enterasys® Secure Networks™

DATASHEET

C-Series C2

Policy-based Fast Ethernet Stackable L2/L3/L4 Edge Switch

High-availability design assures reliable network operations

Granular QoS capabilities support converged multimedia networks

Aligns network resource utilization with business goals and priorities

PoE and IPv4 routing support a variety of networks and devices

Investment protection via lifetime warranty

780 Gbps capacity and 104 Mpps

Product Overview

The Enterasys C2 is a high-performance, Fast Ethernet edge switch that provides scalable, wire-rate performance in support of the bandwidth-intensive and delay-sensitive requirements of today's demanding applications. With support for 16,000 MAC addresses, the C2 is an excellent choice for environments that require complete multi-layer switching capabilities and support for high density 10/100 Ethernet ports along with Gigabit Ethernet ports, and dynamic routing capabilities. The C2 is well-suited for 100 Mbps networks that have a short-term plan to migrate to a predominantly Gigabit Ethernet network. In addition to its complete multi-layer switching capabilities, the C2 also provides IPv4 routing as well as multicast routing protocols. Along with a switch capacity of 97.6 Gbps, the C2 provides up to 48 10/100 Ethernet ports as well as 4 Gigabit Ethernet uplink ports. Leveraging the C2's wire-rate stacking capability, as many as 8 C2s can be interconnected in a single stack to create a virtual switch that provides 780 Gbps of capacity and up to 384 10/100 Ethernet ports as well as 32 Gigabit Ethernet uplink ports.

Robust Quality of Service (QoS) features enable strong support for integrated multimedia networks, including Voice over IP (VoIP) and video, as well as all types of data-intensive applications. The C2's highly customizable Layer 2/3/4 packet classification capabilities work together with the 8 hardware-based priority queues associated with each Ethernet port to support a suite of differentiated services with as many as 8 distinct priority levels. In conjunction with its non-blocking L2 switching and L3 routing architecture, the C2's intelligent queuing mechanisms ensure that mission-critical applications receive prioritized access to network resources.

The C2 provides a secure network by utilizing its authentication and security features, which can be applied at the port level or at the user level. Making use of the NMS Policy Manager or a standard CLI, the Enterasys role-based architecture enables a network administrator to define distinct roles or profiles that represent operational groups within a business (e.g., employee, executive, guest, etc). Multiple users/devices per switch can be authenticated via IEEE 802.1X, MAC address, or web authentication, and then assigned a pre-defined operational role. Network operations can be easily tailored to meet business-oriented requirements by providing each role with individualized access to network services and applications (e.g., a guest should have different network access privileges than an employee).

Benefits

Business Alignment

- Granular QoS capabilities support converged multimedia networks
- Aligns network resource utilization with business goals and priorities
- Reliable network operation for mission-critical applications

Operational Efficiency

- Scalable architecture supports continued growth of network capacity
- Consolidated management capabilities reduce network operational expenses
- Security capabilities without the high overhead

Security

- Network resources securely allocated according to user roles
- Network security maintained concurrently with user mobility
- Architecture designed with integral network security

Support and Service

- Industry-leading customer satisfaction and first call resolution rates
- Personalized services, including site surveys, network design, installation, and training
- Lifetime warranty

There is nothing more important than our customers.

The C-Series product line provides high port density in a 1u footprint and is environmentally friendly by design. By maximizing port density within a given amount of rack space, the C2 minimizes its cooling requirements. The C2's overall electrical requirement is further reduced by a low current draw and an extreme tolerance for high environmental temperatures. A highly-scalable architecture and a lifetime warranty ensures that a C2 network investment will sustain a secure, feature-rich and cost-effective network well into the future.

Reliability and Availability

The C2 design incorporates redundancy and failure protection mechanisms complete with automatic failover and recovery capabilities to provide a reliable network. An integral power supply is the primary source of power for the C2 and complete power redundancy is provided by an optional external power supply. In addition to the standard version of the C2, there is also a redundant Power over Ethernet (PoE) version of the C2 which supports network devices that require external power such as wireless access points, VoIP phones, and network cameras. A virtual switch can be created by interconnecting as many as 8 C2s in a single stack, which can be managed via a single IP address with redundant management connections. The C2's closed-loop stacking (CLS) capability utilizes bidirectional switch interconnects to maintain connectivity within the virtual switch despite any physical switch-level failure. Up to 8 Ethernet ports can be grouped together to create a multi-link aggregation group (LAG). A LAG's Ethernet ports can be collocated on a single C2 or they can be distributed across multiple C2s within a stack to prevent a switch-level failure from disrupting data communications. The C2 also supports equal cost multipath protocol (ECMP) and virtual router redundancy protocol (VRRP) to strengthen its ability to quickly recover from a network failure.

