

FOCUS ON CONNECTORS

No-Polish Fiber Connector Speeds Installation

From BBP Wires

AUSTIN, TX – Fiber installers have historically installed connectors using field polishing, which is time-consuming and requires electrical power in the field. Now 3M (www.3m.com) is introducing a no-polish fiber connector to enable fast, on-site installation of single-mode and multimode connections.

The connector uses a one-piece, pre-assembled design. With the factory-polished ferrule assembly and a mechanical splice, it can be installed in less than two minutes, without electrical power and using a simple tool. A bell-shaped boot is permanently attached to the connector body so there is no chance of losing it or forgetting to install it before inserting the fiber. The bell feature maintains the minimum fiber bend radius for excellent strain relief.

The installer uses the same tool to align a prepared fiber in the connector and activate the splice and buffer clamp. Finger grips on the tool make it easy to handle even without a flat work surface. Field installation of connectors makes it possible to have just the right cable length with no cable slack to store, reducing cable and storage costs.

Sumitomo Electric Lightwave Unveils Splice-On Connector

From BBP Wires

RESEARCH TRIANGLE PARK, NC – Sumitomo Electric Lightwave (www.sumitomoelectric.com) introduced the Lynx CustomFit Splice-On Connector, a cross-compatible splice-on connector that enables customized fiber field terminations for both outside plant and inside plant.

Since the Lynx is compatible with many existing splicer and fiber holder brands, it eliminates the need for customers to invest in specially designated splicer equipment. And because the method of termination eliminates the guesswork in determining the length of

preterminated jumpers, technicians can customize the termination in the field. Customers no longer have to maintain inventories of splice trays and preterminated jumpers.

The new connector provides a quick method of permanently splicing the factory-polished connector without hazardous adhesives. By fusion splicing the connector, technicians can achieve lower splice loss (less than 0.1 dB for fusion splicing versus 0.3 dB for mechanical splicing, says the company). Fusion splicing also results in lower light loss and back reflection when compared to mechanical splicing, making termination to an APC connector possible.

The connector will be available for mass distribution in the second quarter of 2007.

OUTDOORS MEETS INDOORS: FOCUS ON HOME NETWORKING

Amedia Developing GPON Home Gateway

From BBP Wires

EATONTOWN, NJ – Amedia Networks (www.amedia.com) announced that it was developing a GPON gateway with built-in home networking capabilities and a personal media library. The HG-G1000 will provide the functionality of an in-home broadband home router, an outdoor Optical Network Terminal (ONT) and battery backup.

Telecommunications companies can offer the device as a single gateway appliance for subscribers, with no required outdoor-hardened optical or electrical components. Using a single appliance will significantly reduce installation costs by eliminating the outdoor installation and media required to interconnect multiple products, while providing a means to use existing home television and telephone wiring (or a wireless network) within the connected home.

The HG-G1000 is coupled with Amedia's new Broadband Entertainment Center, which allows the device to serve as a multimedia control point. A built-in application programming

interface will support networked applications such as Web surfing, in-home messaging, remote home monitoring and control, or a virtual family calendar. Subscribers can use a Web browser interface from any television or monitor to access the Internet as well as download, organize, store and play videos, photos, music or voice messages.

Leviton and AFL Join Forces on FTTH

From BBP Wires

LITTLE NECK, NY – Developers of multiple dwelling units and master-planned communities that are wiring their new developments with fiber-to-the-home can now purchase end-to-end solutions from home-electronics company Leviton (www.leviton.com) and fiber optic provider AFL Telecommunications (www.afttele.com). The alliance between these two companies combines Leviton's in-home technology portfolio with AFL's FTTH network electronics and system integration expertise.

Michael Mattei, Leviton's Director of Fiber Business Development, says, "Fiber solutions have yet to be fully integrated into the home. Typically, fiber enters through the side of the house, but that is where it ends. Largely overlooked is the value of integrating it throughout the home, from the service entrance to individual jacks on the wall, to meet the home's high-speed information, communication and entertainment needs...The Leviton/AFL alliance provides start-to-finish service and support for the implementation of a FTTH network that encompasses both active and passive design elements."

In addition to an end-to-end product portfolio, the AFL and Leviton FTTH alliance offers a variety of services, including FTTH Business Modeling and network design, "Whole House" Integrated Networks solutions, outside plant infrastructure, network electronics and in-home, technology solutions.

