

## Data Sheet

### 242D Multimedia Router

#### Highlights

An integrated serial over broadband solution with advanced security for the remote office, retail outlet, and ATM terminals

Perfect low-cost solution for integration of IP and serial environments, delivering serial traffic such as SNA and bisync over IP networks

A high-performance architecture to support processing-intensive applications such as routing and NAT table look-up, advanced QoS, Firewall, encryption, & compression

Integrated universal serial port enables flexible connectivity to most serial protocols & dual 10/100BaseT Ethernet ports enable easy access to high-speed LANs and broadband WAN services

Investment protection with features and performance to add new broadband services such as DSL, cable, and wireless

PPP Dial Backup capability in the event of primary link outage

## Vanguard 242D Multi-Protocol IP VPS Access Router for Evolving Small Branch Office, Retail Outlet, Bank ATMs

The Vanguard 242D multi-protocol access router provides a robust and cost-effective solution for small branch offices requiring secure broadband access for their serial and IP networks.

As more and more businesses migrate to IP-based services, network performance, security, and quality of service (QoS) are areas of major concern. Enterprises are looking for innovative solutions that will enable them to grow in the future while protecting their existing infrastructures.



The feature-rich Vanguard 242D delivers a cost-effective solution to enterprise customers by supporting applications such as:

- Secure Internet, intranet, and extranet access with VPN and Firewall support
- Legacy equipment such as IBM SNA and Poll Selected devices, & their seamless interation into secure IP networks
- Broadband DSL, cable, and wireless connectivity
- Advanced QoS support for nission-critical enterprise applications
- VLANs for traffic prioritization and secure network partitioning

The Vanguard 242D provides enterprises with a superior architecture and the quality of service needed to maintain various types of traffic flows, differentiating between higher and lower priority traffic. This is essential to a successful enterprise network, where mission-critical traffic such as financial transaction data or VoIP is accorded the preferential treatment that it requires.

The Vanguard 242D is a desktop unit that includes two auto-sensing 10/100BaseT Fast Ethernet ports, a software-selectable universal serial port, and a console port for monitoring and configuration. The dual 10/100BaseT Ethernet ports allow simultaneous access to the corporate LAN and an external broadband device such as an xDSL or cable modem for Internet access.

## Key Features

### Flexible, Modular Platform

- Supports multiple applications within a single platform
- Field upgradeable product to support hardware-enhanced encryption via SIMM card

### High Performance Architecture

- Ensures the performance of simultaneous applications such as encryption, and quality of service enforcement

### Two 10/100BaseT Ethernet Ports (Integrated)

- Enables migration to high-speed LANs and new broadband services such as DSL or Cable
- Inter-VLAN routing using IEEE standard 802.1 P&Q
- Supports differential IP services

### Universal Serial Port (Integrated)

- Enables versatile connectivity to most legacy protocols

### Investment Protection

- Provides customers with a migration path to the future
- Reduces network costs

### Security: Firewall

- Prevents unauthorized access to branch office networks

### Security Hardware-based Encryption

- Industry standard IPsec DES, 3DES, and AES encryption and authentication via encryption SIMM card
- Supports 56 bit (DES), 128/168 bit (3DES), and 128/192/256 bit (AES) encryption key lengths
- Standardized Key Management (IKE)
- Hardware design maintains higher performance

### Security: Network Authentication

- PKI and X.509 allow greater use of secure extranets for business-to-business enterprise network transactions

### Security: User Authentication

- End user access and authentication
- Support PAP/CHAP and RADIUS

### High Availability : PPP Dial Backup

- Enables transport availability in the event of primary link failure

### Quality of Service (QoS)

- Improved performance and network optimization through prioritization of delay-sensitive applications (e.g., VoIP, video)
- Policy-based routing, traffic prioritization, differentiated services, traffic shaping, and packet classification

### Management via SNMP VanguardMS 9000 MS, Telnet, Console Port

- Provides configuration, monitoring, and diagnostics for all functions

### Ease of Use and Configuration

- Enables custom image build, software image load, and quick configuration
- Reduces deployment time and costs

## Key Benefits

### Flexible, Integrated Solution

The Vanguard 242D provides a flexible, integrated platform that allows businesses to deploy and manage their communications networks. Customers can migrate to newer WAN technologies such as IP VPNs without any forklift upgrades or infrastructure changes. The Vanguard 242D also supports advanced technologies such as encryption, QoS and bandwidth management, providing enterprise customers with a cost effective integrated solution.