Advanced Quality of Service

Robust QoS features enable strong support for integrated multimedia networks, including VoIP and video, as well as all types of data-intensive applications. The C2 provides highly customizable Layer 2/3/4 packet classification capabilities, which can be based upon physical port ID, MAC address, IP subnet, IP address, IP protocol type, IP Type of Service (ToS), differentiated services code point (DSCP), and TCP/UDP port. The C2 provides 8 hardware-based priority queues per Ethernet port, which work together with its packet classification capabilities to support a suite of differentiated services with as many as 8 distinct priority levels. The strict and weighted round robin queuing algorithms ensure that mission-critical applications receive prioritized access to network resources.

Security

The C2 provides a secure network by utilizing its authentication and security features, which can be applied at the port level or at the user level. Making use of the NMS Policy Manager or a standard CLI, the Enterasys role-based architecture enables a network administrator to define distinct roles or profiles that represent operational groups within a business (e.g., employee, executive, guest, etc). Multiple users/devices per switch can be authenticated via IEEE 802.1X, MAC address, or web authentication, and then assigned a pre-defined operational role. In addition, the C2 also supports access control lists (ACLs) for supplementary network security. Network operations can be easily tailored to meet business-oriented requirements by providing each role with individualized access to network services and applications (e.g., a guest should have different network access privileges than an employee).

Investment Protection

The C2 is a cost-effective, feature-rich, stackable switch that provides a broad set of features today and will continue to deliver benefits well into the future. Customers can grow and/or enhance their networks while protecting their investment by adding C2s into existing C-Series networks and/or stacks. When multiple C2s are stacked together, each switch in the stack assumes the feature set that is common to all switches in the stack to ensure operational compatibility. All C-Series products include a lifetime warranty that continues for 5 years after the date of product discontinuation. For more information regarding warranty terms and conditions please go to http://www.enterasys.com/support/warranty.aspx.

Performance & Scalability

The C2 provides scalable, wire-rate performance in support of the bandwidth-intensive and delay-sensitive requirements of today's demanding applications. Along with a switch capacity of 97.6 Gbps, the C2 provides up to 48 10/100 Ethernet ports as well as 4 Gigabit Ethernet uplink ports. Leveraging the C2's wire-rate stacking capability, as many as 8 C2s can be interconnected in a single stack to create a virtual switch that provides 780 Gbps of capacity and up to 384 10/100 Ethernet ports as well as 32 Gigabit Ethernet uplink ports. The C2 supports hundreds of distinct policies (rules) that enable granular definition of network access capabilities for each role, thus aligning network resource utilization with business goals and priorities.

Standards and Protocols

MAC Address Table Size
16,000

VLANs
4,096 VLAN IDs
1,024 VLAN Entries per Stack

Embedded Services
Ingress Rate Limiting
IP TOS Rewrite
Layer 2/3/4 Classification
Multi-layer Packet Processing

Switching Services
IEEE 802.1D – MAC Bridges
IEEE 802.1s – Multiple Spanning Trees
IEEE 802.1t – 802.1D Maintenance
IEEE 802.1w – Rapid Spanning Tree Reconvergence
IEEE 802.3 Ethernet
IEEE 802.3ab – GE over Twisted Pair
IEEE 802.3ad – Link Aggregation
IEEE 802.3af – PoE
IEEE 802.3i - 10Base-T
IEEE 802.3u - 100Base-T, 100Base-FX
IEEE 802.3z - GE over Fiber
Full/half duplex auto-sense support on all ports
IGMP Snooping v1/v2/v3
Jumbo Frame Support (9,216 bytes)
Loop Protection
One-to-One and Many-to-One Port Mirroring
Port Description
Protected Ports
Per-port Broadcast/Multicast/Unknown Unicast Suppression
Spanning Tree Backup Root
STP Pass Thru

