

MCF5249

New Trends Call for New Technology

While sales of consumer electronics and home audio devices are growing, and the popularity of the low-cost, high-capacity MP3 format is increasing, Freescale Semiconductor is keeping pace with innovative devices that address these trends. The MCF5249 ColdFire® microprocessor has entered the market at a time when a convergence is taking place between home audio electronics and computer technologies. At the same time, Freescale has positioned this advanced ColdFire device for many other growing markets such as security and biometrics for fingerprint recognition and iris scanning applications. Many corporations, educational facilities, law enforcement and public transport authorities are placing increased emphasis and investment in the protection of their staff and assets. Accordingly, the use of biometric security is expected to grow exponentially over the next few years.

Enhanced Features Open the Door to New Possibilities

Freescale's ColdFire MCF5249 32-bit integrated microprocessor, based on the Version 2 (V2) ColdFire core, includes new features that are ideal for any application that requires significant control processing for file management, signal processing and data buffering. In fact, the MCF5249, with up to 125 Dhrystone 2.1 MIPS at 140 MHz, is diverse enough to drive a wide range of applications, everything from digital audio to security to industrial control.

The MCF5249 is uniquely designed to enable fewer system components and, with low system power requirements, products with a longer battery life. Additionally, its integrated features keep development costs low and time to market short.

The MCF5249 also protects the investments you've already made in technology and training. With its seamless, fully compatible upgrade path, the MCF5249 is an attractive option for MCF5206e users looking to add performance and capabilities.

Price Performance That's Hard to Beat

While the MCF5249 is well suited for the digital audio market, advanced features make it a good fit for many industrial control

applications, such as information kiosks, security and biometrics. The advanced features include an enhanced Multiply-Accumulate (eMAC) unit, 96 KB of on-chip SRAM, 8 KB I-Cache, serial interfaces, a 12-bit analog-to-digital converter (ADC), a four-channel direct memory access (DMA), timers, general-purpose input/output (GPIO) lines, system integration and a glueless SDRAM controller.

The MCF5249, our highest performing V2 yet, gives you flexibility to cost-effectively design the feature-rich products your customers demand in significantly less time.

New Features Give You More Design Options

The MCF5249 includes exciting enhancements—serial audio ports compatible with industry-standard formats, CD-ROM block decoder/encoder, SPDIF/EBU transmitter/receiver, Flash media interface, IDE master interface—that eliminate the need for additional audio interfaces. The innovative on-chip audio bus allows a direct connection between audio interfaces with no intervention from the CPU, adding even more intelligence to this smart device. The ColdFire Family is designed to accelerate system design time and reduce development costs.

MCF5249 Features

- > V2 ColdFire processor core
- > 8 KB instruction cache
- > 96 KB SRAM
- > eMAC unit
- > Hardware integer divide unit
- > Industry-leading debug module offering both background and real-time capability
- > Integrated processor
 - SDRAM controller
 - Two independent universal asynchronous receiver/transmitters (UARTs)
 - Two I²C interfaces
 - Queued serial peripheral interface (QSPI)
 - Four-channel DMA (two internal/two external)
 - 12-bit ADC
 - Two independent 16-bit timers
 - Chip selects
 - 16-bit GPIOs
 - CD-ROM block decoder/encoder
 - CD text interface
 - Sony Phillips Digital Interface (SPDIF)/EBU transmitter/receiver

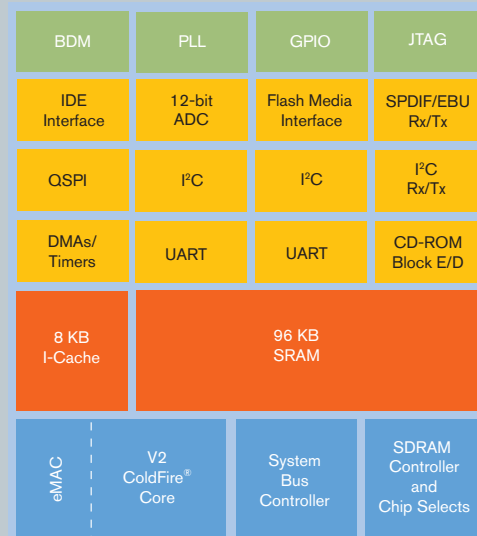
- Two I²C transmitter/receivers
- Hard disk drive interface
- Flash media interface

- > System integration (Phase-Lock Loop, software watchdog)
- > Doze mode and variable frequency operation

MCF5249 Product Specifications

- > Up to 125 (Dhrystone 2.1) MIPS at 140 MHz
- > -40°C to +85°C operating temperature
- > Requires 1.8V and 3.3V power supply
- > Package:
 - 160-pin MAPBGA package—MCF5249
 - 144-pin LQFP package—MCF5249L

MCF5249 BLOCK DIAGRAM



A Seamless Migration Path Protects Your Technology Investment

By leveraging your existing development tools and software, the MCF5249 protects the resources you've already invested in 68K and ColdFire microprocessor technology and training. For example, when you move from 68K to ColdFire microprocessors, you can use code translation and emulation tools, free of charge to registered users, to modify and reuse 68K assembly code.

The 100-percent synthesizable ColdFire Family secures your investment in technology and training well into the future. Even better, the ColdFire family of microprocessors, including the MCF5249, gives you the freedom to experiment with powerful capabilities for visionary electronic products, without sacrificing system costs or time to market.

Flexibility to Meet Your Customers' Needs

The MCF5249 incorporates advanced technologies that allow you to build greater performance into your products and get them to market faster than your competition.

The innovative ColdFire Family has been a key member of Freescale's 32-bit family of products for more than eight years. And the ColdFire Family development roadmap ensures your creativity, time and resources are protected into the future.

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