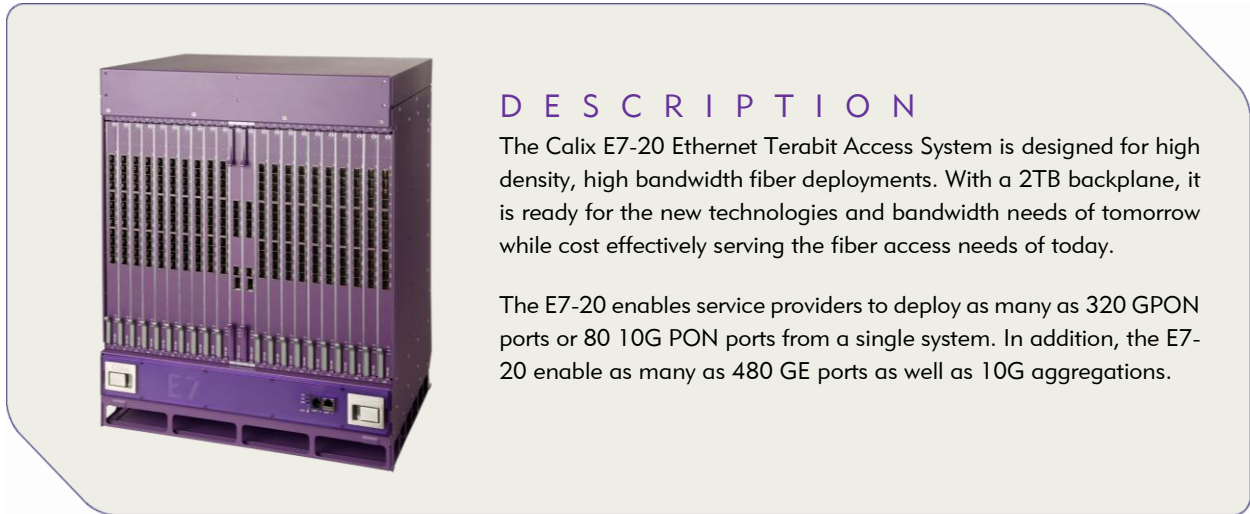


# Calix E7-20 Ethernet Terabit Access System



## DESCRIPTION

The Calix E7-20 Ethernet Terabit Access System is designed for high density, high bandwidth fiber deployments. With a 2TB backplane, it is ready for the new technologies and bandwidth needs of tomorrow while cost effectively serving the fiber access needs of today.

The E7-20 enables service providers to deploy as many as 320 GPON ports or 80 10G PON ports from a single system. In addition, the E7-20 enable as many as 480 GE ports as well as 10G aggregations.

## KEY ATTRIBUTES

**CHASSIS CAPACITY:** The Calix E7-20 Ethernet Terabit Access System (ETAS) supports up to 100Gbps bandwidth capacity from each of the 20 line card slots to each E7-20 centralized Switch Control Processor (SCP). This capability ensures the system is ready for the bandwidth needs of today's GE and 2.5G PON services, as well as 10GE and 10G PON services.

**SUBSCRIBER CAPACITY:** The E7-20 ETAS has 20 universal line card slots. Utilizing the available E7-20 GPON-8x card the chassis supports up to 5,120 GPON subscribers. The E7-20 becomes the highest density GPON system when the upcoming 16 port GPON card is released.

With the E7-20 GE-24x card the chassis supports 24 Point-to-Point Optical Ethernet (Active Ethernet) subscribers per slot – a capacity that will also increase in the future.

**CARRIER GRADE CHASSIS:** The E7-20 ETAS is a carrier grade chassis enabling full redundancy for both network and equipment connections. The heart of the E7-20 is the SCP, providing the common control, centralized switching capacity, and network uplink/transport connections for the system.

**INTEGRATED FIBER MANAGEMENT:** The E7-20 chassis design supports an optional fiber management system that mounts onto the top heat exhaust air ramp. With a fiber management comb per card, the E7-20 allows operators to easily install and remove additional cards without having to remove fibers from any card in operation. An optional fiber management guard easily snaps onto the front of the chassis to protect the fibers from being caught while service provider personnel move through the central office.

**SYSTEM POWER:** The E7-20 has a sectionalized power management system that allows operators to independently cable and fuse the three sections of the chassis as cards and services are installed.

**HIGH VALUE SERVICES:** The E7-20 delivers scalable residential IPTV, high-speed internet (HSI), and voice services over GPON with GPON ONT's or Ethernet access devices. In addition, the E7-20 supports high value business class services allowing operators to use a common access network to deliver higher revenue generating opportunities.

