



MCF537x Family

The Market Challenge

The need for connectivity and system communication continues to be a steadily growing trend. However, the challenge most designers face is how to accommodate the different methods of connectivity within a system. There is a need to select a processor with the right level of integration and performance enhancement features to accommodate system-to-system, in-system and secure networked communication. There is also a need for a roadmap with seamless migration that includes an entire portfolio of full-featured embedded processors with an emphasis on connectivity. By introducing the integrated USB host and integrated USB On-The-Go (USB-OTG) modules to the 68K/ColdFire portfolio, the MCF537x family of microprocessors offers a single chip solution to address the growing need for flexible communication within industrial control systems.

Connectivity

To address the growing need for system-to-system communications, the MCF537x introduces the integrated USB host and integrated USB-OTG module to the 68K/ColdFire portfolio of features. These on-chip USB modules address the need for system flexibility and enables support for a rapidly growing number of applications where direct communication is required between USB devices such as printers, mass storage devices and input devices. The MCF537x also includes three on-chip universal asynchronous receiver/transmitters (UARTs), common on a majority of 68K/ColdFire devices, for direct communication between computers, terminals and other devices. Both the I²C and queued serial peripheral interface (QSPI) peripherals are ideal for supporting in-system communication to connected peripherals. The MCF537x family further accommodates flexibility in communication by supporting networked communication via the integrated 10/100 Ethernet controller. This Integrated Fast Ethernet Controller (FEC) in conjunction with the on-chip hardware encryption module ensures secure connectivity with no compromise to system performance.

Flexibility and Performance

The MCF537x offers many peripherals that give designers the flexibility they need to accommodate the multiple functions in their systems. The MCF537x features an integrated USB-OTG module that allows a system to serve as either the master or a device in a given application. The MCF537x also features an integrated SDRAM controller that supports either DDR or SDR memory for designers who wish to modify their designs to accommodate one or the other. Other advanced features include an enhanced multiply-accumulate (eMAC) unit, which handles DSP-like instructions. The MCF537x

family of devices also builds upon the competitive high-performance legacy of the 68K/ColdFire family, offering up to up to 211 Dhrystone 2.1 MIPS at 240 MHz of performance, making them one of the highest performing microprocessors in its class.

Security

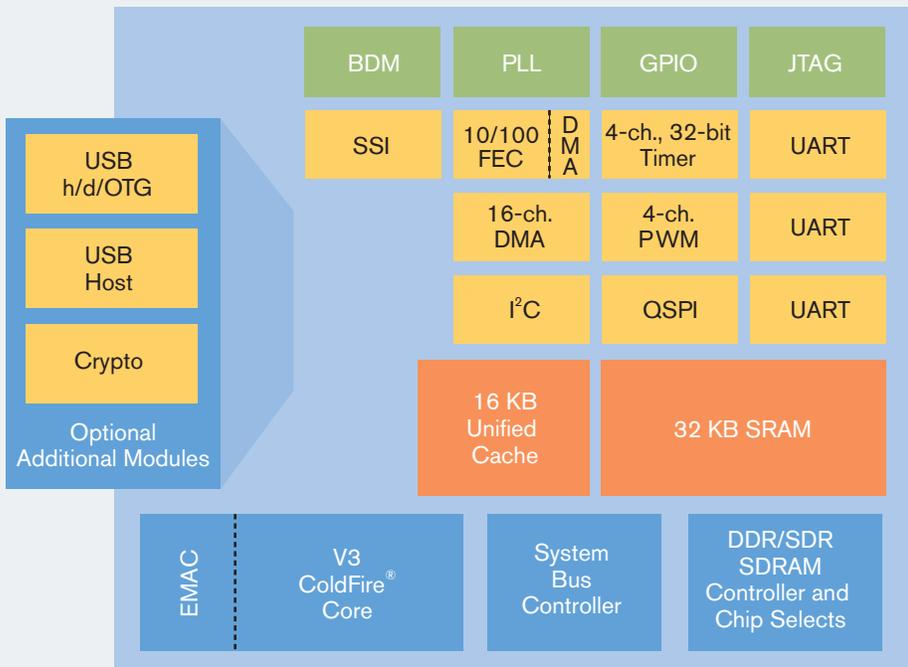
As the need for networked connectivity increases in embedded applications, a higher level of data protection is required. The MCF537x family offers an optional on-chip Hardware Encryption Module to address this need. The integrated hardware encryption module is designed to support a variety of encryption algorithms and protocols while maintaining overall system performance.

68K/ColdFire Hardware and Software Tools Support

The ColdFire® embedded processor family benefits from world-class support by several leading third-party developers. These developers support a wide variety of 68K/ColdFire devices, making it possible to use the same tool set across several devices in the ColdFire portfolio. In addition to maintaining this similar tool support across the entire ColdFire family, the MCF537x offers peripherals that are similar across several ColdFire devices, further enabling smooth migration within the ColdFire device portfolio. The Freescale M5373EVB evaluation and development system includes, at no extra cost*, CodeWarrior™ Special Edition software. Professional tool support is also available to ColdFire third-party tool vendors. Open source software is available for the MCF537x family of microcontrollers.

*License agreement and registration required.

MCF537x FAMILY BLOCK DIAGRAM



MCF537x Family

Part Number	Key Features	Package	Speed	Pricing
MCF5373L	3 UARTs FEC, SDR/DDR SDRAMC 64 KB SRAM, 16 KB C-Cache Encryption USB host/device/OTG	196 MAPBGA	Up to 240	\$12.50*
MCF5373	3 UARTs FEC, SDR/DDR SDRAMC 64 KB SRAM 16 KB C-Cache Encryption	160 QFP	Up to 180	\$12.50*
MCF5372L	3 UARTs FEC, SDR/DDR SDRAMC 64 KB SRAM 16 KB C-Cache USB host/device/OTG	196 MAPBGA	Up to 240	\$11.00*
MCF5372	3 UARTs FEC, SDR/DDR SDRAMC 64 KB SRAM 16 KB C-Cache	160 QFP	Up to 180	\$11.00*
M5373EVB	Development kit for the ColdFire MCF537x microprocessor family			\$699.00*

*10K Manufacturer Suggested Resale Price

MCF537x Features

ColdFire V3 Core

- > Up to 211 (Dhrystone 2.1) MIPS @ 240 MHz
- > Enhanced MAC module and hardware divide

Integration

- > 16 KB I/D-Cache
- > 32 KB SRAM
- > USB 2.0 full-speed host controller (MCF5373L and MCF5372L only)
- > USB 2.0 full-speed On-The-Go controller (MCF5373L and MCF5372L only)
- > 10/100 Fast Ethernet Controller (FEC)
- > Hardware accelerated encryption (MCF5373L and MCF5373 only)
- > Three UARTs
- > QSPI
- > Synchronous serial interface (SSI)
- > I²C bus interface
- > 4-channel, 32-bit timer with DMA support
- > 4-channel PWM timer
- > 16-channel DMA controller
- > 16-bit DDR/32-bit SDR SDRAM controller
- > System integration (PLL, software watchdog)
- > 1.5V core, 2.5V DDR, 3.3V I/O voltages

Availability

- > Temperature range: -40°C to 85°C
- > Package options:
 - MCF5373L and MCF5372L: 196-ball MAPBGA
 - MCF5273 and MCF5372: 160-pin QFP

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