VLAN Support
Generic Attribute Registration Protocol (GARP)
Generic VLAN Registration Protocol (GVRP)
IEEE 802.1p – Traffic Management/Mapping to 8 Queues
IEEE 802.1q – VLAN Tagging
IEEE 802.1v – Protocol-based VLANs
IEEE 802.3ac – VLAN Tagging Extensions
Protected Port (private port/private VLAN)
Tagged-based VLAN
VLAN Marking of Mirror Traffic

Quality of Service
8 Priority Queues per Port
802.3x Flow Control
IP DSCP – Differentiated Services Code Point
IP Precedence
IP Protocol
Queuing Control – Strict and Weighted Round Robin
Source/Destination IP Address
Source/Destination MAC Address

Security
ARP Spoof Protection
DHCP Spoof Protection
Dynamic and Static MAC Locking
EAP Pass Thru
IEEE 802.1x Port Authentication
MAC-based Port Authentication
RADIUS Accounting for MAC Authentication
RADIUS Client
RFC 3580 – Dynamic VLAN Assignment
Password Protection (encryption)
Secured Shell (SSHv2)
Secured Socket Layer (SSL)
User and IP Phone Authentication
Web-based Port Authentication

IPv4 Routing & Multicast
ARP & ARP Redirect
DCHP/BOOTP Relay
DVMRP
IP Helper Address
RFC 826 – Ethernet ARP
RFC 1058 – RIP v1
RFC 1256 – ICMP Router Discovery Messages
RFC 2328 – OSPF Version 2
RFC 1724 – RIPv2 MIB Extension
RFC 1850 – OSPF MIB
RFC 2236 – IGMPv2
RFC 2338 – IP Redundancy VRRP
RFC 2362 – PIM-SM
RFC 2453 – RIP v2
RFC 2787 – VRRP MIB
RFC 2863 – The Interfaces Group MIB
RFC 2933 – IGMP MIB
RFC 2934 – PIM MIB for IPv4
RFC 3046 – DHCP/BootP Relay
RFC 3768 – VRRP – Virtual Router Redundancy Protocol
Static Routes

RFC and MIB Support
Enterasys Entity MIB
Enterasys Policy MIB
Enterasys VLAN Authorization MIB

IEEE 802.1X MIB – Port Access
IEEE 802.3ad MIB – LAG MIB

RFC 826 – ARP and ARP Redirect
RFC 951, RFC 1542 – DHCP/BOOTP Relay
RFC 1213 – MIB/MIB II
RFC 1493 – BRIDGE-MIB
RFC 1643 – Ethernet-like MIB
RFC 2131, RFC 3046 – DHCP Client/Relay
RFC 2271 – SNMP Framework MIB
RFC 2618 – RADIUS Authentication Client MIB
RFC 2620 – RADIUS Accounting Client MIB
RFC 2668 – Managed Object Definitions for 802.3 MAUs
RFC 2674 – P-BRIDGE-MIB
RFC 2674 – QBRIDGE-MIB VLAN Bridge MIB
RFC 2737 – Entity MIB (physical branch only)
RFC 2787 – VRRP-MIB
RFC 2819 – RMON-MIB
RFC 2863 – IF-MIB
RFC 2933 – IGMP MIB
RFC 3413 – SNMP Applications MIB
RFC 3414 – SNMP User-based Security Module (USM) MIB
RFC 3415 – View-based Access Control Model for SNMP
RFC 3580 – IEEE 802.1X Remote Authentication Dial-in User Service (RADIUS) Usage Guidelines
RFC 3584 – SNMP Community MIB
RFC 3621 – Power over Ethernet MIB

Management
Alias Port Naming
Command Line Interface
Configuration Upload/Download
Editable Configuration File
TFTP Client
Multi-configuration File Support
NMS Automated Security Manager
NMS Console
NMS Inventory Manager
NMS Policy Manager
Node/Alias Table
RFC 854 – Telnet
RFC 1157 – SNMP
RFC 1901 – Community-based SNMPv2
RFC 2271 – SNMP Framework MIB
RFC 3413 – SNMP Applications MIB
RFC 3414 – SNMP Usm MIB
RFC 3415 – View-based Access Control Model for SNMP
RMON (Stats, History, Alarms, Events)
Simple Network Management Protocol (SNMP) v1/v2c/v3
Simple Network Time Protocol (SNTP)
SSH
Syslog
Text-based Configuration Upload/Download
Web-based Management
Webview via SSL Interface

