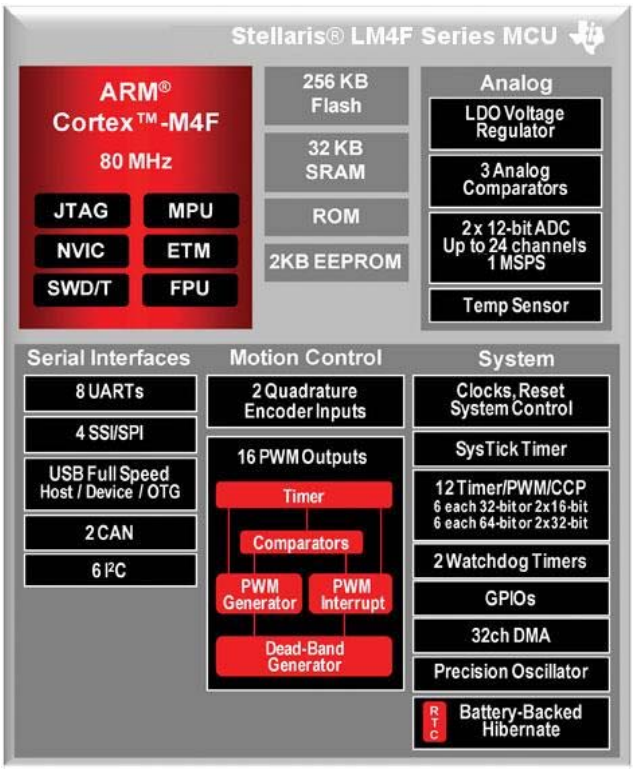
Stellaris® LM4F Series MCUs

General MCU LM4F11x Series	General MCU + USB Device LM4F12x Series	General MCU + USB OTG LM4F13x Series	Motion Control LM4F21x Series	Motion Control + USB OTG LM4F23x Series	Package
LM4F110	LM4F120	LM4F130	LM4F210	LM4F230	64LQFP
LM4F111	LM4F121	LM4F131	LM4F211	LM4F231	64LQFP
LM4F112	LM4F122	LM4F132	LM4F212	LM4F232	100LQFP 144LQFP 157BGA

Product Features

- ARM® Cortex™-M4F Processor Core
  - 80-MHz operation; 100 DMIPS performance
  - ARM Cortex SysTick Timer
  - Nested Vectored Interrupt Controller (NVIC)
  - Wake-Up Interrupt Controller (WIC) with clock gating
  - Embedded Trace Macro (ETM) and Trace Port
  - IEEE754-compliant single-precision Floating-Point Unit (FPU)
- On-Chip Memory
  - Up to 256 KB single-cycle Flash memory up to 40 MHz
  - Up to 32 KB single-cycle SRAM
  - 2 KB EEPROM
  - Internal ROM loaded with StellarisWare® software including Stellaris® Peripheral Driver Library, Stellaris® Boot Loader, Advanced Encryption Standard (AES) cryptography tables, Cyclic Redundancy Check (CRC) error detection functionality
- Advanced Serial Integration
  - Two CAN 2.0 A/B controllers
  - USB 2.0 OTG/Host/Device
  - Eight UARTs with IrDA, 9-bit and ISO-7816 support (one UART with modem flow control and status)
  - Six I^2C modules
  - Four Synchronous Serial Interface modules (SSI)
- Analog
  - Two 12-bit Analog-to-Digital Converters (ADC) with 24 analog input channels and sample rate of 1M s/s
  - Three analog comparators
  - 16 digital comparators
  - On-chip voltage regulator
- System Integration
  - Direct Memory Access Controller (DMA)
  - System control and clocks including on-chip precision 16-MHz oscillator
  - Six 32-bit timers (up to twelve16-bit)
  - Six wide 64-bit timers (up to twelve 32-bit)
  - Twelve 16/32-bit Capture Compare PWM (CCP) pins
  - Twelve 32/64-bit Capture Compare PWM (CCP) pins
  - Lower-power battery-backed Hibernation module
  - Real-Time Clock in Hibernation module
  - Two Watchdog Timers
  - Up to 49 GPIOs in a 64-pin LQFP, up to 69 GPIOs in a 100-pin LQFP, up to 105 GPIOs in a 144-pin LQFP, up to 120 GPIOs in a 157-ball BGA depending on configuration
- Advanced Motion Control
  - Two PWM modules, with a total of 16 advanced PWM outputs for motion and energy applications
  - Eight fault inputs to promote low-latency shutdown
  - Two Quadrature Encoder Inputs (QEI)
- JTAG and ARM Serial Wire Debug (SWD)
- 64-,100-, and 144-pin LQFP and 157-ball BGA packages
- Industrial (-40°C to 85°C) temperature range



LM4F Series Block Diagram. This block diagram shows the superset of features for the LM4F series of Stellaris® microcontrollers.

Target Applications

The LM4F series microcontrollers are targeted for industrial applications, including:

- factory automation
- power and energy
- fire and security
- HVAC and building control
- medical instrumentation
- motion control
- gaming equipment
- transportation
- test/measurement equipment

Evaluation Kit

The Stellaris® EK-LM4F232 Evaluation Kit provides a low-cost and effective means of evaluating Stellaris microcontrollers before purchase. See the website at www.ti.com/stellaris for the latest tools available or ask your distributor.

