

# BNT 1/10Gb Uplink Ethernet Switch Module for IBM BladeCenter

## IBM BladeCenter at-a-glance guide

The BNT 1/10Gb Uplink Ethernet Switch Module for IBM BladeCenter is a switch option that enables administrators to offer full Layer 2 and 3 switching and routing capability with combined 1 Gb and 10 Gb uplinks in a BladeCenter chassis. Such consolidation simplifies the data center infrastructure and helps reduce the number of discrete devices, management consoles, and management systems. In addition, the next-generation switch module hardware can support IPv6 Layer 3 frame forwarding protocols by using a future firmware upgrade.

This Ethernet Switch Module delivers port flexibility, efficient traffic management, increased uplink bandwidth, and strong Ethernet switching price/performance. Figure 1 shows the switch module.



Figure 1. BNT 1/10Gb Uplink Ethernet Switch Module for IBM BladeCenter

### Did you know?

The switch module's six 1 Gb RJ45 links can be seamlessly deployed in today's networks, while its three 10 Gb small form-factor pluggable plus (SFP+) ports provide an easy migration path to tomorrow's 10 Gb networks. The switch also support all nine uplinks being active at the same time, which can also allow for a simply migration without downtime. All nine uplink ports provide line-rate performance with zero packet drop.

The VMready feature of SmartConnect allows the switch to dynamically configure itself to coexist with all leading virtual machine providers such as VMware, Microsoft, Citrix Xen, and Virtual Iron.

## Part number information

The part numbers to order the module and supported optical transceivers are shown in Table 1.

Table 1. Part number and feature code for ordering

Description	Part number	Feature codes
BNT 1/10Gb Uplink Ethernet Switch Module for IBM BladeCenter	44W4404	1590 / 6980 / 1590*
10GbE 850 nm Fiber SFP+ Transceiver (SR)	44W4408	4942
IBM BNT 10GBASE-SR SFP+ Transceiver	46C3447	5053
IBM BNT 10GBASE-LR SFP+ Transceiver	90Y9412	A1PM
Molex DAC SFP+ cable 0.5M	59Y1932	Not available
IBM Passive DAC SFP+ cable, 1M	90Y9427	A1PH
IBM Passive DAC SFP+ cable, 3M	90Y9430	A1PJ
IBM Passive DAC SFP+ cable, 5M	90Y9433	A1PK
Molex DAC SFP+ cable 7M	59Y1944	Not available
IBM Passive DAC SFP+ cable, 8.5M	90Y9436	A1PL

\* Feature codes are listed in the form of three codes separated by a forward slash mark (/). The first feature code is for BladeCenter E-, T-, H-, and HT-based configurations that are available through the IBM System x platform. The second feature code is for BladeCenter S-based configurations that are available through the System x sales channel. The third feature code is for BladeCenter S- and BladeCenter H-based configurations that are available through the IBM Power Systems sales channel when applicable.

The part number for the switch, 44W4404, includes the following items:

- One BNT 1/10Gb Uplink Ethernet Switch Module for IBM BladeCenter
- 3-meter USB-to-DB9 serial console cable
- Printed documentation
- Documentation CD-ROM

In order to communicate outside of the chassis, you must have either one SFP+ transceiver or SFP+ direct-attach cable (DAC) connected. Supported options are listed in Table 1.

## Benefits

The BNT 1/10Gb Uplink Ethernet Switch Module offers the following benefits:

- All 1 Gb and 10 Gb uplink ports can be active at the same time.
- The switch consumes only 40 Watts, which is ideal for clients with power limitations or for those who simply want to reduce operating cost and be more environmentally friendly.
- It has a large L2 forwarding table (16K), which allows the switch to accommodate a larger flat network with minimum aging activity.
- Advanced L3 functions, such as OSPF and BGP, allow the switch to integrate seamlessly into a large routed network environment.

- L3 functions allow the switch to segregate traffic into segments to improve latency and security within each segment of the network.
- SmartConnect helps dramatically reduce total cost of ownership (TCO) that is associated with blade servers by delivering VMready network virtualization (NMotion), stacking, and simplifying administrative tasks such as deployment, control, and policy administration.

