C150 • C300   Resilient Switches

Modular Force10 Operating System (FTOS) software delivers inherent stability

In-service diagnostics and traffic visibility tools increase control of network

Line-rate, non-blocking 10 GbE performance

C-Series Resilient Switches

The Force10 Networks C-Series are resilient chassis-based switches that deliver reliability, network control and scalability. The C-Series is designed to support mission critical applications with very low latency across converged networks. Comprehensive management capabilities make the C-Series a cost-effective and flexible deployment option.

Key Applications

- Low cost 100/1000 Mbps server aggregation for small- to medium-sized data centers (100s to 1,000s of servers)

- Cost-effective LAN core switch for small- and medium-campuses (100s to 1,000s of PCs)

- High density GbE aggregation for distribution into a multiple Gbps or 10 GbE backbone

- Cost-effective PoE-enabled 10/100/1000Base-T wiring closet aggregation of VoIP phones, wireless access points, video cameras or other IEEE 802.3af-compliant devices

Key Features

The Force10 C-Series is designed to provide inherent reliability, network control, and scalability for high performance Ethernet environments.

- Up to 384 line-rate 10/100/1000Base-T ports with full 15.4W Class 3 PoE support in a 14-RU chassis

- Up to 64 line-rate 10 GbE ports with pluggable XFP modules

- Intelligent power management with full 15.4W PoE (IEEE 802.3af) support across all ports

- 5 microsecond switching latency under full load for 64 byte frames

- Switch fabric capacity of up to 1.536 Tbps and up to 952 Mpps L2/L3 packet forwarding capacity

- High availability architecture
  – 1+1 Route Processor Module (RPM) design
  – Continuous runtime data plane monitoring and advanced in-service CLI diagnostic functions
  – Power supply redundancy with load sharing power bus enabling uninterrupted VoIP calls during a power supply failure

FORCE10
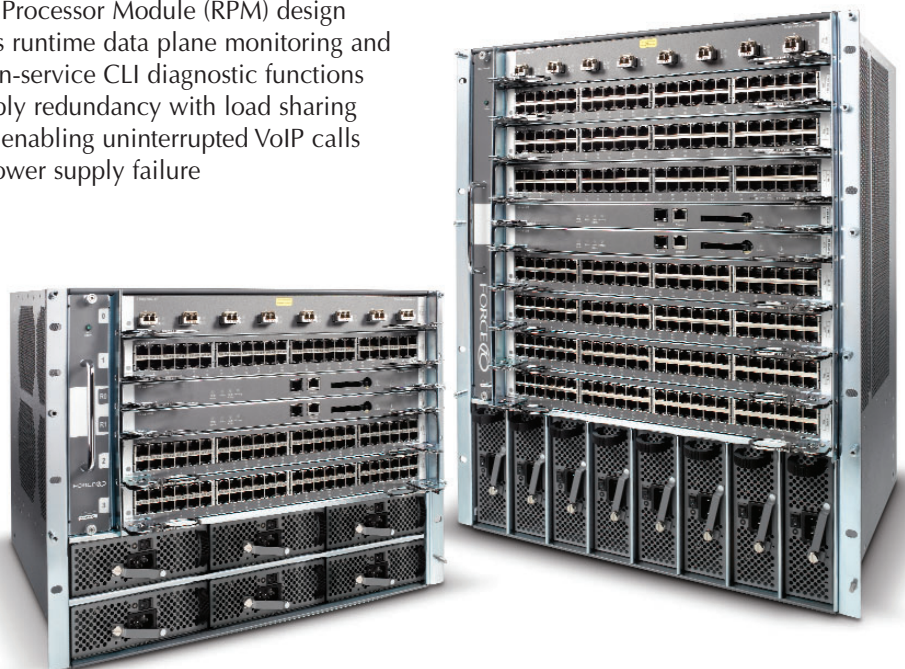
Specifications: C-Series Resilient Switches

