

Nine New ARM Cortex-M3-based Microcontrollers

Luminary Micro Continues its Leadership with the 4th Generation of Stellaris Microcontrollers

Nine New ARM Cortex-M3-based Microcontrollers Unveiled in Low Power 130nm Technology

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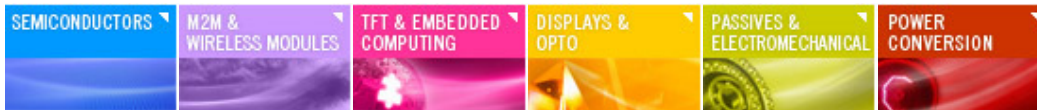
Luminary Micro, creators of the award-winning Stellaris® family of ARM® Cortex™-M3-based microcontrollers (MCUs), today announced nine new Stellaris family members, featuring new combinations of connectivity, memory configurations, and advanced motion control. Unveiled today are five microcontrollers in Luminary Micro's new LM3S9000 Series (featuring an on-chip combination of 10/100 Ethernet MAC/PHY, USB On-The-Go, and Controller Area Network) and two new microcontrollers each for the LM3S2000 CAN Series and LM3S5000 USB and CAN Series. The new Stellaris family members further extend the industry's largest ARM-based microcontroller product line by adding higher performance with speeds up to 100 MHz and lower operating power with 130nm low power technology.



New and Enhanced Stellaris Family Capabilities Enable New Applications

Today's announcement expands the reach of the innovative Stellaris family by adding a number of compelling new features, including a versatile External Peripheral Interface (with modes to support SDRAM, SRAM/Flash, Host-Bus, and M2M), an Integrated Interchip Sound (I²S) Interface, simultaneous dual ADC capability, a second watchdog timer with independent clock for safety critical applications (supported by the recently-announced IEC 60730 library addition to the StellarisWare™ Library), and a 16 MHz software-trimmed 1% Precision Oscillator.

In addition, these new products offer valuable enhancements to the Stellaris family, such as faster ARM Cortex-M3 speed options up to 125 DMIPS (100 MHz), incorporation of the new ARM Cortex-M3 R2P0 low power core, extended on-chip software in ROM, increased single-cycle RAM up to 96KB for data efficiency, and 32 channels of Direct Memory Access (DMA) support expanded to more peripherals. The Stellaris family's already-speedy UARTs have been augmented with LIN support, ISO 7816 support, full modem capability, and increased speeds up to 12.5 Mbps. Embedded programmers will appreciate the useful new End of Transmission interrupt capabilities on the enhanced UART and SSI peripherals.



Leadership in High-Performance, Low-Power Capabilities

The fourth generation of Stellaris microcontrollers breaks new ground in high-performance, low-power microcontroller applications. Designers of low-power systems will benefit from the improved power management resulting in a 1.5 ms fast wake from hibernate and power-up, as well as significantly lower power consumption with a range from 4 μ A in hibernate mode to a typical 56 mA in run mode. The battery-backed hibernate module includes a very generous 256 bytes of non-volatile battery-backed memory, along with low-battery detection, signaling, and interrupt generation. The microcontroller can quickly wake from hibernate based on the integrated real-time counter (RTC), an external pin interrupt, or low battery detection. Software can finely regulate power performance by specific power shutdown of unused peripheral blocks. To minimize system cost, a single 4 MHz crystal can be used for both hibernate RTC functions and the main MCU oscillator function.

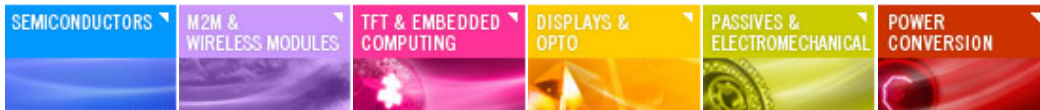
Fast, Flexible External Peripheral Interface Cuts Design Time and Complexity

The External Peripheral Interface (EPI) is a flexible high-speed parallel bus for external peripherals or memory. The EPI has several modes of operation providing glueless interface to many types of external devices, and supports execution of code from external memory. Enhanced capabilities include direct addressing, DMA support, hard realtime use (no impact on latency) through non-blocking reads and buffered writes, clocking control, wait state generation, and stall prevention. The EPI supports x16 SDRAMs up to 64MB at up to 50 MHz, including automatic refresh and a sleep/standby mode. The Host-Bus mode provides traditional x8 MCU bus interface capabilities with up to 24MB of addressing, as well as 8-bit FIFO devices with support for FIFO full/empty signalling. The machine-to-machine mode provides wide parallel interfaces for fast communications, with data widths up to 32 bits and data rates up to 150 MB/s.

Extended StellarisWare Software Conveniently Stored in ROM

The StellarisWare Peripheral Driver Library is a royalty-free set of functions for controlling the peripherals found on the Stellaris family of ARM Cortex-M3 microcontrollers. Vastly superior to a GUI peripheral configuration tool, the Stellaris Peripheral Driver Library performs both peripheral initialization and peripheral control functions with a choice of polled or interrupt-driven peripheral support. With the Stellaris Peripheral Driver Library in ROM, it is easier than ever to use the library to quickly develop efficient and functional applications in an environment where the entire flash memory is available for use for the application. For complete flexibility in functionality, the ROM-based Stellaris Peripheral Driver Library also supports flash-based overrides of standard Stellaris Peripheral Driver Library functions.

In addition, the new Stellaris microcontrollers include the StellarisWare Boot Loader in ROM, allowing users to download code to flash memory for firmware updates through UART, I²C, SSI, or Ethernet. The newest Stellaris microcontrollers also include cryptography support with Advanced Encryption Standard (AES) tables for 128-, 192-, and 256-bit key sizes included in ROM. Other memory-saving functions provided in ROM include the Cyclic Redundancy Check (CRC) error detection function.



Stellaris—the First Microcontroller to Bring Serious Real-time Industrial Connectivity Capability to the ARM Architecture

The LM3S9000 Series of ARM Cortex-M3-based Stellaris microcontrollers feature a fully integrated 10/100 Ethernet MAC plus PHY, USB 2.0 Full Speed On-the-Go, and integrated Bosch CAN networking technology, the golden standard in short-haul industrial networks. The LM3S9B95 Stellaris microcontroller features a 10/100 Ethernet MAC and PHY augmented with hardware assisted IEEE 1588 Precision Time Protocol (PTP) capability, enabling synchronization of distributed real-time clocks in a packet-based multicast network. Together with larger on-chip memories, enhanced power management, and expanded I/O and control capabilities, the new LM3S9000 Series Stellaris family members are optimized for industrial applications requiring reliable control and connectivity, including remote monitoring, electronic point-of-sale machines, test and measurement equipment, network appliances and switches, factory automation, HVAC and building control, gaming equipment, motion control, medical instrumentation, and fire and security.

Sophisticated Stellaris Motion Control Technology - Accelerating Motor Design

The Stellaris Family of ARM Cortex-M3 microcontrollers features IP especially designed for precision motion control and typically found only on costly specialty devices, including: eight full channels of PWM control with dead-band generators providing shoot-through protection for applications such as 3-phase inverter bridges; four fault-condition handling inputs in hardware quickly providing low-latency shutdown; synchronization of timers enabling precise alignment of all edges; and two hardware quadrature encoders enabling precise positioning sensing. With the new dual ADC units providing simultaneous ADC measurement capability, Stellaris is the ideal solution for demanding motion applications that require simultaneous current and voltage measurements or simultaneous multi-phase measurements, including sophisticated motor drives for AC Inverters, Brushless DC motors, Stepper motors, and Brushed DC motors.