3Com®

CoreBuilder® 5000 Switch

The ultimate in network design flexibility, supporting shared and switched technologies

Proven workhorse for enterprise networking

Key Benefits

Scalable platform. The Core-Builder 5000 switch is available in 7-, 10-, and 17-slot chassis models. The platform's open architecture lets you add capacity to the system at your own pace. All major components are interchangeable between platforms.

Management and control. Using SmartAgent technology, network managers have a central point of access and control. Features include intelligent inventory management, traffic and environmental monitoring and protection, and intelligent power management.

Fault tolerance. Maximize network uptime and protect your mission-critical applications. Automatic switchover backs up management and controller modules, redundant links, and N+1 load-sharing power supplies that guard critical segments against power failures. All Core-Builder 5000 backplanes use a passive bus and female connectors, and have no active components.

Migration. High-function solutions let you migrate your network to higher bandwidths and advanced switching without disrupting the shared media segments you want to preserve.

The 3Com CoreBuilder® 5000 switch is an intelligent switching platform that enhances shared networks and moves them into switching networks without costly forklift upgrades. The switch supports shared and switched technologies, including Token Ring, Ethernet, Fast Ethernet, and FDDI with ATM connectivity.

Meeting the specific demands for high-density Ethernet switching in the network edge, CoreBuilder 5000 high-function switching solutions let you migrate your network to higher bandwidths and advanced switching functionality without disrupting the shared media segments you want to preserve. The solutions let you scale desktop port density and bandwidth, and provide high-speed switched Fast Ethernet or ATM OC-3c downlinks to the data center with little or no physical changes to the network of end stations.

The CoreBuilder 5000 switch maximizes network uptime, protecting your mission-critical applications through comprehensive fault-tolerant features. Built with no single point of failure, the Core-Builder 5000 switch provides automatic switchover to back up management and controller modules, redundant links, and N+1 load-sharing power supplies that guard critical segments against power failures.

The CoreBuilder 5000 distributed management architecture gives network managers a central point of access and control. A single SNMP management module uses 3Com SmartAgent® technology to gather information about every chassis in the network. The system is comprehensively managed by 3Com Transcend® network management solutions.

Switches

Supports shared and switched technologies

Contents

The CoreBuilder 5000 switch offers multiple networking options, including Ethernet, Fast Ethernet, Token Ring, and FDDI LAN services. All CoreBuilder networks are managed and monitored through a distributed management system that simplifies configuration and control of the entire chassis.
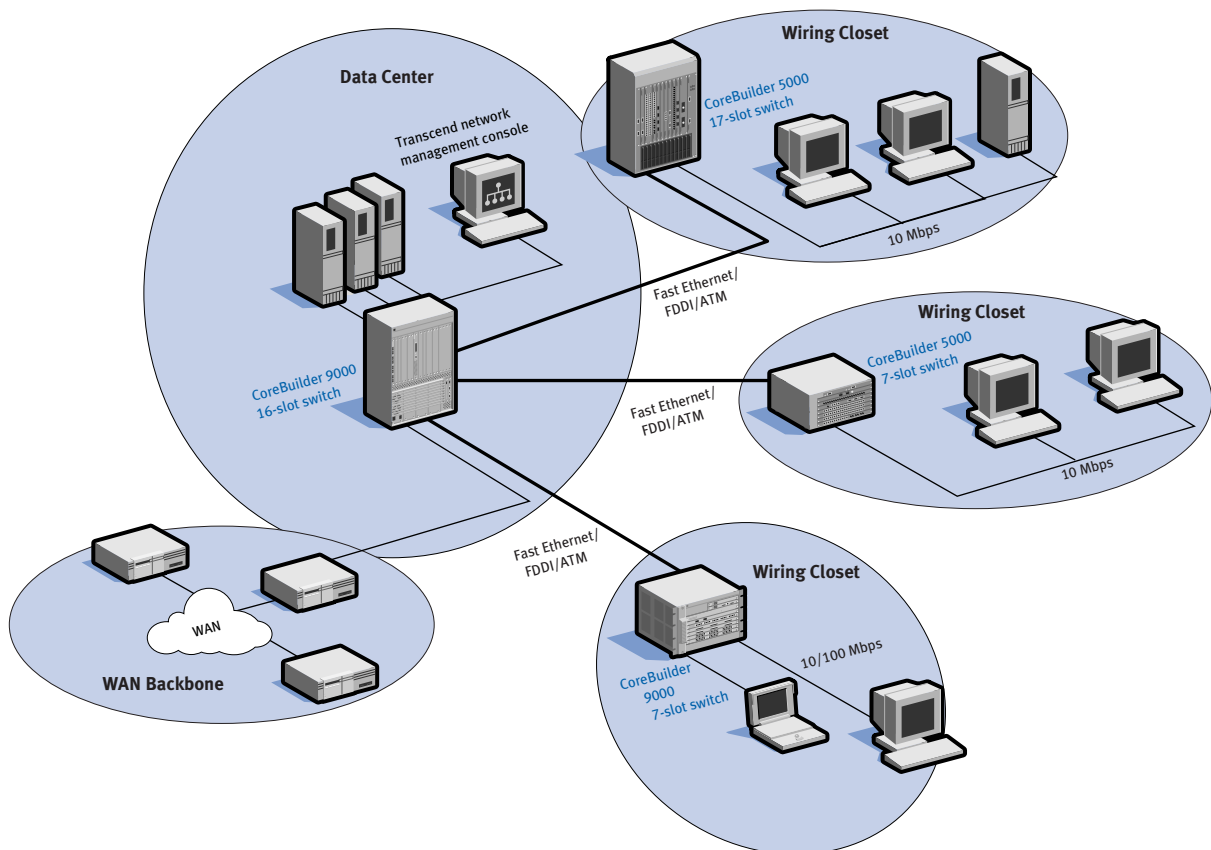
CoreBuilder 5000 Solutions at a Glance

Solutions/Technologies Supported

Features

Switching Solutions   See page 7.
CoreBuilder 5000 high-function switching solutions provide cost-effective migration to switched LANs and ATM.

Ethernet: 20-port (RJ-45) and 24-port (RJ-21) 10BASE-T; 10- and 20-port 10BASE-FB/FL autosensing

Fast Ethernet: 4-port 100BASE-TX, 4-port 100BASE-FX (half and full duplex), and 18-port group switched 100BASE-TX (half duplex)

FDDI: 2-port DAS/SAS, 12 10BASE-T ports with one DAS/SAS port, 10 autosensing 10BASE-FB/FL ports with one DAS/SAS port, 12-port concentrator (4 A/B and 8 M ports)

Shared-to-Switched: Single module integrates shared Ethernet segments to Switched Ethernet, Fast Ethernet, FDDI, and ATM

ATM: Downlink to ATM backbone for Ethernet, Fast Ethernet, and FDDI

- Dedicated switching engine on each module provides full wire-speed switching to the desktop or full wire-speed forwarding on all ports. Ensures other modules will continue to operate, even if one is disabled. Supports scalable performance.

- High-function features include hardware-based MAC address and protocol filtering, support for up to 32,000 MAC addresses, full RMON, IGMP snooping, broadcast/multicast threshold, and traffic prioritization through the switch. System management features include up to nine RMON groups on a single port, and up to four RMON groups simultaneously on all ports. Roving Analysis Port facilitates real-time monitoring and proactive management. Integrated inventory management lets you keep track of installed equipment at a local or remote location.

- Support for virtual LANs (VLANs) with spanning tree per VLAN provides for broadcast traffic containment, minimizing network congestion.

Shared Solutions   See page 11.
Ethernet and Token Ring media modules provide high-density port, bank, and module switching and a wide range of media and connectivity options.

Ethernet

Twisted Pair 10BASE-T: 20- and 40-port with RJ-45 connectors; 24- and 36-port with telco connectors

  Fiber: 10-port 10BASE-FB

  Mixed Media: EtherFlex Module, 10BASE5, 10BASE-T, 10BASE2, 10BASE-FB/FL

Token Ring: Port- or module-switching modules; active retimed and passive media modules supporting shielded and unshielded twisted pair; Dual Fiber Repeater module

- Ethernet modules support port switching to eight Ethernet backplane segments; Token Ring modules support port switching among up to 10 backplane rings or 11 isolated rings per module.

