FM3 Family of 32-bit Microcontrollers Expanded with 64 New Products

Offerings include industry's first high-speed 2-channel Ethernet-MAC support, ultra-low power product group

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Yokohama, Japan, September 6, 2011 - Fujitsu Semiconductor Limited today announced the launch of the third wave of products in its FM3 Family of new 32-bit RISC microcontrollers based on the ARM® Cortex™-M3 processor core, which debuted in November of last year. In total, Fujitsu Semiconductor is releasing 64 new products, which incrementally will be made available in sample quantities.

The new products are divided into two groups: a High Performance Group with a total of 54 products that includes the MB9B610/510/410/310/210/110 Series, the MB9BF618TPMC, and other products; and an Ultra Low Leak Group with a total of 10 products that includes the MB9A130 Series, the MB9AF132LPMC, and other products.

The MB9B610/510/410/310/210/110 Series in the High Performance Group are designed for processor-intensive system controllers and communications-oriented systems, with CAN and USB2.0 functionality, as well as the industry's first 2-channel Ethernet-MAC support.

Meanwhile, the MB9A130 Series in the Ultra Low Leak Group is optimized for a broad range of battery-powered applications and low-cost products.

The FM3 Family combines a Cortex™-M3 core with ancillary functions developed for the FR microcontrollers. The addition of the 54 products in the High Performance Group and 10 products in the Ultra Low Leak Group brings the FM3 Family to a total of 160 products to suit every application. Fujitsu Semiconductor plans to continue expanding the line to reach 200 products by the end of 2011, and more than 500 products by the end of FY2012.

Product Overview

High Performance Group: MB9B610/510/410/310/210/110 Series
Ramping up the clock rate from 80 MHz used in existing products in the High Performance Group to 144 MHz dramatically increases processing capacity. In addition to previously-offered ancillary functions, the new products also include two channels each for Ethernet-MAC, an industry first, USB2.0 and CAN.

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shaping tomorrow with you

Flash memory is available in 1MB and 512KB alternatives, and packaging in 176-pin and 144-pin alternatives.

With a high-speed CPU and onboard flash memory, even at 144 MHz, read-operation responses incur no wait time, for high-speed processing.

These products are ideal for applications that demand high-speed processing, including system controllers, office equipment, programmable controllers, and other automated factory equipment.

Ultra Low Leak Group: MB9A130 Series
This series inherits the high-performance ancillary functions of its more advanced family members in the High Performance Group and Basic Group, in a concise series of products with dramatically lowered power requirements and reduced costs.

Products in this group are available with 128KB to 64KB of flash memory and in 64-pin to 48-pin packages.

Thanks to a low-power CPU and power-gating technology, these products draw less electricity, helping to extend battery runtimes. And because they can be run over a wide range of driving voltages, from 1.8 V to 5.5 V, they are well-suited to a wide range of battery-powered applications, including medical equipment, home electronics, and digital entertainment equipment.

Reference Sample Price and Release Schedule

High Performance Group:

Product Name	Sample Price（With TAX）	Sample Delivery
MB9BF618TPMC	780yen(*)	From September 2011

*: Unitprice at 1,000 pieces in order

Ultra Low Leak Group:

Product Name	Sample Price（With TAX）	Sample Delivery
MB9AF132LPMC	250yen(*)	From September 2011

*: Unitprice at 1,000 pieces in order

Sales Target

2,000,000 pieces per month when in mass-production. (Total of 64 products)

