



# BayStack 420-24T Switch

- **Cost-Effective Desktop Switching**
- **Stackable Up to 8 Units and 192 Ports**
- **Built-in Stacking Connectors**
- **Easy to Use**
- **Easy Web-Based Management**
- **1U High Compact Design with Lower Power Consumption**

The BayStack\* 420-24T Switch is a stackable 10/100/1000 layer 2 Ethernet switch featuring easy configuration and stackability, flexible choices for high-speed uplinks, and web-based management from your web browser.

Combining high port density with low per-port pricing for a cost-effective switching solution, the BayStack 420-24T Switch is designed for the requirements of small- to medium-sized businesses and branch offices that consider advanced networking functionality such as:

- High-density, cost-effective desktop switching
- Migration from shared media
- Gigabit uplink to backbone switch

Each BayStack 420-24T Switch has 24 10BASE-T/100BASE-TX autosensing ports, 1 GBIC-based (Gigabit Interface Converter) uplink slot and built-in stacking connectors. It can be used as a standalone switch or in a stack of up to 8 switches and 192 ports, that can be easily managed as a single unit. Advanced features such as VLAN support, MultiLink Trunking, Simple Network Management Protocol (SNMP) and flexible management tools help you to efficiently manage your network traffic.



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## Features and Benefits

### Full Autosensing on Every Port

Every UTP port on the BayStack 420-24T Switch is equipped with autosensing technology to automatically detect and support the speed and mode of a connected device. Determining whether a connected device is operating at 10 Mbps or 100 Mbps, and automatically adjusting to the optimal speed, each of the 24 switched ports also automatically detects and supports full-duplex connections to servers, power-user endstations or other switches, as well as half-duplex connections to legacy NICs or hubs.

### Auto-polarity

BayStack 420 Switch saves money and time if it needs to be connected to a hub or another switch. Normally, you need a cross-over cable for this purpose, but with BayStack 420 Switch you can use an inexpensive straight-through cable or a cross-over cable. When a cable is connected to a port on the BayStack 420 Switch, the switch port automatically detects the polarity of the cable and configures itself. Also, this feature makes configuration easier as it eliminates the need for an MDI/MDIX port and any port may be used for connection to a hub or switch.

### High-Density Stacking Architecture

The plug and play cascade stacking architecture allows you to connect up to 8 BayStack 420-24T Switches with stack cables (see Figure 1) into a single manageable unit of up to 192 ports. Built-in Gigabit stacking connectors provide easy connections to other switches in the stack and save money by not requiring additional cascade modules. Cascading bandwidth is 1Gbps. The scalable architecture is designed to protect your network investment, as your business needs change or grow, and allows you to cost-effectively buy as you grow.

### Wire-Speed Throughput

A 12.8 Gigabit per second (Gbps) switching fabric and ASICs support full 802.1D-compliant MAC Layer frame

forwarding and filtering across all ports at wirespeed performance, with a peak forwarding rate of 5.1 million packets per second with no packet loss.

### Flexible High-Speed Uplink Options

BayStack 420-24T Switch offers a built-in GBIC (Gigabit Interface Converter) slot in the front of the unit that provides high-speed connection to backbone switches or servers. A variety of GBIC module options gives you flexibility in fiber interfaces to connect to distant servers or a larger network, including SX, LX, XD (50 km) and ZX (70 km) for long haul connectivity.

### MultiLink Trunking

MultiLink Trunking (MLT) enables grouping of links between the switch and another switch or a server to provide higher bandwidth of up to 800 Mbps. The BayStack 420-24T Switch supports up to 6 MLTs per switch or per stack with up to 4 10/100 ports per MLT.

### Advanced VLAN Support

Up to 32 port-based VLANs can be established for each switch, to extend the broadcast domain and segment network traffic for higher network efficiency. 802.1Q VLAN Tagging is supported on every port of the switch, allowing efficient means of transporting broadcast domains across switches. VLANs reduce administration costs by simplifying network moves, adds, and changes.

### Enterprise-Sized MAC Address Table

The BayStack 420-24T Switch supports up to 8,000 MAC addresses to provide ample scalability for growing networks to accommodate many attached devices and workgroups connected to each switch.

*Figure 1: The plug and play architecture allows easy expansion, and management as a single unit.*



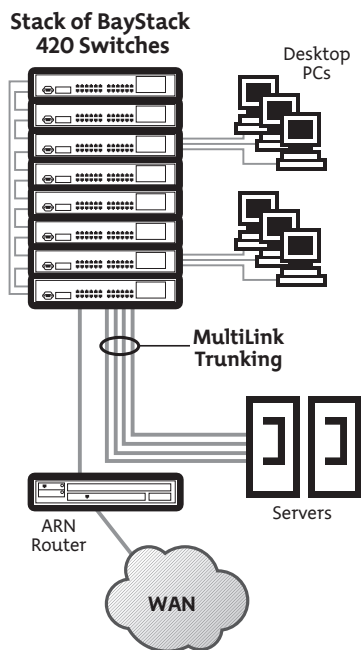
## Supports Spanning Tree Protocol

Built-in support for Spanning Tree Protocol (IEEE 802.1D) detects and eliminates logical loops in the network. When multiple paths exist, the switch will automatically place some ports on standby to form a network with the most efficient traffic pathways, avoiding the continual looping of frames.

