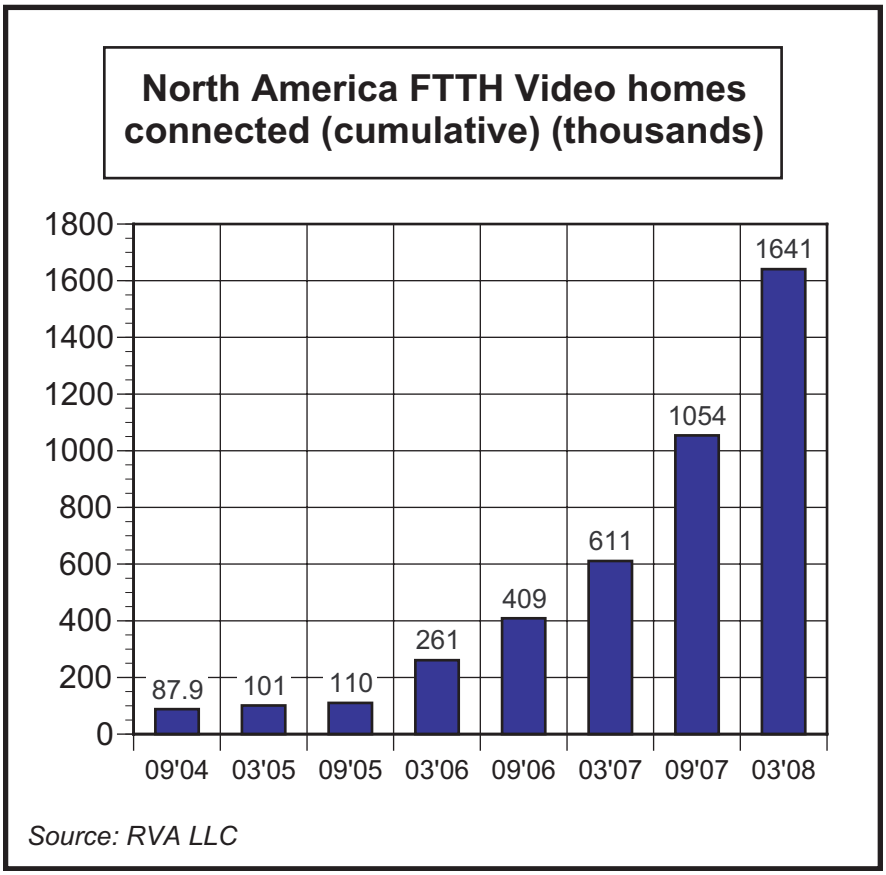
GIGABIT 1G-100G MONTHLY NEWSLETTER

COVERING APPLICATIONS, NETWORKS, MARKETS, & TECHNOLOGY

Vol. 18 No. 7 **July 2008**



Source: RVA LLC

In This Issue...

CONTRACTS

Korean E-commerce Web site boosts Ethernet routing and security with Juniper Networks

Juniper Networks Inc., a provider of high-performance networking, announced that Seoul-based Gmarket, one of the world's largest consumer e-commerce Web sites, is paving the

Gigabit/ATM Newsletter Newsletter is published monthly by Information Gatekeepers Inc.
320 Washington St., Brighton, Massachusetts 02135, USA; Fax: (617) 782-5735; Editorial telephone: (617) 782-5033;
Circulation telephone: (617) 782-5033, (800) 323-1088 (Outside MA); Email: info@igigroup.com; Web: www.igigroup.com
Publisher/Editor: Dr. Paul Polishuk **Editor:** Dr. Hui Pan **Managing Editor:** Bev Wilson
Circulation Mgr: Jaime Perez **Subscription rates:** $695 per year, US and Canada; $745 per year elsewhere.
Discounts available for multiple subscriptions and licenses (see back page).

way to scale Web-based transactions with Juniper Networks MX960 Ethernet Services Routers.

The MX-series routers boost Gmarket's network capacity and manageability by consolidating multiple Gigabit Ethernet switching solutions into an easily managed topology that uses JUNOS software, Juniper's single-source code network operating system. The MX960's Access Control List (ACL) capabilities also fortify Gmarket's network security.

In addition, Gmarket deployed Juniper Integrated Security Gateways (ISG) — purpose-built, high-performance firewall and VPN gateway — to secure against network threats.

This upgrade follows Gmarket's previous deployment of Juniper's NetScreen-5400 firewalls, designed to deliver best-in-class performance capabilities and configuration flexibility for large enterprise, carrier, and datacenter networks.

The NetScreen-5400 can scale to 30Gbps of firewall and 15Gbps of VPN throughput, and handles up to 1 million concurrent VPN user sessions to provide secure access to Gmarket's Web servers, network applications, and databases, which host highly sensitive e-commerce data.

"JUNOS was the key differentiating feature for our purchase decision," said Kiseok Lee, group manager of Gmarket's System Operation Group. "Its proven reliability, excellent CLI tools, and powerful filtering functionality enable us to provide more reliable and secure services to our customers.

The cflow and port-mirroring functions offer real time traffic visibility and detailed analysis. Additionally, the MX-series seamlessly interoperates with our NetScreen and ISG firewalls.

"We're confident we selected the best platform to meet our current and future requirements," added Lee. "While our initial assessment pointed to the MX480, with six interface card slots, we decided to go with MX960 routers — which provide up to 12 — to accommodate future expansion. The Juniper network infrastructure is already delivering superior network performance and return on investment. We are now considering future expansion with the new Juniper Networks EX-series Ethernet switches."

The MX960 platform delivers up to 960 Gigabits per second (Gbps) of switching and routing capacity, which enables more revenue per platform and provides the scale to help maximize Gmarket's return on investment. Purpose-built for the most demanding network applications, the MX-series establishes a new industry standard for capacity, density, and performance.

Gmarket's ISG 1000 and ISG 2000 gateways integrate best-in-class Deep Inspection firewall, VPN, and DoS capabilities into a single platform.

They enable secure, reliable connectivity, along with network and application-level protection, for critical, high-traffic network segments. The ISG series can be upgraded to support full intrusion detection and prevention (IDP) capabilities to provide robust network and application layer protection against current and emerging threats.

"Network-based businesses such as Gmarket depend on highly scalable infrastructure that performs at a high level and without unnecessary complexity or overhead," said Tim Kang, vice president of Korea for Juniper Networks. "The Korean market recognizes the unique value of the MX-series in delivering high-performance, innovative routing and ease of management."

