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No. 2352

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MITSUBISHI ELECTRIC DEVELOPS 10GBPS COMPACT OPTICAL TRANCEIVER FOR 80KM FIBER TRANSMISSION WITH HIGH RELIABILITY

TOKYO— February 15, 2005 — Mitsubishi Electric Corporation (President and CEO: Tamotsu Nomakuchi) has developed 10Gbps compact pluggable optical transceiver with 80km reach. The transceiver has highly effective heat spread design, and temperature stability necessary for longer distance transmission has been realized. The transceiver is expected to accommodate well with DWDM¹ version of the transceiver, which needs high stability of temperature to assure wavelength accuracy.

¹ DWDM: Dense Wavelength Division-Multiplexing

Background and Abstract

Broadband communication has grown rapidly all over the world and its transmission rates have been driven from 2.5Gbps to 10Gbps to allow increasing transmission capacity. In addition, pluggable optical transceivers instead of ones with built-in fibers are being requested for low capital expenditure and low operational expenditure. High-density integration in communication systems requires compact size transceivers. High ambient temperature inside the systems and the compactness of the transceivers together make heat dissipation an important issue. The transceiver with efficient heat dissipation structure may lead to high reliability in its operation, which realizes long distance transmission with higher bit rates against signal degradation due to chromatic dispersion in fiber transmission.

In order to meet the above requirement, Mitsubishi Electric develops superior mechanical design for effective heat dissipation structure, which enables long distance transmission, up to 80km, at 10Gbps.

The optical transceiver has 10Gbps optical/electrical interfaces, which are both pluggable. The optical interface is LC receptacle. The electrical interface is XFI² and hot pluggable so that smaller power consumption transceiver, XFP³, can be compatible with a mechanical adaptor. In addition, the optical transceiver can afford 10Gbps DWDM feature with high stability of temperature by utilizing superior heat dissipation design.

² XFI: 10Gbps Serial Interface.

³ XFP: 10 Gigabit Small Form Factor Pluggable Module

Main Features

1. Superior design for effective heat dissipation with built-in heat sink

The transceiver with heat sink offers both compactness and 80km transmission capability at 10Gbps for communication systems with small-size and high transmission capacity. The transceiver is W48.0×D77.8×H12.6 (mm) in size, which is 62% of our previous 10Gbps transceiver.

2. Optical/electrical pluggable interface

LC type receptacle is pluggable fiber interface for easy operation and space saving of the systems. Electrical interface supports XFI, emerging interface in this area, and hot pluggable function for easy operation of the systems. Electrical interface is compatible with XFP so that XFP can connect with the system interface.

3. Multi-rate operation at 10Gbps

The transceiver supports both telecom and datacom rate, including SONET/SDH, IEEE 802.3ae, and Fiber Channel. This feature helps system manufactures and system operators apply one system to multiple areas, such as telecom, datacom, and storage purpose.

Results & Specifications

1. Optimal heat dissipation design makes 80km optical transmission at 10Gbps with a case temperature of 70 degree C.

Heat analysis and experiments result in an optimal design for both long distance transmission at 10Gbps and high power dissipation with higher ambient temperature in system. This transceiver will be able to support 10Gbps DWDM version with high temperature stability.

2. Multi-rate feature at 10Gbps affords both telecom and datacom rates. Pluggable design for both 10Gbps optical and electrical interfaces.

Multi-rate capability supports SONET/SDH, IEEE 802.3ae, and Fiber Channel. Pluggable fiber connector is LC type and 10Gbps electrical interface supports XFI. The mechanical design not only makes the transceiver higher temperature endurance but also affords features that short reach XFP transceiver with low power can exchange the transceiver with mechanical adaptor.

Future Developments

The transceiver of 40km distance version will be shipped in April 2005. The transceiver of both 80km version and DWDM version will be shipped within 2005. Superior heat design technology will lead further more reliable transceivers with better transmission quality. Heat design will contribute more to establish both compactness and high quality of transmission signal in the future communication world.

About Mitsubishi Electric

With over 80 years of experience in providing reliable, high-quality products to both corporate clients and general consumers all over the world, Mitsubishi Electric Corporation (TSE:6503) is a recognized world leader in the manufacture, marketing and sales of electrical and electronic equipment used in information processing and communications, space development and satellite communications, consumer electronics, industrial technology, energy, transportation and building equipment. The company recorded consolidated group sales of 3,309 billion yen (US\$ 31.2billion*) in the fiscal year ended March 31, 2004. For more information visit <http://global.mitsubishielectric.com>

*At an exchange rate of 106 yen to the US dollar, the rate given by the Tokyo Foreign Exchange Market on March 31, 2004.