Press Release

May 30, 2011
Fujitsu Semiconductor Limited

# Fujitsu Enhances Microcontroller Product Lineup to Support Global Automobile Needs

## *To release 113 products, including 16-bit and 32-bit microcontrollers*

**Yokohama, Japan, May 30, 2011 —** Fujitsu Semiconductor Limited today announced, in order to support a wide range of requirements resulting from the globalization of the automobile industry, the release of 113 microcontrollers, including chips from the MB96600 Series of 16-bit microcontrollers and chips from the MB91520 Series of 32-bit microcontrollers. Samples of the new chips will gradually begin shipping, starting today. In combination with the MB91570/MB91580/MB91590 Series of 32-bit microcontrollers, which already launched last year, the two new series will enable comprehensive support for all kinds of automotive applications.

In recent years, a pressing need has emerged among manufacturers of automobile systems to support the widespread use of eco-friendly, fuel-efficient cars as a way of fighting global warming. Moreover, there is increased need for higher-quality safety and comfort features in automobiles that are sold in developed countries, as well as heightened demand for compact cars in quickly-growing emerging markets, such as China, India and Brazil. In order to accommodate these varying needs, next-generation automobile Electronic Control Unit (ECU) systems are beginning to require a lineup of microcontrollers that can handle a wide variety of requirements.

The new microcontroller lineup is eco-friendly, enabling a significant reduction of over 25% in power consumption compared to existing products. At the same time, Fujitsu Semiconductor has expanded the new lineup to deliver a wide-range of products that offer fine-tuned support for customer requirements, ranging from multi-function systems for developed countries to simpler systems for emerging markets. In addition, all of the products come standard with flash memory for data storage which reduces system costs, as well as a low-voltage detection circuit, a CR oscillation circuit, and a hardware watchdog circuit. The chips also come standard with an A/D converter for reducing software workloads and upgraded assistance features for LIN hardware, including automatic check-sum and self-diagnosis functionality. The 32-bit microcontrollers, which require high performance and security, are equipped with an industry-class 12-channel(Product with 100pin or more) multi-function serial interface. Given the increasing number of sensors and other peripheral devices that are being utilized due to the enhanced functionality of chips, this multi-function serial interface allows peripheral devices to be flexibly connected via $I^2C$, SPI, UART or LIN. To protect the integrity of the microcontrollers' features, 32-bit chips also come standard with a variety of diagnostic features, such as memory error detection and correction, bus error detection and port input/output protection.

In combination with the new product line, the FR81S MB91570/MB91580/MB91590 Series, which have already begun shipping, provide support for a complete range of automobile applications, including auto-body applications, dashboard applications, safety applications, infotainment applications, and power-train applications.

In the future, Fujitsu Semiconductor plans to further enhance its product lineup.

## Sample Price and Release Schedule

| Product | Price(Including tax) | Sample release schedule |
|---|---|---|
| MB96F675R | JPY 500 | From Now |
| MB91F526K | JPY 800 | End of Dec. 2011 |

## Sales Target

25 million units at fiscal year 2014 (Total all products)

## Product Features

1. **Abundant lineup contributes to the development of a wide range of ECU systems**
   To accommodate the automobile industry's wide range of needs, the MB96600 Series of 16-bit microcontrollers consists of 53 different products, ranging between 48-144pin packages and 32KB-384KB of flash memory. The MB91520 Series of 32-bit microcontrollers consists of 60 different products, ranging between 64-176 pin packages and 256KB-1MB of flash memory. By offering an extensive lineup of 113 products, Fujitsu Semiconductor is contributing to the development of a wide range of ECU systems.
2. **Streamlines software development with a seamless development environment**
   To help streamline software development, for the new product line Fujitsu Semiconductor will be gradually offering Microcontroller Abstraction Layer (MCAL) that is compliant with AUTOSAR specifications. The MB96600 Series is compliant with the HIS recommended specifications and is compatible with AUTOSAR R3.0/3.1 that is scalable and optimized for the Series' ROM size and performance. The MB91520 Series is compatible with AUTOSAR R3.1/4.0. In addition, seamless development with both the 16-bit and 32-bit microcontrollers is possible using a JPwire-compatible emulator (MB2100-01-E).
3. **Peripheral functions perfect for automobile ECU systems**
   Chips in the new product line are all equipped with flash memory for programs and separate flash memory for data storage. This reduces the need for external $E^2$PROM and helps streamline system development. Furthermore, to further help reduce peripheral components, the chips are equipped with a low-voltage detection circuit which cuts down on external reset ICs, as well as a CR oscillation circuit and a hardware watchdog circuit. Chips also come standard with an I/O relocation feature that can modify the I/O port configuration via software configuration.