Force10 TeraScale E-Series brings real-time shopping experience to leading Korean online marketplace

Force10 Networks, which builds and secures reliable networks, announced that Gmarket, the leading Korean e-commerce marketplace, has deployed the TeraScale E-

Series family of switch/routers to power its online shopping mall. As the foundation of the network, the Force10 TeraScale E600 delivers the reliability and scalability Gmarket requires to support 14.3 million users and more than 18 million unique visitors each month.

"Gmarket is a fast moving marketplace designed to offer buyers and sellers a place where they can securely and confidently buy and sell goods," said Jooyoung Mok, managing director of the technology division at Gmarket. "Delivering real-time services to online users requires a robust infrastructure, and Force10 delivers the reliable anytime access we require to create an exciting shopping experience for our customers."

The Force10 TeraScale E600 is at the foundation of Gmarket's datacenter, powering its online shopping mall. The fully redundant 10-Gigabit Ethernet core ensures line-rate traffic throughput from the servers and a real-time, always-available shopping experience for its users. With support for 630 Gigabit and 112 10-Gigabit Ethernet ports, the TeraScale E600 also allows Gmarket to seamlessly scale its data center capacity as user demand dictates.

To further increase user experience, Gmarket is using the serviceability features of FTOS, the modular Force10 operating system. Inline diagnostics and monitoring tools provide Gmarket with a more detailed view of traffic, enabling the company to optimize its network to meet user traffic patterns and more easily troubleshoot problems. Additionally, fully modular processes prevent errors in one process from affecting others, reducing unplanned network downtime and providing more predictable performance.

"Online marketplaces like Gmarket must accommodate growing and largely unpredictable traffic as new users find their services," said Stephen Garrison, vice president of marketing at Force10 Networks. "Force10 brings these growing e-commerce businesses the predictable performance and seamless scalability that helps them create value for their customers."

The reliability and availability that Force10 brings to online marketplaces like Gmarket and Etsy are critical to other online environments that demand real-time experiences, such as gaming. The Force10 Reliable Networking product portfolio has been deployed in many of these demanding environments, including Nexon, SEGA, Neowiz, NCsoft, NHN, and Shanda.

Atlantech Online connects backbone network with MRV LambdaDriver DWDM system

MRV Communications Inc., a provider of products and services for out-of-band networking, WDM and optical transport, metro Ethernet, fiber-optic components, 10GbE and other service-aware networking products, announced that Maryland-based regional carrier Atlantech Online Inc. has chosen the LambdaDriver wave division multiplexing (WDM) system as the basis for its 300-kilometer backbone network, which delivers services to customers in the Washington, D.C., area.

Atlantech's customer base includes federal agencies and small and large enterprise customers. The company offers transport services, leased wavelengths, point-to-point circuits, MPLS, datacenter colocation and, as of the beginning of 2006, voice services. The service provider has been in business since 1995, growing its business using standard time division multiplexing (TDM) and then leasing lit fiber services. Atlantech began leasing dark fiber in 2006 and has grown to operate its own fiber network as the needs of its customers have evolved. Atlantech sought out a WDM system to take full advantage of its fiber infrastructure as its service offerings expanded to include voice traffic and its growing customer base demanded more bandwidth.

Atlantech's 300km Gigabit Ethernet backbone ring connects its three points of

presence in Arlington and Ashburn, Virginia, and Silver Spring, Maryland, which allows the company to offer its services throughout metropolitan Washington, D.C. Atlantech chose the MRV equipment after a competitive review because of its cost-effectiveness and because of features like add-drop multiplexing that allows Atlantech to launch point-to-point services to its customers.

Additionally, the company is considering offering storage-networking services across the backbone using the LambdaDriver's Fibre Channel-over-Ethernet (FCoE) capabilities. MRV worked with its partner Solunet Inc. to deliver the WDM network.

"Atlantech has grown in the face of stiff competition through its ability to be competitive, and the cost-effectiveness of the LambdaDriver enhances that ability both in services we offer today, but also in giving us the flexibility to offer services, like storage networking, that we thought were out of our reach," said Eric Van Tol, operations manager for Atlantech Online Inc. "We've maintained profitability since day one by being able to offer advanced services through our upgradeable network, and we are optimistic that with the MRV gear in place, we will continue to do so."

"Atlantech is like many of our carrier customers who are looking to offer new services for revenue growth and realizing that network flexibility and performance are crucial to this effort," said Noam Lotan, MRV president and CEO. "These are architectural traits of the LambdaDriver, not add ons, which makes the system one of the most competitive on the market **today**."

NEW PRODUCTS

CACE Technologies releases inexpensive, full line-rate GbE capture and injection solution for Windows platforms

CACE Technologies Inc., developer of tools to enhance the Wireshark user experience, announced that they have released TurboCap, a feature-rich, full line-rate, Gigabit Ethernet solution for Windows-based platforms.

First previewed at the inaugural SHARKFEST '08 conference in April of this year, TurboCap has been a much-anticipated release from the company. Based on a dual-port Gigabit Ethernet board, TurboCap comes with an optimized Windows driver that supports full-rate GbE capture and injection.

The TurboCap Software Distribution includes the TurboCap Windows Driver, Manuals, and a Developer's Package. The Developer's Package is for users who are interested in developing their own applications based on the TurboCap API and includes a large number of sample applications. One very important included application is "Dump-to-Disk," which has been optimized for high-speed capture to disk.

Gianluca Varenni, TurboCap and WinPcap product manager, stated, "TurboCap is unique, given its feature set and price point. The product's ability to support simultaneous full-rate Gigabit capture on both ports with precise timestamps and per-packet meta information, to support full-rate aggregation of the traffic received on both ports of the same board, and to, in many instances, replace a hardware aggregating tap, makes it a very interesting and affordable alternative to many Gigabit capture and tap options on the market."

ECI Telecom launches world's first GPON solution with a high-bandwidth network processor

ECI Telecom, announced the world's first high-bandwidth Gigabit passive optical network (GPON) optical line termination (OLT) with a built-in network processor at the Broadband World Forum Asia Conference in Hong Kong. This next-generation GPON OLT solution, the only one to offer a built-in network processor in a GPON line card, is based on 800Gbps of switching capacity and offers two new platforms,

F152 and F61, significantly enhancing ECI's OLT product offerings based on the Hi-FOCuS Multi-Service Access Node (MSAN) family.

