

# 3COM SWITCH 4500 10/100 FAMILY

Intelligent and secure edge connectivity,  
ideal for small and medium enterprise and  
branch office networks



from top: 3Com Switch 4500 26-Port, Switch 4500 50-Port, Switch 4500 PWR 26-Port, Switch 4500 PWR 50-Port

## OVERVIEW

The 3Com® Switch 4500 family of managed, stackable 10/100 Ethernet switches provides secure, flexible LAN connectivity for enterprise and branch office networks. The Switch 4500 family offers Layer 2 switching and dynamic Layer 3 routing, as well as robust security, Quality of Service (QoS) and management features to deliver intelligent edge connectivity for essential business applications.

Four switch models—stackable in any combination up to eight units—include:

- > 3Com Switch 4500 26-Port:  
24 10/100 ports plus 2 dual-personality Gigabit port pairs
- > 3Com Switch 4500 50-Port:  
48 10/100 ports plus 2 dual-personality Gigabit port pairs
- > 3Com Switch 4500 PWR 26-Port:  
24 10/100 Power over Ethernet (PoE) ports plus 2 dual-personality Gigabit port pairs
- > 3Com Switch 4500 PWR 50-Port:  
48 10/100 PoE ports plus 2 dual-personality Gigabit port pairs

## KEY BENEFITS

### SECURES THE NETWORK

Essential security features provide user and device authentication, enforce access control for switch management and enhance overall network security to protect critical resources and information.

### EMPOWERS APPLICATION CONVERGENCE

The Switch 4500 family combines high performance switching, QoS and advanced traffic management features to help ensure essential applications get the appropriate priority for efficient utilization of network resources.

### REDUCES DEPLOYMENT COSTS

Two Switch 4500 models provide Power over Ethernet (PoE). PoE provides electrical power and data connectivity over a single Ethernet cable—resulting in significant cost savings when deploying devices like IP phones, wireless access points and IP security cameras.

### INCREASES FLEXIBILITY AND SCALABILITY

Dual-personality ports allow for both copper and fiber Gigabit uplink connections. The switch supports true stacking with the ability to stack up to eight switch units—384 10/100 ports per stack—with single IP management and distributed aggregated links for high uplink resiliency. Alternatively, cluster manage up to 32 geographically distributed devices together, with any mix of Switch 5500G, 5500, 4500G, 4500, 4200G and 4210s.



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## KEY BENEFITS (continued)

### ENHANCES MANAGEMENT AND CONTROL

The Switch 4500 family is easy to use and manage, designed to increase business productivity by reliably supporting business applications. Additionally, the PoE models deliver intelligent power management ("smart PoE") with dynamic allocation of available power resources.

### MINIMIZES VOICE OVER IP COMPLEXITY

Minimize the cost and complexity associated with adding or moving IP phones: the Switch 4500 detects the presence of IP phones and dynamically assigns switch ports to the voice VLAN, enabling automated configuration and prioritization of Voice over IP (VoIP) traffic.

### DELIVERS HIGH PERFORMANCE

No need to buy new switches when additional network performance is needed, as the Switch 4500 family features 26-port and 50-port models, providing aggregate switching capacity up to 8.8 Gbps and 13.6 Gbps, respectively.

The Switch 4500 also supports jumbo frames at sizes up to 9,216 bytes for greater efficiency in large data transfers.

### REDUCES CONFIGURATION EXPENSE

Automatic updating of Layer 3 network topologies, negotiation of port speed and duplex mode, and detection and adjustment of cable type reduces configuration time and expense.

### REDUNDANT POWER SYSTEM SUPPORT

The two 3Com Switch 4500 PWR models support a redundant power system (RPS) connection.

RPS units provide these benefits:

- › For PWR switches, an RPS can deliver more power budget for IEEE 802.3af Power over Ethernet than what the switches alone can provide. For example,

the Switch 4500G PWR 50-port switch has a PoE power budget of 300 Watts, which means that approximately half of the ports can provide the full 802.3af PoE power of 15.4 Watts. With an RPS providing power, all 48-ports can provide a full 15.4 Watts of PoE power.

- › They deliver redundant power to switches so there is continued operation should the switch unit power supply fail. This allows for continuous operation of advanced Enterprise networks, particularly important for converged networks running IP phones on the network.

### 3Com H3C RPS Systems

3Com switches are compatible with 3Com H3C® RPS solutions. These are enterprise-class power redundancy systems that work with many 3Com fixed-configuration switches. 3Com Corporation manufactures networking equipment under the H3C brand for sale into many markets.

The H3C RPS 1000 is 1U high and provides multiple power output connections to support multiple switch units at the same time. Two power rectifiers can be installed for 1+1 load sharing and power redundancy. It supports switches with -54V RPS connections, and delivers sufficient power to fully provision all PoE ports of a switch with full power redundancy.

### SUPPORTED BY LIMITED LIFETIME HARDWARE WARRANTY

3Com gives a Limited Lifetime Hardware Warranty on the Switch 4500 10/100 Family. Also provided is Advanced Hardware Replacement, with next business day shipment available in most regions, and telephone support and limited lifetime software updates.

