

**FOR IMMEDIATE RELEASE**

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## **Mitsubishi Electric Develops Dual-rate Burst-mode Optical Transceiver for 10G-EPON Systems**

*World's first transceiver for GE-PON and 10G-EPON*

**Tokyo, March 25, 2010** – Mitsubishi Electric Corporation (TOKYO: 6503) announced today it has developed the world's first dual-rate burst-mode optical transceiver that enables the coexistence of GE-PON and 10G-EPON, which is used in optical line terminals. This announcement will also be made today at OFC/NFOEC2010 (Optical Fiber Communication Conference and the National Fiber Optic Engineers Conference) held in San Diego, USA.

The transceiver will be integral to cost-effectively installing 10G-EPON systems on existing fiber plant networks. This will enable the optical access system to provide a faster, more economic connection by using existing optical fiber networks effectively.

Part of this work was supported by the National Institute of Information and Communications Technology.

### **Background**

In the current, FTTH optical access system, the 1Gbps GE-PON is being extensively utilized. But with the recent growth of internet traffic, an optical access system of 10G-EPON that can transmit data 10 times faster is expected to provide users with a more comfortable online environment, such as easier high-definition video delivery and bulk file transfers.

When the 10G-EPON system is introduced, to reduce costs for laying fibers and equipment, both the GE-PON and 10G-EPON systems are required to be installed in the same fiber. To downstream from an Optical Line Terminal (OLT) to an Optical Network Unit (ONU) a mixed installation using multiple wavelength systems that multiplex 1Gbps signals and 10Gbps signals in different wavelengths is required. To upstream from ONU to OLT, a mixed installation using time-division multiplexing systems that multiplex them in the same wavelength is required. The biggest challenge is the development of a 10G/1G Dual-rate Burst 3R Transceiver for 10G-EPON corresponding to those systems.

## Main Developments

### 1) Dual-rate burst-mode 3R transceiver enabling co-existing of 10G-EPON and GE-PON s

Mitsubishi Electric has developed key devices for dual-rate burst-mode optical transceiver to enable the coexistence of GE-PON with 10G-EPON. The key devices achieve the world's highest receiver sensitivity.

(1) Chip set for dual-rate burst-mode receiving circuit

Burst-mode preamplifier IC and limiting amplifier IC are developed, which can switch their gain and bandwidth optimized for 10Gbps and 1Gbps receiver less than 800ns

(2) 82.5GS/s sampling CDR (Clock and Data Recovery) for dual-rate operation

Burst-mode CDR consists of 82.5GS/s sampling IC, the world's fastest sampling speed, and a dual-rate data selector logical circuit

### 2) Optical performances complying with the strictest standards IEEE802.3av PR30 standards

Mitsubishi Electric developed optical devices (EML, DFB, APD-preamplifier) and a triplexer optical module, which fully meet the IEEE802.3av PR30 standards. They are integrated into a XFP-E-sized 2R transceiver. Their excellent transmission performance enables a loss budget of 29dB, the split ratio of 32 and a maximum transmission distance of SMF 20km, effectively utilizing existing fiber plant networks for coexistent GE-PON and 10G-EPON systems.

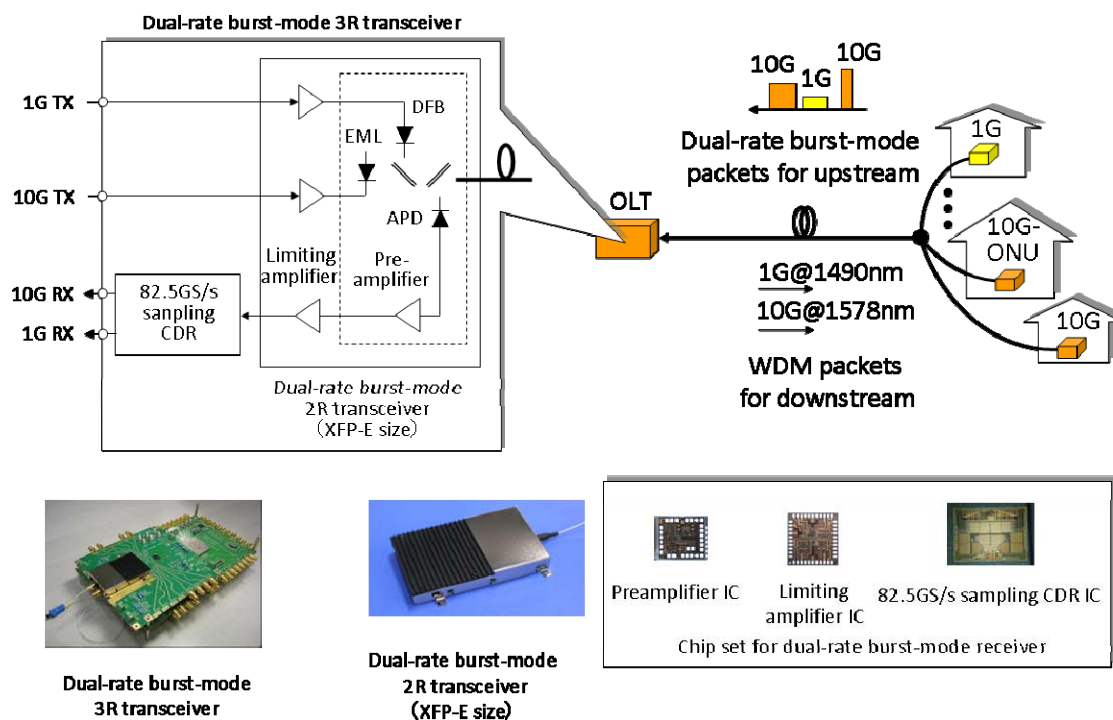


Fig.1 General structure of 10G-EPON systems and the developed dual-rate burst-mode 3R transceiver

**Patents**

The technologies announced in this press release encompass 25 Japanese and 9 international patents pending.

**About Mitsubishi Electric**

With over 85 years of experience in providing reliable, high-quality products to both corporate clients and general consumers all over the world, Mitsubishi Electric Corporation (TOKYO: 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 3,665.1 billion yen (US\$ 37.4 billion\*) in the fiscal year ended March 31, 2009. For more information visit <http://global.mitsubishielectric.com>

\*At an exchange rate of 98 yen to the US dollar, the rate given by the Tokyo Foreign Exchange Market on March 31, 2009.