

# MCF5223x Family

## **MCF5223x Applications**

- > Remote data collection
- > Power-over-Ethernet
- > ZigBee™ control nodes
- > Security/access control panels
- > Health care pumps and monitors
- > Lighting control nodes
- > Home/industrial automation

## **MCF5223x Specifications**

- > ColdFire® V2 core
- > Up to 57 Dhrystone 2.1 MIPS at 60 MHz
- > EMAC module and HW divide
- > Real-time clock

## **Integration**

- > Up to 32 KB SRAM
- > Up to 256 KB flash: 100K W/E cycles, 10 years data retention
- > 10/100 Fast Ethernet Controller (FEC) Ethernet PHY
- > Cryptographic acceleration unit with random number generator
- > Enhanced CAN 2.0B controller interface with 16 message buffers
- > Three UARTs with DMA capability
- > Queued serial peripheral interface (QSPI) with four peripheral chip selects
- > Inter-integrated circuit (I<sup>2</sup>C) bus controller
- > Four 32-bit timer channels with DMA capability

\*Subject to license agreement and registration

- > 4-channel, 16-bit or 8-channel, 8-bit PWM generator
- > Two periodic interrupt timers (PITs) for alarm and countdown timing
- > 4-channel DMA controller
- > 8-channel, 12-bit ADC
- > Up to 73 general-purpose I/Os
- > System integration (PLL, SW watchdog)
- > Single 3.3-volt supply

## **Availability**

- > Temperature range: -40°C to +85°C
- > Package options:
  - 20 mm x 20 mm x 1.4 mm (0.65 mm pitch) 112-pin low profile quad flat package (LQFP)
  - 14 mm x 14 mm x 1.3 mm (0.65 mm pitch) 80-pin LQFP
  - 12 mm x 12 mm x 1.6 mm (1.0 mm pitch) 121-pin mold array process ball grid array (MAPBGA) package

## **M52235EVB and M52233DEMO Development System**

- > Easy-to-get
  - M52235EVB
    - > Suggested resale price: \$299
    - > 112-pin LQFP MCF52235 (60 MHz) ColdFire device
    - > 3 RS-232 physical interface and standard DB9 connections
    - > Power-over-Ethernet circuit
    - > Supports ZigBee-ready RF daughter card
    - > Breakout connector for serial

- interfaces—I<sup>2</sup>C, QSPI, GPIO, ADC
- > LEDs for power up indication, general purpose I/O and timer output signals
- > dBUG operating system loaded in flash
- M52233DEMO
  - > Suggested resale price: \$99
  - > 80-pin LQFP MCF52233 ColdFire device
  - > Supports ZigBee-ready RF daughter card

- > Easy-to-use
  - ColdFire initialization—graphical initialization tool
  - CodeWarrior™ Special Edition included in each development kit at no extra cost\*
  - Free\* open source software—GCC/GDB IDE
  - No-cost\* ColdFire TCP/IP Lite by Interniche
  - Professional tools and systems scheduled from:
    - > CodeWarrior
    - > Green Hills Software
    - > MQX Embedded—Precise/MQX™
    - > Wind River Systems—Wind River Compiler™ and Hardware Assisted Debugger
    - > Accelerated Technology—Nucleous, Microtec and XRAY
    - > TCP/IP stack options: Interniche, CMX Systems and Treck

## MCF5223X DEVICES

Part Number	Flash/SRAM	Key Features	Package	Speed	10K MSRP*
MCF52230	128 KB/32 KB	FEC, EPHY, 3 UARTs, I <sup>2</sup> C, QSPI, A/D, 16-bit/32-bit/ PWM timers, DMA	80/112 LQFP	60 MHz	From \$7.99
MCF52231	128 KB/32 KB	FEC, EPHY, 3 UARTs, I <sup>2</sup> C, QSPI, A/D, 16-bit/32-bit/ PWM timers, DMA, CAN	80/112 LQFP	60 MHz	From \$8.79
MCF52233	256 KB/32 KB	FEC, EPHY, 3 UARTs, I <sup>2</sup> C, QSPI, A/D, 16-bit/32-bit/ PWM timers, DMA	80/112 LQFP	60 MHz	From \$8.69
MCF52234	256 KB/32 KB	FEC, EPHY, 3 UARTs, I <sup>2</sup> C, QSPI, A/D, 16-bit/32-bit/ PWM timers, DMA, CAN	112 LQFP 121 MAPBGA	60 MHz	From \$9.42
MCF52235	256 KB/32 KB	FEC, EPHY, 3 UARTs, I <sup>2</sup> C, QSPI, A/D, 16-bit/32-bit/ PWM timers, CAN, Crypto	112 LQFP 121 MAPBGA	60 MHz	From \$11.32
<b>M52235EVB</b>		<b>Development Kit</b>			<b>\$299</b>

**M52233DEMO**

**Cost-effective Board**

**\$99**

\*Manufacturer's suggested resale price in units of 10K

## DOCUMENTATION

Document Number	Title	Revision	Status
MCF52235EC	MCF5223x Microcontroller Family Hardware Specification	—	Available
MCF52235RM	MCF5223x ColdFire Microcontroller Reference Manual	—	Available
MCF52235PB	MCF5223x Integrated Microcontroller Product Brief	—	Available
MCF5223XFS	MCF5223x ColdFire Family Fact Sheet	—	Available
AN3236	Designing for Low Power with the MCF5213	—	Available
COLDFIREECPAK	ColdFire® Embedded Controllers Overview Brochure	2	Available
MCF5XXXWP	MCF5xxxWP WHITE PAPER: ColdFire VL RISC Processors	—	Available under NDA
MAPBGAPP	MAPBGA 4-Layer Example	—	Available
CFPRM/D	ColdFire Family Programmer's Reference Manual	2	Available
COLDFIRE2UM	Version 2/2M ColdFire Core Processor User's Manual	—	Available
COLDFIRERD	ColdFire Performance Roadmap	—	Available

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## More Connectivity Options

With the rapid proliferation of networked solutions in the industrial, commercial and consumer markets, product designers are looking for a variety of packages that provide bandwidth, speed, convenience and security. Interconnecting nodes within a system and providing that system access to local area networks (LANs) in the SOHO and enterprise arenas, including access to wide area networks (WANs) such as the Internet, has become a major design consideration for product developers.

The MCF5223x Family expands the entry-level 32-bit options available through the ColdFire portfolio of processors. It provides a solution to customers who need low-cost connectivity options that support standard protocols with security encryption. The MCF5223x embedded controllers integrate embedded 10/100 Fast Ethernet Controller (FEC) and Ethernet PHY, plus an additional layer of network security enhancement features.

## MCF5223X BLOCK DIAGRAM