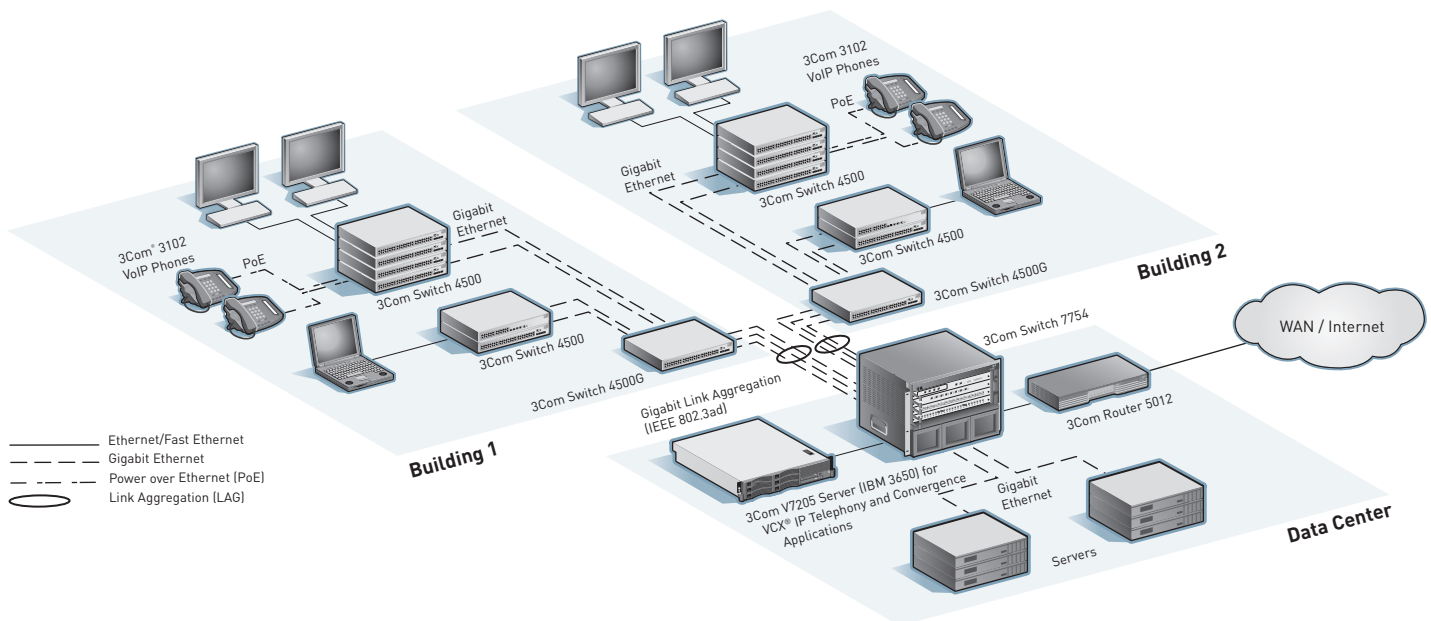
## FEATURE HIGHLIGHTS

### FEATURE

### DESCRIPTION

IEEE 802.1X network access control	Standards-based security combined with RADIUS authentication
RADIUS Authenticated Device Access	Authentication of attached devices via MAC address for additional level of (RADA) endpoint security
Access Control Lists (ACLs)	Enable usage policies at each point of access to the network via the switch
Bandwidth rate limiting and protocol prioritization of delay-sensitive VoIP traffic	Enforce controls on each port for efficient use of network resources and filtering
PoE support	Internal power supply provides a total PoE power budget of 300 Watts to PoE-enabled devices like IP phones; optional supplemental power available
"Dual-personality" Gigabit Ethernet interfaces	Choice of copper or fiber media for flexible uplinks
Multicast filtering and Rapid Spanning Tree Protocol support	Improve QoS, scalability and network availability
Dynamic routing network topologies	Routing Information Protocol (RIP) allows automatic updating of Layer 3
Secure management (SSH v2) and SNMP v3	Authentication and encryption of management traffic via Secure Shell
3Com Operating System	Proven software featured in 3Com premium enterprise switches such as the Switch 5500, 7700 and 8800 families
Service and Support	Backed by 3Com Global Services and authorized partners with demonstrated expertise in network assessment, implementation and maintenance

## CAMPUS LAN CONFIGURATION SUPPORTED BY THE SWITCH 4500



## PRODUCT WARRANTY AND OTHER SERVICES

Warranty	3Com Limited Lifetime Warranty. For as long as the original end user owns the product, or for five years after 3Com discontinues the sale of the product, whichever occurs first.
Hardware coverage	Covers the complete unit including power supply and fan.
In-warranty hardware replacement*	Advanced Hardware Replacement of hardware for the duration of the warranty. In the US 48 contiguous states this is same-day ship with next business day delivery when call received before noon Pacific time. For Canada, Alaska and Hawaii, this is same-day ship when call received before noon Pacific time. For the rest of the world, it is next-business-day ship. Actual delivery times may vary depending on customer location. Reasonable commercial efforts apply.
Software coverage	90 days for media replacement.
Software updates*	Access to releases with incremental software features and bug fixes. For the Switch 4500, updates are all releases within the licensed 3Com OS software level.
Telephone support*	Technical support via phone for 90 days.
Online Knowledgebase support*	Access to online troubleshooting tool for the duration of the warranty.

\* These services are not included as part of the Warranty and 3Com reserves the right to modify or cancel this offering at any time, without advance notice. This offering is not available where prohibited by law. Services are effective at warranty start date, and are enabled with product registration. Customers receive a user ID with eSupport registration.

## SERVICE AND SUPPORT

3Com Global Services offers the resources and talents of a major corporation plus more than two decades of experience in resolving network challenges and delivering business benefits to enterprises around the world.

Global support with a personalized focus in the local language helps drive productivity and minimize expenses. Because 3Com understands both the technology and the business, we're the partner you need to maintain your competitive edge and remain strong.

### Additional Service, Support and Training Offerings

#### 3Com Guardian<sup>SM</sup> Maintenance Service

This service provides comprehensive on-site support and includes advance hardware replacement, expedited telephone technical support and software upgrades

#### 3Com Express<sup>SM</sup> Maintenance Service

This service provides speedy access to 3Com shipment of advance hardware replacements (including a four-hour option), expedited telephone technical support and software upgrades

#### Network Health Check

An activity-auditing service focused on improving network performance and productivity

Includes traffic monitoring, utilization analysis, problem identification, and asset deployment recommendations

Extensive report provides blueprint for action

#### Network Installation and Implementation Services

Experts set-up and configure equipment and integrate technologies to maximize functionality and minimize business disruption

For large and complex sites, implementation services include personalized configuration, project management, extended testing and coaching on network administration

#### Project Management

Provides extra focus and resources that special projects demand

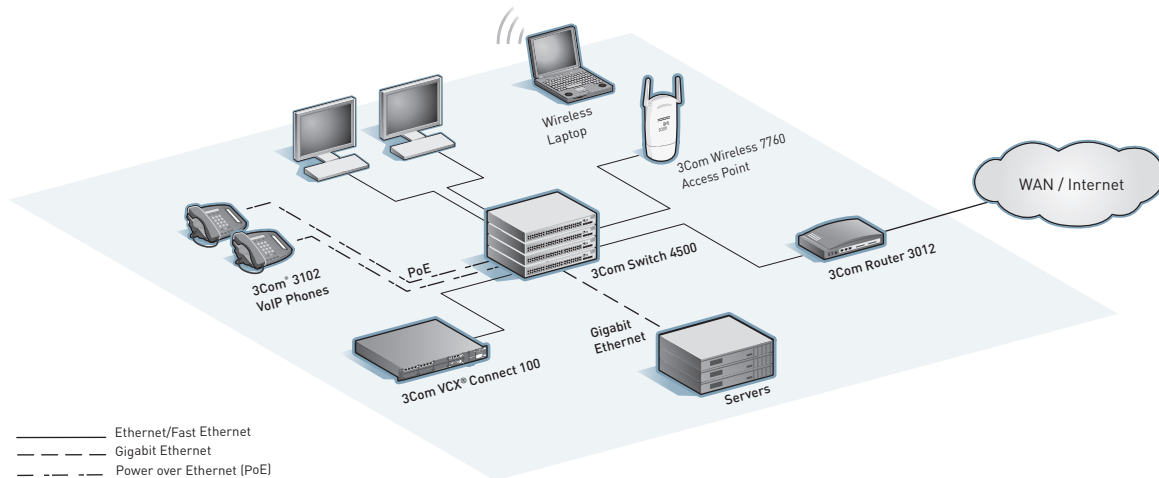
3Com engineers manage entire process from initial specifications to post-project review

Using structured methodology, requirements are identified, projects planned and progress of implementation activities tracked

#### 3Com University

Self-paced and instructor-led technology and product courses, plus certification programs

# SMALL-TO-MEDIUM LAN CONFIGURATION SUPPORTED BY THE SWITCH 4500



## SPECIFICATIONS

All information in this section is relevant to all members of the 3Com Switch 4500 10/100 family, unless otherwise stated.