FM3 Product Roadmap

For More Information:
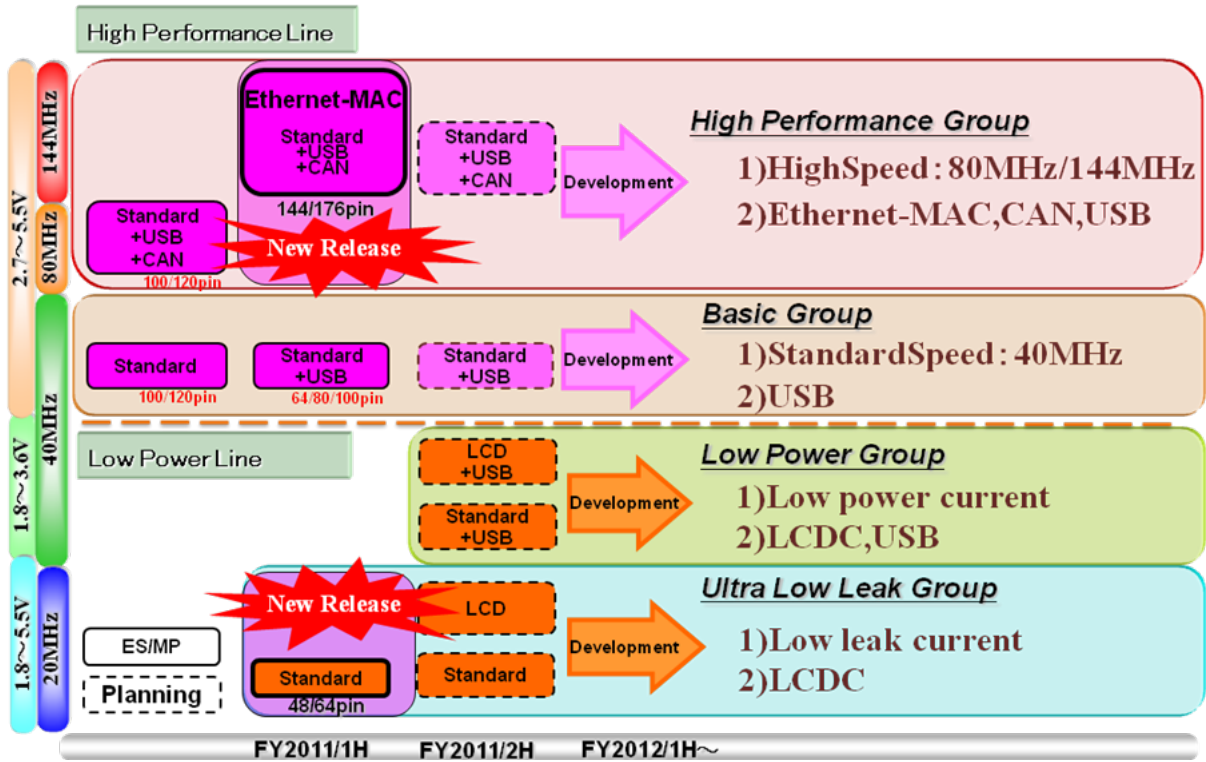
http://jp.fujitsu.com/group/fsl/en/ (Fujitsu Semiconductor)
http://www.fujitsu.com/global/services/microelectronics/product/micom/roadmap/industrial/fm3/
(FM3 Families)

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About Fujitsu Semiconductor Limited (FSL)

Fujitsu Semiconductor Limited designs, manufactures, and sells semiconductors, providing highly reliable, optimal solutions and support to meet the varying needs of its customers. Products and services include microcontrollers, ASICs, ASSPs, and power management ICs, with wide-ranging expertise focusing on mobile, ecological, automotive, imaging, security, and high-performance applications. Fujitsu Semiconductor also drives power efficiency and environmental initiatives. Headquartered in Yokohama, Fujitsu Semiconductor Limited (formerly named 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 Semiconductor offers semiconductor solutions to the global marketplace.

For more information: http://jp.fujitsu.com/group/fsl/en/

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Appendix

Features of the High Performance Group: MB9B610/510/410/310/210/110 Series

1. Higher performance with high-speed flash memory

The new additions to this group have dramatically increased processing capacity, more than double previous products in the group. The access speed of reliable, fast NOR-type flash memory allows read operations with no wait time, and this high-speed memory access results in class-leading processing capacity that makes the most of the CPU's innate performance. The new products inherit the reliability of their predecessors, handling 100,000 write operations and 20-year retention performance.

