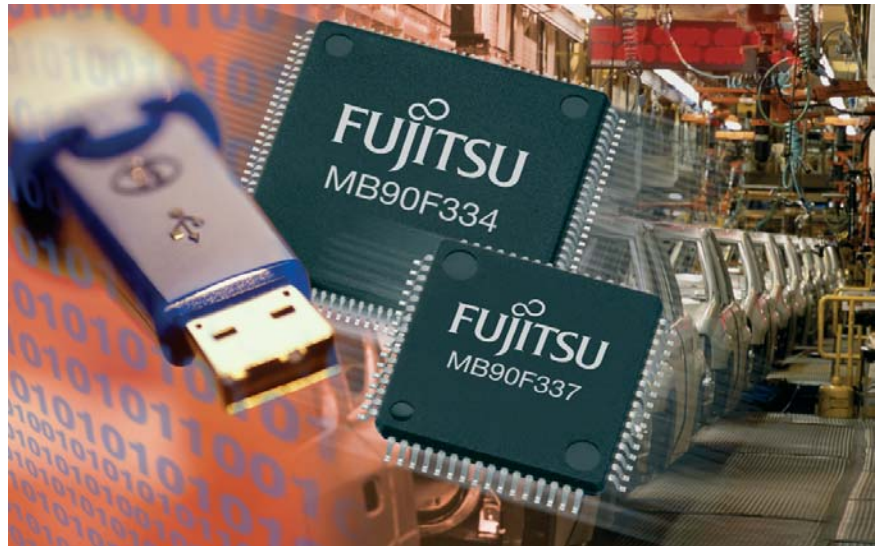


MB90330/335 FACTSHEET

16-BIT USB MCUs WITH MINIHOST

The MB90330/335 series are a line-up of high-performance 16-bit MCUs (F²MC-16LX family) with built-in USB macros, supporting USB-Function and simplified USB-Minihost. This allows a USB device to act either as a USB-Host or as a USB-Function. In this way, USB peripheral devices can exchange data without the mediation of a PC. Together with the newly available free USB drivers, Fujitsu aims to target various industrial applications, which are increasingly requiring USB resources.