### CONNECTORS

#### 26-port non-PWR

26 total available ports, comprised of:

- 24 auto-negotiating 10BASE-T/100BASE-TX ports configured as auto MDI/MDIX
- 2 dual-personality Gigabit port pairs, configurable as 10BASE-T/100BASE-TX/1000BASE-T or SFP

#### 26-port PWR

26 total available ports, comprised of:

- 24 auto-negotiating 10BASE-T/100BASE-TX ports configured as auto MDI/MDIX; IEEE 802.3af in-line power
- 2 dual-personality Gigabit SFP port pairs

Unit ships with two 1000BASE-T SFPs

#### 50-port models

50 total available ports, comprised of:

- 48 auto-negotiating 10BASE-T/100BASE-TX ports configured as auto MDI/MDIX; IEEE 802.3af in-line power for PWR model
- 2 dual-personality Gigabit SFP port pairs

Units ship with two 1000BASE-T SFPs

### PERFORMANCE

#### 26-port

8.8 Gbps switching capacity, max.

6.5 Mpps forwarding rate, max.

#### 50-port

13.6 Gbps switching capacity, max.

10.1 Mpps forwarding rate, max.

#### All models

Switch fabric bandwidth: 32 Gbps

Wirespeed performance across all ports within stack or fabric

Store-and-forward switching; latency <10  $\mu$ s

2 Gbps full-duplex stacking bandwidth

### LAYER 2 SWITCHING

8,192 MAC addresses in address table

64 static MAC addresses, in addition to default address

256 Port-based VLANs (IEEE 802.1Q)

IEEE 802.3ad Link Aggregation Control Protocol (LACP); automated and manual aggregation

Jumbo Frame Support

GARP VLAN Registration Protocol (GVRP)

Per-switch trunk groups: 13 groups (26-port); 25 groups (50-port)

8 10/100 or 2 Gigabit ports per group

Auto-negotiation of port speed and duplex

IEEE 802.3x full-duplex flow control

Back pressure flow control for half-duplex

Supports broadcast storm suppression per VLAN

IEEE 802.1D Spanning Tree Protocol (STP)

IEEE 802.1s Multiple Spanning Tree Protocol (MSTP)

IEEE 802.1w Rapid Spanning Tree Protocol (RSTP)

Bridge Protocol Data Unit (BPDU) protection

Internet Group Management Protocol (IGMP) snooping (v1, 2 and 3) on Layer 2 interfaces

Filtering for 128 multicast groups

Spanning Tree enable / disable per port

Spanning Tree fast-start mode

Bridge Protocol Data Unit (BPDU) protection

DHCP snooping

## SPECIFICATIONS (continued)

### LAYER 3 SWITCHING

Hardware based routing

12 static routes, in addition to default address

1,990 dynamic Address Resolution Protocol (ARP) entries; 16 static

4 IP interfaces

Routing Information Protocol (RIP) v1 and 2; supports 2,000 entries

Dynamic Host Configuration Protocol Relay (DHCP Relay)

### CONVERGENCE

Eight hardware queues per port

Weighted Round Robin (WRR)

IEEE 802.1p Class of Service/Quality of Service (CoS/QoS) on egress

IEEE 802.1p QoS marking/remarking

Weighted Fair Queuing (WFQ)

Strict Priority Queuing (SP)

Auto prioritization of voice traffic determined by vendor OUI

DiffServ Code Point Expedited Forwarding (DSCP EF) remarking for prioritization of VoIP traffic

Traffic shaping with port-based egress rate limiting; application and protocol blocking

IEEE 802.3af Power over Ethernet standards-compliant (PWR models)

### POE (PWR MODELS ONLY)

IEEE 802.3af PoE injection into Category 5 or 5e LAN wiring (300 W total maximum)

Available standards-based DC supplemental power system supplies up to 15.4 W each of power to all PoE ports in a switch or stack (5,914 W total maximum)

### SECURITY

IEEE 802.1X Network login user authentication:

- EAP over LAN (EAPoL) transport with EAP-MD5, EAP-TLS, EAP-TTLS, PAP, PEAP and CHAP authentication
- Multiple users per port
- 1024 users per fabric

Local, RADIUS and HWTACACS server authentication

RADIUS session accounting

Automatic VLAN assignment via RADIUS server

Wirespeed packet filtering in hardware

ACLs filter at Layers 2, 3 and 4:

- Source/destination MAC address
- Ethernet type
- Source/destination IP address
- Source/destination TCP port
- Source/destination UDP port

RADIUS Authenticated Device Access (RADA): authenticate devices based on MAC address against RADIUS server; and assign VLAN ID and ACL

IEEE 802.1X user authentication of switch management on switch Telnet and console sessions; four access privilege levels

Hierarchical management and password protection for management interface

SNMP v3 encryption

SSH v2

HTTPS web interface encryption

ARP attack detection and suppression

Port-based MAC address Disconnect Unknown Device (DUD)

Denial of Service protection

Local switch log-in password

Switch login via RADIUS

Trusted IP Management Addresses

Isolated port in VLAN

Blackhole MAC address

### STACKING

Up to 384 10/100 front panel ports

Single IP address and management interfaces for stack-wide control

Distributed Link Aggregation

Clustering management with Switch 5500G, 5500, 4500G, 4500, 4210 and 4200G

### MANAGEMENT

CLI via console or Telnet

Remote configuration via modem dial-up

3Com Operating System / Comware V3

Embedded web management interface

System configuration with SNMP v1, 2 and 3

IPv6 management including pingv6, tracertv6, Telnetv6, TFTPv6, DNSv6 and ARPv6

IPv6 management interface IP address configuration

Comprehensive statistics, including ACL/QoS and IP interface

Remote Monitoring (RMON) groups statistics, history, alarm and events

1-to-1 and many-to-1 port mirroring

Detailed alarm and debug information

Supports ping and traceroute

Syslog remote logging

Network Time Protocol (NTP)

Configuration file for backup and restore; multiple configuration files available

DHCP Relay and UDP Helper

System file transfer mechanisms: Xmodem, File Transfer Protocol (FTP), Trivial File Transfer Protocol (TFTP)

IP address allocation via DHCP, bootP

Network Time Protocol

Link Layer Discovery Protocol (LLDP / LLDP-MED)

### 3Com Management Applications:

- 3Com Enterprise Management Suite for flexible, extensible management in advanced enterprise IT environments
- 3Com Intelligent Management Center, Enterprise Edition for comprehensive management with the rich functionality required to meet the needs of advanced Enterprise networks
- 3Com Network Director for complete, turn-key network management for the enterprise
- 3Com Network Supervisor for basic, turn-key network management for mid-market businesses

### DIMENSIONS

Height: 43.6 mm (1.7 in or 1 RU)

Width: 440.0 mm (17.3 in)

Depth:

Non-PWR models: 270.0 mm (10.6 in)

PWR models: 427.0 mm (16.8 in)

Weight:

Non-PWR models: 3.3 kg (7.3 lb)

PWR models: 6.3 kg (13.9 lb)

### POWER SUPPLY

AC line frequency: 50/60 Hz

Input voltage: 90-240 VAC

Current rating: 1.0A max.