Ordering Information

Order Number	Description
CH-C150	C150 4-slot chassis with backplane
CH-C300	C300 8-slot chassis with backplane
CC-C150-FAN	C150 fan subsystem
CC-C300-FAN	C300 fan subsystem
LC-CB-RPM	Switch Fabric and Route Processor Module (series CB)
LC-CB-10GE-4P	4-port 10 Gigabit Ethernet line card, XFP modules required (series CB)
LC-CB-10GE-8P	8-port 10 Gigabit Ethernet line card, XFP modules required (series CB)
LC-CB-1GE-48P	48-port Gigabit Ethernet line card, SFP modules required (series CB)
LC-CB-GE-48T	48-port 10/100/1000Base-T line card with RJ45 interfaces (series CB)
LC-CB-GE-48V	48-port 10/100/1000Base-T line card with RJ45 interfaces and PoE (series CB)
CC-C-1200W-AC*	1200W AC Power Supply Module
SW-CB-LATEST	FTOS software

* Country-specific power cables are additional
* Only Force10 power cables are supported

Chassis

C300 - 8 line card slots
2 Switch fabric and route processor module slots
8 Power supply module slots
1 Fan tray slot
Size: 13 RU, 22.7 h x 17.4 w x 14.4" d
(57.66 h x 37.58 w x 44.20 cm d)
Weight with factory-installed components: 55 lbs (24.95 kg)
Weight fully loaded: 152.27 lbs (69.07 kg)
AC Power
   Nominal input voltage: 100 - 240 VAC 50/60 Hz
   Maximum thermal output:
      9,328 W (8,089 BTU/h) at 100/120 VAC
      9,111 W (7,895 BTU/h) at 200/220 VAC
   Maximum input current per module:
      14 A at 100 VAC
      12 A at 120 VAC
      7 A at 200 VAC
      6 A at 240 VAC
   Maximum system power input:
      9.4 KVA at 100/120 VAC
      9.2 KVA at 200/240 VAC
   Maximum power consumption:
      9,428 W at 100/120 VAC
      9,211 W at 200/240 VAC

C150 - 4 line card slots
2 Switch fabric and route processor module slots
6 Power supply module slots
1 Fan tray slot
Size: 9 RU, 15.7 h x 17.5 w x 15.3" d
(39.88 h x 44.45 w x 38.86 cm d)
Weight with factory-installed components: 38 lbs (17.24 kg)
Weight fully loaded: 86.63 lbs (39.29 kg)
AC Power
   Nominal input voltage: 100 - 240 VAC 50/60 Hz
   Maximum thermal output:
      4,899 W (4,647 BTU/h) at 100/120 VAC
      4,785 W (4,536 BTU/h) at 200/220 VAC
   Maximum input current per module:
      14 A at 100 VAC
      12 A at 120 VAC
      7 A at 200 VAC
      6 A at 240 VAC
   Maximum system power input:
      4.9 KVA at 100/120 VAC
      4.8 KVA at 200/240 VAC
   Maximum power consumption:
      4,949 W at 100/120 VAC
      4,835 W at 200/240 VAC

Common

19" front rack mountable
Maximum operating specifications:
   Temperature: 32° to 104°F (0° to 40°C)
   Altitude: no performance degradation to 10,000 feet (3,048 meters)
   Relative humidity: 5 to 85 percent, noncondensing
   Shock: Bellcore GR-63
   Vibration: Bellcore GR-63
Maximum non-operating specifications:
   Temperature: -40° to 158°F (-40° to 70°C)
   Maximum altitude: 15,000 feet (4,572 meters)
   Relative humidity: 5 to 95 percent, noncondensing
   Vibration: Bellcore GR-63

Redundancy/Availability

1+1 redundant Switch Fabric & Route Processor Modules (RPM)
C300: 2+1 redundant system Power Supply Modules
4+1 redundant PoE Power Supply Modules supporting up to 384 PoE ports at 15.4W with deterministic failure mode
C150: 1+1 redundant system power supply modules
2+2 redundant PoE Power Supply Modules supporting up to 192 PoE ports at 15.4W with deterministic failure mode
Online insertion and removal of all components
Environmental self-monitoring

