

Fujitsu Microelectronics Launches Low-Power Consumption 256Mbit FCRAM for Digital Consumer Electronics

Tokyo, June 26, 2008 - Fujitsu Microelectronics Limited (FML) announced today the development of a 256Mbit Consumer FCRAM(1) product for digital consumer electronics, the MB81EDS256545. The new FCRAM product runs on low power consumption and is ideal for system-in-package (SiP)(2) designs, with samples available from today. Key product features include a 64-bit I/O, low power DDR SDRAM interface that enables data transfer capabilities equivalent to two DDR2 SDRAMs(3) with 16-bit I/O, while reducing power consumption by a maximum of approximately 1 watt (1W) (equivalent to approximately 70%)(4), thus contributing to power savings for digital consumer electronics. The new product is ideal for consumer electronics products that require low power consumption, such as digital televisions and camcorders.

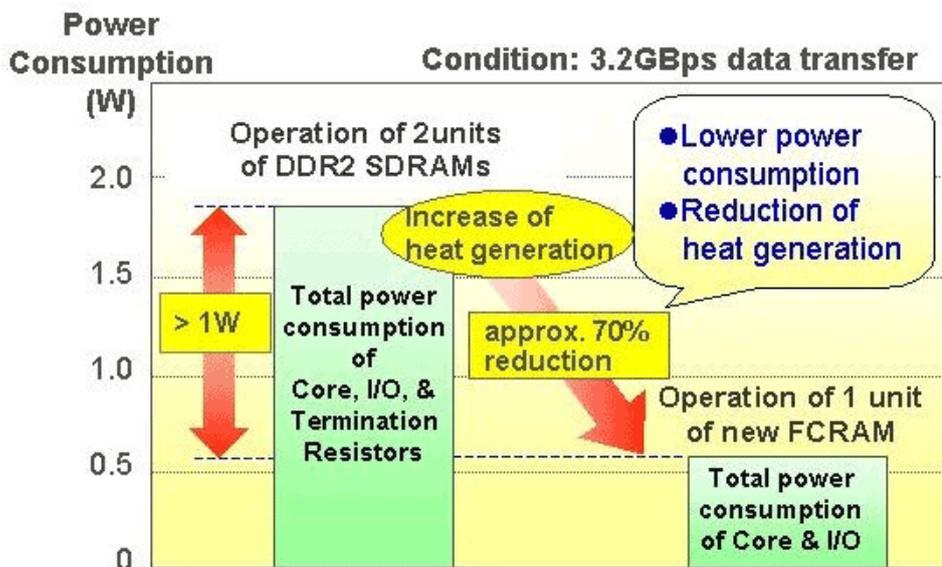


Figure 1: Power consumption comparison of new FCRAM vs. DDR2 SDRAM

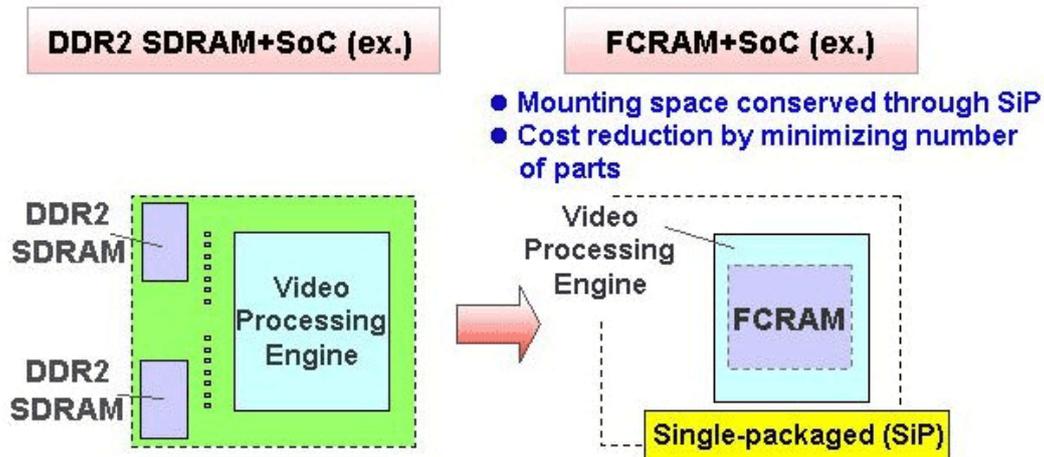


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In recent years, while the electronic components that drive digital consumer electronics have become higher in performance and feature integrated functionalities, an issue to overcome had been how to handle the rise in heat generation, attributable to smaller chips and efforts made to make consumer electronics more power-efficient. This has led to a need for components with low power consumption.

