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MITSUBISHI ELECTRIC ANNOUNCES TURBO CODE BASED FORWARD ERROR CORRECTION LSI FOR 10 Gbps OPTICAL FIBER COMMUNICATIONS SYSTEMS

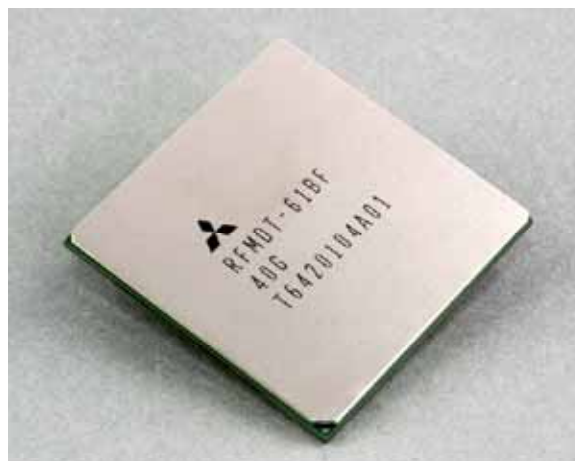
Tokyo, December 7, 2005 – Mitsubishi Electric Corporation (President and CEO: Tamotsu Nomakuchi) announced today the development of a turbo code¹ based forward error correction (FEC) LSI capable of a world record correction of up to a 2% bit error ratio. This LSI is in compliance with the ITU-T² G.709 standard for next generation optical networks. This state of the art FEC LSI gives systems worldwide outstanding transmission capacity and range.

¹Turbo code: a class of high-performance error correction codes, widely used in mobile communications.

²The telecommunications branch of the Int'l Telecommunication Union is responsible for standardizing telecommunications technology.

Product Summary

Product	Turbo code FEC LSI
Net coding gain	10.1 dB at 1×10^{-13}
LSI Design Rule	0.13 micrometers
LSI gate number	16 million
Port pin number	1024
Overall size	4x4 cm.



Background

With increasing demand for data and video services, there has emerged a pressing need to create a broadband inter-city backbone network that can handle increasing transmission capacity. Fiber optic communications are an important technology in supporting broadband networking. However, as transmission capacity increases, optical power per bit decreases, causing the signal to degrade and to not be transmitted correctly to

the receiver. This is known as bit error, and has been a major problem with transmission capacity. The forward error correction method widely used currently to handle this problem is the ITU-T standardized Reed-Solomon code. However the amount of bit errors it can correct is limited.

A turbo code capable of correcting the high bit errors of wireless communications etc. does exist. While these wireless systems can be used at transmission speeds in the Mbps range, signal-processing speed becomes a limiting factor at fiber optic speeds of 10Gbps, and application of high-speed systems with LSI conversion has been difficult. In 2003, Mitsubishi Electric proposed a turbo code FEC for fiber optic communications, and succeeded in verifying this error correction principle.

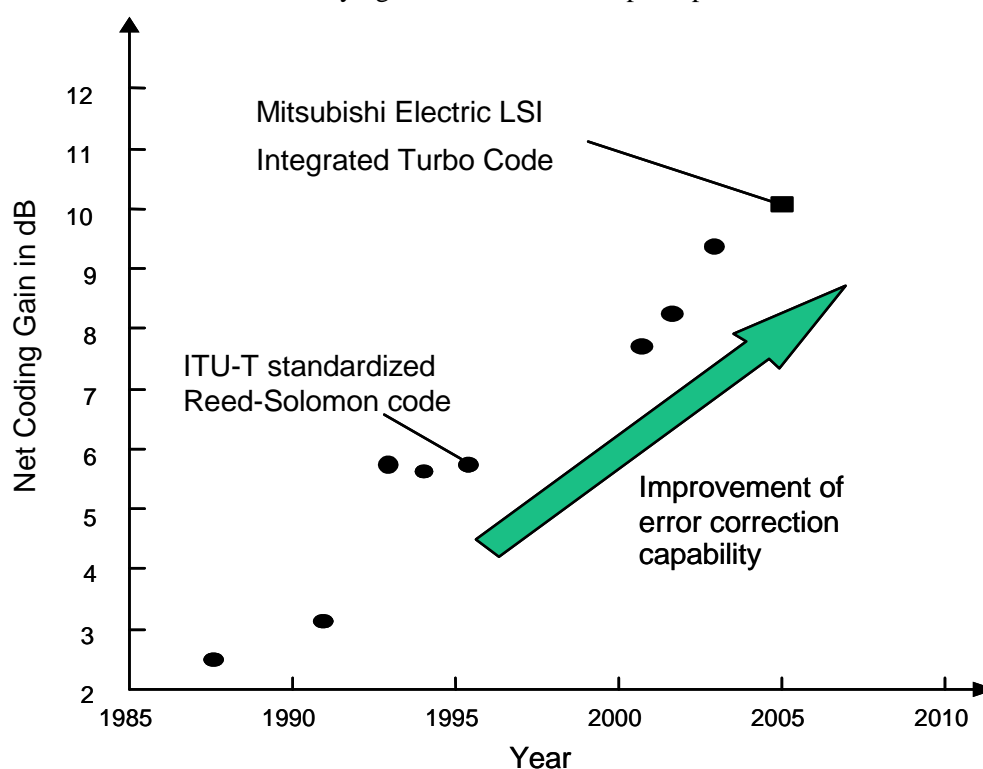


Fig.1 Recent progress in FECs for optical communications.

With this release, we have succeeded in integrating a turbo code error correction circuit on one LSI chip by using Mitsubishi's signal processing algorithm and high-speed circuitry design. We feel that this work represents a significant contribution to the future of optical communications systems.

Features

1. Integration of turbo code circuitry on 1 LSI chip

Using the current Reed-Solomon code, correction of errors up to a ratio only 0.014% of the transmitted information was possible. Using this turbo code based forward error correction LSI enables the correction of a bit error ratio of 2%. This is the world's highest error correction capability. Such high performance makes

possible an approximately 3 times increase in transmission capability. The available number of multiplexed wavelengths could increase from 32 to 96, or transmission distance could be extended from 1000 km to 3000 km.

2. ITU-T next generation optical communication network (rec. no. G.709) Compliant

The full compliance to ITU-T recommendation G.709 makes it easier to connect between telecommunications providers and vendors.

3. Capable of expansion to 40 Gbps optical communications

By using 4 of these LSI chips, it will be possible to apply them to the 40Gbps optical communications backbone systems expected in the future.

Future Developments

Mitsubishi Electric hopes to develop an optical communication terminal using this LSI within one year.

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 3,410 billion yen (US\$ 31.9billion*) in the fiscal year ended March 31, 2005. For more information visit <http://global.mitsubishielectric.com>

*At an exchange rate of 107 yen to the US dollar, the rate given by the Tokyo Foreign Exchange Market on March 31, 2005.

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