- Optional media module resident Network Monitor Card provides RMON-based management and IEEE-MIB information.

- Port redundancy on Ethernet modules enables automatic switchover to back up ports

- Token Ring PowerRing™ technology provides instant beaconing protection, speed mismatch protection, active retiming, and jitter elimination, as well as trunk redundancy.

Network Management   See page 17.
The CoreBuilder 5000 distributed management architecture provides a central point for chassis control, monitoring, and management of all shared and switched LANs within the chassis.

Advanced DMM/Controller: Single SmartAgent module that provides configuration management and collects information from all installed modules. Provides processing power for chassis temperature, fan status, power supply status, and chassis backplane environment control. Does not consume payload slots.

Network Monitor Cards for Shared Media:

  Advanced Ethernet: Monitors up to two Ethernet backplane segments or extended segments simultaneously. Supports nine RMON groups.

  Token Ring: Monitors Token Ring backplane segments and extended rings. Supports five RMON groups.

- Provides a central point for reporting on every network in the system. Works with distributed management agents, Network Monitor Cards, and built-in agents on LAN switching modules to provide complete in-band management via SNMP or Telnet.

- Supports dynamic switchover to back up management and controller modules, automated power and inventory management, environmental monitoring, address learning, and automated thresholding and scripting.

- Communicate critical network management information, including RMON and IEEE MIB statistics, to the advanced DMM/Controller Module.

- Provide N+1 redundancy for continuous network monitoring of mission-critical networks.

Switches

CoreBuilder 5000 Platform—Key Features and Benefits

Scalable Platform

The CoreBuilder 5000 switch is available in 7-, 10-, and 17-slot chassis models. The platform's open architecture lets you add capacity to the system at your own pace. All major components are interchangeable between platforms, including power supplies, controllers, management modules, and media modules.

Backplanes

All CoreBuilder 5000 backplanes use a passive bus and female connectors, and have no active components. You can purchase the system with factory-installed backplanes or upgrade later to support new technologies. The system supports the following backplanes:

- **PacketChannel** Provides up to 2 Gbps of frame-based switching bus for the SwitchModule product line.

- **Enhanced TriChannel**™ Provides eight Ethernet segments to support shared Ethernet modules.

- **RingChannel (included with the enhanced TriChannel backplane)** Supports 10 ring topology networks for shared Token Ring.

Management and Control

The system incorporates extensive management and control of all modules within the chassis. Features include intelligent inventory management, environmental monitoring and protection, and intelligent power management. (See the *CoreBuilder 5000 Network Management* section on page 17 for more information.) The system is comprehensively managed by 3Com Transcend network management solutions.

Fault Tolerance

Fault-tolerant features include distributed switching, N+1 load-sharing power supplies, fault-tolerant controller modules, redundant links, fault-tolerant management, redundant fans, and the ability to configure backup links, modules, and/or hubs for maximum uptime. In addition, hot-swappable modules with configuration learning enables modules to be hot-swapped into or out of an operating chassis. If an identical replacement module is swapped, it learns the previously stored configuration.

The CoreBuilder 5000 7-, 10-, and 17-slot chassis.

CoreBuilder 5000 Platform—Highlights

Chassis	7, 10, or 17 slots
Media Interfaces	Ethernet: RJ-45 10BASE-T UTP/STP, Telco 10BASE-T twisted pair, BNC thin Ethernet, AUI thick Ethernet, ST fiber, mixed media
	Fast Ethernet: SC 100BASE-FX, RJ-45 100BASE-TX
	Token Ring: RJ-45 UTP/STP, ST fiber
	FDDI: MIC multimode fiber
	ATM: SC, 155 Mbps multimode fiber
Module Types	Combined management and controller, redundant controller, Ethernet and Token Ring network monitor, Ethernet security, Ethernet mixed media, shared Ethernet (port and bank switching) shared Fast Ethernet, Token Ring (port and module switching), Ethernet/Fast Ethernet switching, FDDI switching, shared LAN-to-switched LAN migration, switched LAN-to-ATM migration
Backplane Options and Speeds	**-A:** Includes Enhanced TriChannel and RingChannel (610 Mbps). Supports eight backplane Ethernet segments and 10 backplane Token Rings.
	-AP: Includes all -A Channels plus the PacketChannel (2 Gbps) for SwitchModule support.

Port Density by Protocol		7 Slot	10 Slot	17 Slot
	Shared 10 Mbps Ethernet	252	360	612
	Switched 10 Mbps Ethernet	168	240	408
	Shared Token Ring	140	200	340
	Switched 100 Mbps	126	180	306
	Concentrated FDDI	36	60	96
	Switched FDDI	14	20	34
	ATM 155 Mbps	3	4	4

Management and Control	Single management intelligence for centralized control, dedicated high-speed management bus, distributed RMON SmartAgents and Network Monitor Cards, intelligent inventory management, and power management
Fault Tolerance	Distributed switching, N+1 load-sharing power supplies, dynamic switchover to back up management and controller modules, environmental monitoring and protection, redundant links and fans, cross-module redundancy, and hot-swappable modules

Switches

CoreBuilder 5000 Platform—Ordering Information and Specifications

Ordering Information

CoreBuilder 5000 Switch[1]

7-slot CoreBuilder 5000 switch with enhanced TriChannel and RingChannel backplanes[1] 3C96007CH-A

7-slot CoreBuilder 5000 switch with enhanced TriChannel, RingChannel, and PacketChannel backplanes[2] 3C96007CH-AP

10-slot CoreBuilder 5000 switch with enhanced TriChannel and RingChannel backplanes[2] 3C96010CH-A

10-slot CoreBuilder 5000 switch with enhanced TriChannel, RingChannel, and PacketChannel backplanes[2] 3C96010CH-AP

17-slot CoreBuilder 5000 switch with enhanced TriChannel and RingChannel backplanes[1] 3C96017CH-A

17-slot CoreBuilder 5000 switch with enhanced TriChannel, RingChannel, and PacketChannel backplanes[2] 3C96017CH-AP

Optional System Components

CoreBuilder 5000 power supply modules
415 W 110-220 AC input 3C96000PS-HO

295 W 110-220 AC input 3C96000PS

295 W -48 VDC input 3C96000PS-48VDC

CoreBuilder 5000 fault-tolerant controller module 3C96000M-RCTL

CoreBuilder 5000 rackmount kit 3C96000A-RM

CoreBuilder 5000 advanced distributed management and controller module 3C96000M-CMGT

PacketChannel backplane upgrade kit, converts any 3C96017CH-A to a 3C96017CH-AP 3C96017CH-P-UPG

PacketChannel backplane upgrade kit, converts any 3C96010CH-A to a 3C96010CH-AP 3C96010CH-P-UPG

PacketChannel backplane upgrade kit, converts any 3C96007CH-A to a 3C96007CH-AP 3C96007C-P-UPG

CoreBuilder 5000 replacement fan unit 3C96000A-FN

CoreBuilder 5000/ONline™ cable tray 3C95000-CT

Backplane upgrade alignment tool[3] 3C96000A-ALIGN

ONline module adapter kit for 4-slot ONline conversions (uses five CoreBuilder 5000 slots) 3C96000A-MAKIT4

ONline module adapter kit for 9-slot ONline conversions (uses 10 CoreBuilder 5000 slots) 3C96000A-MAKIT9

ONline module adapter kit for 16-slot ONline conversions (uses 17 CoreBuilder 5000 slots) 3C96000A-MAKIT16

All adapter kits can be adjusted to provide fewer ONline modules.

Specifications

General Specifications
CoreBuilder 5000 Switch

Network Protocols Supported

IEEE 802.3 Ethernet and IEEE 802.3u 100BASE-T over various media; IEEE 802.5 Token Ring over shielded and unshielded twisted-pair and fiber optic cabling; ANSI FDDI over fiber optic ATM Forum ATM specifications, filter MMF, SMF, and RJ-45.

