

## Product Overview

COLDFIRE® FAMILY OF  
32-BIT MICROPROCESSORS

MCF5282

Freescale Semiconductor, Inc.



digitaldna™

## MCF5282

Building on years of experience in industrial control and networking communications, Motorola is the first in the industry to introduce its 32-bit microcontroller (MCU) with the combination of on-chip Ethernet and CAN networking interfaces and Flash memory. The first microcontroller based on Motorola's 32-bit ColdFire architecture, the MCF5282 offers designers a powerful, cost-effective option that includes advanced communications features, a rich peripheral set and a variety of supporting software and development tools.

**COLDFIRE ANSWERS  
NEW MARKET TRENDS**

Designers have indicated that component availability with the right level of integration is one of the most critical design challenges

causing changes in processor selection today. Motorola continues to meet market demands with its ColdFire architecture by offering a family of integrated solutions. This family offers built-in versatility to address a variety of new and emerging markets that are driving the growth of low-cost, high-volume embedded control.

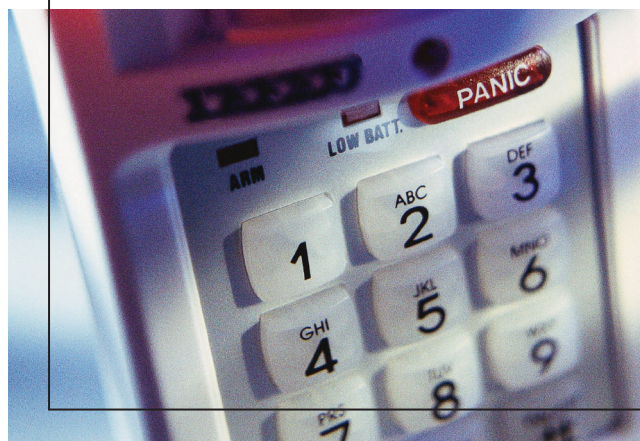
An increasing number of applications are being networked together, requiring higher performance and integration with improved connectivity. The MCF5282 is designed to make this process easier. The on-chip modules on the newest ColdFire devices are creating excitement in the design community and inspiring creativity in emerging applications.

**GROWING DEMAND FOR  
EMBEDDED ETHERNET**

Traditionally, microcontroller networks have used CAN and UART serial interfaces that have distance and bandwidth limitations. Ethernet—the standard upon which the Internet is built—provides more bandwidth than common serial interfaces and can be used to connect devices over virtually unlimited distances.

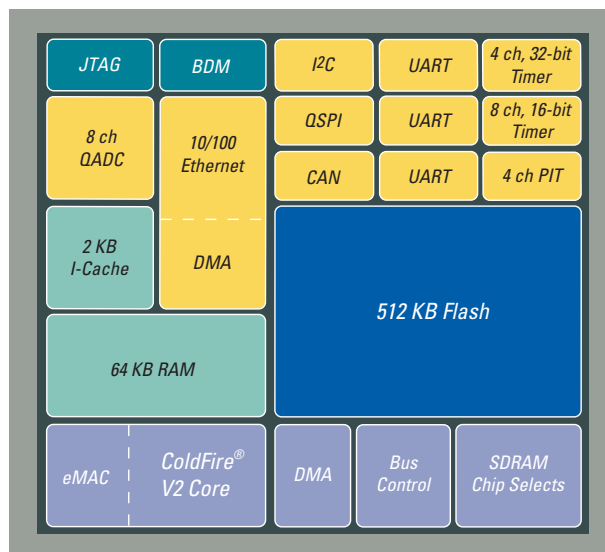
With its integrated 10/100 Mbps Ethernet media access controller (MAC) and network-ready applications software from Quadros Systems, the MCF5282 is designed to bring standards-based networking to a variety of traditional MCU applications in markets as diverse as security systems, lighting control,

home automation and enterprise networking. Applications in these areas can expect to benefit from the available software for networking functions, such as Web-based user interfaces and network time synchronization.



**For More Information On This Product,  
Go to: [www.freescale.com](http://www.freescale.com)**

## Freescale Semiconductor, Inc.

**TOOLS SUPPORT FOR FAST DEVELOPMENT**

The ColdFire Family benefits from extensive support by a world-class development tools suite through leading third-party tools developers.

In addition, Motorola, Quadros and Metrowerks have partnered to provide a comprehensive, networked embedded control solution based on the ColdFire MCF5282, RTX Quadros and CodeWarrior™ for ColdFire.

The solution is designed to allow for ease of use and fast development by users of all experience levels. This solution includes the ColdFire

MCF5282 integrated microcontroller, the RTX Quadros-based networking software suite and the CodeWarrior for ColdFire development tools suite.

The RTX Quadros for the MCF5282 software suite includes a scalable real-time operating system supporting both thread- and task-based kernels and extensive networking support. This includes Ethernet drivers for the MCF5282, core Internet protocols such as IP, UDP, TCP, ICMP, ARP and DHCP, application-level protocol servers, HTTP for small Web servers, Trivial FTP servers for remote

firmware updates, and application level protocol clients for SMTP and SNMP. SMTP provides the ability to send e-mail but not act as a relay server, while SNMP can retrieve current time information from a network NTP server.

Three versions are available at a range of prices and functionality to cover the needs of all users, from first-time users to experienced users.

The CodeWarrior for ColdFire development tools suite includes a compiler, assembler, debugger, project manager and build system. It can be

purchased for a suggested retail price of \$5,000. Components of the solution are available through Motorola's distribution partners.

**MCF5282 FEATURES**

- Version 2 (V2) ColdFire core
- 512 KB embedded Flash memory
- 64 KB of static RAM
- 2 KB I-Cache
- SDRAM controller
- 10/100 Ethernet MAC
- Enhanced CAN 2.0B controller (FlexCAN) 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
- 8-channel, 10-bit queued analog-to-digital converter (QADC)
- Four 32-bit timer channels with DMA capability

- Eight 16-bit timer channels for capture, compare and pulse width modulation (PWM)
- Four periodic interrupt timers (PITs) for alarm and countdown timing

**PRODUCT SPECIFICATIONS**

- 59 (Dhrystone 2.1) MIPS at 66 MHz (executing from internal Flash)
- -40°C to +85°C ambient operating temperature at 66 MHz
- Planning 0°C to 70°C at 80 MHz version
- 3.3V, 5V tolerant I/O
- 17 mm x 17 mm x 1.6 mm 256-ball (1 mm pitch) mold array process ball grid array (MAPBGA) package

**MCF5280 FEATURES**

- 63 (Dhrystone 2.1) MIPS at 66 MHz
- 0 KB Embedded Flash memory
- All other features identical to the MCF5282

**LEARN MORE**

For more information on Motorola's products, go to [www.motorola.com/semiconductors](http://www.motorola.com/semiconductors).

For all other inquiries, please contact the Motorola Customer Response Center at (800) 521-6274 or click on Contact Us at the Web site above.

**MOTOROLA**

MOTOROLA and the Stylized M Logo are registered in the U.S. Patent and Trademark Office. All other product or service names are the property of their respective owners.  
© Motorola, Inc. 2002

MCF5282FACT/D  
REV 8  
**For More Information On This Product,  
Go to: [www.freescale.com](http://www.freescale.com)**