### High Performance Architecture

The robust PowerPC RISC high performance architecture, combined with Vanguard Networks data compression and encryption, enable the performance and security critical for VPN applications while providing a path to new broadband technologies. The Vanguard 242D allows customers to efficiently combine such functions as VPN tunneling, high-speed encryption, IP QoS enforcement, digital certificates and key management, policy-based routing and table look-up and video without any degradation in the overall performance of their networks. It provides a reliable and highly available infrastructure for enterprise customers to conduct their business efficiently.

### Cost Effective Broadband Services

Dual 10/100 BaseT auto-sensing Fast Ethernet ports enable enterprises to use the Vanguard 242D as a flexible option to connect to broadband services such as xDSL, cable, or wireless. These technologies offer enterprise customers an alternative to existing frame relay and leased line services when price and bandwidth become issues. The Vanguard 242D includes bandwidth efficient multicast technology enabling simultaneous distribution and delivery of new value-added streamed media applications such as multiple stock quotes, video transmissions such as news services or video conferencing, training content, software distribution, or data files to multiple branch office or retail store locations.

### Intelligent QoS and Bandwidth Management

The Vanguard 242D offers intelligent QoS features for emerging IP-based WAN networks. CBQ, WFQ, DiffServ, IP ToS, and policy-based routing allow enterprises to prioritize and tier different IP-based applications so that mission-critical or highvalue applications-like financial transactions, delay-sensitive VoIP applications, or multicast distribution of new value-added streamed media-can be expedited securely over an IP network. Using a wide range of IETF and RFC industry standards for IP-enabled services also ensures that Vanguard products interoperate with leading router and Ethernet switch solutions.

### Firewall Support

The added security of a firewall capability, integrated within the router, will appeal to most customers seeking to prevent unauthorized access to branch office networks. Firewall-Lite is a software-based firewall feature that utilizes the CPU processor in the existing Vanguard Networks router to enable secure Internet access to protected networks. The Firewall-Lite Feature protects Layer2/Layer3 traffic by utilizing Basic IP Header Sanity Checks and Dynamic Access Controls based on Stateful Firewall Technology. Firewall-Lite keeps general states of a flow (new and established) and allows the access filter to dynamically allow traffic of the return and/or related flow.

## *Key Benefits (cont.)*

### **Virtual Private Networks**

One of the key solutions provided by the Vanguard 242D is IP-based Virtual Private Networks (VPN). With a high performance architecture that supports advanced IP and MPLS VPNs, IPSec, and hardware-based encryption, the Vanguard 242D is ideally suited for VPN applications by providing reliable and secure connectivity. Customers can securely connect, control, and communicate data traffic between larger office sites, intra-company remote branch sites, and business partners, thus enabling a true e-business environment. By building VPNs using the Vanguard 242D, customers can reduce their networking costs and obtain a platform on which they can integrate all their data applications securely.

### **Secure Access with Hardware-based Encryption**

The Vanguard family's comprehensive security suite includes 3DES/AES/DES encryption, RADIUS and PAP/CHAP user authentication, network authentication, and data protection features to ensure secure communications over any IP-based WAN. Enterprises that require remote branches to access the corporate network or extranet applications can use Vanguard's Internet Key Exchange (IKE) and X.509 digital certificates for additional security.

### **Advanced IP Routing**

The Vanguard products' versatile architecture supports processing-intensive, advanced IP routing protocols such as DVMRP, OSPF, BGP-4 routing, and NAT table look-up, enabling scalable, layer 3 IP VPN and robust IP Solutions that are interoperable with the leading edge and core router solutions. Vanguard Applications Ware offers modular software solutions. Additional features such as Virtual Router Redundancy Protocol (VRRP), BGP multipath, and IP payload compression ensure that the Vanguard products are delivering IP services in a reliable and cost-effective manner.

