ColdFire® Embedded Controllers
Fact Sheet

ColdFire V1 Core

Overview

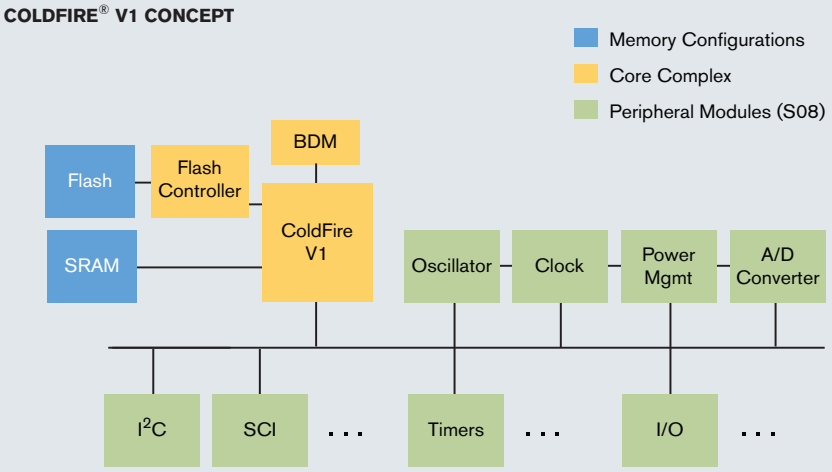
The V1 68K/ColdFire core processor will provide the engine for the industry's first 8- and 32-bit compatible devices, allowing easy migration between the architectures while delivering 32-bit performance at a lower price point. The V1 core is a simplified version of the ColdFire V2 core, featuring the same addressing modes and instruction definitions. It is designed to share the same peripheral sets as the Freescale 8-bit S08 architecture, leveraging the extensive peripheral portfolio to enhance end-use applications with the latest features and capabilities.

Common peripheral modules include an oscillator clock (OSC), internal clock source (ICS), analog-to-digital converter (ADC), inter-integrated circuit (I^2C) and serial communications interface (SCI).

Pin compatibility and a common CodeWarrior® integrated development environment (IDE) help bridge the gap and complete the connection between the 8-bit and 68K/ColdFire portfolios. The CodeWarrior drivers, initialization tool, debugger, compiler and CodeWarrior implementation of the instruction set architecture (ISA), as well as the IDE are all upward compatible from the S08 architecture.

All 68K/ColdFire cores (V1, V2, V3 and V4) share the same architecture and instruction set. They are downward and upward code compatible, so drivers will require minimal rewrite.

COLDFIRE® V1 CONCEPT



Software tools, including IDE, initialization tool, debugger and compiler have similar look and feel to ease the transition from core to core.

V1 68K/ColdFire Core Up to 50 MHz

The V1 core is a pipelined 32-bit core with 32-bit address bus for improved access performance to the local flash and RAM. The 8-bit data bus can allow 16-bit references to the peripherals by "decomposing" the accesses into two 8-bit cycles. It features S08 compatible peripherals and single-wire background debug interface with on-chip in-circuit emulator (ICE) debug module. The core also implements a processor status trace buffer to support real-time trace capabilities mapped into a background debug module (BDM)-readable resource.

Key Features

> Increased operand handling for 8- and 16-bit

> Single-pin debug

> Optional MAC/EMAC

> In-hands GPIO capabilities

Applications

> Hand-held and remote terminals

> Point-of-sale terminals

> Health-care instruments and monitoring

> Factory automation systems

> Building monitor-and-control systems

> Security/access systems

> Office automation

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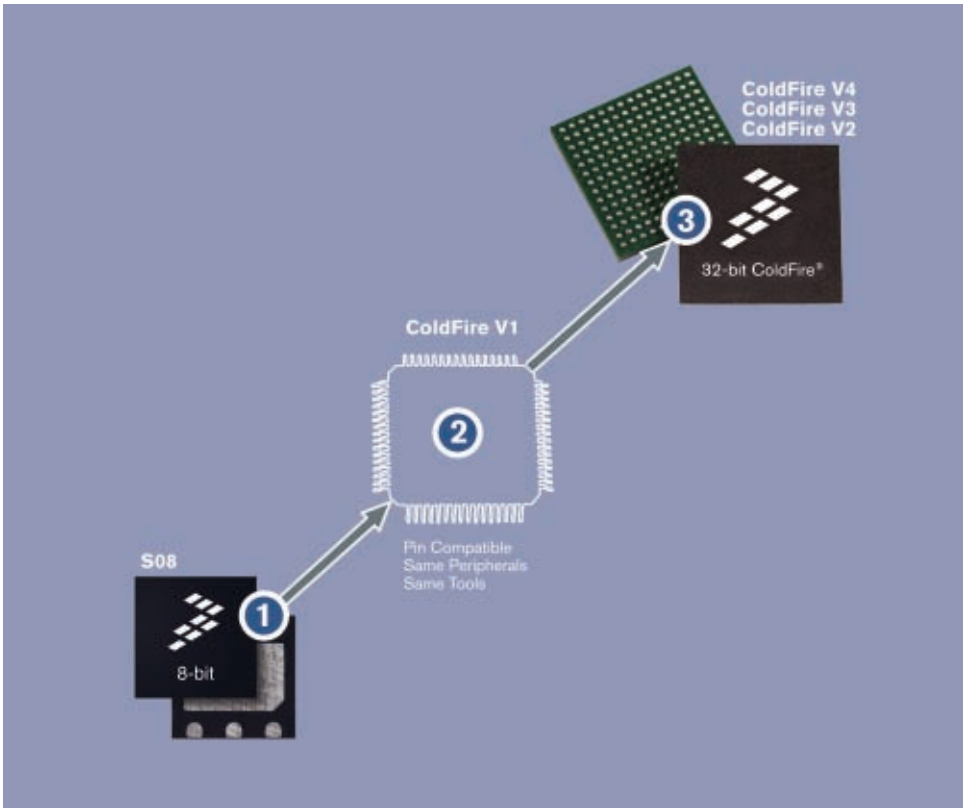

ColdFire Embedded Controllers

The ColdFire portfolio offers unparalleled integration and debugging capabilities across a wide range of performance and price options. Variable-length RISC architecture gives designers greater flexibility and exceptional code density, and efficient use of on-chip memory means designers don't have to sacrifice performance to keep system costs in line. Plus, ColdFire product development tools—compilers, assemblers, linkers, debuggers, code converters, simulators and evaluation kits—accelerate design cycles to help you get your application to market quickly. Whatever your system performance and integration requirements may be, the ColdFire portfolio has a solution to meet your needs.

Development Tools

One development tool environment for both S08 and ColdFire V1:

> S08 and V1 will be a part of the same CodeWarrior Development Studio software tools

> All existing S08 USB hardware cables will work on ColdFire V1 using the same S08 single wire BDM interface

> Users can debug, program and erase either on an evaluation board or in the target system

> Enable an on-chip, real-time trace peripheral that can trigger based on program execution and/or data events; recorded information can be retrieved from an on-chip buffer

Learn More: For more information about ColdFire family products, please visit **www.freescale.com/coldfire**.

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