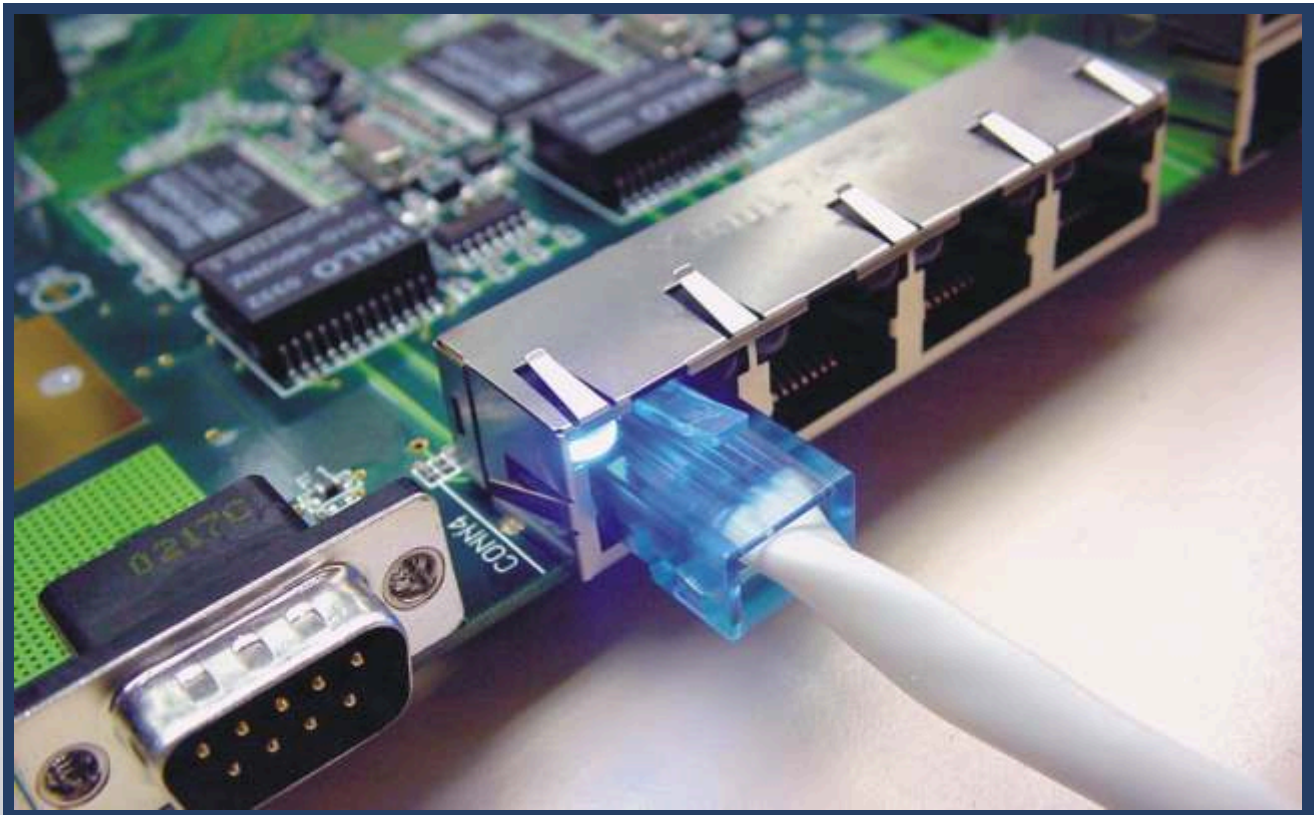




Professional Networking Systems



Industrial Grade, High-Performance,
Computer Networking Products
Made in America



Product Overview

Today's demanding applications require network performance and reliability. Our complete dependence on networking systems makes excessive downtime and equipment unreliability not an option.

WideBand Corporation has developed an industrial grade of computer networking products to satisfy the most exacting customers. These products, known as the Professional Series, are successfully deployed in demanding applications throughout the country.

The Professional Series products are manufactured in WideBand Corporation's U.S. based facilities, allowing the Company to maintain a high level of quality control and craftsmanship. The precision-automated equipment used to manufacture WideBand products maintains the highest standards of resolution, ensuring a product lifetime of reliable service.