### **Efficient LAN Routing Services**

The Ethernet ports on the Vanguard 242D can be used for either LAN and/or WAN connectivity. Customers can enhance and improve the administration of their LAN networks by configuring standards-based IEEE 802.1 P&Q Virtual LANs (VLAN). VLANs reduce the management and complexity of enterprise LAN networks by partitioning network resources while enabling differentiated IP services. The Vanguard router will employ the VLAN tags to prioritize the incoming traffic and automatically route the traffic between respective VLANs, thus ensuring secure delivery of high priority traffic.

### **Investment Protection: Rich Legacy of Data Applications**

The Vanguard Applications Ware modular software that powers the entire Vanguard family of products includes the most extensive suite of legacy serial data protocols in the industry. The unique requirements of retail and financial communication network environments—including BSC 2780/3270, SNA/SDLC, IBM LLC2 conversion services, Tandem host, and AS/400 computing—are supported by the entire Vanguard product family. These serial data applications also operate efficiently with bandwidth-on-demand and QoS features in an IP-enabled network.

### **Network Management and Ease of Configuration**

The Vanguard 242D was designed for ease of use, configuration, and management. A variety of tools are available to help enterprises build and load their specific application images tailored to meet their business needs. The Vanguard 242D is SNMPv1 compliant and can be managed using any standard SNMP management platform.

## Product Specifications - Vanguard Application Ware

Vanguard Applications Ware offers modular software solutions that extend across nearly all models of the Vanguard family of products. Its extensive suite of protocols and multi-protocol routing features enables enterprises to manage their existing legacy applications while migrating to new IP services. The following software features are offered on the Vanguard 242D router:

### IP Routing & Protocols

- IPv4, RIP/RIP2, OSPF, BGP4, DVMRP, PIM-SM
- Inter-VLAN routing (802.1Q)
- Classless Inter-Domain Routing (CIDR)
- Network Address Translation (NAT)
- Port Address Translation (PAT)
- Real-Time Transport Protocol (RTP)
- Header Compression (RFC 2508)
- IP Payload Compression Protocol (IPPCP)
- Virtual Router Redundancy Protocol (VRRP)
- OnNet Proxy (Router Standby Protocol)
- Multiple IP Addresses per Physical Interface
- DHCP Client
- Multi-Link PPP
- PPPoE (RFC 2516)
- PPPoA (RFC 1483)

### User Authentication

- RADIUS
- PAP/CHAP

### QoS:and Bandwidth Optimization

- Data Connection Protection (DCP) (X.25, Async, SDLC, XDLC)
- IP Type of Service (IP TOS)
- Priority Queuing
- Class Based Queuing (CBQ)
- Weighted Fair Queuing (WFQ)
- Weighted Random Early Discard (WRED)
- Differentiated Services (DiffServ)
- Packet Classification
- Policy Based Routing
- Fast Path Switching for Voice
- Multi-Link PPP (MLPPP)
- Generic Traffic Shaping (GTS)
- Compressed Real-Time Protocol (cRTP)
- MLPPP Link Fragmentation and Inter-leaving Segmentation (RFC 1990 & 2686)
- Support 802.1P for VLANs

### Virtual LAN (VLAN) Routing

- Support 802.1Q & 802.1P

### IP Virtual Private Networks (VPN)

- VPN Tunneling: IPSec (IP traffic) and GRE (non-IP traffic)
- Support IPSec Authentication Header (AH) and IPSec Encapsulating Security Payload (ESP)
- IPSec Encryption : IPSec DES (56 bit), 3DES (168 bit)
- Advanced Encryption Services (AES): 192, and 256 bit key lengths
- Device Authentication and Key Management:
- Internet Key Exchange (IKE) and X.509v3 Digital Certificates
- Firewall Packet Filtering
- Message Authentication through Complex Hashing Algorithms

