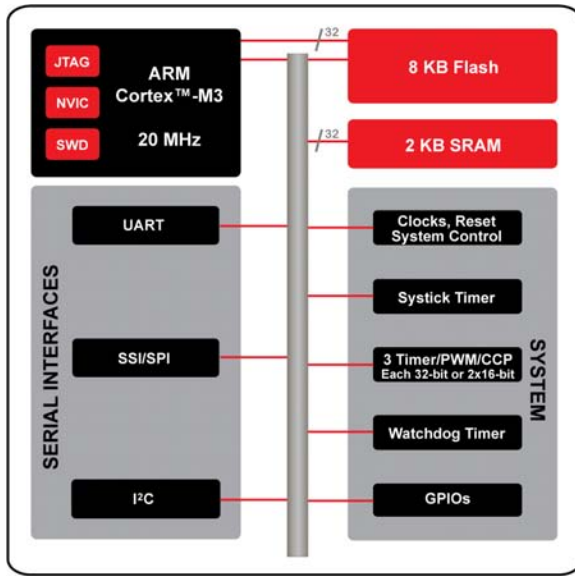




LM3S100 Series Block Diagram. This block diagram shows the superset of features for the LM3S100 series of microcontrollers.

Features

32-Bit RISC Performance

- 32-bit ARM® Cortex™-M3 v7M architecture optimized for small-footprint embedded applications
- 20-MHz operation
- System timer (SysTick) provides a simple, 24-bit clear-on-write, decrementing, wrap-on-zero counter with a flexible control mechanism
- Thumb®-compatible Thumb-2-only instruction set processor core for high code density
- Integrated Nested Vectored Interrupt Controller (NVIC) provides deterministic interrupt handling
- 14 interrupt channels with eight priority levels
- Unaligned data access enables data to be efficiently packed into memory
- Atomic bit manipulation (bit-banding) delivers maximum memory utilization and streamlined peripheral control

On-Chip Memory

- 8 KB single-cycle flash with two forms of flash protection on a 2-KB block basis
- 2 KB single-cycle SRAM

General-Purpose Timers

- Two General-Purpose Timer Modules (GPTM), each configurable as one 32-bit or two 16-bit timers
- Real-Time Clock (RTC) capability

Watchdog Timer

- 32-bit down counter with a programmable load register
- Separate watchdog clock with an enable
- Programmable interrupt generation logic with interrupt masking
- Lock register protection from runaway software

- Reset generation logic with an enable/disable

Synchronous Serial Interface (SSI)

- Programmable interface operation for Freescale SPI, MICROWIRE, or Texas Instruments synchronous serial interfaces
- Master or slave operation

UART

- Fully programmable 16C550-type UART
- Separate 16x8 transmit (TX) and 16x12 receive (RX) FIFOs to reduce CPU interrupt service loading
- Programmable baud-rate generator allowing speeds up to up to 1.25 Mbps

Analog Comparators

- One integrated analog comparator
- Configurable for output to: drive an output pin or generate an interrupt
- Compare external pin input to external pin input or to internal programmable voltage reference

Inter-Integrated Circuit (I²C) Interface

- Master and slave receive and transmit operation with transmission speed up to 100 Kbps in Standard mode and 400 Kbps in Fast mode
- Interrupt generation
- Master with arbitration and clock synchronization, multimaster support, and 7-bit addressing mode

GPIOs

- 0-18 GPIOs, depending on configuration
- 5-V-tolerant input/outputs
- Programmable interrupt generation
- Programmable drive strength and slew-rate control

Power

- On-chip Low Drop-Out (LDO) voltage regulator, with programmable output user-adjustable from 2.25 V to 2.75 V
- Low-power options on controller: Sleep and Deep-sleep modes
- Low-power options for peripherals: software controls shutdown of individual peripherals
- User-enabled LDO unregulated voltage detection and automatic reset
- 3.3-V supply brown-out detection and reporting via interrupt or reset

Package and Temperature

- 48-pin RoHS-compliant LQFP and QFN packages
 - Industrial temperature (-40°C to +85°C)
 - Extended temperature (-40°C to +105°C)

Target Applications

- Factory automation and control
- Industrial control power devices
- Building and home automation

LM3S102 Microcontroller

STELLARIS®
microcontrollers

TEXAS INSTRUMENTS



High-performance
ARM Cortex-M3
microcontroller for
real-time embedded
applications

Development Kit

The Stellaris® Family Development Kit provides the hardware and software tools that engineers need to begin development quickly. Ask your distributor for part number DK-LM3S102. See the website for the latest tools available.



Tools to begin
development quickly

Ordering Information

Orderable Part Number	Description
LM3S102-IQN20-C2	Stellaris® LM3S102 Microcontroller Industrial Temperature 48-pin LQFP
LM3S102-IQN20-C2T	Stellaris® LM3S102 Microcontroller Industrial Temperature 48-pin LQFP Tape-and-reel
LM3S102-EQN20-C2	Stellaris® LM3S102 Microcontroller Extended Temperature 48-pin LQFP
LM3S102-EQN20-C2T	Stellaris® LM3S102 Microcontroller Extended Temperature 48-pin LQFP Tape-and-reel
LM3S102-IGZ20-C2	Stellaris® LM3S102 Microcontroller Industrial Temperature 48-pin QFN
LM3S102-IGZ20-C2T	Stellaris® LM3S102 Microcontroller Industrial Temperature 48-pin QFN Tape-and-reel
LM3S102-EGZ20-C2	Stellaris® LM3S102 Microcontroller Extended Temperature 48-pin QFN
LM3S102-EGZ20-C2T	Stellaris® LM3S102 Microcontroller Extended Temperature 48-pin QFN Tape-and-reel
LM3S102-IRN20-C2 ^a	Stellaris® LM3S102 Microcontroller Industrial Temperature 28-pin SOIC
LM3S102-IRN20-C2T ^a	Stellaris® LM3S102 Microcontroller Industrial Temperature 28-pin SOIC Tape-and-reel
LM3S102-ERN20-C2 ^a	Stellaris® LM3S102 Microcontroller Extended Temperature 28-pin SOIC
LM3S102-ERN20-C2T ^a	Stellaris® LM3S102 Microcontroller Extended Temperature 28-pin SOIC Tape-and-reel

a. NRND: Not recommended for new designs. Device is in production to support existing customers, but TI does not recommend using this package in a new design.

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