

CCS CM4F9 – Microcontroller and FPGA System- on-Module

General Description

The CCS CM4F9 is a cost-efficient, highly integrated, low-power system-on-module which efficiently combines a high-performance Cortex®-M4 CPU and a low-power FPGA. It is suitable for control, monitoring, and low complexity computing applications for new designs or existing products as a replacement part. It combines the CPU with an FPGA to implement a wide range of peripherals (GPIO, SPI, I2C, UART, ADC, CAN, USB) and custom programmable logic.

The SOM is designed to be pin-compatible with mainstream, commercially available MCUs and act as a cost-effective drop-in replacement without the need of HW redesign.

The CPU supports the ARM® Common Microcontroller Software Interface Standard (CMSIS) for software portability.

Key features

- High-Efficiency Microcontroller:
 - ARM® Cortex®-M4 processor
 - Internal Oscillator Operates Up to 96MHz
 - 256KB Flash Memory
 - 96KB SRAM
 - 16KB Instruction Cache
 - Memory Protection Unit (MPU)
- Communication Interfaces:
 - 1xUSB 1.1 full speed interface
 - 1xCAN interface
 - Serial communication interfaces: UART, SPI, I2C*
- Up to 48 fast I/Os*
- Up to 6 ADC (12-bit resolution, 1 Msps conversion rate)

- Optional user defined logic or peripheral, e.g. parallel communication interface*
- Three 32-bit timers
- 32 kHz oscillator support for RTC
- Single Wire Debug (SWD) interface
- Operation from Single Supply: 1.71V to 3.465V
- Wide Operating Temperature: -40°C to +105°C

*: the number of interfaces, I/Os or custom logic depends on the system configuration

Application areas (both new and existing product designs)

- Monitoring
- Control functions
- Low complexity computing
- IoT - Edge computing
- Communication gateway

Configuration options

- Pin compatible MCU families:
 - STMicroelectronics STM32® family
 - Microchip SAM® family
 - NXP General Purpose MCU family
- Pin compatible packages:
 - LQFP packages with minimum dimensions of 9x9 mm

Simplified Diagram