FOCUS ON CHIPS

Avanex Chip Cuts FTTH Manufacturing Costs

From BBP Wires

FREMONT, CA – Chipmaker Avanex Corporation (www.avanex.com) introduced a 1310nm Fabry Perot (FP) laser chip designed to minimize the cost of diplexers and triplexers by enabling the use of fully automated and scalable passive alignment techniques. The diplexers and triplexers are used in optical networking terminals (ONTs, or customer-premises equipment) for fiber-to-the-home deployments.

Traditional laser chip technology requires either active alignment or the use of additional components to couple the optical power of the laser into the optical fiber, which significantly contributes the cost of FTTH components. Avanex's PowerBeam 1931FL, by contrast, enables the use of automated production processes and Planar Lightwave Circuit (PLC) technology to manufacture diplexers and triplexers.

Next-Gen GePON Chipset from Centillum

From BBP Wires

FREMONT, CA – Centillum Communications (www.centillum.com) has expanded its fiber-to-the-home semiconductor portfolio with its Mustang 300 system-on-chip (SoC). This highly-integrated, low-power FTTH solution is intended for service providers deploying EPON in customer-premises equipment.

The Mustang chipset supports traffic management, classification and filtering for up to 256 multicast groups and up to eight different service types – the highest in the industry, according to Centillum. It simplifies service provider deployments by being fully interoperable with a variety of vendor solutions and by supporting a full range of protocols to ensure error-free, low-latency, bandwidth-efficient data transmissions over EPON networks. The chipset is accompanied with a

software package and API that can be used “right out of the box,” alleviating the need for systems vendors to develop customized software.

ColorChip Announces GePON and GPON Transceivers

From BBP Wires

TOKYO – ColorChip (www.colorchip.com), which develops fiber optics components based on Planar Lightwave Circuit (PLC) technology, has announced the availability of GePON PX10 and PX20 diplexer transceivers, as well as a GPON Class A diplexer for the fiber-to-the-home market. ColorChip's transceivers are based on its SystemOnGlass concept, which simplifies the design and manufacturing process. The transceivers support Digital Diagnostic & Monitoring (DDM), providing diagnostic and monitor capabilities for power supply, temperature, optical power output and more.

CyOptics Reaches FTTH Milestone

From BBP Wires

LEHIGH VALLEY, PA – CyOptics (www.cyoptics.com) announced that it reached the one-million mark in 2006 for shipping laser and detector chips for fiber-to-the-home GPON applications. CyOptics supplies 1310nm DFB laser chips for ONTs (optical network terminals, or customer-premises equipment) and 1490nm DFB laser chips for optical line terminals (OLTs, or central-office equipment). The chips are sold to customers either at the die level or in an industry-standard cylindrical TO-can package.

Fujitsu Introduces GPON Transceivers

From BBP Wires

TOKYO – In a GPON network, the central office equipment is connected to subscriber premises via a star coupler. Because distances to subscriber prem-

ises vary, the central office equipment must be able to receive burst signals that vary in the received optical power by a factor of up to 100 times. Furthermore, since the central office equipment may be located outdoors, it must be able to operate over a wide temperature range. Finally, since a single unit should be able to accommodate multiple optical transceivers, the transceivers themselves should be compact.

Fujitsu (www.fujitsu.com) recently announced the development of GPON central-office transceiver technology capable of meeting these challenges. The transceivers, which will be available at the end of April 2007, operate across a temperature range of -40°C to 85°C and can receive burst signals varying in optical power by a factor of more than 1000 times. Their high-efficiency heat-dissipation construction and control circuitry allow for steady operation over broad temperature ranges, and the use of high-density mounting technology makes them extremely compact – about 20 percent smaller than existing optical transceivers in the SFP format.

Mindspeed Transimpedance Amplifier Reduces Cost of Deploying Fiber to the Home

From BBP Wires

NEWPORT BEACH, CA – Semiconductor provider Mindspeed Technologies (www.mindspeed.com) last month demonstrated a new 2.5 Gbps transimpedance amplifier (TIA) offering best-in-class sensitivity of -29dBm. Mindspeed's M02024 TIA is designed to cut costs and extend the performance margin in fiber-to-the-home customer-premises equipment, by helping optical module manufacturers meet the standard with a lower-cost receiver.