## Modes of operation

The switch module supports two unique operational modes that are determined by the firmware edition that is loaded onto the switch:

- Standard shipped Layer 2/3 mode
- SmartConnect mode or Virtual Switch Extension (VSE) mode

The Standard Layer 2/3 mode provides full implementation of networking services and technologies supported by the switch. SmartConnect mode provides a preconfigured subset of functions to enable basic Layer 2 connectivity only.

SmartConnect mode is used for less complex environments where only basic network connectivity is required and there is no need for advanced networking services. SmartConnect mode's reduced set of features and easy-to-use GUI help to minimize administrative efforts and skills that are required to deploy this solution while providing enough flexibility in configuring virtualization features. Its features and GUI also help to minimize the impact (both from management and functional point of views) on upstream network devices.

**Note:** SmartConnect is a firmware upgrade to this switch module and is different from the BladeCenter Open Fabric Manager offering from IBM. The SmartConnect license comes standard with the purchase of the switch and supported with the switch warranty.

The following virtualization features are included in the SmartConnect mode:

- **VMready**  
The switch's VMready feature makes it virtualization aware. The switch automatically discovers the virtual machines of hypervisors that are connected to internal ports on the switch. It monitors the creation and movement of virtual machines, whether they are moved for maintenance reasons or replicated to enable application scaling. It takes action to ensure that network settings are migrated along with the virtual machine to help prevent the possibility of virtual machines being moved to servers with the wrong virtual local area network (VLAN) or other network settings. SmartConnect accepts up to 1024 virtual machines.
- **Virtual aggregation**  
Switch resources can be pooled together, combining their capacity while simplifying their management. This can be accomplished on a number of levels:
  - Grouping multiple internal and external switch ports into a single, logical switching entity with shared bandwidth capacity. Multiple switches located in multiple blade server chassis, even across racks, operate as one large virtual switch. Up to 32 such Virtual Switch Groups (VSGs) can be configured on the switch or stack.
  - Trunking multiple switch ports into a single, high-bandwidth link to other networking devices. Each VSG supports up to two external trunks that can be used either independently or as a primary and backup.

- Stacking multiple switches from the same or different chassis into a single *superswitch*. SmartConnect supports one stack with up to eight switches. Stacking also permits the use of up to 56 internal port trunks. Multiple switches in the stack can be managed from a single node.
- **Virtual segmentation**  
VSGs act as independent logical units. Traffic assigned to different VSGs is thoroughly separated within the switch, essentially dividing the switch into smaller switch entities. VSG segmentation occurs internally within the switch, requiring no support changes to the broader network configuration (such as VLANs). Internal and external switch ports, as well as any attached VMs, can be independently assigned to VSGs.
- **ServerMobility**  
The ServerMobility feature is a network mobility capability that allows server blades to be added, removed, or replaced without the need of any address re-assignment. It allows server IP addresses to be assigned based on their physical location in a blade server chassis. Then, if a server fails, a replacement server (in the same or different slot) can assume the identity (and configuration) of the failed unit. A Dynamic Host Configuration Protocol (DHCP) server is required for ServerMobility operations.

By combining virtualization features, SmartConnect provides a highly-flexible framework for allocating and managing switch resources.

Specifically, the following functions are supported in SmartConnect mode:

- Port groups
- VLAN and VLAN tagging
- Trunking (link aggregation)
- Layer 2 Failover (Switch Failover)
- IGMP snooping
- Web-based or command-line interface (CLI)-based management interface
- Support for SSH/SCP
- RADIUS/TACACS+ access control to the switch
- Port monitoring
- Access control lists (ACLs)
- Quality of Service 802.1p/DSCP
- ServerMobility
- VMready
- Stacking

**Notes:**

- When the switch operates in SmartConnect mode, do not connect the host devices, such as workstations or servers, to the external ports because this leads to problems with network traffic flow.
- The Spanning Tree Protocol (STP) is not supported in SmartConnect mode. By using the color-based BNT configuration tool, it is simple to build a loop-free layer 2 topology. The software also avoids basic mistakes that lead to these events .