"Services such as IPTV, video on demand, VoIP and peer-to-peer communications are driving the need for higher bandwidth, which has resulted in the rapid growth of fiber-based access technology, particularly PON, on a global basis. In Asia Pacific, which accounts for the largest number of FTTH customers, operators are increasingly embracing PON, with GPON gaining traction in many countries such as Korea, Singapore, India, Taiwan and the Philippines. By continuously introducing advances in GPON technology, ECI will be well positioned for an increased share of the market opportunity," said Teresa Mastrangelo, principal analyst of BroadbandTrends.

The upgraded Hi-FOCuS MSAN OLT is part of ECI's 1Net business framework solution. The integrated network processor provides operators with unique service-enabling intelligence as they transition their networks towards NGN. The solution enables the implementation of market-leading functionalities, such as advanced quality of service and security. It also allows for added flexibility, easily adapting to different network designs while providing system agility with the processing headroom for future upgrades — a key promise of the 1Net framework for operators tasked with managing their network transitions.

The new service-enabling capabilities also enable network operators to smoothly introduce advanced revenue-generating customized services with unique flexibility for future upgrades, while maintaining an architecture that supports current broadband requirements like xDSL or TDM voice services.

"This new GPON OLT solution joins ECI's wide range of optical network units (ONUs) and ONTs to present the market leading GPON offering today in bandwidth capacity, service-enabling intelligence and architectural agility ECI's tradition in innovation and our drive to respond to our customers' needs and demands underscores our commitment to bring the most advanced and cost-effective solutions possible, without compromising quality and competitiveness," commented Eli Lotan, vice president of the Access Line of Business of ECI Telecom.

The Hi-FOCuS MSAN family is the only broadband access solution in the market that simultaneously supports xDSL, VoIP, and fiber access services in a single platform. The product family is part of ECI's recently announced 1Net offering, a comprehensive framework focusing on the optimized transition to next-generation networks, through the unique combination of multifunctional network equipment, fully integrated solutions, and a suite of professional services to provide customers the highest level of support as they evolve their networks.

Technical specifications:

- New high-bandwidth network interface (HBNI-42) card with 800Gbps switching capacity and two 10GbE or four 1GbE uplink ports, the new platforms support voice gateway cards/POTS interfaces, GPON, and xDSL. This subscriber-side line card facilitates the implementation of market leading service-enabling functionality, such as advanced QoS and security, while providing system agility with the processing headroom for future upgrades.

- Ultrahigh-capacity 10Gbps dual-star backplane with 2x10Gbps per line card, which allows for full-capacity GPON traffic. The new GPLT-4E line card connects the MSAN to the subscriber through a unique design featuring a network processor, which enables service providers to define highly granular QoS profiles and to create different security models, as well as providing greater flexibility for future upgrades and new services.

- These new Hi-FOCuS MSAN capabilities enable service providers to smoothly migrate from copper-based networks to fiber access at their own pace while answering their

specific market requirements, per the 1Net directive.

For more information on GPON QoE, please see ECI's "Answering to a Higher GPON Quality of Experience" white paper.

Solarflare demos 10GBASE-T with CommScope

Solarflare Communications, a provider of standards-compliant 10-Gigabit Ethernet (10GbE) silicon, recently completed a 10GBASE-T product demonstration with CommScope Inc., a provider of enterprise cabling infrastructure solutions for communications networks. The demonstration was held at the HP Technology Forum & Expo in Las Vegas.

Showcasing Microsoft Hyper-V virtualization technology over a 10GBASE-T network using CommScope and Solarflare products, the demo used iSCSI as the vehicle to talk to the centralized storage where virtual machines and their data are stored. The Hyper-V role uses the native Microsoft SCSI drivers within the native Windows Server 2009 platform to communicate with the storage devices, start, and run the virtual machines.

Together, the solution shows the convergence of iSCSI and networking over a low-cost and low-power 10GbE network without the need for special iSCSI host bus adaptors, other protocols, or specialized network gear.

Using IOMeter to drive over 2900Mbps of iSCSI storage network traffic, the topology consists of a 10GBASE-T NIC and switch using Solarflare technology and Ethernet traffic running over 100 meters of SYSTIMAX GigaSPEED X10D Category 6A cabling in a six-around-one four-connector configuration — representing the worst-case channel configuration as specified in the TIA augmented Category 6 standard.

The cornerstone of this solution, Solarflare's Solarstorm SFC4000E vNIC 10GbE controller, accelerates network traffic efficiently with wire speed throughput on all the major virtualization environments.

"The proliferation of server virtualization, the growth of rich media applications and the convergence of data and storage networking are driving the need for cost-effective, easy-to-use 10GbE networking," said Bruce Tolley, vice president of marketing, Solarflare Communications.

"With 10GBASE-T technology that supports virtualization, iSCSI and network convergence over standard Ethernet, data centers and enterprises can easily and cost-effectively upgrade their networks to 10GbE and support advanced business applications," said Luc Adriaenssens, senior vice president, research and development and technology, CommScope.

Semtech targets telecom industry with ultrasmall-package, 3.3-volt, Ethernet protection device

Semtech Corp., a supplier of analog and mixed-signal semiconductors, announced the TClamp3302N, a 3.3V, low-capacitance TVS device. It is the newest addition to the TClamp product platform of breakthrough protection technology designed to protect high-speed interfaces such as Fast Ethernet and Gigabit Ethernet transceivers from cable discharge, ESD, and lightning threats.

Semtech's new TClamp device provides telecom/datacom system designers with the industry's smallest 3.3V working voltage protection device rated for 100A GR-1089 intra-building lightning surge. The new protection device delivers superior electrical performance yet consumes 4.5 times less board space than competitive devices. Semtech's TClamp3302N is provided in an SLP package measuring 2.6x2.6x0.6mm, which requires 6.76mm board space, compared to the industry's current SO-8 packaged devices which measures 5.80x4.80x1.35mm and consumes 27.84mm board space.

Engineered with Semtech's proprietary Enhanced Punch-through Diode (EPD) process technology, the TClamp3302N anchors Semtech's TClamp family of low-capacitance TVS surge protection devices. The TClamp platform is specifically designed to safeguard telecom equipment in such high-growth applications as datacenter routers, digital surveillance cameras, WiMAX base stations, and triple-play ONTs from cable discharge, ESD, and lightning threats.