The new amplifier enables OEMs to use positive-intrinsic-negative (PIN) photodiodes instead of traditional avalanche photodiodes (APDs), which typically cost more than 10 times as much. Mindspeed expects this savings to help pave the way for GPON deployments worldwide.

The new amplifier cuts manufacturing costs in several other ways, too: for example, its higher sensitivity eliminates the need for sensitivity testing in the manufacturing line, and its on-chip filter eliminates the need for an external capacitor on the photodiode cathode. The M02024 TIA is scheduled to enter volume production in the second quarter of 2007.

New GPON Optical Network Terminals from Actiontec

From BBP Wires

LAS VEGAS – Actiontec Electronics (www.actiontec.com) announced that in the second half of 2007 it will release optical network terminals (ONTs, or customer-premises equipment) for GPON fiber deployments to the home. With this addition to its product line, Actiontec will be able to supply customer-premises equipment solutions for every IPTV delivery scenario, including ADSL2+, fiber to the curb/VDSL to the house and GPON fiber to the subscriber. Actiontec says the new ONTs are part of a larger strategy to significantly reduce the cost of customer-premises installations in GPON environments. That strategy will be unveiled later this year.

Tellabs Ships Millionth Optical Network Terminal

From BBP Wires

NAPERVILLE, IL – Tellabs (www.tellabs.com) marked a milestone in delivering fiber-to-the-home services by shipping its millionth optical network terminal (ONT, or customer-premises equipment). Tellabs, one of the major suppliers for Verizon's FiOS fiber-to-the-home deployment, is upgrading its ONT product line to include GPON technology. The newest models, now in customer evaluations, include both single-family GPON ONTs and multiple-dwelling-unit GPON ONTs.

Alcatel-Lucent, Freescale Address GPON Interoperability

From BBP Wires

PARIS – Alcatel-Lucent (www.alcatel-lucent.com) and Freescale (www.freescale.com) have announced a plan to facilitate the adoption of fiber-to-the-home by making their GPON technology and interoperability specifications available to terminal equipment vendors.

Terminal vendors will be able to license critical GPON technologies, including reference designs and support, compliant with Alcatel-Lucent's 7342 ISAM fiber-to-the-user product family. Under a separate agreement, Alcatel-Lucent will offer support services to promote interoperability. Alcatel-Lucent says the move will help eliminate industry barriers to interoperability and help service providers find GPON terminal equipment in nearly any configuration at competitive prices.

ColorChip Announces High-Performance FTTx Splitters

From BBP Wires

CAESAREA, ISRAEL – ColorChip, (www.color-chip.com), which develops fiber optics components based on Planar Lightwave Circuit (PLC) technology, announced the new Spark splitter family for the fiber-to-the-home market. Spark splitters are based on Color Chip's proprietary planar light wave circuit technology and were developed to meet demand for ultra-low-loss splitters that could reach further from the central office. A fully packaged 1x32 splitter achieves insertion loss values below 16.2 dB and PDL values below 0.2 dB. The splitters are available in 1x4, 1x8, 1x16, and 1x32 models for the GePON, BPON and GPON markets.

JDSU's New Remote Test Unit Monitors Fiber Network

From BBP Wires

MILPITAS, CA – JDSU (www.jdsu.com) has introduced a rack-mounted remote test unit for its optical network

management system that integrates optical time-domain reflectometry (OTDR) and optical switch technologies. A single OTU-8000 unit can test hundreds of fiber links within a 40,000 square-kilometer area and report faults relative to the nearest landmark. JDSU says the unit will help carriers decrease operational costs by eliminating erroneous field technician dispatches, reducing mean time to repair and detecting fiber degradation before service can be disrupted. The product also monitors the long-term performance of installed fibers and, for organizations concerned about network security, detects and locates fiber tapping.

All configurations are saved on the OTU-8000's solid state disk, and when the server is not available alarms can be sent to the user via e-mail or text messaging. The unit can be provisioned via any on-site or remote Web browser.