### Power consumption (max.)

26-port: 24 W

50-port: 40 W

26-port PWR: 48 W plus up to 300 W for PoE

50-port PWR: 59 W plus up to 300 W for PoE



## SPECIFICATIONS (continued)

### ENVIRONMENTAL REQUIREMENTS

Operating temperature: 0° to 40°C (32° to 104°F)

Storage temperature: -10° to 70°C (14° to 158°F)

Humidity (operating and storage): 10% to 95% non-condensing

Standard: EN 60068 (IEC 68)

### HEAT DISSIPATION (MAX)

26-port: 82 BTU/hour

50-port: 137 BTU/hour

26-port PWR: 163 BTU/hour; excludes heat from PoE

50-port PWR: 203 BTU/hour; excludes heat from PoE

### RELIABILITY

(MTBF @ 25°C)

26-port: 47 years (411,000 hours)

26-port PWR: 25 years (221,000 hours)

50-port: 38 years (334,000 hours)

50-port PWR: 22 years (189,000 hours)

### IEEE STANDARDS SUPPORTED

IEEE 802.1D (STP)

IEEE 802.1p (CoS)

IEEE 802.1Q (VLANs)

IEEE 802.1w (RSTP)

IEEE 802.1X (Security)

IEEE 802.3 (Ethernet)

IEEE 802.3ab (1000BASE-T)

IEEE 802.3ad (Link Aggregation)

IEEE 802.3af (Power over Ethernet)

IEEE 802.3i (10BASE-T)

IEEE 802.3u (Fast Ethernet)

IEEE 802.3x (Flow Control)

IEEE 802.3z (1000BASE-X)

### RFC STANDARDS

RFC 783 (TFTP)

RFC 791 (IP)

RFC 793 (TCP)

RFC 826 (ARP)

RFC 951 (BootP)

RFC 1157 (SNMP)

RFC 1723 (RIP)

RFC 1305 (NTP)

RFC 2131 (DHCP client)

RFC 2236 (IGMP Snooping)

RFC 2284 (EAP over LAN)

RFC 2819 (RMON)

### MANAGEMENT, INCLUDING MIBS SUPPORTED

RFC 1212 (Concise MIB definitions)

RFC 1213/2233 (MIB II)

RFC 1493 (Bridge MIB)

RFC 1724 (RIP v2 MIB Extension)

RFC 1907 (SNMP v2c, SMI v2 and Revised MIB-II)

RFC 2021 (RMON II Probe Config MIB)

RFC 2233 (Interfaces MIB)

RFC 2571 (SNMP Framework)

RFC 2572-2575 (SNMP)

RFC 2665 (EtherLike MIB)

RFC 2667 (IP Tunnel MIB)

RFC 2674 (VLAN MIB Extension)

RFC 2737 (Entity MIB)

RFC 2819 (RMON MIB)

### EMISSIONS / AGENCY APPROVALS

CISPR 22 Class A

FCC Part 15 Class A

EN 55022 1998 Class A

EN 61000-3-2 2000, 61000-3-3

ICES-003 Class A

VCCI Class A

### IMMUNITY

EN 55024

### SAFETY AGENCY CERTIFICATIONS

UL 60950

IEC 60950-1

EN 60950-1

CAN/CSA-C22.2 No. 60950-1-03

### WARRANTY AND OTHER SERVICES

Limited Lifetime Hardware Warranty, including fans and power supply

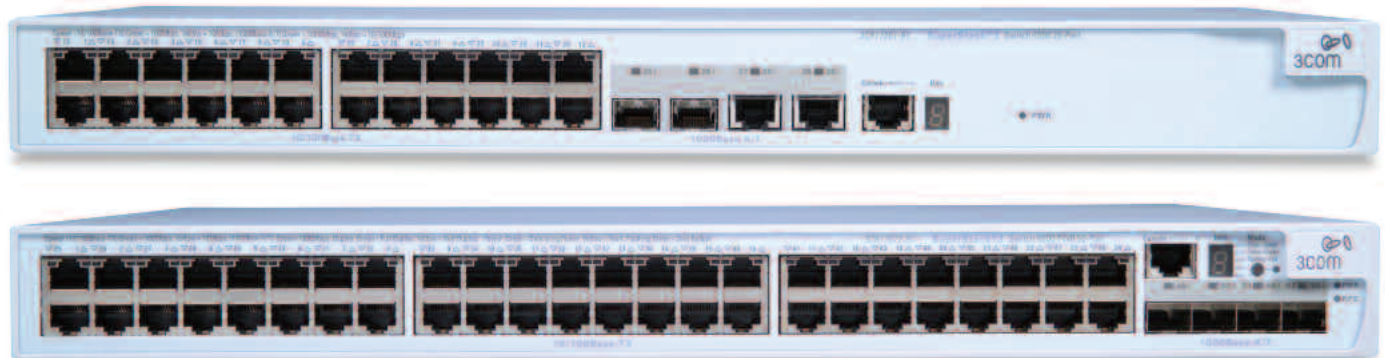
Limited Software Warranty for 90 days

Advance Hardware Replacement with Next Business Day shipment in most regions

Limited Lifetime software updates

90 days of telephone technical support

Refer to [www.3com.com/warranty](http://www.3com.com/warranty) for details.



from top: 3Com Switch 4500 26-Port, Switch 4500 PWR 50-Port

## ORDERING INFORMATION

### PRODUCT DESCRIPTION 3COM SKU

3Com Switch 4500 26-Port	3CR17561-91
3Com Switch 4500 50-Port	3CR17562-91
3Com Switch 4500 PWR 26-Port	3CR17571-91
3Com Switch 4500 PWR 50-Port	3CR17572-91

#### TRANSCEIVERS

1000BASE-SX SFP	3CSFP91
1000BASE-LX SFP	3CSFP92
1000BASE-T SFP	3CSFP93
1000BASE-LH SFP	3CSFP97

#### 3COM GLOBAL SERVICES

3Com Network Health Check, Installation Services and Express Maintenance	<a href="http://www.3com.com/services_quote">www.3com.com/services_quote</a>
3Com University Courses	<a href="http://www.3com.com/3comu">www.3com.com/3comu</a>

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# 3COM SWITCH 4500G GIGABIT FAMILY

High-performance, secure voice-ready Gigabit connectivity, ideal for medium businesses and small enterprises



from top: 3Com Switch 4500G 24-Port, Switch 4500G 48-Port, Switch 4500G PWR 24-Port, Switch 4500G PWR 48-Port

## OVERVIEW

The 3Com® Switch 4500G Gigabit Family delivers flexible quad-speed performance—10/100/1000 and 10-Gigabit—and advanced voice-optimized features such as Power over Ethernet (PoE) and auto-voice VLAN and QoS. This makes the Switch 4500G ideal for medium businesses and small enterprises seeking to build a secure converged network.