"With the proliferation of Ethernet in communication infrastructure, the high-speed design community has been eager for a surge protection solution that offers the performance advantages of the TClamp3302N," said Rick Hansen, senior marketing manager, Protection Products. "In an application environment with increasing port density and decreasing board space, this small and robust part should generate plenty of traction in telecom protection," Hansen concluded.

Semtech's TClamp products are housed in a proprietary, very small 2.6x2.6x0.6mm SLP package. While these products offer designers the benefit of significant board space savings, their small size and RoHS and WEEE compliance also contributes to energy conservation and hazardous waste reduction.

Key features of the TClamp3302N:

- 100A 2/10μs GR-1089 Intra-building surge
- Very small (2.6x2.6x0.6mm) 10-pin SLP package
- Low working voltage: 3.3V
- Low leakage current and clamping voltages
- Enables differential or common mode layout
- Presents minimal low capacitance
- RoHS and WEEE compliant

The TClamp3302N is available immediately in production quantities and is priced at $1.37 each in 1,000-piece lots. Semtech offers comprehensive design assistance, including field- and factory-based support. Data sheets, volume pricing, and delivery quotes, as well as evaluation kits and samples, are available by contacting salesinfo@semtech.com.

Digital Lightwave enhances NIC Ethernet testing feature set

Digital Lightwave Inc., a provider of optical networking test equipment and technology, announced significant enhancements to the NIC Platform's Ethernet testing suite. The enhancements will be available first on NIC High-Density Ethernet Modules (multiport solutions with up to 12 test ports per module), and then in a later release will be introduced on NextGeneration Multi-Rate Modules (highly configurable combined telecom/ datacom testing modules).

The new features include support for 32 simultaneous Ethernet streams, four stacked VLANs, rate setting by interpacket gap up to 18 minutes, burst traffic, ramped traffic, through mode, ARP support, runt frame support, an increase of maximum frame size to 16,000 and more. For more information or to schedule a demonstration, email dlisales@lightwave.com.

"Our Ethernet test solutions are designed to provide exactly what customers need cost-effectively," said Doyle Mills, director of product marketing. "As the requirements have evolved, we have been able to leverage our technology platform, providing additional features and protecting our customers' investment. The flexibility of the NIC platform and the innovative design of both HD Ethernet and NGMR modules make us the best choice for Ethernet testing in the real world."

For a limited time, the new features can be added to existing NIC products equipped with HD Ethernet modules for only $500. For customers who purchased Digital Lightwave's software warranty, the upgrade is free. New products ordered after June 1 can be upgraded to include the new features at no extra cost.

The NIC Platform offers SONET, SDH, OTN, PDH/T-Carrier, Ethernet, and NextGeneration testing up 43Gbps to support the most advanced optical network testing in several different configurations. The High-Density Ethernet module provides up to eight ports of 10/100/1000BaseT plus four GigE ports and a single 10GigE port, all operating independently and simultaneously. The HD card is ideal for factory test applications and can drastically shorten the time required to test multiple ports in field applications. The NGMR module provides a complete telecom/datacom solution in one module (SONET/SDH/OTN/ATM/Ethernet/NextGen). With the NGMR's exclusive "Test Options," you can get exactly the capabilities you need today cost-effectively and then add additional capabilities as needed with just a license key. Both HD Ethernet and NGMR modules are available in the compact NIC chassis (2-slot), the larger NIC Plus (5-slot) and the NIC EP (5-slot) rackmount chassis.

For more information on Digital Lightwave testing solutions, see www.lightwave.com.

WildPackets announces Omnipliance SuperCore for 10-Gigabit networks

WildPackets Inc., a provider of network and application analysis solutions, announced the Omnipliance SuperCore — the industry's most extensible data recording solution for full-duplex 10-Gigabit network analysis and forensics. SuperCore provides network engineers unprecedented, real-time, and post-capture visibility into remote network segments.

Complex networks are no longer limited to the Global 200; mid-market organizations now need to monitor, manage, and optimize traffic on emerging 10G networks.

The Omnipliance SuperCore is the first solution available that provides the highest sophistication of real-time and post-capture network visibility in a completely extensible platform. With local storage up to 64 Terabytes and new support for direct capture to storage area networks (SAN), the Omnipliance SuperCore offers virtually limitless data recording.

"The SuperCore is an ideal data recorder for network forensics applications, such as incident response operations and policy compliance investigations," said Tony Barbagallo, vice president of marketing at WildPackets. "This solution is extensible and can grow with the needs of the organization from adding additional capture cards, to adding disk subsystems or even SAN integration for the ultimate in data storage."

Tuned for high-speed networks and distributed storage sub-systems, Omnipliance SuperCore features include the following:

- High-performance, full-duplex 10-Gigabit capture and analysis;
- Fully programmable, easy-to-use hardware filtering;
- High precision timestamping and synchronization;
- Up to 64 Terabytes of local storage;
- Supports SAN environments for virtually unlimited long-term data storage.

For more information, please visit http://www.wildpackets.com/products/omnipliance/overview.

BTI Systems introduces packetVX integrated Ethernet service modules for BTI 7000 Series

BTI Systems, a global supplier of Packet Optical Edge solutions for the delivery of Gigabit services, introduced the packetVX Integrated Ethernet Service Module family for its BTI 7000 Series platform.

The packetVX modules deliver industry-leading density and converge Ethernet service connectivity with WDM networking. The modules provide increased flexibility for delivering IPTV, triple-play Ethernet business and wholesale services, and 4G wireless backhaul.

"Ethernet traffic volumes are growing at a rapid pace as service providers, enterprises, government and healthcare organizations turn from circuit-based TDM networks to Ethernet-based WAN environments. Last year alone the industry saw Ethernet equipment sales rise 27 percent," said Michael Howard, principal analyst, Infonetics Research. "The simplicity and flexibility of Ethernet combined with its scalability and cost advantages result in significant operational and business value when compared to ATM or SONET/SDH."

The packetVX modules support the continuing growth service providers and enterprises are experiencing as bandwidth-intensive Web 2.0/Service Oriented Architecture (SOA) enterprise strategies and applications increase bandwidth requirements.

For mission-critical applications such as video, business continuity, and VoIP connectivity, packetVX provides network administrators with carrier-grade performance that addresses latency and jitter performance associated with traditional network infrastructures and standards-based solutions with copper and fiber Ethernet aggregation capabilities.

"Regardless of what the next big application will be we can count on it requiring larger, more intelligent bandwidth," said Gary Southwell, vice president solutions marketing, BTI Systems. "Ethernet-enabled WDM solutions optimize the network for packet delivery while simplifying network management and providing carrier-grade solutions. The packetVX modules in the BTI 7000 Series provide tremendous value when delivering feature-rich services."