2. Dramatically strengthened communications functions, Ethernet-MAC support newly added

The new products in the group bring greatly expanded communications functions, including a new 2-channel Ethernet-MAC controller, as well as 2-channel USB2.0 host functionality (MB9BF610), 2-channel CAN (MB9BF510/410). This makes them idea for a wide range of networked applications, including industrial systems equipment, inverter controllers, servomotor controllers, BEMS/HEMS and other eco-management equipment, and office equipment.

Figure 1. MB9B610 Series

Also, with built-in support for IEEE1588, these products can be used for time-synced communications between machinery in an automated factory setting.
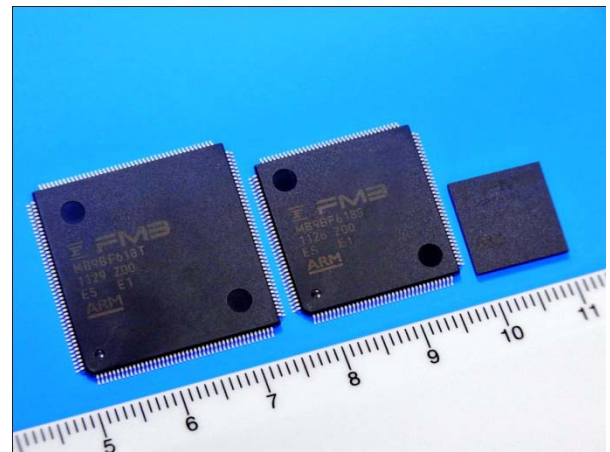
3. Runs on wide range of operating voltages for maximum power-supply compatibility

The FM3 family runs on operating voltages ranging from 2.7V to 5.5V. The 5V range is preferable for power supplies in factory equipment as is more resistant to noise, and likewise for use in control equipment and motor controllers, which are often used in noisy environments. Support for this voltage range makes these products ideal for such noisy environments.

4. Ancillary macro set implements high-precision motor control

These new products inherit the ancillary functions set from the FR microcontrollers, which have an established reputation for motor control, and they also have been optimized for precision motor control with a new set of ancillary macros. In particular, a high-precision, high-speed changing 12-bit A/D converter is effective for use in high-precision, high-speed servomotors and the like. With 3 units and up to 16 channels, motor-phase precision is improved for very fine-grained control.

While a motor's rotation phase can be detected using existing software, the built-in quad counter (motor rotation-phase detection counter) can handle this at the hardware level, reducing the load on the CPU. This product can reduce power demands in inverter systems.

Products Line-up

High Performance Group: MB9B610/510/410/310/210/110 Series

Operating Frequency (Max.)	Package	Peripheral			FLASH/RAM		
		Ethernet-MAC	USB2.0 Host/Function	CAN	512KB/64KB	768KB/96KB	1MB/128KB
144MHz	BGA-192pin 0.8mm pitch	2	2	–	MB9BF515TBGL	MB9BF517TBGL	MB9BF518TBGL
		–	2	2	MB9BF515TBGL	MB9BF517TBGL	MB9BF518TBGL
		–	–	2	MB9BF415TBGL	MB9BF417TBGL	MB9BF418TBGL
		–	2	–	MB9BF315TBGL	MB9BF317TBGL	MB9BF318TBGL
		1	2	–	MB9BF215TBGL	MB9BF217TBGL	MB9BF218TBGL
		–	–	–	MB9BF115TBGL	MB9BF117TBGL	MB9BF118TBGL
	LQFP-176pin 0.5mm pitch	2	2	–	MB9BF516TPMC	MB9BF517TPMC	MB9BF518TPMC
		–	2	2	MB9BF515TPMC	MB9BF517TPMC	MB9BF518TPMC
		–	–	2	MB9BF415TPMC	MB9BF417TPMC	MB9BF418TPMC
		–	2	–	MB9BF315TPMC	MB9BF317TPMC	MB9BF318TPMC
		1	2	–	MB9BF215TPMC	MB9BF217TPMC	MB9BF218TPMC
		–	–	–	MB9BF115TPMC	MB9BF117TPMC	MB9BF118TPMC
	LQFP-144pin 0.5mm pitch	2	2	–	MB9BF516SPMC	MB9BF517SPMC	MB9BF518SPMC
		–	2	2	MB9BF515SPMC	MB9BF517SPMC	MB9BF518SPMC
		–	–	2	MB9BF415SPMC	MB9BF417SPMC	MB9BF418SPMC
		–	2	–	MB9BF315SPMC	MB9BF317SPMC	MB9BF318SPMC
		1	2	–	MB9BF215SPMC	MB9BF217SPMC	MB9BF218SPMC
		–	–	–	MB9BF115SPMC	MB9BF117SPMC	MB9BF118SPMC

