

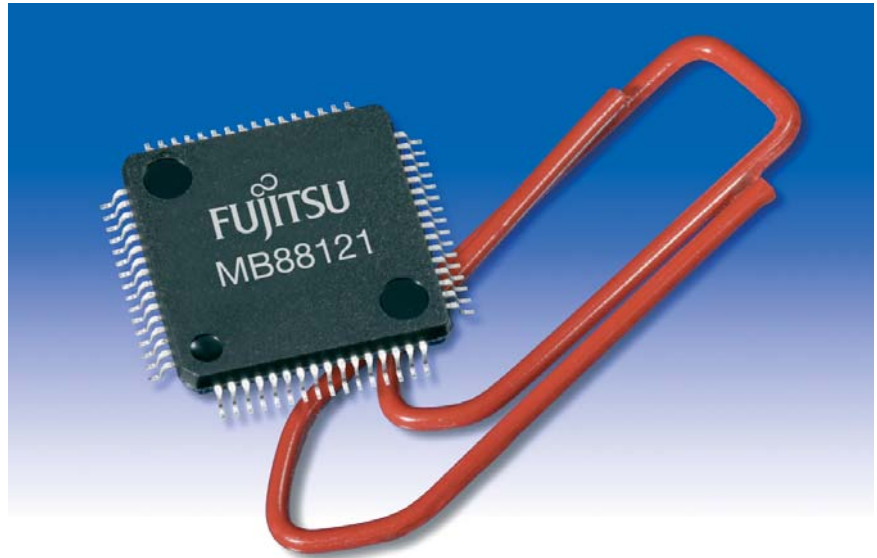
MB88121 FACTSHEET

FlexRay™ COMMUNICATION CONTROLLER

Description

The MB88121 is an application specific standard product (ASSP) that provides the protocol engine to service the FlexRay bus system. MB88121 is available in sample quantities since September 2005, and adds FlexRay connectivity to 16-bit and 32-bit microcontrollers that lack embedded FlexRay protocol engines. The 64-pin device acts as a companion chip to a vast number of embedded microcontrollers used in automotive applications.

With the MB88121 Fujitsu offers a device that meets the latest protocol specification 2.1 as defined by the FlexRay consortium. Based on the ERAY core licensed from Robert Bosch GmbH, the device supports 2-channel operations, and with more than 8kByte of message buffer memory, up to 128 different identifiers can be supported. The device can easily be accessed via a configurable, parallel bus interface supporting 32-bit and 16-bit access modes. The user can select among several parallel and serial interface (*) options. All types of host interfaces are selectable by mode pins that supersede any programming by the user. The configurable parallel host interface connects to most 8-bit (*), 16-bit and 32-bit microcontrollers. A DMA support unit, available with MB88121A since November 2005, avoids the application



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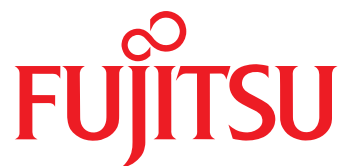
on the host processor having to wait until the message buffer becomes available for reading.

The MB88121B, scheduled for e/o 1st quarter 2006, is operated from a single 5.0V supply. This version, manufactured with 0.18µm technology, includes an on-board voltage regulator that provides 1.8V to the internal core. The on-chip PLL circuit provides an internal clock of 80MHz. The designer has the choice between 4MHz, 5MHz, 8MHz or 10MHz for external quartz. Alternatively, the user may choose to drive the clock input with a square wave signal from the host processor, by-passing the internal PLL. Beyond the MB88121 updates Fujitsu will provide 32-bit and 16-bit based embedded FlexRay microcontrollers in 2006. The

first 32-bit MCU with FlexRay interface features the MB91460 family, from which first derivatives such as the MB91F467D are available today.



(*) = Under planning



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Features

- FlexRay communication controller supporting protocol version 2.1
- Configurable parallel host interface compatible with most 16-bit and 32-bit microcontrollers.
 - 32-bit multiplexed access
 - 16-bit multiplex and non-multiplexed access
- DMA support accessing receive message buffer data
- On-chip PLL
- Input clock 4/5/8/10MHz quartz or 40/80MHz square wave
- 0.18µm CMOS Process Technology
- 5.0V single voltage supply
- On-chip voltage regulator for 1.8V core voltage
- Package:
 - 64-pin plastic LQFP
 - 0.5-pin pitch

Future Enhancements

- 8-bit multiplex and non-multiplexed access
- SPI interface (4Mbit/s)
- Low voltage monitoring support

Software

- DECOMSYS::COMMSTACK as driver to the FlexRay interface
 - Free object code license for use on Fujitsu development platform
 - Identical to version used for mass production
- Software Examples
 - FlexRay-CAN bridge
 - Keyboard demo

Development tools

- FlexRay-FPGA-Eva-Kit-369
 - FPGA-based evaluation platform using MB91F369G 32-bit microcontroller
 - Adapter board for MB88121 available
- **NEW** SK-91F467-FLEXRAY
 - Starter kit featuring MB91F467D 32-bit microcontroller and MB88121
- All development tools contain 'light' or trial versions of FlexRay configuration tools from
 - DECOMSYS
 - TZM

Documentation

For latest documentation on the MB88121 please check links below:

<http://www.fujitsu.com/emea/services/microelectronics/micros/flexray/>

<http://www.fujitsu.com/global/services/microelectronics/technical/flexray/index.html>

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

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