By integrating Layer 2 switching and aggregation with WDM transport, the modules offer increased efficiencies in bandwidth utilization, reducing port requirements and simplifying the network by eliminating the need for dedicated hardware. Carrier-grade Ethernet resiliency is provided by ELPS (Ethernet Linear Protection Scheme ITU-T G.8031) and ERPS (Ethernet Ring Protection Scheme ITU-T G.8032) protection mechanisms. OTN provides extensive optical and Ethernet performance management capabilities for guaranteed service level agreements (SLAs). Simplified end-to-end service delivery is achieved with a complete portfolio of Ethernet OAM capabilities, including IEEE 802.3ah (EFM), IEEE 802.1ag (CFM), and ITU-T Y.1731 (PMs).

The packetVX modules are available in combinations of GbE and 10GbE connectivity:

- packetVX 12/2 includes 12 GbE ports with two 10GbE ports
- packetVX 24/2 includes 24 GbE ports with two 10GbE ports
- packetVX 24/4 includes 24 GbE ports with four 10GbE ports

The packetVX 24/4 module offers the industry's highest optical Ethernet density in an ultra-compact footprint with up to 24 GbE capability and four 10GbE ports in a 2RU chassis formation.

Comcast and Cisco announce successful live network demonstration of the world's first 100GbE router interface

Comcast Corporation, a provider of entertainment, information, and communications products and services, announced that it has successfully completed a 100 Gigabit Ethernet (GbE) technology test over its existing backbone infrastructure between Philadelphia and McLean, Virginia, using the industry's first 100GbE router interface developed for the Cisco CRS-1 routing system. This demonstration is another example of Comcast's commitment to technology that supports the rapid growth of new applications and services.

The Cisco CRS-1 100GbE interface uses Comcast's existing optical infrastructure to enable transmission of 100GbE over DWDM fiber-optic networks. Using this type of technology will enable companies like Comcast to increase bandwidth per wavelength by a factor of 10 over the initial deployed capability.

It also creates efficiencies by simplifying routing and operations through the use of statistically multiplexed 100GbE links, in comparison to carrying the same amount of traffic split over more commonly used 10GbE links.

"This demonstration is another important step in the future of 100GE networking and we're pleased with Cisco's latest advancements," said John Schanz, executive vice president of national engineering and technical operations for Comcast Cable. "Comcast's single converged core IP network already carries more video, voice, and data traffic than any other, and this new achievement will allow us to scale for tomorrow, while continuing to drive capital and operational efficiencies today."

"The Cisco CRS-1 was purpose-built to deal with the exploding growth in IP traffic that has been fueled by video-based services," said Kelly Ahuja, Cisco vice president and general manager of core routing business unit. "By developing a 100GE interface for the Cisco CRS-1 platform, providers like Comcast can take advantage of economies of scale, flexibility and increase the quality of service delivery as they move towards 100G IPoDWDM networks."

The implementation tested by Comcast and Cisco is consistent with the emerging IEEE 802.3ba 100GbE standard and validates the use of 100GbE and IPoDWDM technologies over Comcast's own production network, which was the first, and is currently the world's largest, 40G IPoDWDM network.

Force10 Networks switch/routers anchor the world's most powerful supercomputer and more than 30 percent of the fastest 40

Force10 Networks announced that its Reliable Networking product portfolio is integral to more than 30 percent of the top 40 most powerful supercomputers in the world, including the most powerful, according to the most recent Top500.org list. Los Alamos National Laboratory, home of Roadrunner, which ranked No. 1 on the list, uses the Force10 TeraScale E-Series family of switch/routers to anchor the supercomputer within the network.

In addition to powering the fastest supercomputer in the US, the Force10 Reliable Networking product portfolio is integral to the leading supercomputers in Europe, Russia, and Korea. Based in Germany, Forschungszentrum Juelich, with its Jugene supercomputer, is ranked 6 on the list and has deployed the Force10 TeraScale E1200 with more than 200 10-Gigabit Ethernet ports. Russia's Moscow State University is home to the country's leading supercomputer, SKIF-GRID, which uses the TeraScale E-Series as well as the S50 and S2410. The Tachyon supercomputer at the KISTI Supercomputing Center, the fastest in Korea, also relies on Force10.

Force10 switch/routers are also part of the most powerful IBM, Sun Microsystems, Cray, and Dell supercomputers on the list. As the first supercomputer to reach peak performance of one Petaflop, Roadrunner, built on IBM's BladeCenter, set a new milestone in the industry. Ranked fourth in the world, Ranger at the Texas Advanced Computing Center is the leading Sun supercomputer on the list. At number five, Oak Ridge National Laboratory's Jaguar supercomputer is Cray's highest entry on the list. Abe, at the National Center for Supercomputing Applications, is 23 on the list and the most powerful Dell supercomputer.

"As supercomputers grow more powerful, it is increasingly important to minimize potential bottlenecks," said Sachi Sambandan, vice president of engineering at Force10 Networks. "The Force10 Reliable Networking product portfolio is designed to deliver reliability without compromising system throughput, a performance characteristic that is essential for supercomputers like Roadrunner that are reaching Petaflop performance levels."

With research environments and national laboratories demanding more computational power, supercomputers will continue to increase in size and performance. Force10 Networks

provides the reliability and scalability needed to optimize supercomputer performance and enhance state-of-the-art research and analysis, as well as to power today's demanding commercial applications that require an "always-on" network.

BUSINESS

World's fastest Ethernet compute cluster relies on Woven Systems 10GbE fabric

Woven Systems Inc., a provider of Ethernet Fabric switching solutions based on its patented vSCALE technology for datacenters and high-performance computing (HPC) clusters, announced that the ATLAS compute cluster at the Max Planck Institute for Gravitational Physics in Hannover, Germany, achieved top ranking among the 285 Gigabit Ethernet clusters in the most recent TOP500 list of supercomputer sites. The ATLAS cluster successfully uses the Dynamic Congestion Avoidance feature in Woven's 10-Gigabit Ethernet (10GbE) fabric to reach a performance level of 32.8 Teraflops, making it the fastest Ethernet cluster in the world today.