**For more information:**

Fujitsu Semiconducutor

Applications "Automotive"

## 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, please see: : http://jp.fujitsu.com/fsl/en/

## Press Contacts

**Fujitsu Semiconductor Limited**
Public Relations Department

Inquiry

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## Product Lineup

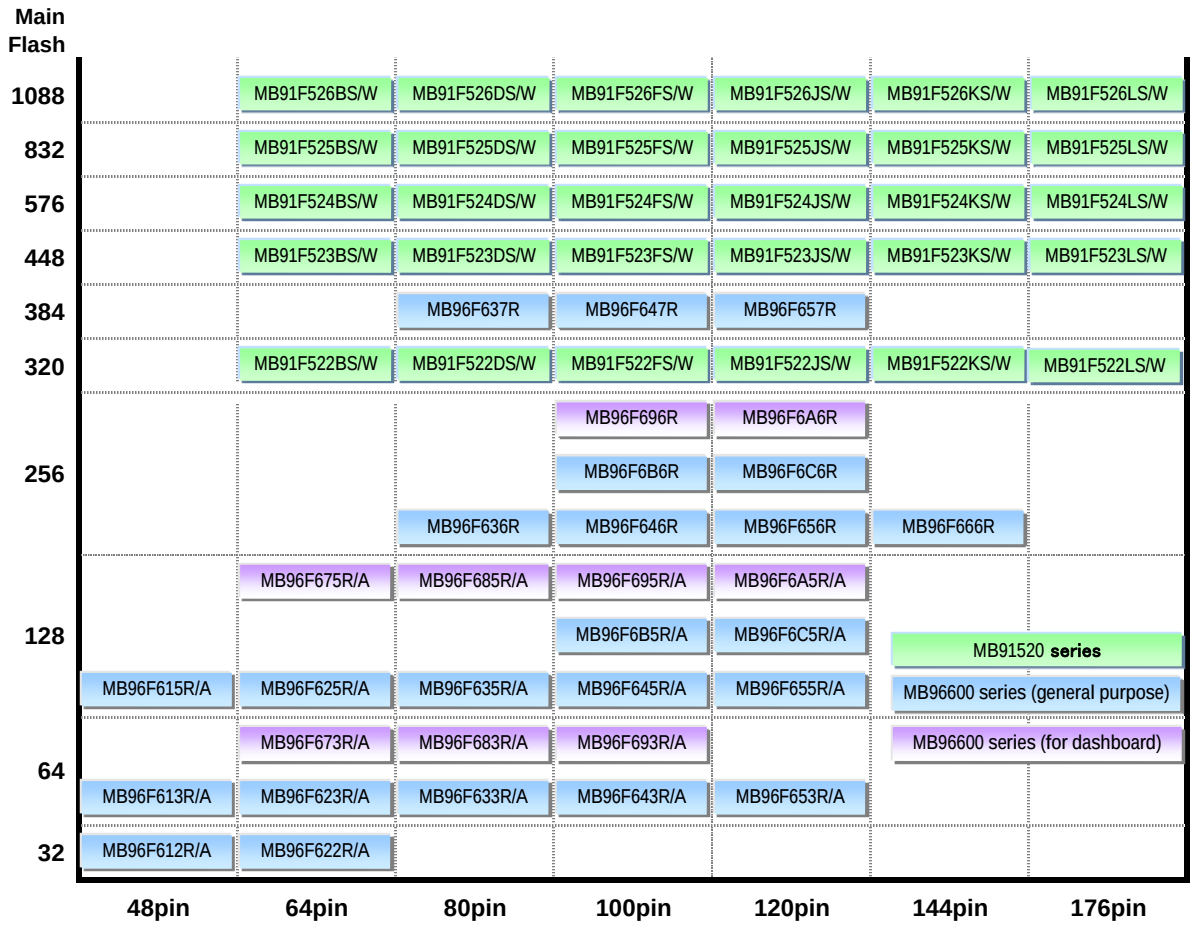


Figure 1. Microcontroller Line-up for Automobile

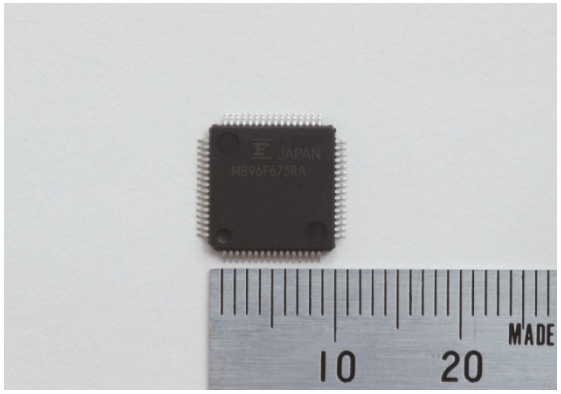


Figure 2. Photo of MB96F675RA

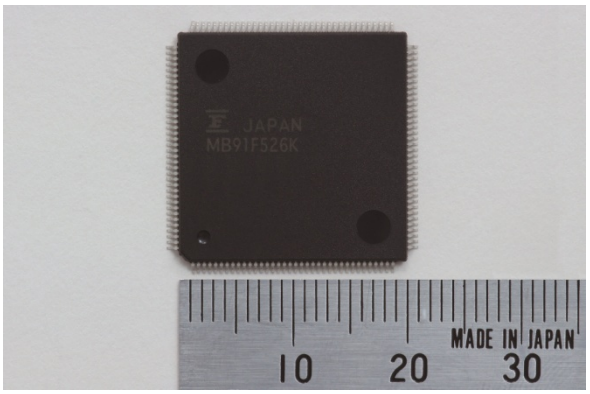


Figure 3. Photo of MB91F526K



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## Main Feature MB96670 series

| | | MB96F673R | MB96F675R |
|---|---|---|---|
| CPU Core | | 16bit CISC CPU F²MC-16FX | |
| Memories | Dual Operation Flash | 64KB+32KB | 128KB+64KB |
| | RAM | 4KB | |
| Communication | CAN | 32Msg:1ch | |
| | Serial | 2ch(LIN, USART, SIO) + 1ch(I²C) | |
| Analog | | A/D Converter:12ch(8/10bit) | |
| Timer | General purpose Timer | 16bit ReloadTimer:2ch<br>16bit PPG Timer:4ch(8bit PPG Timer:8ch)<br>16bit Free-run Timer:2ch(Input Capturex4ch) | |
| | Real Time Clock | 1ch(Day, Hour, Minute, Second) | |
| | Watchdog | 1ch | |
