F O R M A T I O N

CALIX E7-20 LINE CARDS

100-02092.........................E7-20 SCP-10GE Switch Control Processor (1x10GE SFP+, 1x10GE XFP, 4xGE SFP)

CALIX PLUGGABLE TRANSCEIVER MODULES

The SCP-10GE supports pluggable modules for all network interfaces. Refer to the Calix Optical Transceiver Modules Datasheet (#250-00191) for a complete list of modules and specifications.

SFP ....1GE 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
XFP ....10GE optical Small Form-factor Pluggable (XFP) modules

Notes: - Only XFP and SFP+ pluggable transceiver modules, and Direct Attach cables, purchased from Calix are supported. The use of 10GE XFP, 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.
- 1GE and 2.5GE SFP modules are NOT supported in SFP+ sockets of the SCP-10GE card.
- Copper Direct Attach cables can operate in SFP sockets at 1GE rate and SFP+ sockets at 10GE data rate.