Environmental

Operating Temperature: 0º to 50ºC (32º to 122ºF)

Storage Temperature: -10º to 65ºC (14º to 149ºF)

Operating Humidity: less than 95%, noncondensing

BTUs/hr: 17 slot—6400; 10 slot—4800; 7 slot—2400; Controller Module—20.5

CoreBuilder 5000 Switch Backplanes

Enhanced TriChannel and RingChannel supports ONline Ethernet, ONline Token Ring, ONline FDDI, and CoreBuilder 5000 shared Ethernet and Token Ring modules.

PacketChannel supports the SwitchModules.

Field upgrades between most system versions are available.

Power

415 W: 90 - 132 VAC, 8.2 A; 180 - 264 VAC, 4 A, 47 - 63 Hz

295 W: 90 - 132 VAC, 6 A; 180 - 264 VAC, 2.8 A, 47 - 63 Hz

295W: -48 VDC: 11 A

The 7-slot CoreBuilder 5000 switch accepts up to two power supplies.

The 10-slot CoreBuilder 5000 switch accepts up to three power supplies.

The 17-slot CoreBuilder 5000 switch accepts up to four power supplies.

Dimensions

7 slot—44.45 cm W x 51.05 cm D x 21.6 cm H (17.5 in x 20.1 in x 8.7 in)

7 slot weight (with one power supply and one controller module): 20.4 kg (45 lb)

10 slot—44.45 cm W x 38.61 cm D x 49.8 cm H (17.5 in x 15.2 in x 19.6 in)

10 slot weight (with one power supply and one controller module): 22.7 kg (50 lb)

17 slot—44.45 cm W x 38.61 cm D x 67.3 cm H (17.5 in x 15.2 in x 26.5 in)

17 slot weight (with one power supply and one controller module): 25 kg (55.2 lb)

Regulatory Compliance

Emissions: FCC Part 15, Class A; EN 55022 (CISPR 22), Class A; Vfg243/Vfg46 (-VDE B+); VCCI Level 1

Safety: UL, CSA, TUV GS approvals Fault-Tolerant Controller Module—Power Consumption: 6 W @ 5 V

Controller Front-Panel Indicators:

1 Active/Standby Mode LED

4 Power Supply Status LEDs

3 Fan Status LEDs

1 Temperature Status LED Button

1 LED Test Button

1 System Reset Button

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[1] All modules and accessories can be installed or are interchangeable in the 7-, 10-, and 17-slot chassis except for specific backplane upgrade kits.

[2] Power supplies, controller, and cable tray must be ordered separately. Rackmount kits are shipped with each chassis.

[3] May be required, depending on installation. Ask your 3Com representative for details.
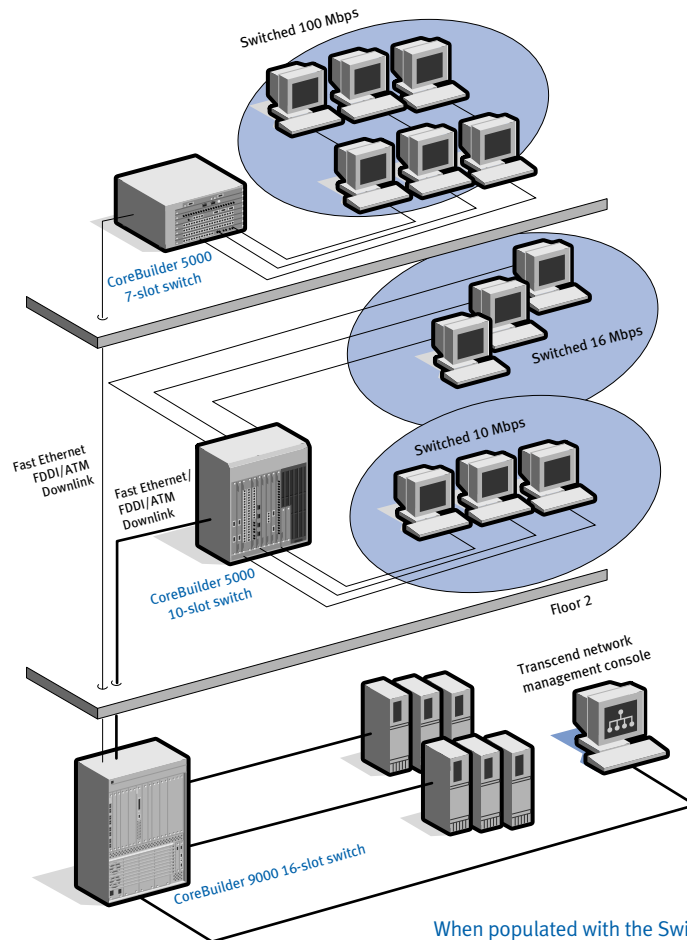
CoreBuilder 5000 Switching Solutions

High-Function Switching Solutions for Ethernet, Fast Ethernet, and FDDI with ATM connectivity

High-Function Switching—The SwitchModule Series

The CoreBuilder 5000 SwitchModule series supports high-performance, high-density switched Ethernet, switched Fast Ethernet, switched FDDI, and ATM connectivity. A dedicated multi-protocol Integrated Switch Controller (ISC) 4000 ASIC on each Switch-Module provides scalable performance for full wire-speed forwarding on all ports. The modules communicate over the CoreBuilder 5000 2-Gbps Pack-etChannel backplane, which is optimized for multitechnology environments, and supports inter-module communication of FDDI, Fast Ethernet, or Ethernet and ATM migration. The SwitchModule series also supports shared LAN-to-switched LAN migration by connecting the eight shared Ethernets on the Enhanced TriChannel backplane to the 2 Gbps PacketChannel backplane.

Fault Tolerance

Each CoreBuilder 5000 SwitchModule features a dedicated switching engine ensuring that the other modules will continue to operate even if one module is disabled. In addition, the Switch-Modules take full advantage of the fault-tolerant features built into the CoreBuilder 5000 switch. (See the *CoreBuilder 5000 Platform* section on page 4 for more information.)

Switched 100 Mbps

CoreBuilder 5000 7-slot switch

Switched 16 Mbps

Switched 10 Mbps

Fast Ethernet FDDI/ATM Downlink

Fast Ethernet FDDI/ATM Downlink

CoreBuilder 5000 10-slot switch

Floor 2

Transcend network management console

CoreBuilder 9000 16-slot switch

When populated with the SwitchModule series, the CoreBuilder 5000 switch serves as a High-Function Switch for workgroups or small data centers.

Management

The SwitchModule series is monitored and managed through the CoreBuilder 5000 distributed SmartAgent manager. (See the *CoreBuilder 5000 Network Management* section on page 17 for more information.) Comprehensive management and control is provided through 3Com Transcend solutions. The modules also support the following management features:

- **RMON**
  An integrated RMON SmartAgent supports up to nine RMON groups on any single Ethernet port. The modules provide simultaneous support for four RMON groups on all Ethernet and Fast Ethernet ports.

- **Interface Statistics**
  Interface statistics are collected in real time on every port to provide a detailed view of the network's operation.

Switches

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CoreBuilder 5000 SwitchModule Series—Key Features and Benefits

The SwitchModule series supports high-performance Ethernet, Fast Ethernet, and FDDI LAN switching, LAN-to-ATM migration with future Gigabit Ethernet backplane connectivity.

Scalable Bandwidth

Each SwitchModule delivers 650,000 packets per second (pps) of throughput, allowing incremental increases in aggregate network bandwidth to support new applications with the addition of SwitchModules. Store-and-Forward architecture and dynamic buffering provide full error-checking and the ability to switch large data bursts without packet loss.

High-Function Backbone Features

High-Function backbone features include support for 32,000 MAC addresses per SwitchModule, user-definable MAC address filters that let you manage network access and restrict users to specific resources, and support for 64 protocol filters to enable network managers to block or forward a particular protocol on user-defined sets of ports on the SwitchModule. All filtering/forwarding is performed by the ISC 4000 ASIC for wire-speed performance even with filtering and RMON management enabled. Traffic prioritization based on protocol type lets you support delay-sensitive protocols by assigning a high priority level to specific protocols within each SwitchModule. IGMP snooping allows pruning of IP multicast traffic for effective bandwidth usage. Broadcast/multicast threshold lets you minimize the level of broadcast traffic on the network, ensuring efficient use of network bandwidth.

