C7 Shelf

D E S C R I P T I O N

The Calix C7 shelf is a single chassis that houses all common control and service plug-in cards as well as management interfaces. The Calix C7 shelf is based on a backplane architecture that can deliver up to 200 Gbps of user traffic to the system's universal slots. Electrical access to the universal slots is provided through standard RJ-21 connectors, coaxial interfaces and RJ-45 interfaces mounted on the back of the Calix C7 shelf. Optical trunk access is through LC connectors on the front of the plug-in cards. An optional, high-density optical interface equips every universal slot with a fiber egress capability up to 24 fibers. A display and fan tray slides into the bottom of the Calix C7 shelf to provide shelf/plug-in card status information, physical test access, fans, and optional equipment protection for metallic plug-in cards.

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

TWENTY-THREE SYSTEM SLOTS:

- A management interface slot, located in the center of the Calix C7 shelf, hosts management and test interface plug-in cards.

- Two common control slots host redundant, common control plug-in cards.

- Twenty universal slots host a variety of optical and electrical plug-in cards.

HIGH CAPACITY BACKPLANE ARCHITECTURE:

The Calix C7 backplane delivers up to 10 Gbps of full duplex user bandwidth from the central switch to every slot of the Calix C7 shelf simultaneously, for a total system bandwidth capacity exceeding 200 Gbps. Each slot also provides another 10 Gbps to a redundant central switch.

SONET & PACKET:
The Calix C7 contains a single switch fabric with dual functionality: a SONET based cross connect with 1,056 STS-1 capacity, and a packet switch fabric (50 Gbps egress, 2.4 Gbps ingress).

CARRIER CLASS, SMALL SIZE:
Completely redundant and NEBS 3 compliant, the Calix C7 stands only 14 inches high. Mount up to 5 shelves in a 7-foot rack.

ENVIRONMENTALLY HARDENED:
The Calix C7 shelf is designed for deployment in outdoor remote terminal enclosures.

HIGH-DENSITY FIBER MANAGEMENT:

- OC-n cards use LC connectors on the faceplate

- Up to 24 fibers can terminate on the back of each slot for high density services such as fiber-to-the-home.

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OPTICAL FACILITY PROTECTION: All optical interfaces, OC-3, OC-12, and OC-48 can be protected 1+1 or 1:1 based on odd/even slots. They can also be equipped unprotected.

HIGH-DENSITY METALLIC INTERFACES:

- 2-Wire Interfaces - Up to 480 2-wire interfaces (POTS, xDSL, 2-wire specials) can be supported by each Calix C7 shelf, and up to 2,400 in one 7-foot rack. Copper termination is provided through standard 25 pair RJ-21 connectors mounted on the back of the Calix C7 shelf.

- 4-Wire Interfaces - Up to 240 4-wire interfaces (DS-1, 4-wire specials) can be supported by each Calix C7 shelf, and up to 1,200 in one 7-foot rack. Copper termination is provided through standard 25 pair RJ-21 connectors mounted on the back of the Calix C7 shelf.

- Coaxial Interfaces - Up to 240 coaxial (DS-3/EC1) interfaces can be supported by each Calix C7 shelf, and up to 1,200 in one 7-foot rack. Coaxial termination is provided through optional coaxial connector adaptor assemblies mounted on the back of the Calix C7 shelf.

- Ethernet Interfaces - Up to 240 Ethernet interfaces can be supported by each Calix C7 shelf, and up to 1,200 in one 7-foot rack. Copper termination is provided through optional RJ-45 interface assemblies mounted on the back of the Calix C7 shelf.

Four independent protection groups

Three independent protection groups

Three independent protection groups

Two independent protection groups

EQUIPMENT PROTECTION: The Calix C7 supports 1:n equipment protection options for T1/DS1 and DS3 interfaces. 1:n protection groups are flexible and can support any group size from 1:1 to 1:9.
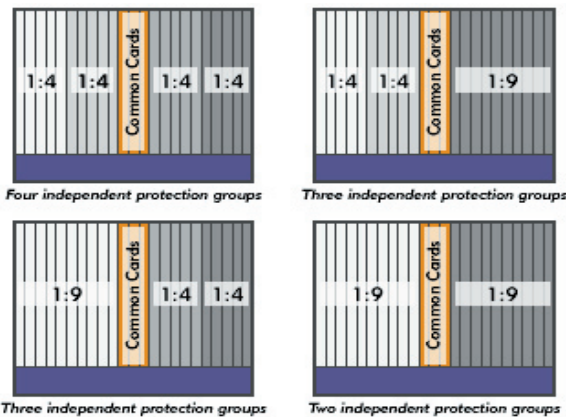
TEST ACCESS: Test access to all metallic pairs, provided through a single set of physical connectors, simplifies craft access. Test activity can be controlled from the front of the Calix C7 shelf or via remote commands.