"What is remarkable about the ATLAS cluster is that we were able to take the lead very cost-effectively with a creative combination of more processors at lower clock rates and a higher Ethernet switching efficiency," explained Professor Bruce Allen, director of the Max Planck Institute for Gravitational Physics. "Woven's 10-Gigabit Ethernet Fabric switch is able to deliver sustained performance at an impressive 64 percent of the theoretical peak. The HPC Linpack experts we consulted tell us that they have never seen such a high level of Ethernet efficiency on such a large cluster. Without the Woven switch, ATLAS would not be the world's fastest Ethernet cluster. It's that simple."

The Institute attributes Woven's unprecedented efficiency to the vSCALE ASIC's Dynamic Congestion Avoidance capability that is constantly balancing traffic loads intelligently and in real time along available paths in the nonblocking 10GbE fabric. A cluster's computational efficiency is critical to its performance, and efficiency is determined by the network's ability to handle interprocessor communications. The efficiency is calculated using the Linpack benchmark from the ratio of the actual performance to the theoretical peak performance for all processors in the cluster. Of the 285 Gigabit Ethernet clusters on the Top 500 List, only six achieved a computational efficiency greater than 60 percent, and of those, ATLAS was the most powerful. Of the remaining Gigabit Ethernet clusters, 76 had efficiencies of 50 percent or less; 97 had efficiencies of 51-55 percent, and 106 had efficiencies of 56-60 percent.

The new ATLAS compute cluster is located in Hannover, Germany, at the Max Planck Institute for Gravitational Physics, also known as the Albert Einstein Institute. The division of Observational Relativity and Cosmology, which built and operates the cluster, is part of an international collaborative effort to make direct detections of gravitational waves, first predicted by Einstein's General Theory of Relativity in 1917.

The cluster must process a multitude of complex data analysis algorithms that scrutinize past and present measurements to search for patterns expected to result from passing waves. The four next-generation detectors deployed throughout the world generate over a terabyte of data daily, which is sent to all participating members for analysis.

The ATLAS cluster consists of 1,342 compute nodes occupying 32 full racks. The use of Intel Xeon Quad-core processors gives the cluster over 5,000 CPU cores. Each server node has its own dedicated Gigabit Ethernet connection to a Woven TRX 100 Ethernet switch, which has four separate 10GbE uplinks to the EFX 1000 Ethernet Fabric Switch at the core of the Ethernet fabric. Because this

configuration is not oversubscribed, it assures nonblocking throughput performance for both interprocessor communications and storage access.

"We specifically designed vSCALE to create an Ethernet fabric that constantly performs at peak efficiency, and the Max Planck Institute has confirmed this in the world's fastest Ethernet cluster," said Joe Ammirato, Woven's vice president of marketing. "Gravitational waves are seminal to Einstein's General Theory of Relativity, which is at the core of modern cosmology. Woven is proud to play in a role the Institute's search for the existence of these waves as the enabling interconnect technology for the ATLAS cluster."

Since 1993, the TOP500 Supercomputer Sites http://www.top500.org has produced its bi-annual list, which is the most extensive survey of trends and changes in the global supercomputing arena.

The 31 edition of the TOP500 list was released on June 18, 2008, at the International Supercomputing Conference in Dresden, Germany. The TOP500 list is compiled by Hans Meuer of the University of Mannheim, Germany; Erich Strohmaier and Horst Simon of NERSC/ Lawrence Berkeley National Laboratory; and Jack Dongarra of the University of Tennessee, Knoxville.

PARTNERSHIPS

Teknovus and NTT Communications collaborate on penetration of enterprise market

Teknovus, a provider of Gigabit Ethernet passive optical network (G-EPON) chips for the deployment of triple-play services in broadband access networks, announced that Furukawa Electric's (Furukawa) G-EPON SFP (small form factor pluggable) ONU, based on Teknovus' G-EPON ONU chip, was displayed through NTT Communications Corporation (NTT Com) for enterprise customers at Interop Tokyo 2008.

NTT Com is a Japanese carrier providing advanced information and communications technology (ICT) solutions worldwide

Furukawa is a communications system vendor providing G-EPON systems, including the first G-EPON SFP-ONU solution, the FITELwave AG9, which fits entirely within the standard SFP, enabling network solution providers to expand rapidly into fiber-based networks.

Furukawa's SFP ONU enables plug-and-play for FTTx without requiring AC adaptors, Ethernet cabling, or changes to existing LAN software.

The Teknovus-based SFP-ONU works with any standard SFP port enabling a wide range of applications, including the following:

- Enterprise switches and routers for fiber to the desktop
- Mini-DSLAMs for fiber-to-the-basement
- IP-PBXs and soft-switches for fiber-to-the-business
- HGW with SFP socket for fiber-to-the-home in one box
- WiMAX/Femtocell Backhaul for fiber-to-the-base station

The Teknovus-based SFP ONU offers all of the advantages of the Teknovus G-EPON chip design, such as guaranteed SLAs (service level agreements), advanced traffic management, multiple LLIDs, application-aware filtering, IPv6, and optical monitoring and management. Teknovus provides the only PON chip that fits into the SFP form factor, which requires a small chip and extremely low power consumption.

"NTT Com is highly regarded for their managed network solutions around the globe," stated Mr. Ryoji Takaichi, Teknovus general manager of Japan.

"We are very pleased to be working with NTT Com to create new solution offerings based on the SFP-ONU, expanding their support of fiber-based networks for the enterprise markets."

Voltaire announces support for IBM iDataPlex system

Voltaire Ltd. announced that its Grid Director 20Gbps switching products have been added to the IBM Cluster1350 solution portfolio, which includes support of iDataPlex, following the completion of a rigorous testing and certification process.

IBM iDataPlex is new category of server that dramatically increases compute density while significantly decreasing energy consumption and associated datacenter costs for Internet-scale computing.

"With our innovative iDataPlex system design, customers realize significant savings on power and cooling, as well as space," said Jim Gargan, vice president, IBM Systems & Technology Group.

"IBM iDataPlex combined with Voltaire 20Gbps switches provide high-performance InfiniBand connectivity for high-performance computing data centers."

Voltaire Grid Director switches provide high-performance InfiniBand connectivity and microsecond latencies to enable high-performance applications to run on distributed server, network, and storage resources. Some applications gain up to a 300 percent performance improvement using Voltaire switches as the cluster interconnect instead of Ethernet. Moreover, the switches' power-efficient design offers lower power and cooling requirements as compared to 1- and 10-Gigabit Ethernet offerings.

