Press Release

Fujitsu Releases 44 Products as Initial Offering of New FM3 Family of 32-bit Microcontrollers

Combines global-standard Cortex™-M3 with peripheral features cultivated through FR core family

Yokohama, Japan, November 4, 2010 – Fujitsu Semiconductor Limited today announced the release of 44 microcontrollers, the initial offering of chips from its new FM3 family of 32-bit general-purpose RISC microcontrollers using the ARM® Cortex™-M3 core. Samples of the new chips will begin shipping from late November 2010, with volume shipping to be gradually rolled out starting in late January 2011.

FM3 is a family of 32-bit microcontrollers that employs the ARM® Cortex™-M3 global-standard processor core, and incorporates a wide variety of peripheral features which have been cultivated through the Fujitsu's years of experience developing its FR microcontrollers. In terms of existing markets for 32-bit and 16-bit microcontrollers, the FM3 family will offer the High-Performance MB9BF500/400/300/100 Series for the 32-bit market, which demands high-speed performance, and the Basic MB9AF100 Series for the 16-bit market, which requires superior cost-performance and low power consumption.

The FM3 family, which employs the high-performance ARM® Cortex™-M3 core, combines Fujitsu's wealth of experience in implementing ASIC products using ARM® cores with the peripheral features cultivated through the FR microcontroller family, which has gained broad market acceptance. As an initial offering, Fujitsu will begin volume production of a total of 44 products from both the high-performance and basic product lines.

The product lineup has been enhanced to include models for use in from high-performance applications that require advanced control, such as factory automation systems, to basic applications, such as major home appliances (air conditioners, refrigerators, washing machines, etc.), digital consumer devices and office automation devices.

Figure 1: Product sample (MB9BF506R) for high-performance applications

Through collaborations with approximately 700 third-party ARM® vendors both inside and outside of Japan, as well as strengthening of its technical support department and technical sales units, Fujitsu will propose proprietary solutions. Moreover, Fujitsu will contribute to the development of its customers' products by establishing technical support units at 18 locations outside of Japan in order to enhance its global support structure.

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1. High-Performance MB9BF500/400/300/100 Series

The High-Performance MB9BF500/400/300/100 Series is based on a core designed to enable superior processing performance while consuming less power. The series features peripheral functions which have been cultivated through the FR family of microcontrollers and have been optimized for the uses in servo control for factory automation applications and in inverter control, to increase system power efficiency.

Through its high-speed CPU and flash memory, the microcontrollers can respond without time lag at up to 60MHz. In addition, through its high-speed 12-bit A/D converter (1.0μs), as well as its various timers, USB2.0 Host/Function, CAN, and ability to operate with a wide range of power supplies (5.5V to 2.7V), the microcontrollers offer a perfect motor solution for use in servo control for factory automation applications.

2. Basic MB9AF100 Series

The Basic MB9AF100 Series features limited versions of the advanced peripheral functions of the high-performance product line, as well as power saving technology. Optimized primarily for major home appliances(air conditioners, refrigerators, washing machines, etc.), digital consumer devices and office automation devices, the performance of this series is higher than that of conventional 16-bit microcontrollers.

Features of the FM3 Family

1. High-reliability, high-speed flash memory is among the industry's fastest

The microcontrollers are embedded with high-speed, high-reliability NOR flash memory which boasts a long track record and years of refinement. The memory is designed for 100,000 write cycles and can retain data for up to 20 years. Featuring among the fastest memory access in its class, it can respond without time lag at up to 60MHz.

2. Peripheral macros for high-precision motor control

In addition to succeeding to the peripheral features from the FR microcontroller family which has a proven reputation in motor control applications, Fujitsu has implemented a wide variety of newly-improved peripheral macros in order to meet the needs of high-precision motor control.

In particular, equipped with a high-precision and high-speed 12-bit A/D converter (+/-2LSB 1.0μs conversion), the microcontroller's high-precision sampling enables fine-tuned motor control and demonstrates its true potential when employed in high-precision, high-speed servo motors and other equipment in factory automation applications. The microcontroller's 3-unit 12-bit A/D with up to 16 channels allows for improved positional accuracy, making fine-tuned motor control possible.

Although the rotational position of the motor has conventionally been detected through software using the CPU, the FM3 family includes a new motor rotational position sensing counter, enabling automatic detection and making it possible to reduce the CPU workload. Employing this product makes it possible to reduce the amount of power consumed by inverter systems.

3. Applicable in a wide range of applications using different power supply systems

The FM3 family is able to operate on 5.5V-2.7V power supply. Most microcontrollers using Cortex™-M3 cores operate only on power supply of 3.6V or lower, so they cannot be used for 5V systems. The FM3 family of microcontrollers, on the other hand, meets the market's strongly-rooted need for microcontrollers that operate on 5V, making them ideal for applications such as factor automation equipment and major home appliances.

Sample Price and Release Schedule

Product	Price	Sample release schedule
MB9BF506RPMC	650 Yen	Sequentially, from late November 2010

Sales Target

1 million units/month from 2011 (Mass-product)

For More Information
Fujitsu Semiconducutor:
http://jp.fujitsu.com/group/fsl/en/
Cortex^{TM}-M3 FM3 Family :
http://www.fujitsu.com/global/services/microelectronics/product/micom/roadmap/industrial/fm3/

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Inquiries: https://www-s.fujitsu.com/jp/group/fsl/en/release/inquiry.html

About Fujitsu Semiconductor
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

Key Specification of MB9BF500/400/300/100 Series

| Operating Frequency (Max.) | Package | Function | | Flash/RAM | | |
		CAN (32 Memory Buffer)	USB2.0 Host/Function	256KB/32KB	384KB/48KB	512KB/64KB
80MHz	LQFP-120pin	2	1	MB9BF504RPMC	MB9BF505RPMC	MB9BF506RPMC
		2	-	MB9BF404RPMC	MB9BF405RPMC	MB9BF406RPMC
		-	1	MB9BF304RPMC	MB9BF305RPMC	MB9BF306RPMC
		-	-	MB9BF104RPMC	MB9BF105RPMC	MB9BF106RPMC
	BGA-112pin	2	1	MB9BF504NBGL	MB9BF505NBGL	MB9BF506NBGL
		2	-	MB9BF404NBGL	MB9BF405NBGL	MB9BF406NBGL
		-	1	MB9BF304NBGL	MB9BF305NBGL	MB9BF306NBGL
		-	-	MB9BF104NBGL	MB9BF105NBGL	MB9BF106NBGL
	LQFP-100pin	2	1	MB9BF504NPMC	MB9BF505NPMC	MB9BF506NPMC
		2	-	MB9BF404NPMC	MB9BF405NPMC	MB9BF406NPMC
		-	1	MB9BF304NPMC	MB9BF305NPMC	MB9BF306NPMC
		-	-	MB9BF104NPMC	MB9BF105NPMC	MB9BF106NPMC

Key Specification of MB9AF100 Series

| Operating Frequency (Max.) | Package | Function | | Flash/RAM | |
		CAN (32 Memory Buffer)	USB2.0 Host/Function	128KB/16KB	256KB/32KB
40MHz	LQFP-120pin	-	-	MB9AF102RPMC	MB9AF104RPMC
	BGA-112pin	-	-	MB9AF102NBGL	MB9AF104NBGL
	LQFP-100pin	-	-	MB9AF102NPMC	MB9AF104NPMC
	QFP-100pin	-	-	MB9AF102NPF	MB9AF104NPF