## Features and specifications

The BNT 1/10Gb Uplink Ethernet Switch Module includes the following standard features and functions:

- **Internal ports:**
  - 14 internal full-duplex Gigabit ports, one connected to each of the blade servers
  - Two internal full-duplex 10/100 Mbps ports connected to the management module
- **External ports:**
  - Three slots for 10 Gb Ethernet SFP+ transceivers (support for 10GBASE-SR or 10GBASE-LR) or SFP+ copper direct-attach cables (DAC); SFP+ modules are optional
  - Six 10/100/1000 1000BASE-T Gigabit Ethernet ports with RJ-45 connectors
  - One RS-232 serial port that provides an additional means to install software and configure the switch module
- **Scalability and performance :**
  - Fixed-speed external 10 Gb Ethernet ports for maximum uplink bandwidth
  - Autosensing 10/1000/1000 external Gigabit Ethernet ports for bandwidth optimization
  - Non-blocking architecture with wire-speed forwarding of traffic
  - Media access control (MAC) address learning: automatic update, support of up to 16 K MAC addresses
  - Up to 128 IP interfaces per switch
  - Static and LACP (IEEE 802.3ad) link aggregation, up to 36 Gb of total bandwidth per switch, up to 16 trunk groups, up to six ports per group
  - Support for jumbo frames (up to 9216 bytes)
  - Broadcast/multicast storm control
  - IGMP snooping for limit flooding of IP multicast traffic
  - IGMP filtering to control multicast traffic for hosts participating in multicast groups
  - Configurable traffic distribution schemes over trunk links based on source/destination IP or MAC addresses or both
  - Fast port forwarding and fast uplink convergence for rapid STP convergence
- **Availability and redundancy :**
  - Virtual Router Redundancy Protocol (VRRP) for Layer 3 router redundancy
  - IEEE 802.1D STP for providing L2 redundancy
  - IEEE 802.1s Multiple STP (MSTP) for topology optimization, up to 128 STP instances are supported by single switch
  - IEEE 802.1w Rapid STP (RSTP) provides rapid STP convergence for critical delay-sensitive traffic like voice or video
  - Layer 2 Trunk Failover to support active/standby configurations of network adapter teaming on blades
  - Interchassis redundancy (L2 and L3)

- **VLAN support:**
  - Up to 1024 VLANs supported per switch, with VLAN numbers ranging from 1 to 4095 (4095 is used for management module's connection only)
  - 802.1Q VLAN tagging support on all ports
  - Private VLANs
- **Security:**
  - VLAN-based, MAC-based, and IP-based ACLs
  - 802.1X port-based authentication
  - Multiple user IDs and passwords
  - User access control
  - Radius/TACACS+
- **Quality of Service (QoS):**
  - Support for IEEE 802.1p, IP ToS/DSCP, and ACL-based (MAC/IP source and destination addresses, VLANs) traffic classification and processing
  - Traffic shaping and re-marking based on defined policies
  - Eight Weighted Round Robin (WRR) priority queues per port for processing qualified traffic
- **Layer 3 functions:**
  - IP forwarding
  - IP filtering with ACLs, up to 896 ACLs supported
  - VRRP for router redundancy
  - Support for up to 128 static routes
  - Routing protocol support (RIP v1, RIP v2, OSPF v2, BGP-4), up to 2048 entries in a routing table
  - Support for DHCP Relay
  - IPv6 host management support
- **Manageability:**
  - Simple Network Management Protocol (SNMP V1 and V3)
  - HTTP browser GUI
  - Telnet interface for CLI
  - SSH
  - Serial interface for CLI
  - Scriptable CLI
  - Firmware image update (TFTP and FTP)
  - Network Time Protocol (NTP) for switch clock synchronization

- **Monitoring:**
  - Switch LEDs for external port status and switch module status indication
  - Port mirroring for analyzing network traffic passing through switch
  - Change tracking and remote logging with syslog feature
  - POST diagnostics
- **Special functions:**
  - Support for Serial over LAN (SOL)
- **Standards supported:**