### High Availability

- Dial Backup

### Firewall

- Firewall-Lite Stateless Packet Filter

### Other Bridging/Routing Protocols

- IPX/Novell IPX WAN, Appletalk, NetBios
- Source Route Bridging (SRB)
- Transparent Bridging (Spanning Tree IEEE 802.1d)
- SLIP
- SoTCP
- Async and Sync PPP Network Interface

### Frame Relay

- Frame Relay DTE with Traffic Fairness
- Frame Relay Switching (DCE)
- Frame Relay Annex G (ANSI T1.617)
- Frame Relay Annex D (ANSI T1.617)
- Frame Relay Annex A (ITU-T Q.933)
- Frame Relay RFC 1490 (IP/IPX/AppleTalk)
- Local Management Interface (LMI)
- Support BECN, CIR, Bc
- End-to-End Delay
- Frame Relay Auto Learn
- Frame Relay Traffic Shaping (FRTS)
- FRF.8 & FRF.12

### X.25

- X.25 DTE
- X.25 Switching (DCE)
- RFC 877/1356 (IP)
- X.25 Translation, CUG, NUI Support
- X.25 on "D" Channel Support
- x.25 Multi-drop

### IBM Networking

- SNA/SDLC for serial Connections
- BSC 2780, 3780, 3270
- QLLC X.25 (IBM NSPI) Point-to-Point or Multi-Drop ( up to 64 PUs)
- Conversion SDLC to RFC 1490
- Conversion SDLC to LLC2
- Conversion LLC2 to RFC 1490
- BSC to LLC2 Conversion
- 801 Auto-dialing for BSC 2780
- V25bis Remote Server conversion

### Serial

- BCR Bisync
- Burroughs Poll Select
- Transparent COP (TCOP)
- Transparent BOP (TBOP)
- Transparent Polled Async (TPA)
- 3201
- T3POS
- TNPP PAD, TNPP Routing
- Siemens HDLC
- Physical Unit (PU) Remapping and Spoofing
- TPDU

### System Management

- SNMP Management
- Configuration Management
- OS Image Management
- Telnet
- CLI
- Embedded Web HTTPD
- SSH2 Server

## Hardware Specification - Vanguard 242D Access Router

### Hardware (Base Unit)

Compact desktop design  
2 x 10 / 100 Base T auto-sensing  
860P PowerPC RISC Processor  
1 x Universal serial port on motherboard (software selectable:  
V.24, V.35, V.36, V.11)  
1 RS-232 management port with easy-to-use menu  
32 MB S-DRAM  
8MB of non-Volatile flash  
Rear removable/loadable motherboard  
High MBTF external power supply  
Optional encryption SIMMPhysical Dimensions

### Interfaces

Serial (V.24, V.35, V.36, V.11, X.21)

### Port Capacities

2 Ethernet (10/100BaseT auto-sensing)  
1 Serial

### Physical Dimensions

Height: 2.6 in (6.6 cm)

Width: 7.7 in (19.6)

Depth: 12.3 in (31.3 mm)

Weight: 7.05. unloaded, 7.65 lbs fully loaded

Power Supply : 100- 240 VAC, 60/50Hz, 1.1-0.6 Amps,  
50 watts external

### Environmental

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

Storage Temperature: 40 to 158 °F (-40 °to 70 °C)

Relative Humidity: 5% to 90%, non-condensing

### Regulatory Compliance

Safety Certifications: UL1950 3rd Edition, CAN/CSA C22.2  
No.950-95, EN60950 Amendment 11, IEC60950 2nd Edition  
Amendment 4

EMC Certifications: FCC Part 15 Class A, CISPR 22 Class A,  
AS/NZS 3548 Class A EN55022:1997, Class A,  
EN50082-1 (EN55024)

### Need more info?

Vanguard Networks offers a full range of network lifecycle services. Services may differ from country to country. Contact your local Vanguard Networks representative for details or access our web site at: [www.vanguardnetworks.com](http://www.vanguardnetworks.com).

### Vanguard 242D Backside