Additional Fault-Tolerant Features

By detecting when a node is moved to a different port in the system, Dynamic Side Switching eliminates session loss, allowing each SwitchModule to adapt dynamically to network changes. The CoreBuilder 5000 switch with Switch-Modules supports both optional redundant links and modules. The redundant capabilities can be used to ensure additional reliability via the implementation of dual homing in the network. With dual homing, a primary wiring closet port is linked to the primary core switch and a redundant wiring closet port and/or module is linked to a secondary core switch, thus
providing a dual-homed configuration. As a result, if the primary port, link, module or switch fails, the appropriate backup component quickly reestablishes the connection to access network resources. Dual homing provides the highest degree of network reliability.

Additional Management Features

Roving Analysis Port mirrors traffic from one port to another port in the system or to the RMON SmartAgent.

Virtual LAN Support

Support for Layer 2-based virtual LANs (VLAN—also referred to as virtual switches) allows logical segmentation of the network, thereby letting you manage access to mission-critical information. Each VLAN is a complete 802.1d spanning tree bridge that supports its own address database, broadcast/multicast/unicast containment, and management view. The CoreBuilder 5000 switch with SwitchModules supports up to 256 virtual switches, which can also be extended beyond the chassis using LAN Emulation and the ATM Backbone SwitchModule. VLANs can easily be managed through terminal commands or with Transcend network control services application. In addition, CoreBuilder 5000 protocol filtering capabilities can be used for logical network segmentation based on protocol type.

Shared LAN-to-Switched LAN Environment

The Ethernet Backplane SwitchModule enables integrated migration support by providing connectivity between shared Ethernet networks and switched Ethernet, Fast Ethernet, FDDI, and ATM. Ethernet segments are seamlessly connected to switched networking resources across CoreBuilder 5000 2-Gbps PacketChannel, eliminating the need for multiple external patch cables to interconnect disparate technologies. SNMP and RMON management

provide an end-to-end view of the network. Virtual networking support extends virtual switches to shared Ethernet segments.

Switched LAN-to-ATM

The CoreBuilder 5000 ATM Backbone SwitchModule enables SwitchModule users to have transparent access to services and resources on the campus ATM backbone without requiring major new investments in equipment or changes in cable infrastructure. The module interfaces to the CoreBuilder 5000 2-Gbps PacketChannel backplane converts Ethernet, Fast Ethernet, and FDDI frames to 53-byte ATM cells, then sends the cells out on an ATM 155 Mbps (OC-3c) port on the front panel. In full-duplex modes, it simultaneously converts inbound ATM cells to Ethernet and FDDI packets and transmits these over the PacketChannel. Up to four ATM Backbone SwitchModules can be installed in a chassis, delivering up to 620 Mbps of downlink bandwidth.

The ATM Backbone SwitchModule offers these features and benefits:

- **Standards-based**
  The module supports ATM LAN Emulation and is compliant with the ATM Forum LANE 1.0 specifications. It is completely interoperable with all 3Com ATM products, including the CoreBuilder 7000, as well as other standards-based ATM switches. Each module supports up to 64 LAN Emulation Clients (LECs).

- **SwitchModule redundancy**
  Two ATM Backbone SwitchModules in a single CoreBuilder 5000 switch can achieve an unprecedented level of redundancy and load sharing across the modules. By dividing emulated LANs between two modules, a network manager can divide the processing workload between the modules and increase overall performance and throughput. Additionally, using spanning tree, end-user ports can be cross assigned to two modules. On the primary module, the ports are assigned a higher priority setting allowing those ports to be open. On the backup module, the ports are assigned a lower priority enabling the ports to be closed. If the primary module fails or is removed from the chassis, the back-up module opens up all ports and provides continuous operation for all users. This capability enables a completely redundant switching design with 100 percent network uptime.

- **Virtual LAN support**
  The module supports up to 64 virtual LANs, each of which can span multiple chassis. These VLANs can be configured and managed using terminal commands or the Transcend VLAN Manager application.

- **Concurrent virtual circuits**
  The ATM Backbone Switch-Module enables up to 512 switched virtual circuits to operate concurrently per module. Full support of a large number of switched virtual circuits or multiple communications occurring simultaneously over the ATM enterprise network enables high throughput and scalability of performance.

CoreBuilder 5000 SwitchModule Series—Ordering Information and Specifications

Ordering Information

CoreBuilder 5000 SwitchModule Series—Ethernet Solutions

Single-slot, 20-port 10BASE-T (RJ-45) SwitchModule   3C96620M-TP-A

Single-slot, 24-port 10BASE-T (telco) SwitchModule   3C96624M-TPL-A

Single-slot, 10-port 10BASE-F (ST) Switch-Module autosensing FB/FL
   3C96610M-F-A

Dual-slot, 20-port 10BASE-F (ST) Switch-Module autosensing FB/FL
   3C96620M-F-A

CoreBuilder 5000 SwitchModule Series—Fast Ethernet Solutions

Single-slot, 4-port 100BASE-TX (RJ-45) SwitchModule   3C96604M-TX-A

Single-slot, 4-port 100BASE-FX (SC) Switch-Module   3C96604M-FX-A

Single-slot, 18-port group-switched 100BASE-TX (RJ-45) SwitchModule
   3C96618M-TX-A

CoreBuilder 5000 SwitchModule Series—FDDI Solutions

Dual-slot, 12-port 10BASE-T (RJ-45) and DAS/SAS (MIC) FDDI SwitchModule
   3C96614M-FTP-A

Dual-slot, 10-port 10BASE-F (ST) autosensing FB/FL and DAS/SAS (MIC) FDDI SwitchModule   3C96612M-FF-A

Single-slot, 2-port DAS/SAS (MIC) FDDI SwitchModule   3C96604M-F-A

Dual-slot, FDDI concentrator SwitchModule with 4 A/B and 8 M ports   3C96612M-FC-A

CoreBuilder 5000 SwitchModule Series—Migration Solutions

Dual-slot, ATM backbone SwitchModule
   3C96602M-MOD

(Includes one installed multimode fiber OC-3c card. Optional redundant port ordered separately.)

1-port multimode fiber OC-3c daughtercard with SC connector for redundancy
   3C96601D-155SC-MMF

Dual-slot, Ethernet backplane Switch-Module. Interfaces to PacketChannel and enhanced TriChannel, with 16 front-panel switched Ethernet ports (RJ-45)
   3C96616M-BTP-A

Specifications

General Specifications
CoreBuilder 5000 SwitchModules

Environmental

Operating Temperature: 0º to 50ºC (32º to 122ºF)

Operating Humidity: Less than 95% relative humidity (noncondensing)

Storage Temperature: -40º to 66ºC (-40º to 151ºF)

Storage Humidity: Less than 95% relative humidity (noncondensing)

Agency Approvals

EMI Certifications: FCC Part 15, Class A; ICES003; EN 55022 (CISPR 22), Class A; EMC Directive 89/336/EEC; VCCI Level 1 EN 61000-3; EN 500082-1; EMC Directive 89/336/EEC

Safety Certifications:

UL Listed (1950)

SA Certified (CSA22.2 No. 950)

TUV GS (EN 60950)

IEC950

Protocols

IEEE 802.3; IEEE 802.1d; IEEE 802.1h; FDDI; IP Fragmentation—RFC 1349; SNMP—RFC 1157; Telnet (via DMM) — RFC 854; TFTP—RFC 1350; ARP—RFC 826; SLIP (via DMM) —RFC 1055

MIBs Supported

MIB II—RFC 1213; RMON MIB—RFC 1757; Bridge MIB—RFC 1493; Ethernet-like MIB—RFC 1643; FDDI SMT 7.3 MIB—RFC 1512; Interfaces MIB—RFC 1573; 3Com MIB

[1]**CoreBuilder 5000 SwitchModule Ethernet, Fast Ethernet, and FDDI Solutions and Ethernet Backplane SwitchModule**
General Specifications
Ethernet, Fast Ethernet, and FDDI Switch-Modules

Switching Architecture

Store and Forward

Memory Architecture

System Software Storage: FLASH EEPROM - 2 MB, user-upgradeable to 4 MB

Packet Memory: 3 MB dynamically shared by ports on each SwitchModule

Data memory for RMON: Ethernet - 18 MB; Fast Ethernet - 10 MB

Virtual LAN Support

256 Virtual Switches

MAC Addresses per CoreBuilder Switch-Module

32,000

Management Access (via DMM)