The switch module supports the following IEEE standards:

- IEEE 802.1D Spanning Tree Protocol (STP)
- IEEE 802.1s Multiple STP (MSTP)
- IEEE 802.1w Rapid STP (RSTP)
- IEEE 802.1p Tagged Packets
- IEEE 802.1Q Tagged VLAN (frame tagging on all ports when VLANs are enabled)
- IEEE 802.1x port-based authentication
- IEEE 802.2 Logical Link Control
- IEEE 802.3 10BASE-T Ethernet
- IEEE 802.3u 100BASE-TX Fast Ethernet
- IEEE 802.3ab 1000BASE-T Gigabit Ethernet
- IEEE 802.3z 1000BASE-X Gigabit Ethernet
- IEEE 802.3ad Link Aggregation Control Protocol
- IEEE 802.3x Full-duplex Flow Control
- IEEE 802.3ae 10GBASE-SR

## Supported BladeCenter chassis and expansion cards

The BNT 1/10Gb Uplink Ethernet Switch Module is supported in the IBM BladeCenter chassis listed in Table 2.

Table 2. IBM BladeCenter chassis that support the BNT 1/10Gb Uplink Ethernet Switch Module

I/O module	Part number	BladeCenter S	BladeCenter E	BladeCenter H	BladeCenter T	BladeCenter HT	MSIM	MSIM-HT
BNT 1/10Gb Uplink Ethernet Switch Module for IBM BladeCenter	44W4404	Y	Y	Y	Y	Y	Y	Y

The BNT 1/10Gb Uplink Ethernet Switch Module supports the expansion cards listed in Table 3 below. This table also lists the chassis bays that the switch module must be installed in when used with each expansion card. The BladeCenter chassis have the following bays:

- BladeCenter S, E, and T have four standard I/O bays (1, 2, 3, and 4)
- BladeCenter H has six standard I/O bays (1, 2, 3, 4), two bridge bays (5 and 6) and four high-speed bays (7, 8, 9, and 10)
- BladeCenter HT has four standard I/O bays (1, 2, 3, 4) and four high-speed bays (7, 8, 9, and 10).

The BNT 1/10Gb Uplink Ethernet Switch Module fits in a standard I/O bay (bays 1-4). With the addition of the Multi-Switch Interconnect Module (MSIM) in the BladeCenter H and MSIM-HT in the BladeCenter HT, the BNT 1/10Gb Uplink Ethernet Switch Module can also fit in a high-speed I/O bay (bays 7-10).

Table 3. BNT 1/10Gb Uplink Ethernet Switch Module and BladeCenter chassis I/O bays support.

Description	Part Number	Bay 1 (Standard)	Bay 2 (Standard)	Bay 3 (Standard)	Bay 4 (Standard)	Bay 5 (Bridge)	Bay 6 (Bridge)	Bay 7 (High-speed)	Bay 8 (High-speed)	Bay 9 (High-speed)	Bay 10 (High-speed)
Gigabit Ethernet integrated on the server system board	None	Y	Y	N	N	N	N	N	N	N	N
Ethernet Expansion Card (CFFv)	39Y9310	N	N	Y	Y	N	N	N	N	N	N
Ethernet Expansion Card (CIOv)	44W4475	N	N	Y	Y	N	N	N	N	N	N
QLogic Ethernet and 4 Gb FC Card (CFFh)	39Y9306	N	N	N	N	N	N	Y	N	Y	N
2/4 Port Ethernet Expansion Card (CFFh)	44W4479	N	Y*	N	N	N	N	Y	Y	Y	Y
QLogic Ethernet and 8 Gb FC Card (CFFh)	44X1940	N	N	N	N	N	N	Y	N	Y	N

\* The 2/4 Port Ethernet Expansion Card supports I/O bay 2 connections only when installed into a blade server that is installed into BladeCenter S chassis.



## Popular configurations

This section shows how the BNT 1/10Gb Uplink Ethernet Switch Module for IBM BladeCenter can be used in configurations.

