FUJITSU

FlexRayTM — The Ultimate Automotive Network The Fujitsu MB91F465X and MB88121C



Description

The new FlexRay protocol opens the door for future automotive applications (such as x-by-wire) that require enhanced safety features compared to current automotive network systems.

The first applications that will deploy FlexRay are chassis and powertrain applications, preparing the ground for the first x-by-wire applications. Fujitsu is working to support the development of next-generation automotive-by-wire applications.

A fully integrated FlexRay microcontroller MB91F465X, as well as the FlexRay application-specific standard product

(ASSP) MB88121C, are available from Fujitsu. The ASSP device provides generic host interfaces for a wide variety of host processors.

The FlexRay integrated microcontroller is manufactured in $0.18\mu m$ embedded Flash technology, enabling it to run at more than 100MHz system clock. To fit the requirements of automotive applications, the devices feature full 5-volt operation capabilities for I/Os, analog parts and supply voltage, while the core itself will run at 1.8 volts from an integrated regulator.

Applications

- Brake-by-wire
- Steer-by-wire

- Stability control systems
- Data backbone

The Fujitsu MB91F465X and MB88121C

Features

- 10Mbit/s
- Real-time capabilities
- Fault tolerant
- Bus guardian
- Redundancy
- Scalability
- Time triggered
- Synchronous and asynchronous transmission
- Bus or start topology

Development Environment

- Starter kit for 16- and 32-bit host microcontrollers
- Softune workbench for software development
- In-circuit emulators

Specifications

MB91F465X

- 3.0-5.5 volt supply range
- 544kB Flash memory
- Flash security: read-out protection
- 32kB RAM
- Max.100MHz operating frequency
- Hardware watchdog
- 1 FlexRay interface with 2 channels
- CAN: 2 channels with 32 message buffers each
- LIN-UART: 3 channels including FIFO function
- 10-bit ADC: 17 channels
- PPG: 12 channels
- Output compare unit: 6 channels
- Input capture: 8 channels
- Watchdog function: 1 channel
- I²C: 1 channel
- External interrupts: 11 channels
- Reload timer: 8 channels
- RTC can operate on external 4MHz or 32kHz crystals
- Package: 100-pin LQFP



- Support for OSEKTime
- FlexRay driver software from partners
- Compliant with AUTOSAR

Development Environment: Software and Tools

- Fujitsu FlexRay driver (FFRD)
- Free license for evaluation purposes
- Source code delivery
- DECOMSYS::COMMSTACK
- Software examples
- SK-91F465X-100PMC starter kit



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