In-band: SNMP, Telnet (command line interface)

Out-of-band: SLIP (SNMP, Telnet) and Direct Asynchronous Terminal

Front-Panel Indicators

PacketChannel Status; Module Status

Per-port bicolor Activity/Status LED (except FDDI)

Full-duplex LED (Fast Ethernet Solutions)

User-Defined Filters

MAC Addresses; Protocol - 64 per Switch-Module

Cabling Requirements

10BASE-T Ports: 100 Ohm Category 3 or 5 UTP - up to 100 m, 100 Ohm STP - up to 180 m, IBM Type 1 150 Ohm STP - up to 180m

10BASE-F Ports: 50/125, 62.5/125, multi-mode fiber up to 4 km

FDDI Ports: 50/125, 62.5/125, 100/140 multimode fiber up to 2 km

100BASE-TX Ports: 100 Ohm Category 5 UTP - up to 100 m, 100 Ohm STP - up to 100 m

100BASE-FX Ports: 50/125, 62.5/125, multimode fiber up to 2 km (full duplex)

CoreBuilder SwitchModules— ATM Backbone SwitchModule

General Specifications
ATM Backbone SwitchModule

2-slot module in CoreBuilder 5000 switch; 2 front-panel 155 Mbps ports (one active port, one backup, shipped with one standard)

LEDs: (on motherboard) Module Status - PacketChannel; (on daughtercard) Tx, Rx, Alarm, Active)

Connector Requirements: OC-3c multimode fiber with SC connector

Configuration Options: Optional redundant OC-3c 155 Mbps multimode fiber port

Virtual Connections Supported: SVCs — 512 per module

Protocols Supported: Switched Ethernet, Fast Ethernet, FDDI

ATM Support

ATM Forum UNI Specifications 3.0/3.1, frames are transferred across ATM using AAL-5. Also supports ILMI registration and Q.2931 call setup. LANE 1.0

LECs Supported: 64

Power Consumption: (with 1 I/O card installed) 60 W @ 5 V; 5 W @ 12 V; (with 2 I/O cards installed) 65 W @ 5 V; 5 W @ 12 V

CoreBuilder 5000 Shared Media Solutions

Shared Ethernet and Token Ring Media Modules
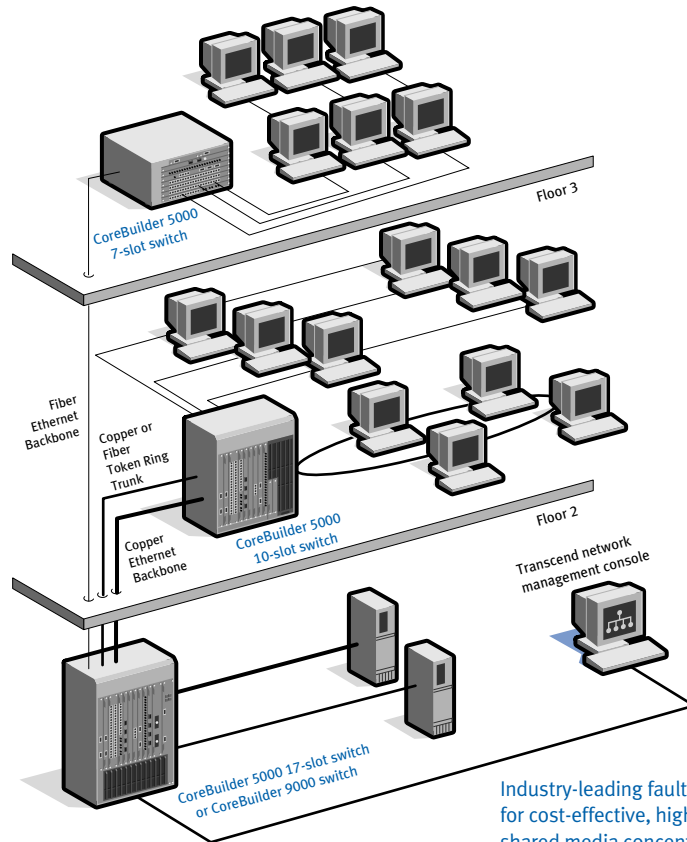
Shared LAN Management

Ethernet and Token Ring Media Modules are monitored and managed through the CoreBuilder 5000 distributed management architecture via optional media module resident Network Monitor Cards. (See the *CoreBuilder 5000 Network Management* section on page 17 for more information.)

Fault Tolerance

All shared media modules take full advantage of the fault-tolerant features built into the CoreBuilder 5000 switch. (See the *CoreBuilder 5000 Platform* section on page 4 for more information.)

Advanced Port Switching

Port switching on Ethernet and Token Ring media modules expands bandwidth and eases network moves, adds, and changes. Ethernet modules support port switching from eight backplane segments or six to eight segments per module. Token Ring modules provide port and module switching from up to 10 CoreBuilder 5000 backplane rings or 11 individual rings per module.

CoreBuilder 5000 7-slot switch

Floor 3

Fiber Ethernet Backbone

Copper or Fiber Token Ring Trunk

Copper Ethernet Backbone

CoreBuilder 5000 10-slot switch

Floor 2

Transcend network management console

CoreBuilder 5000 17-slot switch or CoreBuilder 9000 switch

Industry-leading fault tolerance for cost-effective, high-density shared media concentration that easily migrates to higher bandwidth switched technology.

CoreBuilder 5000 Shared Ethernet Media Modules—Key Features and Benefits

Flexible Configurations

The modules support a wide range of Ethernet solutions to meet all of your media and density needs. You can create your own mixed-media solutions to support diverse Ethernet cabling and network requirements, thus avoiding costly rewiring or inefficient use of the chassis slots.

Port Redundancy

The modules reduce downtime by supporting built-in port redundancy for automatic switchover to back up ports on the same module, on a different module, or in a different chassis.

Security

The optional CoreBuilder 5000 Ethernet Private Line Card (PLC) provides continuous eavesdropping and intrusion protection for each network for up to 1,000 users on any backplane or
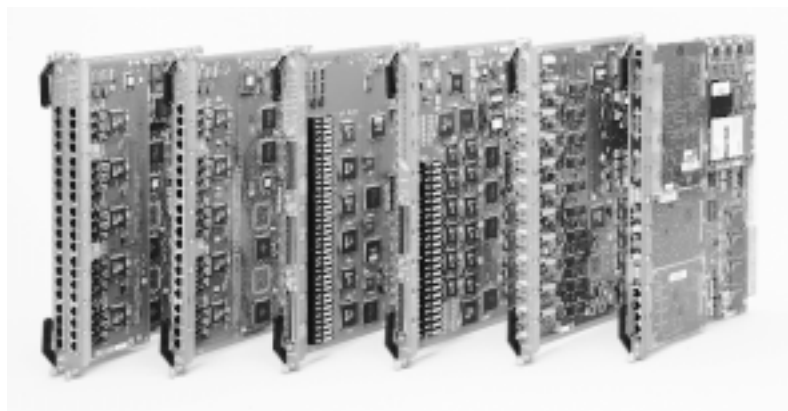
extended Ethernet segment. Automatic learning of MAC addresses of every port prevents time-consuming manual entry. The PLC is interoperable with standards-based Ethernet equipment and supports the use of bridges and redundant ports.

CoreBuilder 5000 Ethernet media modules provide configuration flexibility, mixed-media support, and network-level security. All modules are hot-swappable, so installation is quick and easy without disrupting the operation of your network.

CoreBuilder 5000 Shared Ethernet Media Modules—Key Features and Benefits

Twisted Pair

Dual-slot, 40-port and single-slot,
20-port 10BASE-T

- Provides 10BASE-T connectivity for STP and UTP 10BASE-T networks with RJ-45 connectors to eight Ethernet segments simultaneously.
- Offers port switching access to eight CoreBuilder 5000 backplane segments and eight extended segments in any combination of eight segments.
- Supports two daughtercards; Private Line Card and/or Network Monitor Card. (Only one Advanced Network Monitor Card can be attached.)
- Supports Repeater MIB statistics integrated at each port.