### Basic two-port configuration

Figure 2 shows basic use of the BNT Ethernet Switch Modules to route the two-port Ethernet controller that is integrated onto the blade server. Two Ethernet Switch Modules are installed in bay 1 and bay 2 of the BladeCenter chassis. The connections between the controller and the switch modules are internal to the chassis. No cabling is needed.

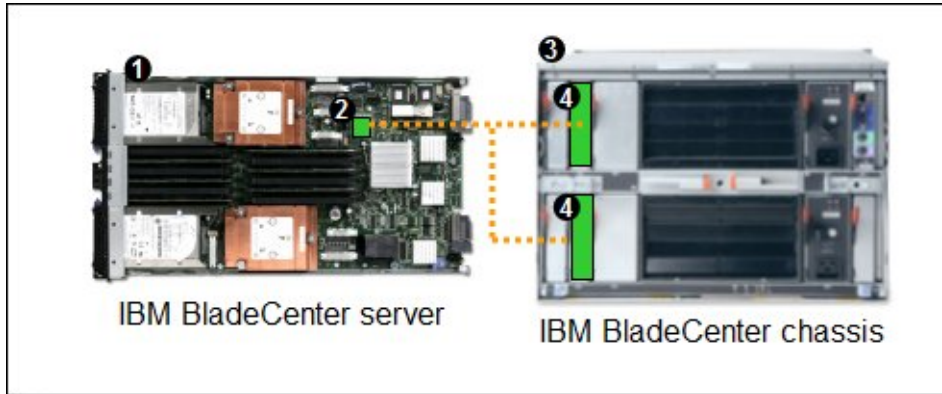


Figure 2. Using BNT Ethernet Switch Modules to route the integrated Ethernet ports

Table 4 lists the components that are used in the two-port configuration shown in Figure 2.

Table 4. Components used in the two-ports-per-server configuration

Diagram reference	Part number / machine type	Description	Quantity
1	Varies	IBM BladeCenter HS22 or other server	1 to 14
2	None	Ethernet controller on the system board of the server	1 per server
3	Varies	Any BladeCenter server (see Table 2)	1
4	44W4404	BNT 1/10Gb Uplink Ethernet Switch Module	2

## Four-port configuration

Figure 3 shows the use of BNT Ethernet Switch Modules to route four Ethernet ports from each server: the two integrated ports plus two ports supplied by a compatible CFFv or CIOv expansion card. Four Ethernet Switch Modules are installed in bay 1, bay 2, bay 3, and bay 4 of the BladeCenter chassis. All connections between the controller and card and the switch modules are internal to the chassis. No cabling is needed.

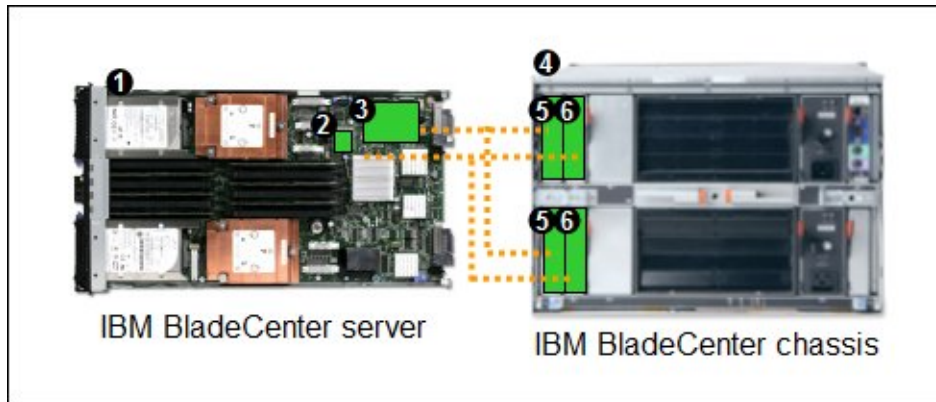


Figure 3. Using BNT 1/10Gb Uplink Ethernet Switch Module to route the four Ethernet ports from the integrated controller and a CFFv or CIOv expansion card

Table 5 lists the components that are used in the four-ports-per-server configuration shown in Figure 3.

