ColdFire® Embedded Controllers

MCF532x/7x Embedded VoIP Solution
MCF53281CVM240 / MCF53721CVM240
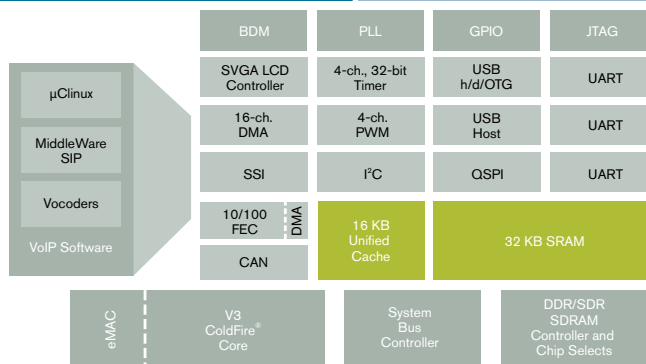
Overview

Freescale Semiconductor proudly introduces an addition to the 68K/ColdFire family of embedded controllers, a complete hardware and software solution for commercial VoIP applications based on the popular MCF532x products. The solution is designed to help embedded developers reduce time-to-market by providing a complete hardware and software solution that can function as a reference design or a take-to-market product platform. This flexibility gives developers the option to integrate fully developed module boards or design their own application. The system includes all required software components to develop a feature-rich product and does not require an NRE, lowing overall system cost. The solution is supported by a stand-alone development kit that is ready to demo out-of-the-box. This easy to use, cost-effective solution will help simplify development and allow designers to enable more applications with VoIP capability.
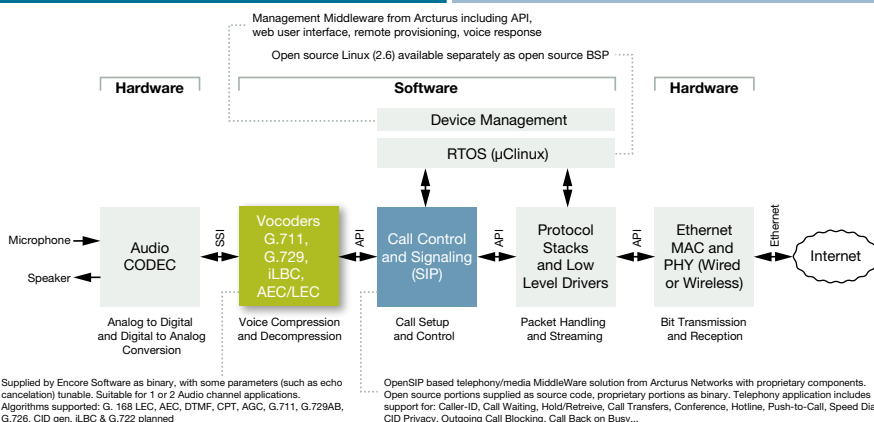
Target Markets

- Commercial/Industrial Uses
  - Gas pump
  - Vending machine
  - Toll booth
  - ATM
  - Medical equipment
  - Production equipment
  - Intercom
- Residential Uses
  - Security system
  - Child monitor
- Telephone Uses
  - Basic VoIP telephone

MCF532x Block Diagram

NRE-Free Software Solution

Applications

- Shell/telnet server
- DHCP/NTP and networking applications
- Webserver
- Microwindows/NanoX for LCD GUI applications

Full-Featured Bootloader

- Persistent object support
- Kernel API and CLI
- TFTP client/server
- Flash partitioning
- Watchdog support

Management Middleware

- Device management API
- WED UI, SSL remote provisioning, voice response

VoIP/Media Middleware

- Certified SIP signaling stack
- Feature-rich telephony application
- QoS and firewall traversal
- Compatible with leading infrastructure equipment and open source PBX implementations
- Simple command line API

VoIP Development System

The ColdFire Embedded VoIP Development Kit, the M53281KIT, is a compact, easy-to-integrate development system designed by Freescale and Freescale Design Alliance Partner, Arcturus Networks, Inc., for enabling commercial VoIP functionality in embedded applications. The module is based on the 240 MHz Freescale ColdFire® MCF53281 microprocessor and includes all required system memory and terminations to enable most applications without the need for external circuitry. It features audio, Ethernet, CAN, serial, I/O and USB host communications systems as well as standard peripheral device connectivity using I^{2}C or QSPI. The device also features an integrated SVGA LCD controller for applications requiring high-resolution graphical displays. Daughter cards are available for LCD-to-VGA scan conversion and FXS applications. The solution fits standard off-the-shelf enclosures to help accelerate proof-of-concept implementations and is certified by applicable regulatory agencies. Schematics and documentation are provided to assist customers with implementation or the creation of their own hardware designs.

The development system includes an open source uClinux™ embedded software BSP, complete with source code, GNU tools, kernel and broad collection of applications and drivers. A certified SIP telephony stack and audio subsystem is included with API, along with a device management middleware system. A host development board, power supply cable kit and manual are also included.

Key ColdFire M53281KIT Features

- Host board
- M53281MOD Module
- Video interface daughter card, audio headset, P&E BDM wiggler, power supply and GNU tools
- VoIP and management software
- All licenses for VoIP and management software use
- Documentation and out-of-the-box VoIP demo
- Part number: M53281KIT
- Pricing: $749 (SRP)

Key ColdFire M53281MOD Features

- MCF53281CVM240 processor
- 32 MB SDRAM and 16 MB NOR Flash
- Ethernet PHY and CAN Transceiver
- Audio codec/amplifier
- VoIP and management software
- All licenses for VoIP and management software use
- Easy-to-integrate 50pin header or edge connector socket
- Part number: M53281MOD
- Pricing: $99 (SRP) at volume

Key ColdFire MCF53281/ MCF53721 Features

- V3 ColdFire core with EMAC offering up to 211 MIPS @ 240 MHz
- 16 KB I/D cache and 32 KB SRAM
- 16-bit DDR/32-bit SDR SDRAM controller
- Integrated SVGA LCD controller (No LCD on MCF53721)
- USB 2.0 low/full-speed host controller with on-chip transceivers
- USB 2.0 low/full-speed On-The-Go controller with on-chip transceivers
- 10/100 Fast Ethernet controller (FEC)
- Enhanced CAN 2.0B controller
- VoIP and management software
- All licenses for VoIP and management software use
- Part number: MCF53281CVM240 (256 MAPBGA) / MCF53721CVM240 (196 MAPBGA)
- Pricing from: $12.94 (SRP) at volume

Where to Go for Additional Information

- M53281KIT Embedded VoIP Development Kit Webpage (design files, documentation and example code)
- MCF532x Product Family Webpage (feature list, documentation, application notes)
- ColdFire MCF53281 Reference Manual
- Arcturus Networks, Inc.— Freescale Design Alliance Partner (www.arcturusnetworks.com)

ColdFire M53281MOD

ColdFire M53281KIT

Learn More: For current information about Freescale products and documentation, please visit **www.freescale.com/coldfire.**

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