Single-slot, 24-port 10BASE-T media
module with connectors

- Connects up to 24 network devices to Ethernet local area networks (LANs) telco using shielded or unshielded twisted-pair cabling.
- Two telco-type connectors provide a no-tangles link to 24 10BASE-T-compliant ports.
- Supports port switching to eight CoreBuilder 5000 backplane Ethernet segments and six extended segments in any combination of six segments.
- Supports one daughtercard; Private Line Card or Network Monitor Card. (Advanced Network Monitor Card can be attached but will monitor only one network.)

Single-slot, 36-port 10BASE-T
with telco connectors

- Provides cost-conscious, high-density solution to UTP-supported Ethernet networks.
- Bank switching of three 12-port telco connectors simplifies use and provides easy manipulation of workgroups.
- Each telco connector can be switched to any eight of the Ethernet backplane networks or three extended segments in any combination of three.
- Supports up to two Ethernet Network Monitor Cards or Private Line Cards. Both can be switched to any of the backplane or extended networks. (Only one Advanced Network Monitor Card can be attached.)
- Supports integrated repeater MIB statistics for integrated base-level reporting on a per port or per connector basis.

Fiber

Single-slot, 10-port 10BASE-FB

- Uses synchronous fiber signaling for simplified network configuration and fault tolerance.
- Provides simultaneous port switching to up to eight isolated segments or eight backplane networks.
- Any port on the module supports high-power mode, capable of driving up to 4 kilometers of fiber optic cabling (typical modules are limited to 2 kilometers).
- Supports one daughtercard; Private Line Card or Network Monitor Card.

Mixed Media

Single-slot EtherFlex

- Lets you customize a mixed-media solution for a wide range of Ethernet cabling combinations.
- Supports a variety of field-installable input/output (I/O) cards for shielded or unshielded twisted-pair, fiber optic, and thin and thick Ethernet cabling. (See next table.)
- Provides port switching to any combination of eight backplane and eight extended segments simultaneously in any combination of 12 networks.
- Simple installation for easy configuration changes as your network grows. For example, if your network demands 10BASE-FB/FL ports and 10BASE-T ports, you can combine these two cable types on the same module with two cards of each, for a total of four 10BASE-FB/FL ports and eight 10BASE-T ports. The 10BASE-FB/FL card autosenses which fiber-based protocol you are running, easing configuration.
- LED indicators show when each I/O card is in use.
- Supports up to two Private Line Cards and two Network Monitoring Cards. (Only one Advanced Network Monitor Card can be attached.)
- All I/O cards on the module support repeater MIB statistics.

CoreBuilder 5000 Shared Token Ring Media Modules—Key Features and Benefits

PowerRing Technology

PowerRing technology provides reliability and fault tolerance through a variety of features:

- **Dual Phase-Locked Loop (DPLL) Circuitry**
  Provides each active module with per-port active retimed signal regeneration, supporting longer lobe lengths at 16 Mbps over a range of UTP or STP cabling. This results in fewer errors, so bandwidth is not wasted. Plus, Power-Ring technology enables up to 250 users per network, even over Category 3 UTP cable.

- **Instant Beaconing (Distributed Recovery Intelligence—DRI)**
 Assures automatic fast recovery (< 2 sec) from beaconing events on all rings, including isolated rings, without the need for a management module.

- **Speed-Mismatch Protection (Zero Delay Lockout—ZDL)**
  Facilitates problem prevention and ensures beacon-free ring operation, even if a mismatch occurs.

- **Port-to-Address Mapping**
  Allows accurate ring mapping even when MAC addressless devices such as LAN analyzers and fan-out devices are used, facilitating rapid troubleshooting.
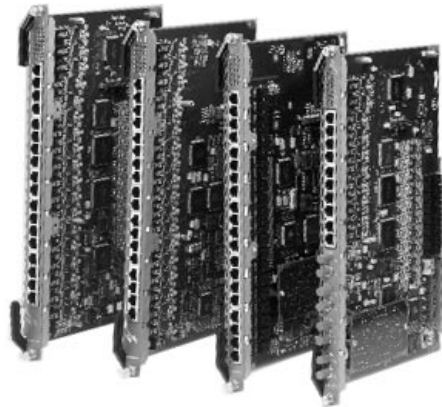
CoreBuilder 5000 Token Ring media modules

EtherFlex Input/Output Card Information

	10BASE-T	10BASE-FB/FL	10BASE2	10BASE5 Male and Female
Number of ports (per I/O module)	4	2	3	3
Number of I/O cards (per EtherFlex motherboard)	4	4	4	2
Type of ports	RJ-45	ST	BNC	15-pin D-type (male or female)
Cabling types supported	STP & UTP	Multimode: 50/125, 62.5/125, 100/140	50 ohm coaxial cable	AUI
Port redundancy	Yes	Yes	No	No

CoreBuilder 5000 Shared Token Ring Media Modules—Key Features and Benefits

Token Ring Module

Single-slot, 18-port active port-switching	• Supports 18 active retimed lobe ports with DPLL circuitry. • Port-switch capability enables a single port to be switched to any one of the 10 back-plane networks or to any of the 11 extended module networks. • PowerRing technology ensures robust operation, even with lower-grade cabling. • Addition of an RI cable adapter enables ports 17 and 18 to be configured as a fully repeated Ring-In/Ring-Out trunk. • Accepts one Network Monitor Card and one Ring Jitter Attenuator Daughtercard. • UTP and STP cables can be simultaneously connected to the same module.
Single-slot, 18-port module-switching media	• Offers the same features as the Active Port-Switching Module (except for port switching) at a lower cost. • Ideal for environments where port switching is not needed, as in the remote or floor closet where a large block of users connect to a single network, which in turn collapses to a central chassis. • Accepts one Network Monitor Card and one Ring Jitter Attenuator Daughtercard. • UTP and STP cables can be simultaneously connected to the same module.
Single-slot, Dual Fiber Repeater (DFR)	• Supports two sets of fully repeated fiber Ring-In/Ring-Out trunks capable of connecting to other CoreBuilder 5000 chassis, ONline Token Ring Fiber Modules, IBM 8230 CAU, IBM 8238, 8250, 8260, or 3Com SuperStack® II Hub TR with Token Ring ONtrunk module. • Ideal for collapsed backbone configurations, collapsing two remote rings, while providing 10 active, retimed lobe ports to connect to bridges, routers, switches, network servers, LAN analyzers, or other PCs. • Active retimed port switching allows individual switching of all trunks and lobe ports to any of 11 rings in any combination from the 10 backplane or 11 isolated module rings. • Supports PowerRing technology. • Accepts one Network Monitor Card and two Ring Jitter Attenuator Daughtercards. • UTP and STP cables can be simultaneously connected to the same module.
Single-slot, 20-port passive media	• Ideal for use with STP or datagrade UTP cables (Category 4 or 5). • Supports instant beaconing recovery and speed-mismatch protection. • Offers 20 lobe ports per module for up to 320 users per chassis across multiple rings. • Built-in jitter alternator. • Can be switched on a per-module basis to any of the 10 CoreBuilder 5000 backplane rings or to one isolated ring. • Supports 4 or 16 Mbps Token Ring networks and operation with either STP or UTP cables on a per module basis.
Ring Jitter Attenuator Daughtercard (JADC)	• Installs on any CoreBuilder 5000 Token Ring module with Ring-In/Ring-Out connection to devices other than CoreBuilder 5000 devices. • Sets up a firewall between CoreBuilder 5000 modules and outside devices, filtering excessive jitter. • Generates a jitter-free signal that allows Token Ring networks with increased robustness of up to 250 stations per ring. • Configures automatically to appropriate Ring-In/Ring-Out receive trunk regardless of whether the trunk is in *unwrap* or *wrap* mode. • A 30-pin connector makes the card easy to install on the Active Media Modules. Cannot inadvertently be placed in the Network Monitor Card connectors. • Dual-Fiber Repeater module supports two JADCs.