## KEY BENEFITS

### MANAGED LAYER 2 AND LAYER 3 GIGABIT CONNECTIVITY

Wirespeed Layer 2 Gigabit switching with dynamic Layer 3 Gigabit routing make the Switch 4500G ideal for wiring closet, workgroup and small core connectivity requirements. In addition, four of the ports are dual-personality, operating either as 10/100/1000 or SFP-based fiber providing greater flexibility. These switches also accommodate up to four extra optional 10-Gigabit high-speed links, enabling connectivity to a core network or to high-performance servers.

### SECURE

Enterprise-class security features include IEEE 802.1X network login, SSH/SSL encrypted device login, and Access Control Lists, protecting mission-critical business applications.

### VOICE-READY

Minimize the cost and complexity associated with adding or moving IP telephones: the Switch 4500G

detects the presence of IP phones and dynamically assigns switch ports to the voice VLAN, enabling automated configuration and prioritization of Voice over IP (VoIP) traffic. Optional PoE models provide electrical power and data connectivity over a single Ethernet cable—resulting in significant cost savings when deploying these phones.

### VARIETY OF MODELS

The Switch 4500G is available in four models, clusterable in any combination up to thirty-two units:

- › 3Com Switch 4500G 24-Port:  
24 auto-negotiating 10BASE-T/100BASE-TX/1000BASE-T ports, 4 of which are dual-personality 10/100/1000 or SFP Gigabit; two 10-Gigabit dual-port slots
- › 3Com Switch 4500G 48-Port:  
48 auto-negotiating 10BASE-T/100BASE-TX/1000BASE-T ports, 4 of which are dual-personality 10/100/1000 or SFP Gigabit; two 10-Gigabit dual-port slots
- › 3Com Switch 4500G 24-Port PWR:  
24 auto-negotiating 10BASE-T/100BASE-TX/1000BASE-T ports, 4 of which are dual-personality 10/100/1000 or SFP Gigabit; two 10-Gigabit dual-port slots; 10/100/1000 ports are PoE-enabled
- › 3Com Switch 4500G 48-Port PWR:  
48 auto-negotiating 10BASE-T/100BASE-TX/1000BASE-T ports, 4 of which are dual-personality 10/100/1000 or SFP Gigabit; two 10-Gigabit dual-port slots; 10/100/1000 ports are PoE-enabled



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## KEY BENEFITS (continued)

### INVESTMENT PROTECTION

10-Gigabit uplinks and robust IPv6 support future-proof your network. These switches come with a limited lifetime warranty covering the unit, power supply and fan. Also provided is Advanced Hardware Replacement, with next business day shipment available in most regions, and telephone support and limited lifetime software updates.

### EMPOWERS APPLICATION CONVERGENCE

The Switch 4500G family combines high-performance Gigabit switching, QoS and traffic management features to help ensure essential applications get the appropriate priority for efficient utilization of network resources.

### ENHANCES MANAGEMENT AND CONTROL

Easy to use and manage, the Switch 4500G is designed to increase business productivity by reliably supporting business applications. Cluster together up to 32 devices for easy administration, with single IP management across 3Com switching lines—with mixed clusters of Switch 4210, 4200G, 4500G and Switch 5500 and Switch 5500G switches.

### DELIVERS HIGH PERFORMANCE

The Switch 4500G family provides wirespeed aggregate switching capacity of up to 176 Gbps and 131 Mpps performance on the 48-port model.

### DYNAMIC LAYER 3 ROUTING

Easy-to-administer dynamic Layer 3 routing increases performance and enhances network security.

### ROBUST IPV6 SUPPORT

Internet Protocol version 6 (IPv6) is the successor to today's IPv4, bringing many more IP addresses and higher levels of security. The Switch 4500G supports this important protocol, delivering IPv6 routing features like RIPng as well as comprehensive IPv6 management capabilities.

## REDUNDANT POWER SYSTEM SUPPORT

The two 3Com Switch 4500G PWR models support a redundant power system (RPS) connection.

RPS units provide these benefits:

- › For PWR switches, an RPS can deliver more power budget for IEEE 802.3af Power over Ethernet than what the switches alone can provide. For example, the Switch 4500G PWR 48-port switch has a PoE power budget of 370 Watts, which means that approximately half of the ports can provide the full 802.3af PoE power of 15.4 Watts. With an RPS providing power, all 48-ports can provide a full 15.4 Watts of PoE power.
- › They deliver redundant power to switches so there is continued operation should the switch unit power supply fail. This allows for continuous operation of advanced Enterprise networks, particularly important for converged networks running IP phones on the network.

### 3Com H3C RPS Systems

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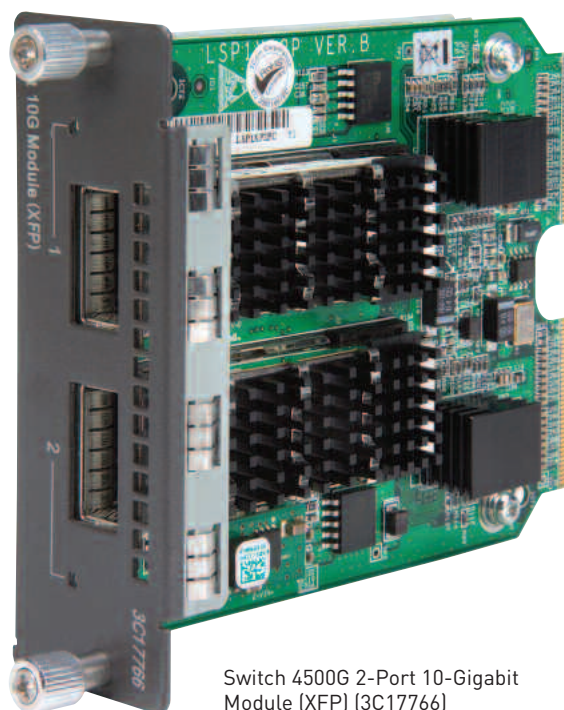
The H3C RPS 1000 is 1U high and provides multiple power output connections to support multiple switch units at the same time. Two power rectifiers can be installed for 1+1 load sharing and power redundancy. It supports switches with -54V RPS connections, and delivers sufficient power to fully provision all PoE ports of a switch with full power redundancy.