"IBM's decision to add Voltaire 20Gbps switches to their Cluster 1350 portfolio and iDataPlex system underscores the importance of Voltaire products in their cluster and bladed solutions," said Asaf Somekh, vice president of strategic alliances, Voltaire. "Voltaire's 10Gbps switches have been available through IBM since 2004 and have been successfully deployed in a broad range of markets including financial services, manufacturing, petroleum, life sciences, government and education."

Voltaire Grid Director 20Gbps InfiniBand switches range in size from 24 ports for smaller clusters to 288 ports for large scale-out environments. The switches are currently available through IBM and other Voltaire partners. IBM also offers Voltaire Grid Director 10Gbps switches, routers, and software as part of the Cluster1350 solution portfolio, and 20Gbps products as part of the IBM BladeCenter product portfolio.

ZyXEL signs distribution agreement with Ingram Micro Canada

ZyXEL Communications, a provider of secure broadband networking, Internet connectivity, and routing products, announced Ingram Micro Inc. has been appointed as Canadian distributor for ZyXEL's complete product line. The agreement expands ZyXEL's North American Channel Partner Program, in which qualified resellers receive special benefits and tools to improve service to small to medium-sized business (SMB), residential, and institutional MxU (multitenant unit/multidwelling unit) markets.

The agreement with Ingram Micro Canada expands ZyXEL's North American ZySTAR Channel Program and complements ZyXEL's global channel program. Canadian VARs have the same benefits as their US counterparts with programs providing product discounts at distribution and rebates, priority technical support, and online certification and training programs.

ZyXEL's ZySTAR Channel Program offers solution providers the tools and resources necessary to create and sell enterprise-class solutions scaled to meet the needs and budgets of the mid-market. ZyXEL's product line includes routing products, broadband networking, Internet connectivity, network security solutions, Fast and Gigabit Ethernet switches, wireless networking, and hospitality/MDU solutions.

"As we aggressively expand our North American Channel program, we are constantly

looking for opportunities to make it easier for our channel partners to do business with us," said Dana Patrick, director of North American Channels for ZyXEL. "With Ingram Micro Canada in place, Canadian VARs will have easy local access to ZyXEL's complete line of award-winning networking products."

"The agreement between ZyXEL and Ingram Micro Canada allows us to bring industry-leading networking products to Canadian VARs and their customers," said Mike Gazdic, vice president of vendor management, Ingram Micro Canada. "Ingram Micro is committed to bringing on vendors that deliver value and comprehensive solutions to VARs so they can succeed in the rapidly growing services market in Canada."

"ZyXEL's comprehensive line of networking solutions allows us to 'one stop' shop instead of purchasing from a number of vendors," said Oliver Perez, president of MultiTrends ITNet Services, a solution provider that offers a variety of networking support, monitoring, and security solutions. "And now, because of the agreement with Ingram Micro Canada, we can have ZyXEL products readily available. This saves our company time and money."

The ZySTAR Channel Program is highlighted by three tiers of participation that offer increasing levels of reseller benefits. Highlights include the ability to participate in market development fund opportunities, which assist resellers in the development of targeted demand creation activities and product discounts that allow partners the ability to realize immediate margin benefits.

In addition, ZyXEL has introduced focused training and certification programs that take place throughout the year.

North American VARs, solution providers and systems Integrators who are interested in more information on ZyXEL's ZySTAR Channel Program can contact ZyXEL Communications at 714-632-0882 or partner@zyxel.com.

MARKET INTELLIGENCE

While FE and GE semiconductor players are established, opportunities for generating 10GbE revenue are still up for grabs, IDC reveals

The lion's share of the worldwide Ethernet market revenue continues to be generated by vendors well established in the Fast Ethernet (FE) and Gigabit Ethernet (GbE) semiconductor segments, including Broadcom, Marvell, Realtek, and Intel.

However, IDC observed that the marketplace has begun to adopt 10-Gigabit Ethernet (10GbE) and that both startups and well-known public vendors earned notable 10GbE revenues in 2007.

"The worldwide Ethernet semiconductor market remained flat in 2007 compared to 2006, but 10GE sales are clearly ramping," said Aileen Arcilla, senior analyst for Semiconductors at IDC.

"What is interesting to note is the number of startups that are currently playing in this space, with some actually surpassing sales of 10GE chips compared with established companies. However, since we are still in the early adoption phase, it remains to be seen who will clearly be the 10GE semiconductor market leader."

Additionally, IDC believes ample opportunity remains in the FE and GbE segments as customers continue to deploy these interfaces in their networks, and as both FE and GbE ports are finding new life among small and medium-sized businesses.

IDC's study, "Worldwide Ethernet Semiconductor 2007 Vendor Shares: Bigger Universe of Companies Showcases 10GE Potential" (Doc #212759), reports on the 2007 market share of the Ethernet semiconductor market.

For the first time, the report offers two new sections: a breakdown of Ethernet semiconductor market share by speed — FE,

GbE, and 10GbE — and highlights of both public companies and startups that are playing in the 10GbE space.

Vendors briefly profiled in the report include AMCC, Aquantia, Broadcom, Cortina Systems, EZChip, Fujitsu Microelectronics, Fulcrum Microsystems, Intel, Lightstorm Networks, Marvell, Netlogic (Aleuros), Neterion, Vitesse, Solarflare, Teranetics, T-PACK, and Xelerated.

PMC-Sierra announces availability of 10G EPON white paper

PMC-Sierra has released "10G EPON Brings Advantages to the Fiber Access Network," a white paper that details how 10-Gigabit Ethernet passive optical network (10G EPON) technology will spur deployment of next-generation high-definition IPTV and other high-bandwidth applications.

As the deployment of fiber-to-the-home (FTTH) technologies in the access network accelerates, vendors and technology innovators are looking ahead to solve next-generation applications' bandwidth requirements. These applications will demand far greater bandwidth than current broadband access technologies provide.

One attractive new option is 10G EPON technology, which offers a tenfold leap in bandwidth to 10Gbps in the broadband access network over fiber while providing core protocol compatibility with current 1G EPON solutions. This paper, written by Lior Khermosh, chief system architect for PMC-Sierra's FTTH business, and Gilad Aloni, PMC-Sierra EPON product manager, provides an overview of 10G EPON technology.

PMC-Sierra introduced the industry's first complete reference designs for 10Gbps IEEE 802.3av EPON optical line terminals (OLTs) and optical network units (ONUa) in March 2008. The PAS8001 reference design for 10G OLTs and the PAS9001 reference design for 10G ONUs integrate all the functionality required from an OLT and ONU running at 10Gbps, including third-party commercial transceivers, and use PMC-Sierra's EPON capabilities to improve system performance and reduce OEMs' time to market.