CoreBuilder 5000 Shared Media—Ordering Information and Specifications

Ordering Information

CoreBuilder 5000 Shared Ethernet Media Modules

40-port 10BASE-T media module (RJ-45 connectors)	3C96140M-TPP
20-port 10BASE-T media module (RJ-45 connectors)	3C96120M-TPP
24-port 10BASE-T media module (telco connectors)	3C96124M-TPL6
36-port 10BASE-T media module (telco connectors)	3C96136M-TPCL
10-port 10BASE-FB media module (ST connectors)	3C96110M-FBP-ST
EtherFlex media module motherboard	3C96104M-MOD
3-port 10BASE2 EtherFlex I/O module	3C96103D-BNC
3-port 10BASE5 female EtherFlex I/O module	3C96103D-AUIF
3-port 10BASE5 male EtherFlex I/O module	3C96103D-AUIM
4-port 10BASE-T EtherFlex I/O module (RJ-45)	3C96104D-TPP
2-port 10BASE-FB/FL EtherFlex I/O module	3C96102D-FIB
CoreBuilder 5000 private line card	3C96100D-SEC

CoreBuilder 5000 Shared Token Ring Media Modules

18-port Token Ring active port-switching media module (RJ-45)	3C96218M-ATPP
18-port Token Ring active module-switching media module (RJ-45)	3C96218M-ATP
10-port Token Ring Dual Fiber Repeater module plus 8 fiber ST	3C96210M-DFR
20-port Token Ring passive media module	3C96220M-TP
Token Ring Jitter Attenuator Daughtercard	3C96200D-JA
Token Ring RI adapter	3C96200ADT-RI

Specifications

General Specifications
CoreBuilder 5000 Ethernet and Token Ring Media Modules

Environmental

Operating Temperature: 0º to 50ºC (32º to 122ºF)

Operating Humidity: Less than 95% relative humidity (noncondensing)

Storage Temperature: -40º to 66ºC (-40º to 151ºF)

Storage Humidity: 10 to 95% relative humidity (less than noncondensing)

Mechanical

All shared media modules occupy one CoreBuilder 5000 slot, except for the Ethernet 40-port 10BASE-T media modules, which occupy two slots.

CoreBuilder 5000 Shared Ethernet Media Modules

General Specifications
Ethernet Media Modules

Front-Panel Indicators

One green module status LED (does not apply to the EtherFlex Media Module)

One bicolor (yellow/green) Port Activity/Status, Module Status

LED per port (does not apply to the 24-port 10BASE-T media module)

Activity/Status LED per port (applies to 20 and 40 port

10BASE-T media modules only)

One yellow Activity LED per port (applies to the 24-port 10BASE-T media module only)

Cable Requirements

10-BASE-T Modules: Support UTP & STP cabling systems

10-Port 10BASE-FB Media Module: Support 50/125, 62.5/125, or 100/140 micron diameter graded index, duplex fiber, 150 MHz/km rating or better

EtherFlex Media Module, Fiber ports: Support 50125, 62.5/125, 100/140; RJ-45: UTP & STP

DIP Switches

Segment Selection and Configuration Selection DIP Switches

CoreBuilder 5000 24-Port 10BASE-T Media Module

Connectors: Two 50-pin telco connectors (12 ports per connector)

Daughtercards: Supports one daughtercard

Power

Consumption: 17.5 W @ 5 V

BTUs/hr: 59.7

CoreBuilder 5000 20- and 40-Port 10BASE-T Media Modules

Connectors: RJ-45 connectors

Statistics: Repeater MIB per port

Daughtercards: Both modules support two daughtercards

Power

Consumption: (20 Port) 15 W @ 5 V; (40 Port) 25 W @ 5 V

BTUs/hr: (20 port) 51 (40 port) 85

CoreBuilder 5000 10-Port 10BASE-FB Media Module

Connectors: ST

Daughtercards: Supports one daughtercard

Power

Consumption: 17.5 W @ 5 V

BTUs/hr: 59.7

CoreBuilder 5000 36-Port 10BASE-T Media Module

Connectors: Three 50-pin telco connectors (12 ports per connector)

Daughtercards: Supports two daughtercards

Power

Consumption: 15 W @ 5 V

BTUs/hr: 51

CoreBuilder 5000 EtherFlex Media Module

Connectors: 10BASE-T—RJ45;

Fiber—ST

Daughtercards:

Option slots

10BASE2: 3 port, single slot

10BASE5 female, male: 3 port, dual slot

10BASE-T: 4 port, single slot

10BASE-FB/FL: 2 port, single slot

Power Consumption

Motherboard: 6.75 W @ 5 V 23 BTUs/hr

I/O Cards:

10BASE2: 5.20 W @ 5 V 17.7 BTUs/hr

10BASE5 M/F: 2.60 W @ 5 V 8.8 BTUs/hr

10BASE-T: 1.56 W @ 5 V 5.3 BTUs/hr

10BASE-FB/FL: 3 W @ 5 V 10.2 BTUs/hr

CoreBuilder 5000 Shared Token Ring Media Modules

General Specifications
Token Ring Media Modules

Cable Requirements

All media modules support UTP and STP cabling systems (see specifications below for lobe distances supported).

DIP Switches

8-position DIP switch to select backplane ring or isolated ring

Enable/disable use of stored NVRAM configuration

Select ring speed, 4 Mbps or 16 Mbps

These features and many more are also controlled via software.

CoreBuilder 5000 Token Ring Jitter Attenuator Daughtercard (JADC)

Connectors: Onboard 30-pin connector

Mechanical

6.35 cm x 12.7 cm (2.5 in x 5 in)

Does not take a CoreBuilder 5000 slot

Power

Consumption (+5 V DC): 1 W

BTUs/hr: 8.5

CoreBuilder 5000 Shared Media—Ordering Information and Specifications

Specification	Dual Fiber Repeater Module		Port-Switching Media Module		Module-Switching Media Module		Passive Media Module	
Power Consumption +5 V DC (W)	37		38		25		16	
BTUs/hr	128		132		85		64	
Connectors (shielded RJ-45)	10 (also 8 ST fiber optic)		18		18		20	
Cable Requirements	16 Mbps	4 Mbps	16 Mbps	4 Mbps	16 Mbps	4 Mbps	16 Mbps	4 Mbps
UTP Level 3	100 m	250 m	100 m	250 m	100 m	250 m	no	125 m
UTP Level 4	210 m	425 m	210 m	425 m	210 m	425 m	100 m	200 m
UTP Level 5	225 m	425 m	225 m	425 m	225 m	425 m	100 m	200 m
STP Level 1 & 2	400 m	800 m	400 m	800 m	400 m	800 m	200 m	400 m
120 ohm	210 m	425 m	210 m	425 m	210 m	425 m	100 m	200 m
62.5/125 μm fiber	2 km	2 km	no	no	no	no	no	no
Stations per ring	250	190	250	190	250	190	250	250
Front-Panel Indicators								
Module Status	1		1		1		1	
Port Status	10		18		18		20	
RI/RO	4		1		1		0	
JADC Status	2		1		1		0	
# of JADC Supported	2		1		1		0	
# of Network Monitor Cards Supported	1		1		1		1	

CoreBuilder 5000 Network Management

Simplified Management of the CoreBuilder 5000 Switch

Advanced DMM/Controller Module

The distributed management architecture of the CoreBuilder 5000 switch provides a single, protocol-independent module—the Advanced DMM/ Controller Module—for chassis control, monitoring, and centralized management of all CoreBuilder 5000 shared media and LAN switching modules. Controller functions include system clock signals and essential system services, as well as monitoring the environment of the CoreBuilder 5000 switch, which includes temperature, fan status, and power capacity. Distributed Management Module (DMM) functions provide the SNMP and Telnet agents for in-band management of the entire CoreBuilder 5000 switch. The DMM also enables out-of-band management using SLIP for Telnet or SNMP as well as direct asynchronous terminals.

Management of Shared and Switched LANs

The Advanced/DMM Controller Module resides in a nonpayload slot and uses SmartAgent technology to collect, report, and store information. Built-in SmartAgent software on the SwitchModules give the Advanced DMM/Controller Module quick, real-time access to switched networks. Shared media module resident Network Monitor Cards (NMCs) provide remote monitoring (RMON) of activity on Token Ring or Ethernet ports and networks. All reporting occurs over the CoreBuilder 5000 high-speed dedicated management bus. Information collected from shared and switched networks can be forwarded to Transcend Network Control Services for centralized control and display through a graphical interface or through each module's terminal interface.