Switch 4500G, rear, with two modules

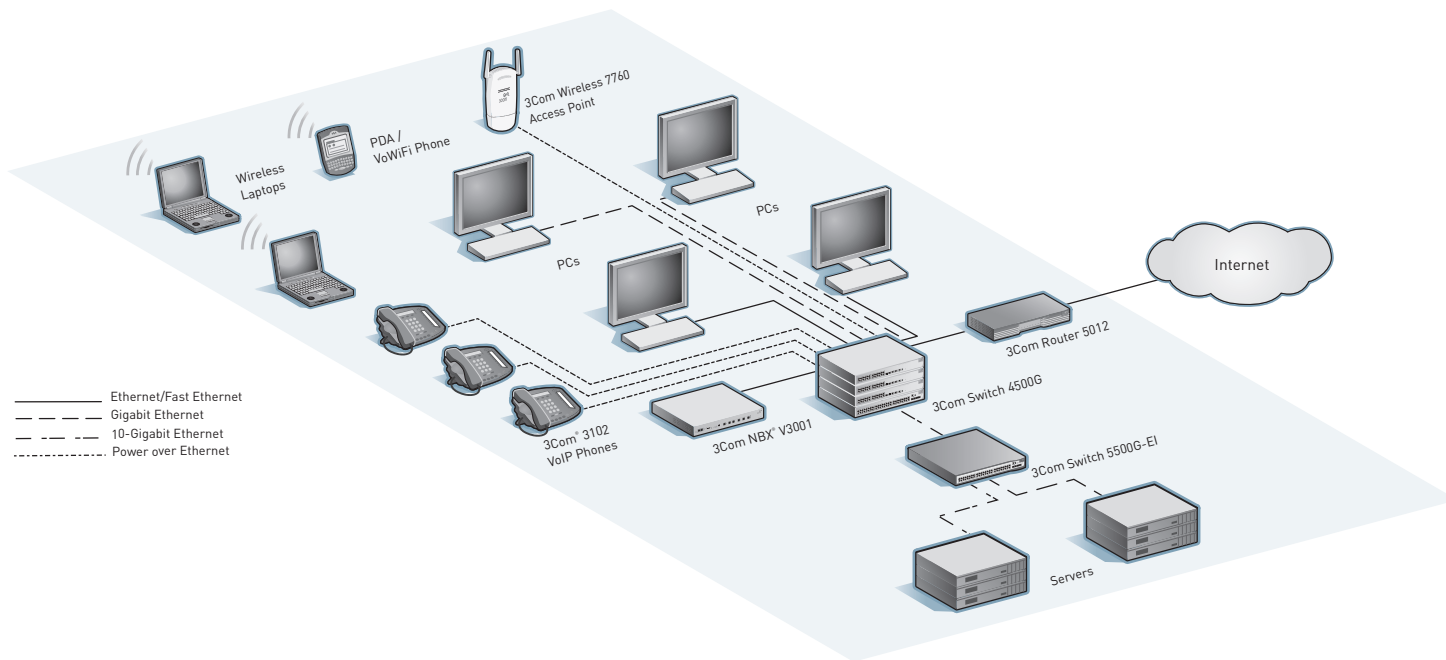
## FEATURE HIGHLIGHTS

FEATURE	DESCRIPTION
Layer 3 dynamic (RIP) routing	Gives additional flexibility in deployment to boost network performance
Voice-ready networking	Automatic prioritization of voice traffic, secure voice traffic with voice VLAN, and Power over Ethernet models
IEEE 802.1X network access control	Standards-based security combined with RADIUS authentication
RADIUS Authenticated Device Access (RADA)	Authentication of attached devices via MAC address for an additional level of endpoint security
Access Control Lists (ACLs)	Enable usage policies at each point of access to the network via the switch
Bandwidth rate limiting and protocol filtering	Enforce controls on each port for efficient use of network resources and prioritization of delay-sensitive VoIP traffic
"Dual-personality" Gigabit Ethernet interfaces	Choice of copper or fiber media for flexible uplinks
Choice of 10G connections	Plug-in modules give 10-Gigabit flexibility. Choose XFP or SFP+ interface types for fiber links, or copper-based CX4 local connections
100 MB and 1000 MB fiber connections	Use SFPs to add fiber connections to the network. Dual-speed support makes network migration easier
Multicast filtering and Rapid Spanning Tree protocol support	Improve QoS, scalability and network availability
Secure management	Authentication and encryption of management traffic via Secure Shell (SSH v2), SSL/HTTPS, and SNMP v2
3Com Operating System	Proven software featured in 3Com premium enterprise switches such as the Switch 8800, 7700, 5500, 5500G and 4200G families and enterprise routers like the Router 6000, 5000 and 3000 families
Service and Support	Backed by 3Com Global Services and authorized partners with demonstrated expertise in network assessment, implementation and maintenance



Switch 4500G 2-Port 10-Gigabit Module (XFP) (3C17766)

## MEDIUM LAN CONFIGURATION SUPPORTED BY THE SWITCH 4500G



In the above network, 3Com Switch 4500G and Switch 5500G-EI units are managed as a single cluster.

## PRODUCT WARRANTY AND OTHER SERVICES

Warranty	3Com Limited Lifetime Warranty. For as long as the original end user owns the product, or for five years after 3Com discontinues the of sale of the product, whichever occurs first.
Hardware coverage	Covers the complete unit including power supply and fan.
In-warranty hardware replacement*	Advanced Hardware Replacement of hardware for the duration of the warranty. In the US 48 contiguous states this is same-day ship with next business day delivery when call received before noon Pacific time. For Canada, Alaska and Hawaii, this is same-day ship when call received before noon Pacific time. For the rest of the world, it is next-business-day ship. Actual delivery times may vary depending on customer location. Reasonable commercial efforts apply.
Software coverage	90 days for media replacement.
Software updates*	Access to releases with incremental software features and bug fixes. For the Switch 4500G, updates are all releases within the licensed 3Com OS software level.
Telephone support*	Technical support via phone for 90 days.
Online Knowledgebase support*	Access to online troubleshooting tool for the duration of the warranty.

\* These services are not included as part of the Warranty and 3Com reserves the right to modify or cancel this offering at any time, without advance notice. This offering is not available where prohibited by law. Services are effective at warranty start date, and are enabled with product registration. Customers receive a user ID with eSupport registration.

## SERVICE AND SUPPORT

3Com Global Services offers the resources and talents of a major corporation plus more than two decades of experience in resolving network challenges and delivering business benefits to enterprises around the world.

Global support with a personalized focus in the local language helps drive productivity and minimize expenses. Because 3Com understands both the technology and the business, we're the partner you need to maintain your competitive edge and remain strong.

### Additional Service, Support and Training Offerings

#### 3Com Guardian<sup>SM</sup> Maintenance Service

This service provides comprehensive on-site support and includes advance hardware replacement, expedited telephone technical support and software upgrades

#### 3Com Express<sup>SM</sup> Maintenance Service

This service provides speedy access to 3Com shipment of advance hardware replacements (including a four-hour option), expedited telephone technical support and software upgrades

#### Network Health Check

An activity-auditing service focused on improving network performance and productivity

Includes traffic monitoring, utilization analysis, problem identification, and asset deployment recommendations

Extensive report provides blueprint for action

#### Network Installation and Implementation Services

Experts set-up and configure equipment and integrate technologies to maximize functionality and minimize business disruption

For large and complex sites, implementation services include personalized configuration, project management, extended testing and coaching on network administration

#### Project Management

Provides extra focus and resources that special projects demand

3Com engineers manage entire process from initial specifications to post-project review

Using structured methodology, requirements are identified, projects planned and progress of implementation activities tracked

#### 3Com University

Self-paced and instructor-led technology and product courses, plus certification programs



Switch 4500G PWR 24-Port  
[3CR17771-91]



# SPECIFICATIONS

All information in this section is relevant to all members of the 3Com Switch 4500G, unless otherwise stated.