Features of the Ultra Low Leak Group: MB9A130 Series

1. Handles wide range of operating voltages
Products in this group can run on operating voltages ranging from 1.8V to 5.5V. While 5V power supplies are used in home appliance and office equipment destined for emerging nations, 1.8V driving voltages are suited to battery-powered devices. Support for this range of voltages gives these products a broader range of potential applications.

2. Easy-to-use power-saving mode
This product group incorporates six kinds of power-saving technologies to suit different kinds of power-saving requirements. These are: sleep mode, timer mode, RTC mode, stop mode, deep-standby RTC mode, and deep-standby stop mode.

When using RTC mode under date and time management, the product draws an extremely low 1.6 µA of power. In deep-standby RTC mode, where power to the flash memory is shut off, it draws an even lower 1.2 µA, among the lowest power requirements in the industry.
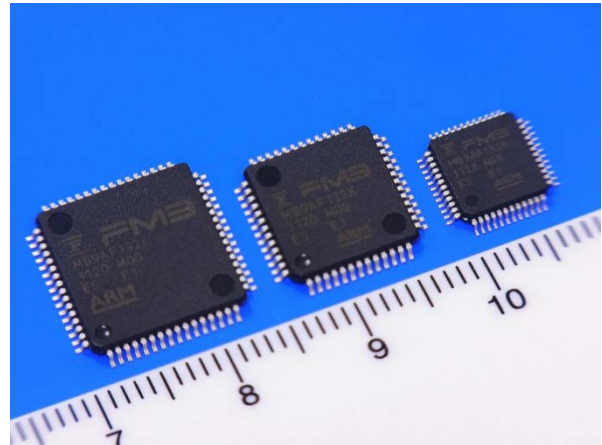

Figure 2. MB9A310 Series

3. High-reliability, high-speed flash for industry-leading performance
Highly reliable NOR-type flash memory can handle up to 100,000 write operations and has 20-year retention performance. High-speed memory access allows fast access with no wait times up to 40 MHz.

4. Ancillary macro set implements high-precision motor control
These new products inherit the ancillary functions set from the FR microcontrollers, which have an established reputation for motor control, and they also have been optimized for precision motor control with a new set of ancillary macros. In particular, a high-precision, high-speed changing 12-bit A/D converter is effective for use in sensing and sensor network equipment, as well as smart grids. With 1 unit and up to 8 channels, every type of sensor can be traced quickly and accurately.

Products Line-up

Ultra Low Leak Group: MB9A130 Series

Operating Frequency (Max.)	Package	FLASH/RAM	
		64KB/8KB	128KB/8KB
20MHz	LQFP-64pin 0.5mm pitch	MB9AF131LPMC1	MB9AF132LPMC1
	LQFP-64pin 0.65mm pitch	MB9AF131LPMC	MB9AF132LPMC
	QFN-64pin 0.5mm pitch	MB9AF131LQN	MB9AF132LQN
	LQFP-48pin 0.5mm pitch	MB9AF131KPMC	MB9AF132KPMC
	QFN-48pin 0.5mm pitch	MB9AF131KQN	MB9AF132KQN