Fujitsu Microelectronics' new FCRAM features data transfer capabilities equivalent to two DDR2 SDRAM devices with 16-bit I/O, yet operates on up to approximately 1W less power consumption (about 70% less). This power savings helps reduce the power consumption for consumer electronics, while better heat dissipation simplifies product development and lowers component costs.

Fujitsu Microelectronics anticipates that this memory can be a replacement for conventional RAMs for use in digital consumer electronics that require lower power consumption, such as digital televisions and camcorders, and will provide solutions featuring ideal product value and cost.

Sample Price and Availability

Product Name	Sample Price	Sample Shipment
MB81EDS256545	JPY 1000	From June 26, 2008

Sales Target

1 million units/ month

Key Features

1. **Data transfer on par with DDR2 SDRAM on maximum 1W less power consumption**
 DDR2 SDRAM and other high-speed memory interfaces require termination resistors⁽⁵⁾ to maintain stable signals, which consume much electricity. The new product uses a wide 64-bit I/O, so that it can run at a lower operating frequency and dispense with termination resistors, resulting in performance equivalent to two DDR2 SDRAMs with 16-bit I/O, while requiring about 1W less power consumption, or a 70% reduction (see Figure 1).

2. **High-speed processing of large-scale image data at double the performance speeds of DDR2 SDRAM**

With a 64-bit-wide I/O and operating frequencies up to 216 MHz, this product has a maximum data transfer rate of 3.46 gigabytes per second (3.46 GBps), double that of typical DDR2 SDRAM. This makes it well-suited for processing of image/video data and other data types that demand high bandwidth, such as digital television.

3. **Memory designed for SiP helps conserve mounting space**

This product is designed to be integrated with logic chips into a SiP, thus requiring less mounting space on circuit boards and thereby reducing costs for components and the board material itself. In addition to being offered in a wafer form for SiP integration, FML's new FCRAM is also offered as a wafer level package (WLP)⁽⁶⁾ (see Figure 2).

Glossary and Notes

1 Consumer FCRAM:

Fast Cycle Random Access Memory (FCRAM) is Fujitsu's proprietary RAM core architecture featuring high-speed and low power consumption. Consumer FCRAM refers to a type of FCRAM product that combines the FCRAM core with an industry-standard low power DDR SDRAM interface for digital consumer electronics.

2 System-in-package (SiP):

Refers to the technologies or products that are comprised of a single package that contains diverse semiconductor devices, such as memory and logic chips.

3 DDR2 SDRAM:

Double Data Rate 2 Synchronous Random Access Memory, a standard for DRAM. Compared to DDR SDRAM (transfer speeds are double the SDRAM's), DDR2 runs faster and at lower power consumption. This is the mainstream DRAM device currently available on the market.

4 Reduction of power consumption:

Comparison calculated based on data transfer of 3.2GBps using one unit of the new product and two DDR2 SDRAMs from a competitor. Because a large proportion of the DDR2 SDRAM's total power consumption was accounted for by the termination resistors, eliminating them makes a significant contribution to power savings.

5 Termination resistors:

Resistors attached to circuit wiring or signal terminals, used to prevent the signal being distorted due to reflection. DDR2 SDRAM uses "on die termination" (ODT) built the resistors into the chip.

6 Wafer level package (WLP) :

A compact, chip-sized package. After packaging processes such as solder bumping and marking are carried out in the wafer form, each WLP device is individually cut off by dicing.

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<https://www-s.fujitsu.com/global/news/contacts/inquiries/index.html>

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Fujitsu Microelectronics FCRAM

About Fujitsu Microelectronics (FML)

Fujitsu Microelectronics Limited designs and manufactures semiconductors, providing highly reliable, optimal solutions and support to meet the varying needs of its customers. Products and services include ASICs/COT, ASSPs, power management ICs, and flash microcontrollers, with wide-ranging expertise focusing on imaging, wireless, automotive and security applications. Fujitsu Microelectronics also drives power efficiency and environmental initiatives. Headquartered in Tokyo, Fujitsu Microelectronics Limited was established as a subsidiary of Fujitsu Limited on March 21, 2008. Through its global sales and development network, with sites in Japan and throughout Asia, Europe, and the Americas, Fujitsu Microelectronics offers semiconductor solutions to the global marketplace. For more information: <http://jp.fujitsu.com/group/fml/en/>

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MB81EDS256545 Key Specifications

Organization	1M-word x 64-bit x 4-bank
Supply Voltage	1.7V to 1.95V
Burst Operating Frequency	216MHz (Max.)
Data Transfer Rate	3.46GBps (Max.)
Clock Access Time	4.6ns (Max.)
Operating Current (Burst Read)	300mA (Max.)
Deep Power Down Current	20 μ A (Max.)