WideBand Professional Series products employ advanced signal processing technologies, allowing them to operate at gigabit data rates over conventional Category 5 and even Category 3 cables. This substantially reduces the deployment cost of upgrading to gigabit networking by eliminating the need for rewiring.

WideBand products are supported by a network of 350 authorized dealers located from coast to coast and throughout the world. WideBand Professional Series products are the right choice for demanding networking applications.

Research and Development Team

The U.S. based WideBand Research and Development team has expertise in designing high performance printed circuit boards, writing networking firmware and drivers, and even in developing custom silicon or computer chips such as those employed in the WideBand Professional Series Switches.

While competing networking products perform network management functions by utilizing conventional CPU's and operating systems (an approach with serious vulnerability to hackers

wanting to interfere with or shut down the operation of a network), WideBand Professional Series Switches utilize a proprietary SPU (Switch Processing Unit), which performs the management function in hardware, greatly increasing system integrity against security attacks.



WideBand Professional Series

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Gigabit Ethernet Without Rewiring

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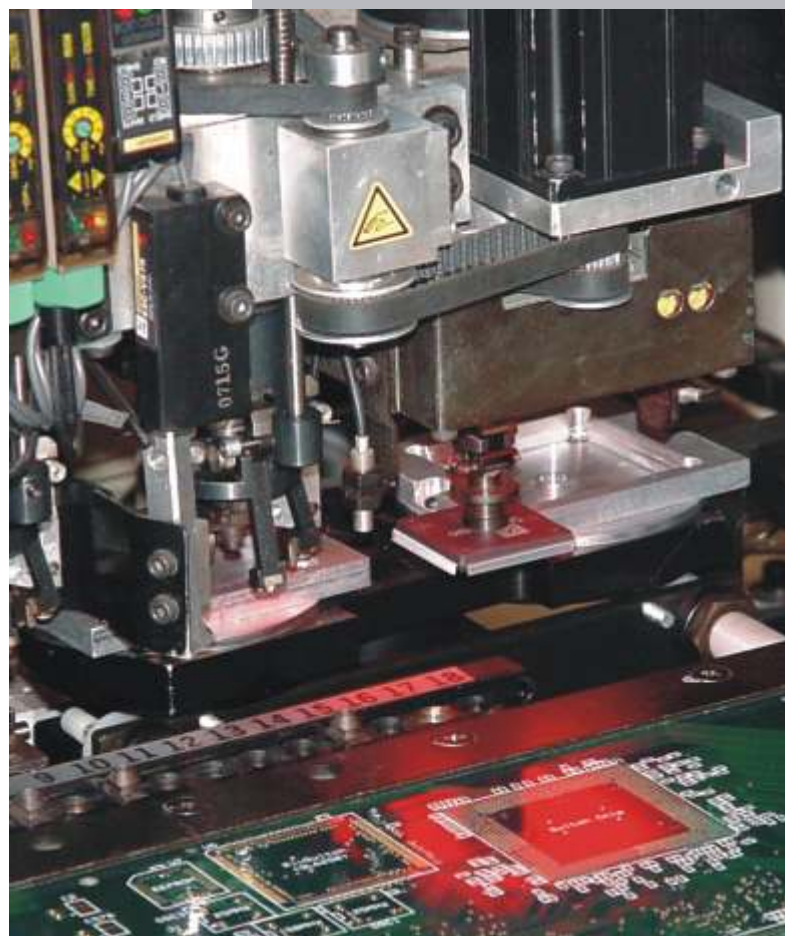
WideBand Corporation is one of just a few elite companies with the research and development capability to cover custom chip development and high performance circuit board design and layout as well as software, driver, and firmware development. This diverse technical expertise within the organization gives the Company the ability to provide an extra level of technical support to users and to develop or modify products to satisfy their custom design requirements.

Manufacturing Facility

The WideBand U.S. manufacturing facilities are located in Gallatin, Missouri, not far from the Company's Research and Development Center. The manufacturing plant utilizes state-of-the-art equipment to build the WideBand Professional Series products. Throughout the entire process, emphasis is on building an industrial grade product for use in demanding applications. Printed circuit boards are plated with a layer of gold under all components to ensure reliability.

Quality components are precision-placed on each circuit board with exacting tolerances. The precision placement of parts is an important component of reliable operation in the field.