Switch Model Specifications

	C2H124-48	C2H124-48P
Performance		
Throughput Capacity wire-speed Mpps (switch / stack)	13.1 Mpps /104.8 Mpps	13.1 Mpps /104.8 Mpps
Switching Capacity (switch / stack)	17.6 Gbps / 140.8 Gbps	17.6G bps / 140.8 Gbps
Stacking Capacity (switch / stack)	80 Gbps / 640 Gbps	80 Gbps / 640 Gbps
Aggregate Throughput Capacity (switch / stack)	97.6 Gbps / 780.8 Gbps	97.6 Gbps / 780.8 Gbps
PoE Specifications		
802.3af Compliance	N/A	Yes
System Power	N/A	360 watts per switch with up to 15.4 watts per port Per-port switch power monitor: • Enable/disable • Priority safety • Overload & short circuit protection
Physical Specifications		
Dimensions (H x W x D)	H: 4.4 cm (1.73") W: 44.1 cm (17.36") D: 36.85 cm (14.51")	H: 4.4 cm (1.73") W: 44.1 cm (17.36") D: 36.85 cm (14.51")
Net Weight	5.27 kg (11.61 lb)	6.50 kg (14.32 lb)
MTBF	138,741 hours	115,872 hours
Physical Ports	• (48) 10/100 auto-sensing, auto-negotiating, MDI/MDI-X, RJ45 ports • (4) mini-GBIC ports • (2) dedicated stacking ports • (1) DB9 console port • (1) RPS port	• (48) 10/100 PoE auto-sensing, auto-negotiating, MDI/MDI-X, RJ45 ports • (4) mini-GBIC ports • (2) dedicated stacking ports • (1) DB9 console port • (1) RPS port
Power Requirements		
Nominal Input Voltage	100 – 240 VAC	100 – 240 VAC
Input Frequency	50 – 60 Hz	50 – 60 Hz
Input Current	0.8 A @ 110 V	7.5 A @ 110 V
Power Consumption	79 watts	535 watts
Temperature		
IEC 6-2-1 Standard Operating Temperature	0° to 50° C (32° to 122° F)	0° to 50° C (32° to 122° F)
IEC 6-2-14 Non-Operating Temperature	-40° to 70° C (-40° to 158° F)	-40° to 70° C (-40° to 158° F)
Heat Dissipation	270 BTUs/Hr	384 BTUs/Hr
Humidity		
Operating Humidity	5% - 95% non-condensing	5% - 95% non-condensing
Vibration		
	IEC 68-2-6, IEC68-2-36	IEC 68-2-6, IEC68-2-36
Shock		
	IEC 68-2-29	IEC 68-2-29
Drop		
	IEC 68-2-32	IEC 68-2-32

Switch Model Specifications (cont.)

	C2H124-48	C2H124-48P
Drop		
	IEC 68-2-32	IEC 68-2-32
Agency and Regulatory Standard Specifications		
Safety	UL 60950-1, CSA 22.1 60950, EN 60950-1, and IEC 60950-1	UL 60950-1, CSA 22.1 60950, EN 60950-1, and IEC 60950-1
EMC	FCC Part 15 (Class A), ICES-003 (Class A), BSMI, VCCI V-3, AS/NZS CISPR 22 (Class A), EN 55022 (Class A), EN 55024, EN 61000-3-2, and EN 61000-3-3	FCC Part 15 (Class A), ICES-003 (Class A), BSMI, VCCI V-3, AS/NZS CISPR 22 (Class A), EN 55022 (Class A), EN 55024, EN 61000-3-2, and EN 61000-3-3

Redundant Power Supply Equipment Specifications

STK-RPS-150CH2 Power Shelf

Power Supply Slots
2

Dimensions (H x W x D)*
5.5 cm (2.2") x 44.0 cm (17.3") x 35.1 cm (13.8")

Weight
0.95 kg (2.09 lbs)

Note: dimensions include integrated rack mount ears

STK-RPS-150CH8 Power Shelf

Power Supply Slots
8

Dimensions (H x W x D)*
22.26 cm (8.77") x 44.0 cm (17.3") x 26.4 cm (10.4")