Table 5. Components used in the four-ports-per-server configuration

Diagram reference	Part number / machine type	Description	Quantity
1	Varies	IBM BladeCenter HS22 or other supported server	1 to 14
2	None	Ethernet controller on the system board of the server	1 per server
3	Varies	Compatible CFFv or CIOv expansion card (see Table 3)	1 per server
4	Varies	Any BladeCenter chassis (see Table 2)*	1
5	44W4404	BNT 1/10Gb Uplink Ethernet Switch Modules routing signals from the CFFv or CIOv card 3	2
6	44W4404	BNT 1/10Gb Uplink Ethernet Switch Modules routing signals from the integrated controller 2	2

\*Note: The expansion card can be installed in servers in the BladeCenter S (8886). However, by doing so, you lose the ability to connect to the BladeCenter S Disk Storage Modules (DSMs). The Ethernet expansion card go in the place of the SAS expansion card that is needed to connect to the DSMs. This might be appropriate for clients that wants to use external iSCSI storage or need more than four Ethernet ports per blade. If you are simply looking for redundant Ethernet switches or four Ethernet ports per blade consider using the 2/4 Port Ethernet Expansion Card (CFFh), part number 44W4479.

### Maximum configuration : Eight Ethernet ports per server

Since BladeCenter servers support a CFFh expansion card plus either a CFFv or CIOv card (depending on the model of the server), you can install up to eight BNT 1/10Gb Uplink Ethernet Switch Modules in a BladeCenter H chassis or BladeCenter HT. Figure 4 shows this eight-port solution. All connections between the cards and the switch modules are internal to the chassis. No cabling is needed.

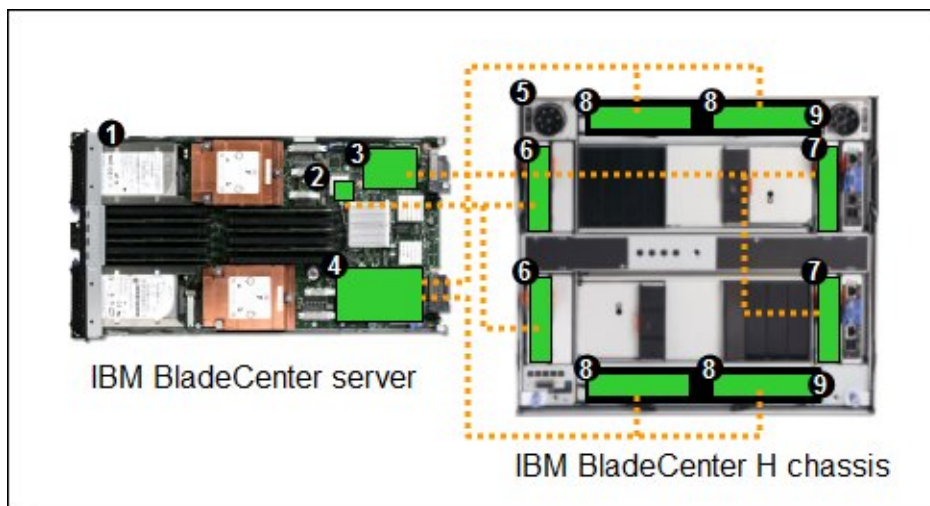


Figure 4. Using BNT 1/10Gb Uplink Ethernet Switch Module to route eight Ethernet ports per server

Table 6 lists the components that are used in the eight-Ethernet-ports-per-server configuration shown in Figure 4.