## CONNECTORS

### 24-port

24 auto-negotiating 10BASE-T/100BASE-TX/1000BASE-T ports, 4 of which are dual-personality 10/100/1000 or SFP Gigabit ports

### 48-port

48 auto-negotiating 10BASE-T/100BASE-TX/1000BASE-T ports, 4 of which are dual-personality 10/100/1000 or SFP Gigabit ports

### PWR models

IEEE 802.3af in-line power on all 10/100/1000 ports

Support for redundant supplemental power supply [-48 VDC] connector

PWR units with AC power have 370W available for PoE, at maximum 15.4W per port.

### All models

2 rear slots for dual-port 10-Gigabit modules, XFP-based or CX4 local connection

RJ-45 console port

## PERFORMANCE

### 24-port

128.0 Gbps switching capacity

95.2 Mpps forwarding rate

### 48-port

176.0 Gbps switching capacity

131.0 Mpps forwarding rate

### All models

Wirespeed performance across ports

Store-and-forward switching; latency <10 µs

## LAYER 2 SWITCHING

8,192 MAC addresses in address table

128 static MAC addresses (in addition to default address)

Jumbo Frames support

4,094 Port-based VLANs (IEEE 802.1Q)

IEEE 802.3ad Link Aggregation

Control Protocol (LACP); automated and manual aggregation

GARP VLAN Registration Protocol (GVRP)

IEEE 802.1 Q-in-Q double-tagged VLANs

MAC-based VLANs using RADA auto-VLAN assignment

IEEE 802.1ag Service Layer Operations, Administration and Maintenance (OAM)

12 trunk groups per switch

Auto-negotiation of port speed and duplex

IEEE 802.1D Spanning Tree Protocol (STP)

IEEE 802.1w Rapid Spanning Tree Protocol (RSTP)

IEEE 802.1s Multiple Spanning Tree Protocol (MSTP)

Bridge Protocol Data Unit (BPDU) protection

Internet Group Management Protocol (IGMP v3) snooping on Layer 2 interfaces

Filtering for 128 multicast groups

IPv6-ready hardware

## LAYER 3 SWITCHING

IEEE 802.3x full-duplex flow control and back pressure

Half-duplex back pressure flow control

Unidirectional Link Detection (UDLD)

Broadcast, Multicast and Unicast traffic suppression

Spanning Tree root guard

Hardware based routing

64 static routes

Dynamic routing (RIP v2); 512 routes

64 virtual IP interfaces

DHCP snooping

DHCP querier (Layer 2)

DHCP tracker

## CONVERGENCE

Eight hardware queues per port

Weighted Round Robin queuing

Strict Priority queuing

IEEE 802.1p Class of Service/Quality of Service (CoS/QoS) on egress

Ingress and egress rate limiting

Port-based traffic shaping

Application and protocol blocking

Auto VLAN assignment for voice traffic determined by vendor OUI

DiffServ Code Point (DSCP) priority/expedited remarking of packets

Wake-on-LAN support

IEEE 802.3af Power over Ethernet standards-compliant (PWR models)

## SECURITY

IEEE 802.1X network login:

- EAP over LAN (EAPoL) transport with EAP-MD5, PAP, CHAP, PEAP, and EAP-TLS authentication

- Multiple users per port

- 1024 max online users

TACACS+ network login

Local and RADIUS server authentication

RADIUS session accounting

Automatic VLAN assignment via RADIUS server

Wirespeed packet filtering in hardware

ACLs filter at Layers 2, 3 and 4:

- Source/destination MAC address

- Ethernet type

- Source/destination IP address

- Source/destination TCP port

- Source/destination UDP port

RADIUS Authenticated Device Access (RADA): authenticate devices based on MAC address against RADIUS server, and assign VLAN ID and ACL

Port-based MAC address Disconnect Unknown Device (DUD)

IEEE 802.1X user authentication of switch management on switch Telnet and console sessions; four access privilege levels

Hierarchical management and password protection for management interface

SNMP v3 encryption

SSH v2 secure CLI access

Secure FTP

SSL/HTTPS secure web access

Denial of Service protection

Guest VLAN option

Multiple authentication server realm definitions

Centralized MAC address authentication

AAA authentication

RADIUS/TACACS+ session accounting

Combined MAC and IEEE 802.1X authentication on same port

Black-hole MAC addresses

DHCP Tracker

DHCP snooping, including DHCP Trust

Wirespeed packet filtering in hardware

ARP inspection and IP source guard

ARP spoofing prevention

Trusted management station IP and/or MAC address

Encoded Archival Description (EAD)

## CLUSTERED STACKING

Single IP address and management interfaces for centralized control

Compatibility with 4210, 4200G, 4500, 4800G, 5500, 5500G clustering

Up to 255 devices per cluster

## MANAGEMENT

CLI via console or Telnet

3Com Operating System / Comware V5

Embedded web management interface

System configuration with SNMP v1, 2c and 3

Comprehensive statistics, including ACL/QoS and IP interface



## SPECIFICATIONS (continued)

Remote Monitoring (RMON) groups statistics, history, alarm and events  
Many-to-1 port mirroring  
Detailed alarm and debug information

Syslog log-host

Configuration file for backup and restore; multiple configuration files available

DHCP Relay and UDP Helper

System file transfer mechanisms: Xmodem, FTP, Trivial FTP (TFTP), Secure FTP (SFTP)

IPv4 management including ping, traceroute, TELNET, and remote ping

IPv6 management including pingv6, tracertv6, Telnetv6, TFTPv6, DNSv6 and ARPv6

IPv6 management interface IP address configuration

Supports multiple software images and bank swap, stored in nonvolatile memory

Backup and restore of software images

Configuration file for backup and restore, stored in non-volatile memory; multiple configuration files available

Remote port mirroring (RSPAN)

Front panel indicators for port and unit status information

Network Time Protocol (NTP)

DHCP Relay and UDP Helper

Device Link Detection Protocol (DLDP)

Link Layer Discovery Protocol (LLDP and LLDP-MED)

sFlow

Power alarms; fan and temperature alarms

Debugging information output

Port loopback detection

### 3Com management applications:

- 3Com Enterprise Management Suite for flexible, extensible management in advanced enterprise IT environments
- 3Com Intelligent Management Center, Enterprise Edition for comprehensive management with the rich functionality required to meet the needs of advanced Enterprise networks
- 3Com Network Director for complete, turn-key network management for the enterprise
- 3Com Network Supervisor for basic, turn-key network management for mid-market businesses
- 3Com Network Access Manager for IEEE 802.1X and RADA integration with IAS/Active Directory
- 3Com Switch Manager for virtual clustering support across 3Com switch families

### DIMENSIONS

Height: 43.6 mm (1.7 in or 1 RU)

Width: 440.0 mm (17.4 in)

Depth: non-PWR: 300.0 mm (11.8 in)

PWR: 420.0 mm (16.5 in)

Weight: 24-port: 4.0 kg (8.8 lbs)

48-port: 4.5 kg (9.9 lbs)

24-port PWR: 6.0 kg (13.2 lbs)

48-port PWR: 6.5 kg (14.3 lbs)