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

## SPECIFICATIONS

# Calix E7-20 Ethernet Terabit Access System

### MINIMUM SOFTWARE RELEASE

Calix E7 Release 2.0

### SLOTS

20 universal card slots  
2 SCP slots  
1 FTA slot

### BACKPLANE

2TB Capacity  
100Gbps to each slot from each SCP

### MANAGEMENT INTERFACES

2 Ethernet 10/100 (RJ-45 connector on back of E7-20)  
1 Ethernet 10/100 (RJ-45 connector on E7-20 Fan Tray)  
1 RS-232 (RJ-11 connector on Calix E7 Fan Tray)

### DIMENSIONS (W X H X D)

17.35 x 22.63 x 12.43 inches  
(44.07 x 57.48 x 31.57 cm)  
Fiber comb adds 3.17in (8.05cm) depth  
Rack height is 13 RU

### WEIGHT

37 lb. (16.78 kg) E7-20 shelf  
45 lb. (20.41 kg) shelf with Fan Tray

### POWER DISSIPATION

Maximum Power 3085 watts

### POWER FEEDS

Integrated power management on Calix E7 line cards  
Three redundant -48 VDC battery feeds (A and B)  
Input Voltage Range:  
FTA1: -42.5VDC to -72VDC  
FTA2: -42.5VDC to -58VDC

### OPERATING ENVIRONMENT

Temperature: -5° to +55° C  
(-23° F to +131° F)  
Humidity: 10 to 95%  
(non-condensing)  
Operating altitude: 10,000 ft  
(3,049 m)

### STORAGE ENVIRONMENT

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

### ALARM I/O INTERFACES

Wire wrap pin access on E7-20 back  
User definable alarm  
inputs: 7, outputs: 4

### AIR FILTER

Field Replaceable from front of chassis (no tools required)

### SHELF ALARM INDICATOR

Critical (CR) - RED  
Major (MJ) - RED  
Minor (MN) - AMBER  
Alarm Cut-Off (ACO) button

### COMPLIANCE

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

### SYNCHRONIZATION

Synchronization is enabled by the E7 line cards as required with internal and/or external reference timing

### TIMING I/O INTERFACES

4-wire wire wrap pins on the back of the Calix E7  
T1/E1 BITS clock (sink)

### FIBER INTERFACES

All optical ports use pluggable optics (SFP, XFP, SFP+)  
LC or SC connectors on modules

## FAN TRAY ASSEMBLY

### POWER SPECIFICATIONS

Typical CO Environment  
Power: 30 Watts  
Heat dissipation: 8 Watts  
Maximum Cooling Capacity  
FTA1: Power: 200 Watts  
Heat dissipation: 55 Watts  
FTA2: Power: 350 Watts  
Heat dissipation: 83 Watts

### FANS

8 fans housed in fan tray  
Resilient design maintains system cooling with individual fan failures

### MAINTENANCE

Field-replaceable air filter  
(not used in RT locations)  
Hot-swappable fan tray assembly



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# Calix E7-20 Ethernet Terabit Access System

## ORDERING INFORMATION

### CALIX E7-20 ETHERNET SERVICE ACCESS PLATFORM

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000-00529.....	E7-20 System Package (Shelf, Fan Tray, Fiber Management System, Installation Kit)
000-00969.....	E7-20 System Package 2 (Shelf, Fan Tray FTA2, Fiber Management, Installation Kit)
100-00573.....	Calix Circuit Breaker Panel (90 Amp total, 3x 30 Amp positions with A/B protection)

### CALIX E7-20 SYSTEM RECOMMENDED SPARE COMPONENTS

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100-02089.....	E7-20 Shelf
100-02090.....	E7-20 Fan Tray Assembly (FTA)
100-04186.....	E7-20 Fan Tray Assembly 2 (FTA2), required when E7-20 used with SCP2
100-02091.....	E7-20 Air Filter

### CALIX PLUGGABLE TRANSCEIVER MODULES

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The E7-20 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
XFP .....	10GE optical Small Form-factor Pluggable (XFP) modules
GPON OIM.....	2.5Gbps GPON (Class B+ ODN with minimum 28dB link budget, up to 1:64 splits)
ER-GPON OIM.....	2.5Gbps Extended Reach GPON (up to 58 km with 1:4 split)

### CALIX MOUNT KIT

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100-03383.....	E7-20 ETSI Rack Mount Kit
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#### Notes:

- For GPON OIM, 10GE XFP, 10GE SFP+ pluggable transceivers, Direct Attach cables, and all transceivers used in CSFP Option 2 sockets, only products purchased from Calix are supported. The use of GPON OIM, Active Ethernet CSFPs, 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.
- 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, 2.5GE, and 10GE data rates as supported by the card type.
- Systems operating with E7-20 SCP2-10GE must use E7-20 FTA2, 100-04186