Table 6. Components used in the eight-Ethernet-ports-per-server configuration

Diagram reference	Part number / machine type	Description	Quantity
1	Varies	IBM BladeCenter HS22 or other supported server	1 to 14
2	None	Ethernet controller on the system board of the server	1 per server
3	Varies	Compatible CFFv or CIOv expansion card (see Table 3)	1 per server
4	44W4479	2/4 Port Ethernet Expansion Card (CFFh)	1 per server
5	8852	BladeCenter H chassis	1
6	44W4404	BNT 1/10Gb Uplink Ethernet Switch Modules routing signals from the integrated controller 2	2
7	44W4404	BNT 1/10Gb Uplink Ethernet Switch Modules routing signals from the CFFv or CIOv card 3	2
8	44W4404	BNT 1/10Gb Uplink Ethernet Switch Modules routing signals from the CFFh card 4	4
9	39Y9314	Multi-switch Interconnect Module	2

## Connectors and LEDs

Figure 5 shows the front panel of the BNT 1/10Gb Uplink Ethernet Switch Module.

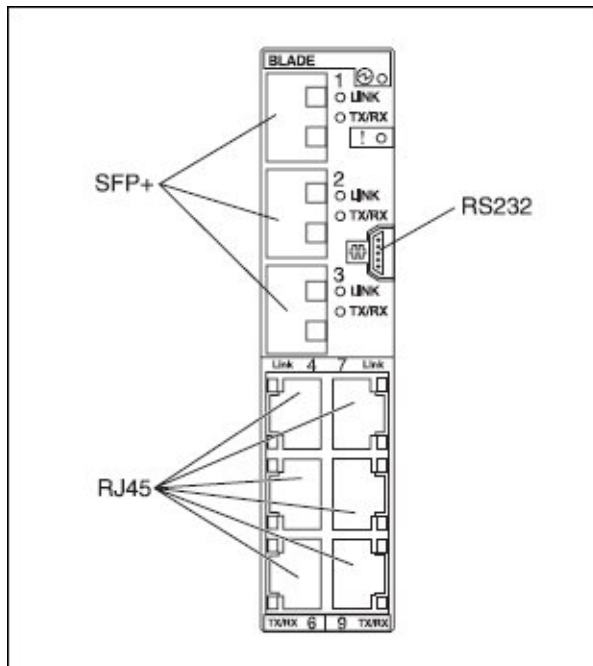


Figure 5. Front panel of the BNT 1/10Gb Uplink Ethernet Switch Module

The front panel contains the following components:

- LEDs that display the status of the switch module and the network. These LEDs are OK, which indicates that the switch module has passed the power-on self-test (POST) with no critical faults and is operational, and switch module error, which indicates that the switch module has failed the POST or detected an operational fault.
- One USB RS-232 console port that provides an additional means to install software and configure the switch module. This USB-style connector enables connection of a special serial cable that is supplied with the switch module.
- Six external 1000BASE-T Ethernet ports for 10/100/1000 Mbps connections to external Ethernet devices.
- Three external SFP+ port connectors to attach SFP+ modules for 1000 Mbps connections to external Ethernet devices.
- An Ethernet link OK LED and an Ethernet Tx/Rx LED for each external port on the switch module.

## Network cabling requirements

The network cables required for the switch module are as follows:

- 10GBASE-SR
  - 850 nm communication using multimode fiber cable (50μ or 62.5μ) up to 300 m
  - Requires 10GbE SFP+ transceiver modules, part number 44W4408, feature code 4942 (no SFP+ modules are shipped standard with the switch module)
- 10BASE-T:
  - UTP Category 3, 4, 5 (100 meters (328 feet) maximum)
  - 100-ohm STP (100 meters maximum)
- 100BASE-TX:
  - UTP Category 5 (100 meters maximum)
  - EIA/TIA-568 100-ohm STP (100 meters maximum)
- 1000BASE-T:
  - UTP Category 6
  - UTP Category 5e (100 meters maximum)
  - UTP Category 5 (100 meters maximum)
  - EIA/TIA-568B 100-ohm STP (100 meters maximum)
- RS-232 serial cable: 3-meter console cable DB-9-to-USB connector (nonstandard use of USB connector) that comes with the GbE switch module

## Related publications

For more information, see the following resources:

- *BNT 1/10 Gb Uplink Ethernet Switch Module Installation Guide*  
<http://www.ibm.com/support/docview.wss?uid=psg1MIGR-5076217>
- *BNT 1/10 Gb Uplink Ethernet Switch Module Application Guide*  
<http://www.ibm.com/support/docview.wss?uid=psg1MIGR-5076214>
- *BNT 1/10 Gb Uplink Ethernet Switch Module Command Reference*  
<http://www.ibm.com/support/docview.wss?uid=psg1MIGR-5076525>
- *BLADEOS/Alteon OS Release Notes*  
[http://www.bladenetwork.net/userfiles/file/PDFs/IBM\\_1-10U\\_Release\\_Notes.pdf](http://www.bladenetwork.net/userfiles/file/PDFs/IBM_1-10U_Release_Notes.pdf)
- *Browser-based Interface Quick Guide*  
[http://www.bladenetwork.net/userfiles/file/PDFs/IBM\\_1-10U\\_BBI\\_QuickGuide.pdf](http://www.bladenetwork.net/userfiles/file/PDFs/IBM_1-10U_BBI_QuickGuide.pdf)
- *OS ISCLI Reference*  
[http://www.bladenetwork.net/userfiles/file/PDFs/IBM\\_1-10U\\_ISCLI\\_Reference.pdf](http://www.bladenetwork.net/userfiles/file/PDFs/IBM_1-10U_ISCLI_Reference.pdf)
- Virtual Switch Extension - BNT SmartConnect with VMready Software  
<http://www.ibm.com/support/docview.wss?uid=psg1MIGR-5079826>
- *SmartConnect User's Guide*  
[http://blade.magicclamp.net/userfiles/file/552e26d2821e7639-SmartConnect\\_UG\\_41\\_1%20\(2\).pdf](http://blade.magicclamp.net/userfiles/file/552e26d2821e7639-SmartConnect_UG_41_1%20(2).pdf)
- SmartConnect Release Notes  
[http://blade.magicclamp.net/userfiles/file/e691bd8b0c785b25-SmartConnect\\_RN\\_41\\_1.pdf](http://blade.magicclamp.net/userfiles/file/e691bd8b0c785b25-SmartConnect_RN_41_1.pdf)
- Functionality Certification and Cooperative Interoperability Evaluation by The Tolly Group  
[http://www.bladenetwork.net/userfiles/file/PDFs/IBM\\_1-10U\\_Tolly\\_TestSummary.pdf](http://www.bladenetwork.net/userfiles/file/PDFs/IBM_1-10U_Tolly_TestSummary.pdf)

- *10Gb Ethernet Infrastructure for Converged Data and Storage Connectivity* - Solution brief  
[http://www.bladenetwork.net/userfiles/file/PDFs/SB\\_10G\\_Data\\_Storage\\_IBM.pdf](http://www.bladenetwork.net/userfiles/file/PDFs/SB_10G_Data_Storage_IBM.pdf)
- *SmartConnect with VMready* - Product brief  
[http://www.bladenetwork.net/userfiles/file/PDFs/SCVMR\\_PB.pdf](http://www.bladenetwork.net/userfiles/file/PDFs/SCVMR_PB.pdf)
- *VMready Virtualization-enriched network* - White paper  
[http://www.bladenetwork.net/userfiles/file/PDFs/WP\\_VMReady.pdf](http://www.bladenetwork.net/userfiles/file/PDFs/WP_VMReady.pdf)
- VMready Frequently Asked Questions  
[http://www.bladenetwork.net/userfiles/file/PDFs/VMready\\_FAQ.pdf](http://www.bladenetwork.net/userfiles/file/PDFs/VMready_FAQ.pdf)
- IBM US Announcement Letter  
<http://ibm.com/common/ssi/cgi-bin/ssialias?infotype=dd&subtype=ca&&htmlfid=897/ENUS108-365>
- *IBM BladeCenter Interoperability Guide*  
<http://www.ibm.com/support/docview.wss?uid=psg1MIGR-5073016>
- IBM Redbooks publication *IBM BladeCenter Products and Technology*, SG24-7523  
<http://www.redbooks.ibm.com/abstracts/sg247523.html>

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