Completed assemblies are given a functional stress test and a high-temperature, extended burn-in to ensure that potential problems are detected and corrected before shipment to the customer.



Customer Support

WideBand Corporation takes a “hands on” approach to supporting customers who are using their Professional Series networking products.

These products have been designed to perform significant self-diagnostic testing to help identify sources of problems. In many cases, problems can be automatically fixed by automated network management equipment.

When problems do occur, the Company offers solutions, which include cross-shipping replacement equipment, as well as assistance with problem isolation and diagnostics.

Quality Products Made in USA

WideBand products are designed and manufactured in the USA.

Quality components are precision-placed on each circuit board with exacting tolerances. The precision placement of parts is an important component of reliable operation in the field.



WideBand Switch Technology

WideBand Professional Series Gigabit Ethernet Switches



WideBand Professional Series Switches are available with features and capacities suited for all types of networking installations.



WideBand Professional Series Switches utilize a blue LED to indicate gigabit data rates and a green LED for 10/100 connections. Built into the managed models is a cable test feature, which automatically and continuously monitors the quality of the physical layer. If an inferior link caused by poor quality cable or improper wiring is detected, the red physical layer trouble LED is lit. A single marginal data link can slow traffic over the entire network. Having the ability to immediately identify problem segments is a sure way to improve overall networking system performance.

WideBand Corporation manufactures Professional Gigabit Ethernet Switches and Routers which deliver the performance required for the most demanding applications. These products offer wire-speed Quality of Service, including classification, prioritization, and guaranteed bandwidth.

WideBand Professional Ethernet products are ideally suited for stand-alone switch/router applications as well as backplane applications, offering solutions

for workgroups, enterprise and campus backbone switching/routing, storage area networks, and edge-to-core router interconnects.

With a throughput of 42 million packets per second (28-port version) and 24 million packets per second (16-port version), WideBand Professional Switches get the job done. The acclaimed wire-speed Quality of Service feature offers classification on Layer 2/3/4, prioritization, and bandwidth management.

Wire-speed Quality of Service

Wire-speed Quality of Service (QoS) is provided through the flexible programming of the Classification, Bandwidth Distribution, and Queuing mechanisms. These mechanisms allow flexible multi-field classification based on the L2, L3, and L4 metrics. Effectively, seven separate matching operations are performed at wire-speed on a comprehensive set of header fields. The result is a highly programmable QoS Engine providing 128 unique traffic classes. These 128 levels are re-mapped to the Bandwidth Distribution Engine, allowing strict priority, Round Robin, Weighted Fair, Weighted Round Robin, or the proprietary Weighted Fair Hashed algorithm for traffic class to queue re-mapping. In short, Service Level Agreements can be provided at wire-speed where management can be instilled on a port, flow group, or sub-flow group level of resolution. Filtering and Forwarding can be prioritized in a programmable manner. Statistics allow accounting in hardware, thus off-loading processor resources for more important tasks. The Type of Service (ToS, priority or DSCP) bits can be re-tagged based on the traffic classification, allowing DiffServ implementations at wire-speed. This powerful feature allows the QoS of a packet to traverse the L2 to L3 domain in real-time, empowering end-to-end isochronous media over Ethernet. New SLAs based on Ethernet type, VLAN ID, 802.1p priority, Type of Service (ToS, DSCP), L2/L3 and subnet addresses, L4 port numbers, etc., are immediately possible at wire-speed.

Wire-Speed Fire-Walling

With built-in wire-speed firewall functions, WideBand Professional Switches create a transparent security barrier without sacrificing network throughput. Previously, network security was typically accompanied by decreased switching or routing performance. The WideBand network engines can accept or deny service based on the information used for classification. They can also recognize Denial of Service attacks to ensure the best possible security management of the network.

SPU Means Performance

WideBand Professional Switches utilize the Company's proprietary SPU (Switch Processing Unit) to manage packet traffic and the high-performance switch fabric. This task, performed by a CPU and software in competing products, is all accomplished in hardware inside the SPU, providing significant advantages in security, performance, and versatility. This feature clearly distinguishes WideBand products from all other brands.