## Flexible Management Platforms

Web-based network management makes managing the BayStack 420-24T Switch or stack easy with a web browser. Plus, the stack can be managed as a single entity with one IP address. Furthermore, the BayStack 420-24T Switch can be configured and managed by using the Java Device Manager Software, which can be downloaded free from the Nortel Networks web site, or by using Optivity\* NMS software.

Figure 2: Typical small/medium business application – single-floor.



## Advanced Management Features

BootP and TFTP support allows centralized switch IP address assignment, software upgrades, and SNMP agent updates over the network. The RADIUS-based security feature uses the RADIUS (Remote Authentication Dial-In User Services) protocol to authenticate local console and TELNET logins.

## BaySecure Secure LAN Access

BaySecure security feature allows authentication of all access, not only to the switches for management and configuration, but access to the infrastructure through these switches. This software feature limits access to the network to authorized and trusted users with full tracking of network connections.

## Concurrent RMON on Every Port

This enables standards-based RMON managers and Optivity applications to manage the network, as well as the devices, with four groups of RMON (Alarms, Events, History, and Statistics) on every port.

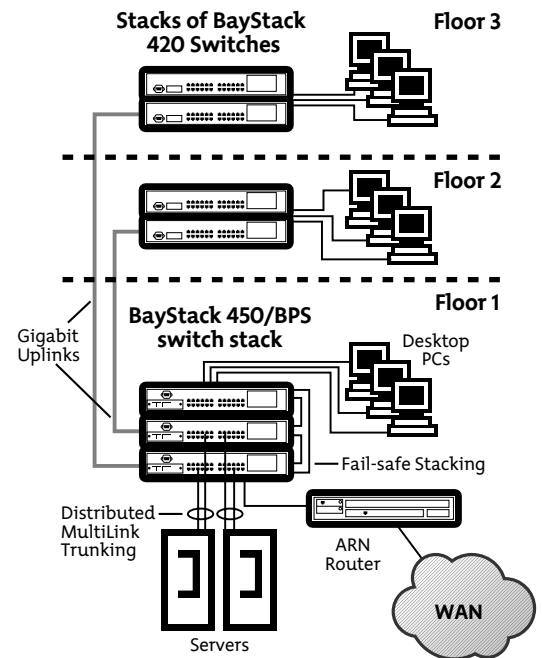
## Port Mirroring

Port mirroring copies packets flowing into a specified port and sends the replicated data to the mirrored port for in-depth analysis of switched traffic patterns to trouble-shoot problems and optimize network configurations.

## Recovery Configuration File Support

The configuration file feature allows for storing of switch or stack configuration parameters on a TFTP server. Configuration parameters can be retrieved automatically to configure a replacement switch or stack with the same configuration. For new installations or when a switch has failed, this feature saves time in reconfiguring another switch or stack.

Figure 3: Typical medium business application – multi-floor.



## RJ-45 Connectors Wired for MDI-X

All 10/100 autosense Ethernet port connectors are wired for MDI-X connections to other devices. Inexpensive straight-through unshielded twisted pair (UTP) cables can be used to provide switch connections to servers, desktops, and internetworking devices.

## Power and Space Savings

Low power consumption of 50W results in lower operating costs. 1U high unit with smaller footprint saves space.

# Technical Specifications

Table 1: BayStack 420-24T Technical Specifications.

<b>Performance Specifications (64-byte packets)</b>	
Maximum Forwarding Rate	5.1 Mpps
Switched 10 Mbps forwarding rate	14,880 pps
Switched 100 Mbps forwarding rate	148,810 pps
Switched 1000 Mbps forwarding rate	1,488,100 pps
Latency 100 Mbps ports	3 usec
Latency 1000 Mbps ports	2 usec
<b>Network Protocol and Standards Compatibility</b>	
	IEEE 802.3 CSMA/CD (ISO/IEC 8802-3)
	IEEE 802.3 10BASE-T (ISO/IEC 8802-3, Clause 14)
	IEEE 802.3u 100BASE-TX (ISO/IEC 8802-3, Clause 25)
	IEEE 802.3u Autonegotiation on Twisted Pair (ISO/IEC 8802-3, Clause 28)
	IEEE 802.3x (Flow Control on the Gigabit Uplink port)
	IEEE 802.3z (Gigabit)
	IEEE 802.1D MAC Bridges (ISO/IEC 10038)
	IEEE 802.1Q (VLAN Tagging)
<b>Data Rate and Encoding</b>	
10 Mbps	Manchester encoding
100 Mbps	4B/5B encoding
1000 Mbps	8B/10B
<b>Electrical Specifications</b>	
Line Frequency	47-63 Hz
Input Volt Ampere Rating	65 VA maximum
Input Power	50 W maximum
Input Voltage	100-240 VAC
Input Current	2 A @ 100, 1 A @ 240
Thermal Rating	220 Btu/hr
<b>Physical Dimensions</b>	
Height	1.75 in (4.45 cm) – 1U High
Width	17.125 in (43.5 cm)
Depth	8.0 in (20.32 cm)
Weight	6.2 lb (2.83 kg)