Bend-Insensitive Fiber from Prysmian Supports FTTH

From BBP Wires

MILAN – Prysmian Cables & Systems (www.prysmian.com) introduced CasaLight, its new bend-insensitive optical fiber in accordance, to support fiber-to-the-home deployments. In FTTH, optical fibers encounter greater levels of handling and more extreme degrees of bending than in fiber backbone applications. The International Telecommunication Union, a standard-setting body, recently issued a recommendation defining the new and tougher performance requirements now demanded of fiber. CasaLight meets or exceeds all of these requirements, with:

- a bend radius as low as 10mm
- compatibility with standard equipment, connectors and fiber
- improved mechanical reliability to increase lifetime in environments where variations in temperature and moisture level coexist with tight bends
- superior ability to avoid coating burns and glass fusion; and
- an environmentally friendly, fluorine-free manufacturing process.

Muni Fiber Deployment Advances in Lafayette and Palo Alto

A BBP Staff Report

Almost two years after citizens of Lafayette, Louisiana, voted to build a municipal fiber-to-the-home network, the Louisiana State Supreme Court unanimously reversed a court challenge, allowing the network to be built. The decision cheered municipal network advocates, who predicted more cooperation between public and private fiber network builders. But only one of two firms that submitted bids to create a public-private partnership high-speed Internet system for Palo Alto meets city terms, according to a new city staff report, and that firm – despite its blue-chip pedigree – may not have enough financial horsepower to do the job, local officials say.

Attorney Jim Baller, who represented Lafayette, said the decision is particularly important because of the lag on US broadband deployments. Baller said that incumbent service providers and public governments need to be working together on fiber, so that businesses and residents of even smaller communities can get the benefits and the capacity to compete globally and sustain their economic development.

The city fought for three years to get the right to issue bonds and build its network, but was opposed by BellSouth and Cox Communications. Legal fees alone totaled \$1.5 million, but it is unclear whether the delay added to network costs – labor rates went up, but equipment costs fell. The decision was in

part procedural. It overturned an appeals court ruling, noting that it was based on plaintiff arguments that had been submitted after legal deadlines. But Baller said the key point was that the court ruled that Lafayette's 2006 \$125 million bond ordinance did not violate the Louisiana Local Government Fair Competition Act.

Baller stressed that cooperation becomes more important, as companies such as AT&T and Verizon face financial and technical challenges in their own efforts to build fiber networks. "Why shouldn't an AT&T look to cooperate with communities on the fiber side as well as in the wireless side? It seems to make a lot of sense that we have that kind of cooperation," he said.

The Lafayette Utility System expects its first customers to have service by the end of 2008, with expected fees of about \$85 a month for phone, cable and Internet.

The city expects the network will attract new businesses almost immediately, but that city government is likely to face a new round of legal challenges when an audit – required by state law – is conducted a year after the first customers receive service.

In Palo Alto, 180 Connect Network Services, based in Boise, Idaho, says it will build, operate and market a \$50 million fiber network along with PacketFront and the Royal Bank of Canada's Capital

Market. Dynamic City of Linden, Utah, had tried for Palo Alto's business as well, suggesting that it be a consultant to the city, putting up no more than 10 percent of the cost with money from a private equity firm that would expect a 20 percent return. Another dozen firms had expressed interest but didn't bid, despite several deadline extensions.

The original RFP specifically asked for proposals that would mitigate the city's risk. The 180 Connect proposal would provide 100 megabits per second, two-way service with data, video, and voice services. The incumbent broadband carriers, AT&T and Comcast, have no plans for that bandwidth.

City officials praised 180 Connect, which has a good track record, but worried about its finances, strained by rapid growth. Also, 180 Connect based its proposal on a high take rate, the city staff report says. The report left matters up in the air for the moment; it gave the city council three choices: Accept the proposal, drop the entire matter, or renegotiate the terms.

Mayor Yoriko Kishimoto and Councilman Bern Beecham said they hope to continue negotiations with 180 Connect. Mayor Kishimoto said although the project might cost the city money to start, she considers it important to strengthen the city's economic future. The two proposals are on the web at www.cityofpaloalto.org.

Calix Takes #2 Spot in North American DSL Port Market

PETALUMA, Calif. – Unlike in Japan, the DSL subscriber base is still growing in the US, showing the strength of broadband solutions of all kinds. Calix, the largest telecom solution supplier focused solely on access, says research from broadbandtrends.com shows it moved into the Number-2 position in North American DSL port shipments during the fourth quarter of 2006, behind only a pre-merger Alcatel. Calix continues to claim the the top spot in North America for the fastest-growing DSL segment – broadband loop carriers, a type of mul-

tiservice access platform.