3Com's scalable Transcend network management architecture

Transcend Network Control Services

Transcend Network Control Services (NCS) is a common application for configuring and managing the full range of 3Com networking systems from a convenient single interface. This application supports the broadest range of networking devices in the industry, giving users a single-system point of reference for their entire enterprise network.

Within the CoreBuilder 5000 network management architecture, the Distributed Management Module automatically forwards information to the Transcend network management console. Here, the information is accessible via menu-driven graphical displays, including line graphs, bar charts, pie charts, and log reports. Transcend NCS also supports simplified VLAN management, enabling you to exploit the full power of switched networks within the CoreBuilder 5000 family of switches.

Automated Activities

In addition to configuration management, the Advanced DMM/Controller Module provides several automated functions that maximize fault tolerance and eliminate time-consuming management tasks.

Fault recovery	Automatic switchover to back up management and controller modules ensure no single point of failure. If the master DMM fails, the standby DMM automatically learns the configuration of the system and assumes control. In the unlikely event of failure to the DMM side of the module, the controller side continues to function.
Power management	The CoreBuilder 5000 switch protects against power failures due to invalid configurations by automatically verifying that sufficient power exists to support new configurations before newly installed modules are powered up. In addition, modules can be prioritized so that, in the event of insufficient power, modules with the lowest priority level are powered down first.
Environmental monitoring and protection	The DMM/Controller module continuously monitors the status of power supplies and temperature sensors in the system and notifies you if there is a problem. Software commands let you customize the chassis to be self-healing in the event of failure. For example, you can configure the chassis to respond in a specific way to changes in the amount of available power. You can also remove power from individual slots without physically disconnecting modules.
Automated thresholding and scripting	Terminal-based commands let you execute scripts that automatically respond to threshold settings. With this function you can automate network activities, such as enabling or disabling ports, or switching logical network assignments for a particular day and time of week. Scripts can be invoked through in-band or out-of-band communication based on a specific schedule or via command. Script files created in ASCII format on a PC or workstation also can be used.
Inventory management	The controller module provides cost-effective inventory assessment by automatically gathering inventory information from the CoreBuilder 5000 modules. This information can be displayed via command-line reports at the DMM terminal or by Transcend Network Control Services where you can obtain inventory information by model, serial, and software version numbers.
Automated address learning	The DMM automatically learns and stores the MAC address of every port on the network to nonvolatile memory. As users change location, the CoreBuilder 5000 switch relearns the locations and automatically maintains communications. Stations continue to operate regardless of the network to which the port is assigned.

CoreBuilder 5000 Network Monitor Cards for Shared Ethernet and Token Ring LANs—Key Features and Benefits

High-Speed Communication

Network Monitor Cards (NMCs) communicate critical network management information from shared Ethernet or Token Ring backplane networks to the DMM over the CoreBuilder 5000 dedicated management bus. This information includes RMON statistics such as traffic patterns and error conditions, and IEEE MIB information for rapid statistics gathering. The cards also collect RMON statistics from isolated rings and segments. Each card monitors one segment, letting you invest in your network incrementally.

Fault Tolerance

NMCs take full advantage of the fault-tolerant features built into the Core-Builder 5000 switch. (See the *CoreBuilder 5000 Platform* section on page 4 for more information.) In addition, N+1 redundancy lets you configure a NMC in standby mode. This card assumes monitoring if another NMC on the same network fails. The system sends a message (trap) to alert you of the change in network operation.

CoreBuilder 5000 network-based daughtercards provide cost-effective solutions, with maximum flexibility and fault tolerance, for the challenges of managing a shared enterprise network.

Network Monitoring Card

Token Ring	• Complies with IEEE 802.5 MIB (Internet RFC 1231) and RMON MIB (Internet RFC 1513).
	• NMC (3C96200D-MGT) can be housed on any CoreBuilder 5000 Token Ring media module for management of backplane and isolated rings.
	• Multiple networks can be monitored by configuring multiple Network Monitor Cards, one per Token Ring network, or by software port-switching the Network Monitor Card to different networks, one at a time. (Requires attachment to a module capable of supporting port switching.)
	• Supports Ring Error Monitor (REM) and Configuration Report Server (CRS), five RMON groups, and N+1 redundancy.
Advanced Ethernet	• Complies with 802.3 Ethernet Repeater MIB (Internet RFC 1516) and RMON MIB (Internet RFC 1271).
	• NMC (3C96100D-AMGT) supports two network interfaces for monitoring two segments simultaneously. (Must be housed on a CoreBuilder 5000 Ethernet media module that supports multiple interfaces to take advantage of both interfaces.)
	• Provides bidirectional switchover with the base-level Ethernet NMC and is ideal for backbone shared networks and other critical segments.
	• Supports all nine RMON groups, 3Com Advanced Network Applications, and N+1 redundancy.
	• Ships with 4 MB of memory and up to 32 MB additional memory (industry-standard DRAM), which can be added at any time.
	• Must be housed on Ethernet media modules for monitoring isolated Ethernet segments. Can be housed on any CoreBuilder 5000 Ethernet media module for monitoring backplane segments in a shared Ethernet environment.

See CoreBuilder 5000 Network Management—Ordering Information and Specifications for a list of RMON groups supported by the above Network Monitor Cards.

CoreBuilder 5000 Network Management— Ordering Information and Specifications

Ordering Information

CoreBuilder 5000 advanced DMM/controller module
3C96000M-CMGT

CoreBuilder 5000 advanced Ethernet Network Monitor Card
3C96100D-AMGT

CoreBuilder 5000 Token Ring Network Monitor Card
3C96200D-MGT

Transcend Network Control Services v5.0 for UNIX
3C27850G

Transcend Enterprise Manager for Windows NT   3C81400

Specifications

General Specifications Advanced DMM/Controller Module and Network Monitor Cards

Environmental

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

Operating Humidity: Less than 95% relative humidity (noncondensing)

Storage Temperature: -40° to 66°C (-40° to 151°F)

Storage Humidity: 10 to 95% relative humidity (less than noncondensing)

Advanced DMM/Controller Module

Housing for Daughtercards: Does not house daughtercards. Supports daughtercards housed on CoreBuilder 5000 media modules or on the CoreBuilder 5000 DMM with Ethernet carrier. (3C96106M-MGT)

Connectors: One front-panel RS 232 shielded micro DB 9 connector for console port connections.

One front-panel RS 232/RS 423 shielded micro DB 9 connector for auxiliary port connections.

Processors: One Motorola 68EC040; Two Motorola 68302

DMM Memory: 4 MB of Flash EPROM
(upgradable to 6 MB); 8 MB RAM (upgradable to 36 MB)

Controller Memory: 512 KB Flash EPROM; 128 KB SRAM

BTUs/hr: 46

CoreBuilder 5000 Network Monitor Card

General Specifications Advanced Ethernet Network Monitor Cards

High-Speed In-Band Connectivity

In-Band Download Capability

RMON Support:

Statistics Group

History Group

HostTopN Group

Matrix Group

Alarm Group

Event Group

IEEE 802.3 Ethernet Repeater

In addition, the Advanced Ethernet Network Monitor Card (6100D-AMGT) supports the RMON Packet Capture and Filter Groups.

Processors: Motorola 68302 processor

Memory: 1 MB of Flash EPROM 768 KB of RAM

Power Consumption: 4.25 W @ +5 V

BTUs/hr: 14.5

CoreBuilder 5000 Token Ring Network Monitor Card

General Specifications Token Ring Network Monitor Card

RMON Support:

Statistics Groups

Promiscuous Statistics Group

MAC Layer Statistics Group

Host Group

Ring Station Group

Ring Station Order Group

Ring Station Configuration Group

Source Routing Statistics Group

Matrix Group

History Group

HostTopN Group

Alarm Group

Event Group

REM MIB Support

CRS MIB Support

IEEE 802.5 MIB Support

Data Rate: 4 or 16 Mbps (megabits per second)

Processors: Motorola 68331 processor

Memory: 2 MB Flash EPROM; 1 MB SRAM; 256 KB shared RAM

Power Consumption: 9 W @ +5 V

BTUs/hr: 30.7