

Fujitsu Adds Low Pin Count Series to Line of High-Performance 8-bit Microcontrollers for Consumer Appliances

Tokyo, September 9, 2008 - Fujitsu Microelectronics Limited announced today the addition of three series featuring low pin count (LPC), with 20 pins or less, to its F2MC-8FX family(1) of high-performance 8-bit microcontrollers with embedded flash memory. Sample shipments of the new microcontrollers known as the MB95200H series, MB95210H series, and MB95220H series, will be phased in starting on September 9, 2008. The three series have been added to the existing product line in response to the rapid rise in demand for LPC microcontrollers for use in home appliances and other consumer electronics in the Asian market.

	Operating voltage	8pin	16pin	20pin	28~32pin	48pin	64pin	100pin
LCD MCU	1.8V~3.6V						MB95160	MB95120
	2.4V~5.5V					MB95150M	MB95160M	MB95120M
Standard MCU	1.8V~3.6V					MB95110	MB95100	MB95120
	2.4V~5.5V	New! MB95210H	New! MB95220H	New! MB95200H	MB95130M	MB95110M	MB95100M	MB95120M

Figure 1: F2MC-8FX family

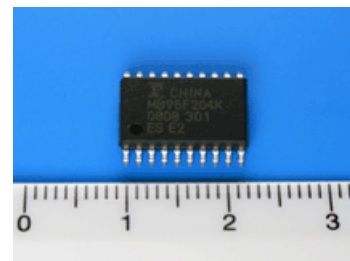


Figure 2: Low pin count high-performance 8-bit microcontroller MB95F204K

In recent years, there has been rapidly growing demand in Asia for LPC 8-bit microcontrollers for use in home appliances and other consumer electronics products, such as water heaters, electric pots, dehumidifiers, and hair dryers. In response to these needs, Fujitsu Microelectronics has added the following LPC series to its F2MC-8FX family of high-performance 8-bit microcontrollers with embedded flash memory: the 8-pin MB95210H series, 16-pin MB95220H series, and the 20-pin MB95200H series.

Aside from their use as main microcontrollers, the new series can also be used as sub-microcontrollers - for example when as a result of system specification changes in high-performance audio-visual equipment, the functions of the I/O or A/D converter(2) of the main microcontroller or ASIC are no longer adequate.

The three new series also employ a 1-line on-chip debug that uses only one pin on the microcontroller, thereby minimizing the number of pins used for debugging in product development.

Furthermore, along with these series, Fujitsu Microelectronics is providing the MB2146-410-01-E starter kit, which is a product development environment combined as a single package.

Press Contacts

Fujitsu Semiconductor Limited
 Inquiries : <https://www-s.fujitsu.com/jp/group/fsl/en/release/inquiry.html>

Sample Availability

Series	Sample Price	Sample Availability
(8-pin) MB95210H Series	JPY 400	From October 2008
(16-pin) MB95220H Series	JPY 450	From November 2008
(20-pin) MB95200H Series	JPY 500	From September 9, 2008

Sales Target

4 million units in fiscal 2008 (April 2008 to March 2009)

Key Features

1. Industry-leading class CPU performance helps improve the customer's product performance

The new series use the F²MC-8FX CISC CPU, which offers industry-leading class performance of 8-bit microcontrollers in the industry, with a maximum operating frequency of 16.25 MHz and a minimum instruction time of 61.5 nanoseconds, thus enabling more instructions to be executed per cycle compared to other vendors' microcontrollers. As the required processing performance can be delivered using a lower frequency, the series also contribute to enabling the customers' products to consume less power.

2. Embedded peripheral parts results in lower costs

Because the internal CR oscillating circuit (precision level $\pm 2\%$) that runs the operating clock and the low-voltage detection circuit that detects a drop in voltage are built into the microcontrollers, the need for an external oscillator and reset IC is eliminated, thus contributing to a reduction in overall system costs.

3. A composite timer that can shift timer functions provides flexibility for system requirements

For the timer function, in the embedded composite timer, depending on the program one channel can be selected with either a pulse width counter, pulse width modulation, interval timer or input capture which measures interval times, enabling flexibility to handle differing system requirements.

Glossary and Notes

1 F2MC-8FX family:

Name of the 8-bit microcontroller family offered by Fujitsu Microelectronics.

2 A/D converter:

A circuit that converts analog signals into digital signals.

Press Contact:

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Fujitsu Limited

Inquiries

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

For more information

Fujitsu Microelectronics Limited
<http://jp.fujitsu.com/group/fsl/en/>

Fujitsu Microelectronics - MB95200H series, MB95210H series, MB95220H series

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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Key Specifications - MB95200H series, MB95210H series, MB95220H series

Part number	MB95F204H	MB95F203H	MB95F202H	MB95F204K	MB95F203K	MB95F202K	MB95F223H	MB95F222H	MB95F223K	MB95F222K	MB95F214H	MB95F213H	MB95F212H	MB95F214K	MB95F213K	MB95F212K	
Type	Flash memory product																
ROM capacity	16KB	8KB	4KB	16KB	8KB	4KB	8KB	4KB	8KB	4KB	16KB	8KB	4KB	16KB	8KB	4KB	
RAM capacity	496B	496B	240B	496B	496B	240B	496B	240B	496B	240B	496B	496B	240B	496B	496B	240B	
CPU	CPU core	F2MC-8FX (8bit CISC CPU)															
	Number of basic instructions	136															
	Minimum instruction execution time	61.5ns															
	Maximum machine clock frequency	16.25MHz															
Internal CR clock	Main OSC clock	1/8/10/12.5MHz, ±2%															
	Sub-OSC clock	Typ: 100kHz, min: 50kHz, max: 200kHz															
Standby mode	Sleep mode, stop mode, watch mode, timebase timer mode																
Low-voltage detection reset	-		○		-		○		-		○		-		○		
Generalpurpose I/O	CMOS	15ch		15ch		11ch		3ch		3ch							
	N-ch	1ch		2ch		1ch		2ch		1ch		2ch					
Watchdog timer	Hardware/software watchdog timer																
LIN-UART	1ch				1ch				-								
8/10-bit A/D converter	6ch				5ch				2ch								
	8-bit or 10-bit resolution can be selected.																
8/16-bit composite timer	16bit×2ch				16bit×1ch												
	The timer can be configured as an "8-bit timer x 2 channels" or a "16-bit timer x 1 channel". It has built-in timer function, PWC function, PWM function and input capture function. Count clock: it can be selected from internal clocks (seven types) and external clocks. It can output square wave.																
External interrupt	6ch				2ch				2ch								
Clock supervisor counter	○																
Operating voltage	2.4V~5.5V ※On-chip debug mode 2.7V~5.5V																
Operating temperature	-40°C~+85°C																
Package	SDIP-24/SOP-20						DIP-16/SOP-16						DIP-8/SOP-8				