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**MITSUBISHI ELECTRIC DEVELOPS 10 Gbps DWDM  
ELECTROABSORPTION MODULATOR INTEGRATED LASER DIODE  
MODULE COMPLIANT WITH XMD-MSA**

**Tokyo, April 24, 2007** – Mitsubishi Electric Corporation (President and CEO: Setsuhiro Shimomura) announced today successful development of a cooling type electro absorption modulator integrated DFB-LD<sup>1</sup> (EAM<sup>2</sup>-LD) module for DWDM<sup>3</sup> application. The module is one of the smallest and lowest power consuming in the industry. The DWDM EAM-LD chip (ML9XX44) is mounted in a XMD-MSA<sup>4</sup> compatible Transmitter Optical Sub Assembly (TOSA), which is appropriate for 10 Gbps<sup>5</sup> - 80km (standard single mode fiber) transmission.

<sup>1</sup> Distributed Feedback Laser Diode (DFB-LD): Grating is formed in the cavity of the laser diode, which feeds back the light with a specified wavelength. The DFB-LD emits monochromatic light, which is suitable for the light source in long distance optical communication

<sup>2</sup> Electroabsorption Modulator (EAM): A waveguide optical modulator based on quantum-confined Stark effect (QCSE) of quantum well structure. Upon applying a reverse bias voltage to EAM, the absorption coefficient of the quantum well is increased due to shrinkage of its effective band gap

<sup>3</sup> Dense Wavelength Division Multiplexing (DWDM): A signal transmission technique with multiplexing different wavelengths of light

<sup>4</sup> A 10 Gbps Miniature Device Multi-Source Agreement (XMD-MSA): The MSA has been created to establish compatible sources of optical modules for use in the small optical transceivers, like XFP, XENPAK and so on.

<sup>5</sup> 10 Gbps: Equivalent to transfer of about 18 Compact Disks of data in one second

Model name	Application	Summary
10Gbps DWDM EAM-LD module with thermo-electric cooler	XFP compliant 10 Gbps small-form-factor pluggable optical transceivers	- C band DWDM - Low power consumption - XMD-MSA compliant package

## **Background and Applications**

With increased Internet traffic in recent years, demand has been increasing for 10 Gbps optical transmission devices installed in long distance trunk lines and middle distance lines in metropolitan areas. Small form factor optical transceiver devices that are compliant to the XFP industry standard have already started being used for 10Gbps optical transmission, however optical devices with receptacle type laser diode modules capable of 10Gbps DWDM optical transmission have been sought to further expand transmission volume.

Mitsubishi Electric's new DWDM EAM-LD module is suitable for 10 Gbps small-form-factor optical transceivers like XFP, enabling cost-effective 10 Gbps optical links for long distance (longer than 40 km) and metropolitan-area applications with the high board density.

## **Main characteristics**

### ***Low maximum power consumption of 0.5W***

The new DWDM EAM-LD module can transmit high quality 10 Gbps optical signal with a typical low maximum power consumption of less than 0.8 W. Using Mitsubishi's original high frequency interconnection technology, we have successfully developed a high frequency signal transmission line in the module, which cannot be an influx route of heat outside from the module so as to result in a degradation of its cooling capacity of its thermo-electric cooler.

### ***XMD-MSA Compliant***

We have enhanced interface compatibility of the module by complying with the XMD-MSA specifications. The XMD-MSA specifies both electrical and mechanical interface requirements for the small optical transceiver modules including XFP. In particular, a flexible printed circuit (FPC) on its common electrical interface standard is a main feature of the MSA. The developed module uses a small and efficient thermo-electric cooler, allowing optical transceivers to consume less power.

## **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 3,604 billion yen (US\$ 30.8 billion\*) in the fiscal year ended March 31, 2006. For more information visit <http://global.mitsubishielectric.com>

\*At an exchange rate of 117 yen to the US dollar, the rate given by the Tokyo Foreign Exchange Market on March 31, 2006.