Weight
5.27 kg (11.6 lbs)

C2RPS-PSM Power Supply

Dimensions (H x W x D)
19.6 cm (7.7") x 5.2 cm (2.04") x 25.7 cm (10.1")

Net Weight (Unit Only)
1.75 kg (3.85 lbs)

Gross Weight (Packaged Unit)
3.20 kg (7.04 lbs)

MTBF
300,000 hours

Operating Temperature
0° C to 50° C (32° F to 122° F)

Storage Temperature
-30° C to 73° C (-22° F to 164° F)

Operating Relative Humidity
10% to 90%

AC Input Frequency Range
50-60 Hz

AC Input Voltage Range
100 - 240 VAC

Maximum Output Power
156 W continuous

C2RPS-POE Power Supply

Dimensions (H x W x D)*
4.45 cm (1.75") x 44.5 cm (17.5") x 16.5 cm (6.5")

Net Weight (Unit Only)
3.47 kg (7.63 lbs)

Gross Weight (Packaged Unit)
4.95 kg (10.89 lbs)

MTBF
589,644 hours at 25° C (77° F)

Operating Temperature
5° C to 40° C (41° F to 104° F)

Storage Temperature
-30° C to 73° C (-22° F to 164° F)

Operating Relative Humidity
10% to 90%

AC Input Frequency Range
50-60 Hz

AC Input Voltage Range
100 - 240 VAC

Maximum Output Power
500 W continuous

Ordering Information

C2 Switches	
Part Number	**Description**
C2H124-48	C2 with (48) 10/100 RJ45 ports, (4) mini-GBIC ports, and (2) dedicated stacking ports. Total active ports per switch: all 52 ports.
C2H124-48P	C2 with (48) 10/100 PoE RJ45 ports, (4) mini-GBIC ports, and (2) dedicated stacking ports. Total active ports per switch: all 52 ports.
Optional Software Licenses	
C2L3-LIC	C2 advanced IPv4 routing license (one per stack) – OSPF, PIM-SM, DVMRP, and VRRP
Cables	
C2CAB-SHORT	Stacking cable for connecting adjacent switches (30 cm)
C2CAB-LONG	Stacking cable for connecting top switch to bottom switch (1 m)
SSCON-CAB	Spare Console Cable (for use on all A2, B2, B3, C2, and C3 switches)
Redundant Power Supply Equipment	
STK-RPS-150CH2	2-slot RPS chassis (supports up to 2 C2RPS-PSMs)
STK-RPS-150CH8	8-slot RPS chassis (supports up to 8 C2RPS-PSMs)
C2RPS-PSM	150-watt redundant Non-PoE power supply with one DC cable
C2RPS-SYS	8-slot RPS chassis plus 1 C2RPS-PSM (chassis supports up to 8 C2RPS-PSMs)
C2RPS-POE	500-watt redundant PoE power supply with one DC cable

Transceivers

Enterasys transceivers provide connectivity options for Ethernet over twisted pair copper and fiber optic cables with transmission speeds from 100 Megabits per second to 10 Gigabits per second. All Enterasys transceivers meet the highest quality for extended life cycle and the best possible return on investment. For detailed specifications, compatibility and ordering information please go to: http://www.enterasys.com/products/transceivers-ds.pdf

Warranty

As a customer-centric company, Enterasys is committed to providing quality products and solutions. In the event that one of our products fails due to a defect, we have developed a comprehensive warranty that protects you and provides a simple way to get your products repaired or media replaced as soon as possible.

C-Series switches come with a lifetime warranty against manufacturing defects. For full warranty terms and conditions please go to: http://www.enterasys.com/support/warranty.aspx.

Service and Support

Enterasys Networks provides comprehensive service offerings that range from Professional Services to design, deploy and optimize customer networks, customized technical training, to service and support tailored to individual customer needs. Please contact your Enterasys account executive for more information about Enterasys Service and Support.

Contact Us

For more information, call Enterasys Networks toll free at 1-877-801-7082, or +1-978-684-1000 and visit us on the Web at enterasys.com

Thought Leadership
Patented Innovation

enterasys® Secure Networks™

07/10

Delivering on our promises. On-time. On-budget.