- Direct physical access - Bantam test jacks are provided on the front of the fan tray.

- Remote access - Requests can be generated via TL1 commands or GR-303.

FLEXIBLE SWITCH INTERFACES: The Calix C7 supports the following interfaces into Class 5 and softswitches: GR-303, TR-08, and TR-57. The platform also supports a migration path to softswitches with an H.248 interface.

SIMPLE ALARM STATUS NOTIFICATION: The display and fan tray located at the bottom of the Calix C7 shelf offers easy visual notification of alarm status at the shelf, card, and port levels. This is in addition to traditional alarm reporting available through Ethernet, serial, and contact closure interfaces and is provided for craft convenience. Control buttons allow users to easily scroll through information. The alarm display provides the following information:

- Presence and type of plug-in card in all equipped slots

- Equipment and facility alarm status of all equipped slots

- Slot and/or line number for each active alarm

- A brief description of each alarm event

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DIMENSIONS
14''H x 19''W x 12''D
(35.6 cm x 30.5 cm x 48.3 cm)
5 shelves per 7-foot rack

SLOTS
20 universal slots
2 common control slots (CS-A, CS-B)
1 management interface slot

BACKPLANE BANDWIDTH
200 Gbps of user traffic (10 Gbps per slot)

FIBER INTERFACE
LC connector on faceplate of optical plug-in cards
High density connector with up to 24 fibers per slot (Optional)

ANALOG/METALLIC INTERFACES
DS0: Standard 25-pair RJ-21 connector per slot
DS1: Standard 25-pair RJ-21 connector per slot
DS3: Standard on RAP slots. Optional coaxial interface adaptors mount on the back of the Calix C7 shelf. Optional coaxial interface adapters mounted on the back of the Calix C7 shelf.
SMB CONNECTOR: 12 (2 slots), 60 (5 slots), or 120 (10 slots) DS3 interfaces
10/100BT: Optional RJ-45 interface adapters mounted on the back of the Calix C7 shelf
RJ-45 OPTIONS: 4 or 12 RJ-45 interfaces

SWITCH INTERFACES
GR303
TR-08 Mode 1 & 2
TR-57

METALLIC INTERFACE PROTECTION
Optional 1:1 through 1:9, user selectable (T1/DS1, DS3, EC-1)
(1:1 does not require Metallic Service Protection unit)

TIMING I/O INTERFACES
Access through wire wrap pins on the back of the Calix C7
BITS clock (sink and source)
DS1-based clock (sink and source)

MANAGEMENT INTERFACES
Access through wire wrap pins on the back of the Calix C7
Ethernet 10/100
RS-232
RS-422 (TBOS)

EXTERNAL TEST BUS
2W/4W test bus to external test set

OPERATING ENVIRONMENT
Operating temperature: -40C to +65C
Humidity: 5 to 90% non-condensing

ALARM I/O INTERFACES
Access through wire wrap pins on the back of the Calix C7
Environmental alarm inputs: 8 - user definable
Audible alarm outputs: Critical, Major, Minor
Visual alarm outputs: Critical, Major, Minor
Remote ACO

POWER FEEDS
Redundant -48 VDC battery feeds (A and B)
Fuse: 30 Amps (A and B)
Input Range: -42 VDC to -60 VDC

HEAT RELEASE
Per GR-3028 - Min. 158 watts, Max. 942 watts
(Contact Calix regarding your specific configuration.)

EMPTY WEIGHT
39 pounds (46 pounds with FTA)

STANDARDS COMPLIANCE
NEBS Level 3 compliance (GR-63-CORE, GR-1089-CORE, GR-3028)
UL 1950
FCC Part 15 Class A

SPECIFICATIONS

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FAN TRAY SPECIFICATIONS

FANS
8 fans mounted on fan tray (FTA)

SHELF ALARM INDICATOR
All alarms generate an auto alarm
summary
Middle indicator: Indicates highest
level of alarm present in the Calix C7
RED - Critical and Major
YELLOW - Minor
WHITE - No alarms

ALARM STATUS INDICATOR
Right indicator displays failed lines
through auto step function button.

LINE/TEST STATUS INDICATOR
Left indicator displays line under
test selected through step function
button.

TEST ACCESS
Bantam jacks on front of fan tray for
direct access, or remotely with TL1 or
GR-303 commands.
The test bus can be interconnected
on collocated shelves (Primarily used
for DS0 and DS1 applications).
Left jack has 2 wire test and monitor
Right jack is used for 4 wire test and
monitor.

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