Robust Physical Layer Guarantees Performance

Many vendors of Gigabit Ethernet equipment on the market today require users to upgrade wiring to Category 5e cable or better. WideBand Professional Products have been designed to operate over conventional Category 5 cable and even Category 3. The capability of providing a reliable connection even over "less than perfect" cable allows users to upgrade to gigabit bandwidth without the costly expense of upgrading the installed wiring system.

WideBand Professional Switches also provide a built-in capability to test the quality of each connection and determine the feasibility of Gigabit communications over the link. Faulty cables are identified by a "red" LED on the panel and in the management software.

The Right Choice

WideBand Professional Switching products are key components for high data throughput applications. The advanced functions for wire-speed traffic classification and bandwidth distribution meet the needs for emerging applications, enabling services such as Voice over IP, Streaming Media, and other converged technologies that require preferential treatment across the network.



Professional Unmanaged Switches

8-port Gigabit Ethernet Switch	WB8GPRO
16-port Gigabit Ethernet Switch	WB16GPRO
28-port Gigabit Ethernet Switch	WB28GPRO
8-port Gigabit Ethernet Switch plus 8 mini-GBIC Slots	WB8G8FPRO
24-port 10/100 Ethernet Switch with 4 Gigabit ports	WB24T4GPRO
24-port 10/100 Ethernet Switch with 2 Gigabit Copper ports and 2 mini-GBIC Slots	WB24T2G2FPRO

Professional Layer 2 Managed Switches

8-port Managed Gigabit Ethernet Layer 2 Switch	WB8GMPRO
16-port Managed Gigabit Ethernet Layer 2 Switch	WB16GMPRO
28-port Managed Gigabit Ethernet Layer 2 Switch	WB28GMPRO
8-port Managed Gigabit Ethernet Layer 2 Switch + 8 mini-GBIC Slots	WB8G8FMPRO
24-port 10/100 Managed Layer 2 Ethernet Switch with 4 Gigabit ports	WB24T4GMPRO
24-port 10/100 Managed Layer 2 Ethernet Switch with 2 Gigabit Copper ports and 2 mini-GBIC Slots	WB24T2G2FMPRO

Professional Layer 3 Managed Switches

8-port Managed Gigabit Ethernet Layer 3 Switch	WB8GM3PRO
16-port Managed Gigabit Ethernet Layer 3 Switch	WB16GM3PRO
28-port Managed Gigabit Ethernet Layer 3 Switch	WB28GM3PRO
8-port Managed Gigabit Ethernet Layer 3 Switch + 8 mini-GBIC Slots	WB8G8FM3PRO
24-port 10/100 Managed Layer 3 Ethernet Switch with 4 Gigabit ports	WB24T4GM3PRO
24-port 10/100 Managed Layer 3 Ethernet Switch with 2 Gigabit Copper ports and 2 mini-GBIC slots	WB24T2G2FM3PRO

Switch Processing Unit

WideBand Professional Switches utilize the Company's proprietary SPU (Switch Processing Unit) to manage packet traffic and the high-performance switch fabric.



Chassis Solutions

As the demand for gigabit networking to the desktop emerges, large capacity solutions are needed for the center of the network.

Conventional chassis solutions are ideal for applications smaller than the backplane capacity of the “box”, but as requirements exceed backplane capacity, a better solution is required.

WideBand Virtual Chassis

To facilitate the migration of networks to gigabit data rates, WideBand has developed the “Virtual Chassis”. This approach allows users to build a network with a backplane capable of handling up to 288 non-blocking Gigabit Ethernet ports out of standard WideBand Professional Switch modules.