Performance

Layer 2 MAC addresses: 16K
Layer 3 forwarding entries: 12K
Switching fabric capacity:
   C300: 1,536 Tbps
   C150: 768 Gbps
Forwarding performance:
   C300: 952 Mpps
   C150: 476 Mpps
Jumbo frame support: 9252 bytes
Link aggregation: 8 links per group & 128 groups per chassis
Queues per port: 4 queues
VLANs: 4096
Line-rate Layer 2 switching: all protocols, including IPv4 and IPv6
Line-rate Layer 3 routing: IPv4
LAG load balancing based on Layer 2, IPv4 or IPv6 headers

IEEE Compliance

802.1AB	Link Layer Discovery Protocol
802.1D	Bridging, STP
802.1p	L2 Prioritization
802.1Q	VLAN Tagging, Double VLAN Tagging, GVRP
802.1s	Multiple Spanning Tree Protocol
802.1w	Rapid Spanning Tree Protocol
802.1X	Network Access Control
802.3ab	Gigabit Ethernet (1000BASE-T)
802.3ac	Frame Extensions for VLAN Tagging
802.3ad	Link Aggregation with LACP
802.3ae	10 Gigabit Ethernet
802.3af	Power over Ethernet
802.3ak	10 Gigabit Ethernet (10GBASE-CX4)
802.3i	Ethernet (10BASE-T)
802.3u	Fast Ethernet (100BASE-TX, 100BASE-FX)
802.3x	Flow Control
802.3z	Gigabit Ethernet (1000BASE-X)

RFC Compliance

OSPF
1587	NSSA option
2154	OSPF MD5
2328	OSPF v2
2370	Opaque LSA option

RIP
1058	RIP v1
2453	RIP v2

General Routing and Switching Protocols

768	UDP
783	TFTP
791	IP
792	ICMP
793	TCP
826	ARP
854	Telnet
959	FTP
1027	Proxy ARP
1305	NTP v3
1519	CIDR
1542	BootP (relay)
1591	DNS client
1812	IPv4 routers
2131	BootP/DHCP helper
2338	VRRP
3176	sFlow
ietf-draft	Bidirectional Forwarding Detection

IP Multicast
ietf-draft	IGMP Snooping

Security
1492	TACACS+
2865	RADIUS
3128	Protection Against a Variant of the Tiny Fragment Attack
	Secure Copy (SCP)
	SSH v1/v2

SNMP/MIBs
1157	SNMP v1
1213	SNMP v2 (MIB-II)
1215	Traps for use with SNMP
1493	Bridges
1573	Interfaces group MIB
1757	RMON
1907	MIB for SNMPv2
2011	SNMPv2 IP MIB
2012	SNMPv2 TCP MIB
2013	SNMPv2 UDP MIB
2233	Interfaces MIB
2574	SNMPv3 USM
2575	SNMPv3 VACM
2576	Coexistence between SNMPv1/v2/v3
2665	Ethernet-like interfaces
2787	VRRP MIB

Fault management (alarms & status reporting)
Force10 link aggregation MIB
Force10 chassis MIB
Force10 SNMP copy MIB
Force10 monitoring MIB
Force10 interface extensions MIB

Compliances

Safety
CUS 60950, 3rd edition (US NRTL through CSA)
CSA 60950, 3rd edition
CE Mark (EN 60950-1)
CB Report, all country deviations
EN 60825-1 Safety of Laser Products-Part 1:
   Equipment Classification Requirements and User's Guide
EN 60825-2 Safety of Laser Products-Part 2:
   Safety of Optical Fibre Communications Systems
21 CFR 1040.10 / 1040.11 FDA laser device requirements

EMC
USA: FCC Part 15, Class A
Canada: ICES-003, Class A
Europe: EN55022 1998 Class A
Japan: VCCI Class A
ANZ: N17576
EN 55024 1998

RoHS Compliance
All C-Series components are EU RoHS compliant with the exception of lead, which is exempt from the directive for network equipment.