Product Number	Description
EKK-LM4F232	Stellaris® LM4F232 Evaluation Kit for Keil™ RealView® MDK-ARM (32 KB code-size limited)
EKI-LM4F232	Stellaris® LM4F232 Evaluation Kit for IAR Systems Embedded Workbench® (32 KB code-size limited)
EKC-LM4F232	Stellaris® LM4F232 Evaluation Kit for Sourcery CodeBench (30-day limited)
EKT-LM4F232	Stellaris® LM4F232 Evaluation Kit for Code Red Technologies Red Suite (90-day limited)
EKS-LM4F232	Stellaris® LM4F232 Evaluation Kit for Code Composer Studio™ IDE (board-locked)

Stellaris® LM4F Series MCUs (continued)

Stellaris® LM4F11x Series — General MCU

Series	Part Number	Flash (KB)	SRAM (KB)	5-V Tolerant GPIOs	Package	Information
LM4F110	LM4F110B2QR	32	12	43	64-pin LQFP	Includes low-power hibernate functionality.
	LM4F110C4QR	64	24			
	LM4F110E5QR	128	32			
	LM4F110H5QR	256	32			
LM4F111	LM4F111B2QR	32	12	49	64-pin LQFP	No low-power hibernate functionality, but includes additional serial functionality, and up to six more I/Os than the LM4F110 Series.
	LM4F111C4QR	64	24			
	LM4F111E5QR	128	32			
	LM4F111H5QR	256	32			
LM4F112	LM4F112C4QC	64	24	69	100-pin LQFP	Includes low-power hibernate functionality, and additional serial and analog functionality in larger pin-count packages.
	LM4F112E5QC	128	32			
	LM4F112H5QC	256	32			
	LM4F112H5QD	256	32	105	144-pin LQFP	

Stellaris® LM4F12x Series — General MCU + USB Device

Series	Part Number	Flash (KB)	SRAM (KB)	5-V Tolerant GPIOs	Package	Information
LM4F120	LM4F120B2QR	32	12	43	64-pin LQFP	Includes low-power hibernate functionality.
	LM4F120C4QR	64	24			
	LM4F120E5QR	128	32			
	LM4F120H5QR	256	32			
LM4F121	LM4F121B2QR	32	12	49	64-pin LQFP	No low-power hibernate functionality, but includes additional serial functionality, and up to six more I/Os than the LM4F120 Series.
	LM4F121C4QR	64	24			
	LM4F121E5QR	128	32			
	LM4F121H5QR	256	32			
LM4F122	LM4F122C4QC	64	24	69	100-pin LQFP	Includes low-power hibernate functionality, and additional serial and analog functionality in larger pin-count packages.
	LM4F122E5QC	128	32			
	LM4F122H5QC	256	32			
	LM4F122H5QD	256	32	105	144-pin LQFP	

Stellaris® LM4F13x Series — General MCU + USB OTG

Series	Part Number	Flash (KB)	SRAM (KB)	5-V Tolerant GPIOs	Package	Information
LM4F130	LM4F130C4QR	64	24	43	64-pin LQFP	Includes low-power hibernate functionality.
	LM4F130E5QR	128	32			
	LM4F130H5QR	256	32			
LM4F131	LM4F131C4QR	64	24	49	64-pin LQFP	No low-power hibernate functionality, but includes additional serial functionality, and up to six more I/Os than the LM4F130 Series.
	LM4F131E5QR	128	32			
	LM4F131H5QR	256	32			
LM4F132	LM4F132C4QC	64	24	69	100-pin LQFP	Includes low-power hibernate functionality, and additional serial and analog functionality in larger pin-count packages.
	LM4F132E5QC	128	32			
	LM4F132H5QC	256	32			
	LM4F132H5QD	256	32	105	144-pin LQFP	

Stellaris® LM4F21x Series — Motion Control

Series	Part Number	Flash (KB)	SRAM (KB)	5-V Tolerant GPIOs	Package	Information
LM4F210	LM4F210E5QR	128	32	43	64-pin LQFP	Includes low-power hibernate functionality.
	LM4F210H5QR	256	32			
LM4F211	LM4F211E5QR	128	32	49	64-pin LQFP	No low-power hibernate functionality, but includes additional serial functionality, and up to six more I/Os than the LM4F210 Series.
	LM4F211H5QR	256	32			
LM4F212	LM4F212E5QC	128	32	69	100-pin LQFP	Includes low-power hibernate functionality, and additional serial and analog functionality in larger pin-count packages.
	LM4F212H5QC	256	32			
	LM4F212H5QD	256	32	105	144-pin LQFP	
	LM4F212H5BB	256	32	120	157-ball BGA	

Stellaris® LM4F23x Series — Motion Control + USB OTG

Series	Part Number	Flash (KB)	SRAM (KB)	5-V Tolerant GPIOs	Package	Information
LM4F230	LM4F230E5QR	128	32	43	64-pin LQFP	Includes low-power hibernate functionality.
	LM4F230H5QR	256	32			
LM4F231	LM4F231E5QR	128	32	49	64-pin LQFP	No low-power hibernate functionality, but includes additional serial functionality, and up to six more I/Os than the LM4F230 Series.
	LM4F231H5QR	256	32			
LM4F232	LM4F232E5QC	128	32	69	100-pin LQFP	Includes low-power hibernate functionality, and additional motion control, serial, and analog functionality in larger pin-count packages.
	LM4F232H5QC	256	32			
	LM4F232H5QD	256	32	105	144-pin LQFP	
	LM4F232H5BB	256	32	120	157-ball BGA	

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