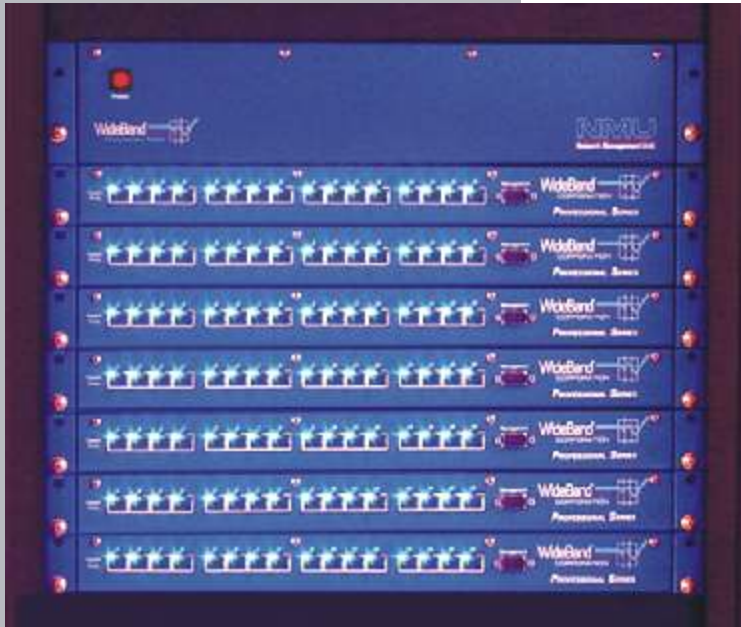
By building a “Virtual Chassis” out of independent switches, it is possible to locate each element of the chassis at the best location to take advantage of existing cabling and infrastructure. For example, in a network separated into two buildings, it is possible to put part of the chassis in one building and the rest in the other, without disturbing performance while maintaining a 100% non-blocking installation. This feat is accomplished by unique features of scalability, incorporated into each WideBand Professional Switch.

Network Management Unit

The WideBand Virtual Chassis is integrated by the Network Management Unit (NMU). The NMU is installed at any location on the LAN segment and performs the function of managing the various WideBand Professional Switches into a Virtual Chassis.

Connections between switches are made by multiple trunk cables, or fiber, depending on the bandwidth requirements. Larger or less costly installations can be configured with potential traffic-blocking configurations. The NMU monitors configurations to balance network loads and to designate areas requiring additional trunking to satisfy bandwidth requirements.

Since every switch can be connected as part of the Virtual Chassis, early switch deployments can become part of the gigabit build-out solution, greatly extending service life and providing a model for incremental expansion.



Virtual Chassis

The Network Management Unit (NMU) couples WideBand Professional Switches into a Virtual Chassis, providing up to 288 non-blocking ports of Gigabit Ethernet (2880 non-blocking ports of 10/100).

In addition, the NMU monitors network performance, provides automated repair and management services, including automatic firmware updates, service and failure alerts, and routing interfaces.

When coupled with compatible storage, the NMU provides a 100% redundant storage solution.

Professional Series Products

Professional Network Management Unit

Network Management Unit (NMU)	WBNMUPRO
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Professional Gigabit Ethernet Adapters

64-bit Server Adapter	WB1000T64PRO
32-Bit Workstation Adapter	WB1000T32PRO
32-Bit Low-profile Adapter	WB1000T32PRO-L

Professional Media Converter

1000BASE-T to mini-GBIC Media Converter (1 RJ-45, 1 mini-GBIC)	WB1G1FPRO
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The Network Management Unit can also provide significant benefits in applications where redundancy and high reliability (99.999%) are mission critical. When coupled with fs[ix] Server Products (which are also managed by the NMU), it is possible to build 100% redundant network and storage solutions.

Professional Gigabit Ethernet Adapters

Gigabit Ethernet Server Adapter

This 64-bit high-performance adapter has been designed for use in server applications. This adapter off-loads TCP/IP/UDP Checksum calculations to optimize server performance. It supports 64-bit PCI-X data rates of up to 133 MHz. It also provides load balancing, automatic failover, and SNMP manageability. It is certified for use over all Category 5 cables.

Gigabit Ethernet Workstation Adapter

This Adapter provides superior network connectivity for workstations and desktops. The embedded processor supports TCP segmentation, TCP/IP/UDP Checksum, and Adaptive Interrupts, reducing host CPU utilization. The integrated Cable Analyzer allows self-diagnosis of cabling issues that could affect the host machine. It also supports load balancing capabilities and SNMP management functions. It is certified for use over all Category 5 cables.

Media Converter – Copper to Fiber

Use the WideBand Media Converter to connect fiber to copper ports in Gigabit Ethernet Switches. The Converter provides a socket for a singlemode (1000BASE-LX) or a multimode (1000BASE-SX) mini-GBIC fiber module, which is ordered separately.



Gigabit Ethernet Server Adapter

Gigabit Ethernet brings new levels of performance to existing servers.



Professional Series Media Converter

The Media Converter is an effective way to connect fiber to copper ports in Gigabit Ethernet Switches.

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