### POWER SUPPLY

AC Line Frequency: 50/60 Hz

Input Voltage: 90-240 VAC

### Current rating (AC)

24-port: 1.5A

48-port: 2.0A

24-port PWR: AC 8.0A; DC 15.0A

48-port PWR: AC 8.0A; DC 18.0A

### Power consumption (max)

24-port: 58 W

48-port: 108 W

24-port PWR: 87 W, plus up to 370W PoE budget

48-port PWR: 133 W, plus up to 370W PoE budget

### ENVIRONMENTAL REQUIREMENTS

Operating temperature: 0° to 40°C (32° to 104°F)

Storage temperature: -10° to 70°C (14° to 158°F)

Humidity (operating and storage): 10% to 95% non-condensing

Standard: EN 60068 (IEC 68)

### HEAT DISSIPATION (MAX)

24-port: 196 BTU/hour

48-port: 369 BTU/hour

24-port PWR: 295 BTU/hour

48-port PWR: 454 BTU/hour

### RELIABILITY

(MTBF @ 25°C)

24-port: 46 years (401,000 hours)

48-port: 35 years (310,000 hours)

24-port PWR: 41 years (362,000 hours)

48-port PWR: 28 years (245,000 hours)

2-port 10-Gigabit module: 371 years (3,255,000 hours)

2-port Local Connect module: 1,798 years (15,758,000 hours)

### IEEE STANDARDS SUPPORTED

IEEE 802.1D (STP)

IEEE 802.1p (CoS)

IEEE 802.1Q (VLANs)

IEEE 802.1w (RSTP)

IEEE 802.1X (Security)

IEEE 802.3 (Ethernet)

IEEE 802.3ab (1000BASE-T)

IEEE 802.3ad (Link Aggregation)

IEEE 802.3af (Power over Ethernet)

IEEE 802.3i (10BASE-T)

IEEE 802.3u (Fast Ethernet)

IEEE 802.3x (Flow Control)

IEEE 802.3z (1000BASE-X)

### RFC STANDARDS

RFC 783 (TFTP)

RFC 791 (IP)

RFC 793 (TCP)

RFC 826 (ARP)

RFC 951 (BootP)

RFC 1157 (SNMP)

RFC 1723 (RIP)

RFC 2080 RIP for IPv6/RIPng

RFC 2131 (DHCP client)

RFC 2236 (IGMP Snooping)

RFC 2284 (EAP over LAN)

RFC 2452 IP Version 6 MIB for the Transmission Control Protocol

RFC 2454 IP Version 6 MIB for the User Datagram Protocol/UDP6

RFC 2460 IPv6 Specification

RFC 2461 Neighbor Discovery for IPv6

RFC 2462 IPv6 Stateless Address Autoconfiguration

RFC 2463 ICMP & Path Discovery

RFC 2464 Transmission of IPv6 over Ethernet

RFC 2710 Multicast Listener Discovery (MLD) IPv6

RFC 2767 Dual stacks IPv4 & IPv6

RFC 2819 (RMON)

RFC 3513 IPv6 Addressing Architecture

RFC 3587 IPv6 Global Unicast Address

### Management, including MIBs Supported

RFC 1212 (Concise MIB definitions)

RFC 1213/2233 (MIB II)

RFC 1493 (Bridge MIB)

RFC 1724 (RIP Version 2 MIB Extension)

RFC 1907 (SNMP v2c, SMI v2 and Revised MIB-II)

RFC 2021 (RMON II Probe Config MIB)

RFC 2233 (Interfaces MIB)

RFC 2571 (SNMP Framework)

RFC 2572-2575 (SNMP)

## SPECIFICATIONS (continued)

RFC 2665 (EtherLike MIB)  
 RFC 2667 (IP Tunnel MIB)  
 RFC 2674 (VLAN MIB Extension)  
 RFC 2737 (Entity MIB)  
 RFC 2819 (RMON MIB)

### EMISSIONS / AGENCY APPROVALS

EN 55022 :1998+A1:2000+A2:2003 Class A  
 FCC Part 15 :2004 Class A  
 ICES-003 :2004 Class A  
 VCCI :2004 Class A  
 CISPR 22 :2003 Class A  
 IEC 61000-3-2:2001/EN 61000-3-2 2000  
 IEC 61000-3-3:2002/EN 61000-3-3:1995+A1:2001  
 Korean EMI Class A  
 ETSI EN 300 386V1.3.3 :2005

### IMMUNITY

EN 55024: 1998+A1:2001+A2:2003  
 ETSI EN 300 386 V1.3.3 :2005

### SAFETY AGENCY CERTIFICATIONS

UL 60950-1:2003  
 EN 60950-1:2001  
 CSA 2.22 # 60950-1:2003  
 IEC 60950-1:2001  
 EU RoHS Compliant

### WARRANTY AND OTHER SERVICES

Limited Lifetime Hardware Warranty, including fans and power supply  
 Limited Software Warranty for 90 days  
 Advance Hardware Replacement with Next Business Day shipment in most regions  
 Limited Lifetime software updates  
 90 days of telephone technical support  
 Refer to [www.3com.com/warranty](http://www.3com.com/warranty) for details.

## ORDERING INFORMATION

### PRODUCT DESCRIPTION

### SKU

3Com Switch 4500G 24-Port	3CR17761-91
3Com Switch 4500G 48-Port	3CR17762-91
3Com Switch 4500G PWR 24-Port	3CR17771-91
3Com Switch 4500G PWR 48-Port	3CR17772-91

### MODULES

Switch 4500G 1-Port 10-Gigabit Module (XFP)	3C17768
Switch 4500G 2-Port 10-Gigabit Module (XFP)	3C17766
Switch 4500G 2-Port 10-Gigabit Module (SFP+)	0231A98L
Switch 4500G 2-Port 10-Gigabit Local Connection Module	3C17767

### GIGABIT SFP TRANSCEIVERS

1000BASE-SX SFP	3CSFP91
1000BASE-LX SFP	3CSFP92
1000BASE-LH SFP	3CSFP97

### FAST ETHERNET SFP TRANSCEIVERS

100BASE-FX SFP (Dual-Mode)	3CSFP9-81
100BASE-LX SFP (Dual-Mode)	3CSFP9-82

### PRODUCT DESCRIPTION

### SKU

#### 10-GIGABIT XFP TRANSCEIVERS

10GBASE-LR	0231A438 or 3CXFP92
10GBASE-SR	0231A494 or 3CXFP94
10GBASE-CX4	3CXFP95
10GBASE-ER	0231A72X or 3CXFP96

#### 10-GIGABIT SFP+ TRANSCEIVERS

10GBASE-LR	0231A0A8
10GBASE-SR	0231A0A6
10GBASE-LRM	0231A0A7

#### CABLES

CX4 Local Connection Cable – 50 cm	3C17775
CX4 Local Connection Cable – 100 cm	3C17776
CX4 Local Connection Cable – 300 cm	3C17777

#### 3COM GLOBAL SERVICES

3Com Network Health Check, Installation Services and Express Maintenance	<a href="http://www.3com.com/services_quote">www.3com.com/services_quote</a>
3Com University Courses	<a href="http://www.3com.com/3comu">www.3com.com/3comu</a>

Visit [www.3com.com](http://www.3com.com) for more information about 3Com network solutions.

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401003-010 09/09