| LCD Controller | | 24seg x 4 | |
| Stepping Motor Controller | | 2ch | |
| Sound Generator | | 1ch | |
| Package | | LQFP | |
| | | 64-pin, 0.5mm pitch, 10mmX10mm | |



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## Main Feature MB91520K series

| | | MB91F525K | MB91F526K |
|---|---|---|---|
| CPU Core | | 32bit RISC CPU FR81S | |
| Memories | Main Flash | 832KB | 1088KB |
| | Work Flash | 64KB | |
| | RAM | 96KB | 128KB |
| Bus Interface | | Address:22bit, Data:16bit | |
| Communication | CAN | 128Msg:1ch + 64Msg:2ch | |
| | Multi Function Serial | 12ch(LIN/USART/CSIO/I$^2$C) | |
| Analog | | A/D Converter:28ch(12bit) + 16ch(12bit), D/A Converter:2ch | |
| Timer | General purpose Timer | 16 bit ReloadTimer:8ch, 16bit Base Timer:2ch, 16bit PPG Timer:42ch, 16bit Free-run Timer:3ch, 16bit Input Capture:4ch, 16bit Output Comparater:6ch, 32bit Free-run Timer:3ch, 32bit Input Capture:6ch, 32bit Output Comparater:6ch, 8/16bit Up Down Counter:2ch | |
| | Real Time Clock | 1ch(Day, Hour, Minute, Second) | |
| | Watchdog | 2ch | |
| Waveform Generator | | 1unit | |
| Package | | LQFP | |
| | | 144-pin, 0.5mm pitch, 20mmX10mm | |



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