Table 1: BayStack 420-24T Technical Specifications (continued).

<b>Environmental Specifications</b>		
Operating Temperature	32° to 104°F (0° to 40°C)	
Storage Temperature	-13° to 158°F (-25° to 70°C)	
Operating Humidity	85% maximum, non-condensing	
Storage Humidity	95% maximum, non-condensing	
Operating Altitude	10,000 ft (3000 m) maximum	
Storage Altitude	10,000 ft (3000 m) maximum	
Free Fall/Drop Test	ISO 4180-s, NISTA 1A	
Vibration Test	IEC 68-2-6	
<b>Electromagnetic Emissions</b>		
US:	FCC Part 15, Subpart B, Class A	
Canada:	ICES-003, Issue-2, Class A	
Japan:	VCCI V-3/99.04, Class A	
Australia/New Zealand:	AS/NZS 3548: 1997, Class A	
Taiwan:	BSMI	
Europe:	CISPR 22: 1997, Class A	
	EN 55022: 1998, Class A	
	EN 61000-3-2: 1998, Class A	
	EN 61000-3-3: 1995	
	EN 55024	
	CE	
<b>Safety Standards Certification</b>		
US:	UL 1950 (Third Edition)	
	UL-94V-1 Flammability requirement for PCB's	
Canada:	CSA-C22.2 No. 950-95	
Europe:	TUV	
	EN 60950	
	IEC 60950	
Mexico:	NOM - 019	

## GBIC Specifications

Table 2: GBIC Specifications for the BayStack 420-24T Switch.

Type	1000BASE-SX
Connector	Duplex SC fiber optic connector
Wavelength	850 nm
Optical Budget	7 dB
Cabling Option 1	62.5 micron MMF; max distance 275 m
Cabling Option 2	50 micron MMF; max distance 550 m

Type	1000BASE-LX
Connector	Duplex SC fiber optic connector
Wavelength	1300 nm
Optical Budget	10.5 dB
Cabling Option 1	62.5 micron MMF; max distance 550 m
Cabling Option 2	50 micron MMF; max distance 550 m
Cabling Option 3	10 micron SMF; max distance 5 km

Type	1000BASE-XD
Connector	Duplex SC fiber optic connector
Wavelength	1550 nm
Optical Budget	17dB
Cabling Option	10 micron SMF; max distance 50 km

Type	1000BASE-ZX
Connector	Duplex SC fiber optic connector
Wavelength	1550 nm
Optical Budget	22 dB
Cabling Option	10 micron SMF; max distance 70km

## Ordering Information

Table 3: Ordering information for the BayStack 420-24T Switch.

Order Number	Description
AL2012?27**	BayStack 420-24T Switch 24 10BASE-T/100BASE-TX ports plus one slot for GBIC
AL2018005^	BayStack 420 Stack Cable, Short (30 cm)
AL2018006^	BayStack 420 Stack Cable, Long (100 cm)
AA1419001	1-port 1000BASE-SX GBIC
AA1419002	1-port 1000BASE-LX GBIC
AA1419003	1-port 1000BASE-XD GBIC (50 Km)
AA1419004	1-port 1000BASE-ZX GBIC (70 Km)

\*\* The seventh character (?) of the switch order number must be replaced with the proper code to indicate desired product nationalization:

"A" – No power cord included.

"B" – European "schuko" power cord common in Austria, Belgium, Finland, France, Germany, The Netherlands, Norway, and Sweden.

"C" – Power cord commonly used in the United Kingdom and Ireland.

"D" – Power cord only used in Japan.

"E" – North America power cord.

"F" – Australia power cord, also commonly used in New Zealand and the People's Republic of China.

^ Stack cables are not included with the switches and need to be ordered separately. Stack configuration examples: For a stack of 8 switches, order 7 short cables and 1 long cable. Follow this method for stack of 3 or more switches. For a stack of two, order two short cables only.



For more information, contact your Nortel Networks representative or call 1-800-4-NORTEL.

[www.nortelnetworks.com/baystack420](http://www.nortelnetworks.com/baystack420)

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+44(0) 20 8920 4618

**Caribbean and Latin America**

954-851-8000

\*\*Number accessible from most European Countries

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