Calix shipped 220,776 DSL ports in North America during Q4/06, a sequential increase of 24 percent and a year-over-year increase of 124 percent. During that quarter, Calix accounted for over 41 percent of all DSL and voice ports shipped, for North American broadband loop carriers.

Whether as part of an IPTV deployment or simply in anticipation of more video up/downloads and more sophisticated gaming packages, service providers are laying the groundwork for a broad

range of advanced IP-based services by deploying the latest form of broadband.

"We expect our customers will continue to drive major market trends and continue the rapid deployment of a re-defined form of broadband," said Ray Savona, Calix vice president of field marketing.

"Service providers are aggressively preparing their networks for a broadband future that includes a panoply of advanced IP-based services." For more information, visit the Calix website at www.calix.com.

Audio Business Churns; Forces Fiber Network Rethinking

By Linda A. Schoener

Three seemingly unconnected happenings have roiled the delivery of audio content, leaving Internet radio the possible loser. The two money-losing satellite radio providers, Sirius and XM, have asked the FCC for permission to merge. Internet radio providers got hit with a big increase in fees for playing copyrighted content, and Wal-Mart, the world's largest retailer, backed HD-Radio technology by selling an HD-Radio-equipped JVC car CD player in almost 2,000 stores.

The HD Digital Radio Alliance, radio stations that have been pushing HD Radio, heralded the Wal-Mart breakthrough, saying it could give HD the credibility to push it past the "tipping point." Over 1,000 stations broadcast in HD, and more than half of those also do HD2 multicasts with a

wide variety of new formats and content that has tested approaches to interactivity that telcos hope to leverage in their fiber-based "cable-like" offerings. (There are more than 9,000 commercial radio stations in the US.)

The satellite TV issue affects business plans for fiber builders, because terrestrial networks redistribute the satellite signal. Builders had been nervous as the two headlong competitors, XM and Sirius, burned through \$1.5 billion over the past few years. If federal regulators allow them to merge, it could save the format from business meltdown and provide a large slice of content for network providers to deliver.

At the same time, however, new fees for Internet radio "broadcasters" seem destined to darken thousands of radio Internet "channels." Fees had been kept

artificially low to allow the industry to build. But under the new fee structure, subject to testing in court as Internet operators sue to block it, each listener would pay 0.08 cent per track, rising to 0.19 cent in 2010. The initial rate is retroactive to 2006. There's also a minimum fee for small broadcasters of \$500 a year.

This puts the Internet crowd on more level (but hardly level) terms with broadcasters, who pay into a general fund for the right to use copyrighted material, but reduces the ability of small "specialty" Internet shops featuring regional sources and narrowly defined musical genres to compete with the increasingly homogenized broadcast radio industry.

In contrast, allowing satellite radio to merge, and pushing HD-Radio, may have the opposite effect.

Empirix Launches New Load Testing Solution for IMS and PacketCable

From BBP Wires

BEDFORD, Mass. – Empirix Inc. has introduced the sixth version of its flagship Hammer NXT solution to help cable companies deploy VoIP. Hammer NXT v6 is an integrated carrier-class IP telephony test platform for customer support on cable and IMS systems. Cable MSOs are adding VoIP subscribers faster than any other service provider segment. With rapid loading of their VoIP networks, cable providers need to conduct efficient load testing in order to ensure all of their

customers maintain high service quality as their networks scale to millions of users.

Hammer NXT v6 supports the movement to IMS via PacketCable specifications. In addition, this release enables stress testing of mobile convergence services, where users can roam from WiFi services on traditional IP networks to cellular networks through the support of wireless codecs and other IMS-related requirements.

For IP telephony applications, the

Hammer NXT v6 has server-based architecture that can generate more than 150,000 simultaneous calls as signaling-only or with real media. Each of these calls can be done using SIP, H.323, MGCP, or NCS signaling over UDP or TCP over IPv4 or IPv6, while generating, receiving, and analyzing different media types for G.711, G.723, G.726, G.729, EVRC, GSM-AMR, GSM-EFR, GSM-FR, and RFC 2833 encoding formats. For more information, visit www.empirix.com.

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