USB Features

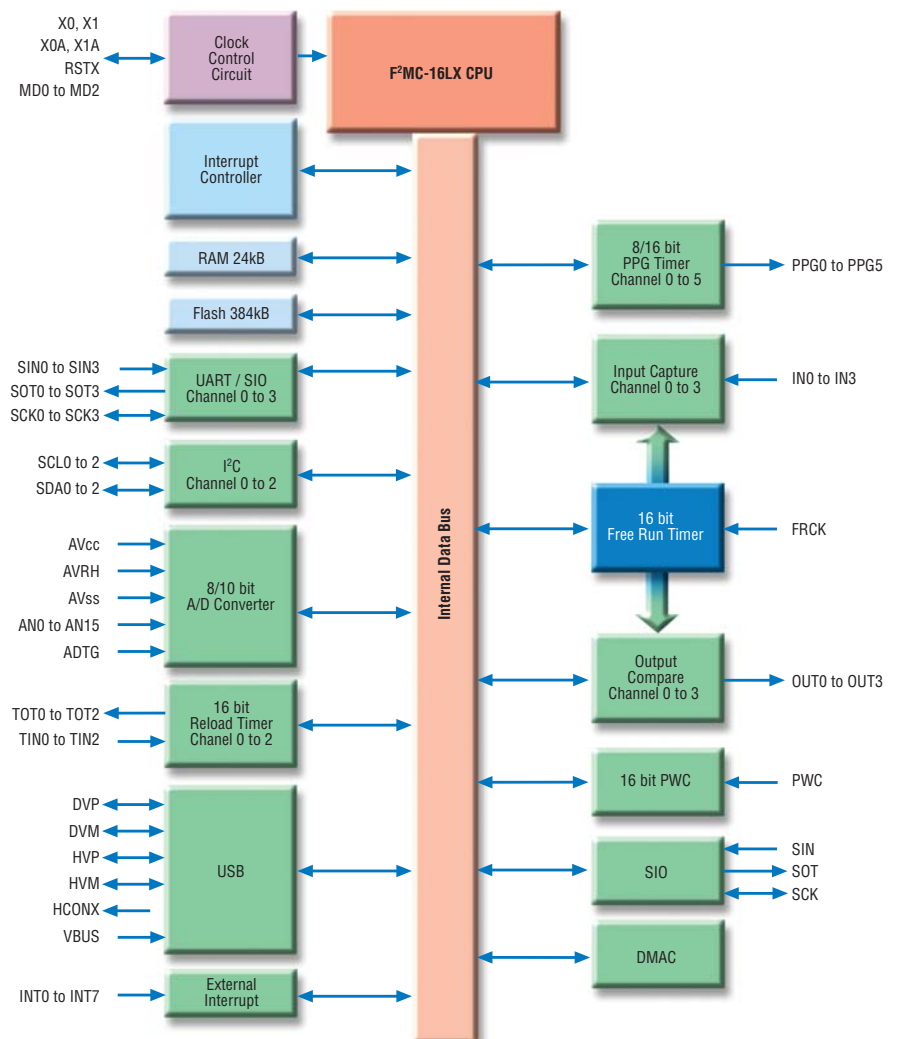
USB-Function

- USB 2.0 compliant
- 12Mbps Full-Speed
- Up to 6 Endpoints supported
- All transfer types supported:
 - Control, interrupt, bulk, isochronous
- Dual port RAM (FIFO mode supported)
- Automatic transfer mode for transfer data via DMA
- Automatic detection of connect and disconnect

USB-Minihost

This is a simplified USB Host optimised for embedded applications with one USB device. All common USB Host functionalities except hub, isochronous transfer and PRE-Packet are supported.

- USB 2.0 compliant
- 1.5Mbps Low-Speed, 12Mbps Full-Speed
- Up to 5 Endpoints



Shows the MB90F334 series with USB and USB Minihost function.

MB90330/335 FACTSHEET

- Transfer types: control, interrupt, bulk
- Dual port RAM (FIFO mode)
- Automatic transfer mode for transfer data via DMA
- Maximum packet length 256 bytes
- Various error (CRC error/toggle/time-out) support
- Automatic transmission and detection of handshake packets
- Automatic detection of connect and disconnect

USB Driver

- Developed by Fujitsu and Thesycon
- Available free of charge
http://www.thesycon.de/eng/prod_usbfirmware.shtml
- Support both USB-Function and USB-Minihost for MB90330/335
- Standard API norms based on Full-Speed USB 2.0 Specification
- Data transfer rate of 1 MByte/s in bulk at Full-Speed can be reached

Development Tools

- USB evaluation board available
- Software development environment included (Softune Workbench)

Product Line-up

Device	MB90F334	MB90333	MB90F337	MB90337
Series	MB90330		MB90335	
Technology	0.35µm CMOS			
ROM density	384kBytes FLASH	256kBytes ROM	64kBytes FLASH	64kBytes ROM
RAM density	24kBytes	16kBytes	4kBytes	
Max. operating frequency	24MHz			
Min. instruction execution time	41.6 ns@ 6 MHz (PLL: 4x clock multiplier)			
USB functionalities	USB 2.0 compliant. Full-Speed supported for USB-Function, Full-Speed and Low-Speed supported for USB-Minihost			
A/D converter	8/10-bits, 16 channels		—	
UART	4 channels		2 channels	
SIO	1 channel, clock synchronous transfer			
I ² C	3 channels		1 channel	
PPG timer	3 x 16-bit / 6 x 8-bit		2 x 16-bit / 4 x 8-bit	
16-bit reload timer	3 channels			
16-bit PWC timer	1 channel x 16-bit			
External interrupt	8 channels (edge / level support)			
DMAC	supported			
External bus interface	Multi / non-multi supported		No	
Power Supply	3.0 to 3.6 V			
Packaging	120-pin LQFP		64-pin LQFP	



USB MCU starterkit MB2031-20 and MB2031-01.

<http://emea.fujitsu.com/microelectronics>

Fujitsu Microelectronics Europe

Headquarters

Fujitsu Microelectronics Europe GmbH
Pittlerstrasse 47
D-63225 Langen
Phone: +49 (0)61 03 69 00
Fax: +49 (0)61 03 69 01 22

Germany

Fujitsu Microelectronics Europe GmbH
Frankfurter Ring 211
D-80807 München
Phone: +49 (0)89 32 37 8 70 0
Fax: +49 (0)89 32 37 8 72 2

France

Fujitsu Microelectronics Europe GmbH
105 rue Jules Guesde
F-92300 Levallois Perret
Phone: +33 (0)1 55 21 00 40
Fax: +33 (0)1 55 21 00 41

Italy

Fujitsu Microelectronics Europe GmbH
Palazzo Pitagora - Milano 3 City
Via Ludovico il Moro 4B
I-20080 Basiglio, Milano
Phone: +39 02 90 45 02 1
Fax: +39 02 90 75 00 87

United Kingdom

Fujitsu Microelectronics Europe GmbH
Network House, Norreys Drive
Maidenhead
Berkshire SL6 4FJ
Phone: +44 (0)1628 50 46 00
Fax: +44 (0)1628 50 46 66