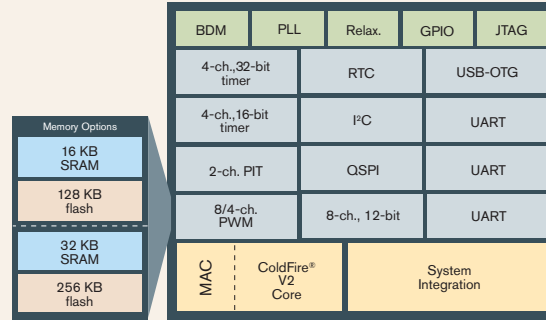# MCF5222x Family

Overview

Connecting 32-bit controlled applications in the industrial, commercial and even consumer markets is fast becoming a necessity rather than an option. Freescale Semiconductor gives development engineers the flexibility to choose the right microcontroller from a broad portfolio of ColdFire® embedded controllers. As the latest member of the ColdFire portfolio, the MCF5222x Family offers a highly integrated system solution that addresses the need for cost-effective flexible connectivity options with 32-bit performance and memory requirements on a single chip.

Built using the popular Version 2 ColdFire core, the MCF5222x Family offers up to 76 MIPS (Dhrystone 2.1) at 80 MHz. It builds upon the successful MCF5213 Family by integrating a USB On-The-Go (OTG) controller, making it ideal for applications requiring device or host connectivity functionality. The MCF5222x microcontrollers are aimed at designers who want the power and flexibility of a 32-bit microcontroller plus a rich set of on-chip connectivity peripherals at a low cost. These small, highly integrated microcontrollers open the door to expanding application capabilities while driving down total system costs.

The MCF5222x Family targets embedded control applications such as home/factory automation, point-of-sale, health care, testing equipment and consumer applications.

MCF5222X BLOCK DIAGRAM

Full Featured, Cost Effective

In today's increasingly competitive embedded marketplace, the importance of keeping system costs down is of increasing concern. The MCF5222x gives product designers a cost-effective, full featured solution with USB-OTG that allows them to drive straight ahead, creating next-generation systems quickly and getting them to market ahead of their competition. In addition to the USB-OTG, the MCF5222x has the advanced features that the ColdFire Family has been known for, including 32 KB SRAM, 256 KB flash, an 8-channel, 12-bit analog-to-digital converter (ADC), various 32-bit timers and advanced pulse-width-modulation (PWM) channels.

The MCF222x Family is a migration path for existing 8/16-bit designers looking to incorporate flexible connectivity into their designs. The family integrates the standard ColdFire communication peripherals, including three universal asynchronous receiver/transmitters (UARTs) for medium to long distance connections, an inter-integrated circuit (I²C) and a queued serial peripheral interface (QSPI) for in-system communication to connected peripherals. These features are built around the high-performance ColdFire V2 core that incorporates a multiply-accumulate (MAC) module that allows for DSP-like operation.

Tools and Support

The ColdFire embedded controller family is supported by world-class development tool suites offered through leading third-party tools developers. Each kit includes the CodeWarrior™ Special Edition software tools and professional tools from Freescale partners, such as Green Hills Software, Wind River Systems, Accelerated Technology, MQXEmbedded and others. The M52223EVB development kit is an easy-to-use yet cost-effective solution that simplifies product development and speeds customer time to market. Further development assistance is available through Freescale's web-based Fast Track™ support resources, including online training and technical support.

freescale™
ColdFire

MCF5222X DEVICE MATRIX

Part Number	Flash/SRAM	Key Features	Package	Speed	MSRP*
MCF52221	128 KB/16 KB	USB-OTG, USB transceiver, 3 UARTs, I²C, QSPI, 16-bit/32-bit/PWM timers, DMA, A/D	64 LQFP 81 MAPBGA	66 MHz 80 MHz	From $5.49
MCF52223	256 KB/32 KB	USB-OTG, USB transceiver, 3 UARTs, I²C, QSPI, 16-bit/32-bit/PWM timers, DMA, A/D	100 LQFP 81 MAPBGA	66 MHz 80 MHz	From $6.99
M52223EVB		Development Kit			$299
M52221DEMO		Cost-Effective Board			$99

*Suggested pricing in units of 10K

MCF5222x ColdFire V2 Core Features

> Up to 76 Dhrystone 2.1 MIPS at 80 MHz

> MAC module and hardware divide

> Up to 32 KB SRAM

> Up to 256 KB flash

> 100 KB write/erase cycles, 10 year data retention

> USB 2.0 full-speed Host/Device/ OTG controller

> Three UARTs

> QSPI

> I²C bus interface

> 4-channel, 32-bit timers

> 4-channel, 16-bit capture/compare/ PWM timers

> 2-channel periodic interrupt timer

> 8-channel, 8-bit PWM timer or 4-channel, 16-bit PWM timer

> 8-channel, 12-bit ADC with simultaneous sampling

> Real-time clock

> Up to 56 general-purpose input/outputs (GPIOs)

> System integration (phase-locked loop and software watchdog)

> Relaxation oscillator

> Single 3.3-volt supply

> Temperature ranges from -40°C to +85°C

> Available speeds—66 MHz and 80 MHz

> Pin-compatible with MCF5211/12/13

Target Applications

> ZigBee™ control nodes

> Security/access control panels

> Health care-related pumps and monitors

> Lighting control nodes

> Home/industrial automation

> Point-of-sale terminals

> Factory service and maintenance systems

Learn More: For more information about Freescale products, please visit **www.freescale.com**.

freescale™
semiconductor