For more information and to download the white paper, visit http://www.pmc-sierra.com/ftth-pon (registration required), or email publicrelations@pmc-sierra.com.

Information Gatekeepers Inc. Newsletters

❑ **2.5 - 3.0G Newsletter**
12 issues p.a. $695 US/Can ($745 other) (PDF $695)

❑ **Africa & The Middle East**
12 issues p.a. $1240 US/Can ($1340 other) (PDF $1240)

❑ **Asia Pacific**
12 issues p.a. $695 US/Can ($745 other) (PDF $695)

❑ **Gigabit/ATM**
12 issues p.a. $695 US/Can ($745 other) (PDF $695)

❑ **China Telecom**
12 issues p.a. $695 US/Can ($745 other) (PDF $695)

❑ **Europe East/West**
12 issues p.a. $695 US/Can ($745 other) (PDF $695)

❑ **Fiber Optics and Communications**
12 issues p.a. $695 US/Can ($745 other) (PDF $695)

❑ **Fiber Optics Weekly Update**
52 issues p.a. $695 US/Can ($745 other) (PDF $695)

❑ **FTTX (Formerly FITL)**
12 issues p.a. $695 US/Can ($745 other) (PDF $695)

❑ **Fiber Optics Sensors & Systems (FOS²)**
12 issues p.a. $695 US/Can ($745 other) (PDF $695)

❑ **Broadband**
12 issues p.a. $695 US/Can ($745 other) (PDF $695)

❑ **Home Networks**
12 issues p.a. • $695 US/Can ($745 other) (PDF $695)

❑ **India Weekly Telecom**
50 issues p.a. • $1,395 PDF (Only)

❑ **India Telecom**
12 issues p.a. • $695 US/Can ($745 other) (PDF $695)

❑ **Internet Business**
12 issues p.a. • $695 US/Can ($745 other) (PDF $695)

❑ **Iraq Telecom**
12 issues p.a. • $995 (PDF only) One user

❑ **Latin American Telecom**
12 issues p.a. • $695 US/Can ($745 other) (PDF $695)

❑ **RFID (NEW!!!)**
12 issues p.a. • $695 US/Can ($745 other) (PDF $695)

❑ **SAN/LAN**
12 issues p.a. • $695 US/Can ($745 other) (PDF $695)

❑ **Optical Networks WDM Newsletter**
12 issues p.a. • $695 US/Can ($745 other) (PDF $695)

❑ **Plastic Optical Fiber (POF)**
6 issues p.a. • $395 US/Can ($425 other) (PDF $395)

❑ **Photonics Components**
12 issues p.a. • $695 US/Can ($745 other) (PDF $695)

❑ **Submarine Fiber Optic Communications**
12 issues p.a. • $695 US/Can ($745 other) (PDF $695)

❑ **Telecom Mergers & Acquisitions**
12 issues p.a. • $695 US/Can ($745 other) (PDF $695)

❑ **Telecom Standards**
12 issues p.a. • $695 US/Can ($745 other) (PDF $695)

❑ **VoIP**
12 issues p.a. • $695 US/Can ($745 other) (PDF $695)

❑ **Wi-Fi/Wireless LAN**
12 issues p.a. • $695 US/Can ($745 other) (PDF $695)

❑ **Mobile Internet**
12 issues p.a. • $695 US/Can ($745 other) (PDF $695)

❑ **Wireless Satellite & Broadcasting**
12 issues p.a. • $695 US/Can ($745 other) (PDF $695)

❑ **Wi-Max Wireless**
12 issues p.a. • $695 US/Can ($745 other) (PDF $695)

❑ **XDSL**
12 issues p.a. • $695 US/Can ($745 other) (PDF $695)

❑ **IPTV (NEW!!)**
12 issues p.a. • $695 US/Can ($745 other) (PDF $695)

❑ **Military Fiber Optics Aereospace (NEW!!)**
12 issues p.a. • $695 US/Can ($745 other) (PDF $695)

E-Newsletters for as little as $10 per user per newsletter for a $695/year Newsletter

Information Gatekeepers Inc. (IGI) is offering its newsletters to customers in electronic form so that they can be put up on their internal databases or intranet for use by multiple users. IGI will e-mail the newsletters in PDF format to either a single location or to multiple e-mail addresses provided by the customer. The email version is provided under the following condition 1. For company use only 2. Not to be distributed to contractors, Suppliers, etc. 3. Must sign a non-distribution and copyright agreement.

E-Newsletters

License Monthly Newsletters

Price Schedule For Multiple Users

Number of Users	1	5 - 10	11 - 20	21 - 50	51 - 100	500	1000	2000
Per newsletter cost*	$695	$2500	$4,000	$7,500	$10,000	$11,000	$12,000	$14,000
Average cost at maximum number of users	$695	$250	$200	$150	$100	$27	$12	$7
Check number of users								

*Call for Quoutes on multiple Newletters

Order on-line at **www.igigroup.com** or contact us today at **800-323-1088** to find out about the ***substantial discounts*** we offer to current subscribers for trying one or more of our other newsletters

Detailed descriptions of all IGI newsletters and publications can be viewed at our web site www.igigroup.com

❑ Please send me a subscription to the newsletter/s checked ❑ Please send a free copy of the IGI product catalog

Name _____

Title _____

Company _____

Address _____

City_____State _____

Postal Code_____Country _____

Tel. _____Fax_____

INFORMATION GATEKEEPERS INC.
320 Washington Street, Suite 302
Brighton, MA. 02135 USA
Toll-free 800-323-1088, Tel: 617-782-5033
Fax: 617-782-5735, E-mail: info@igigroup.com
Visit Our Web Page: http://www.igigroup.com

❑ **Wire Transfer U.S. Dollars to Information Gatekeepers Inc.**
Sovereing Bank • 415 Market Street, Brighton, MA.
• # ABA 011075150
To: Information Gatekeepers Inc. • Account # 62704958925

❑ **Check enclosed**

❑ **Charge:** ❑ MC ❑ VISA ❑ AMEX ❑ DISCOVER
❑ DINER'S CLUB

Card No: _____

Expires: _____Signature:_____

Card Holder Informaion

Name_____

City_____ State____ Postal Code_____

Expires:_____Signature_____

7/13/06