



Core 'n More

AVNET Microcontroller Solutions

ARM[®] Selector Guide



How about
the idea
of having
a partner
who handles
everything?



ARM Portfolio

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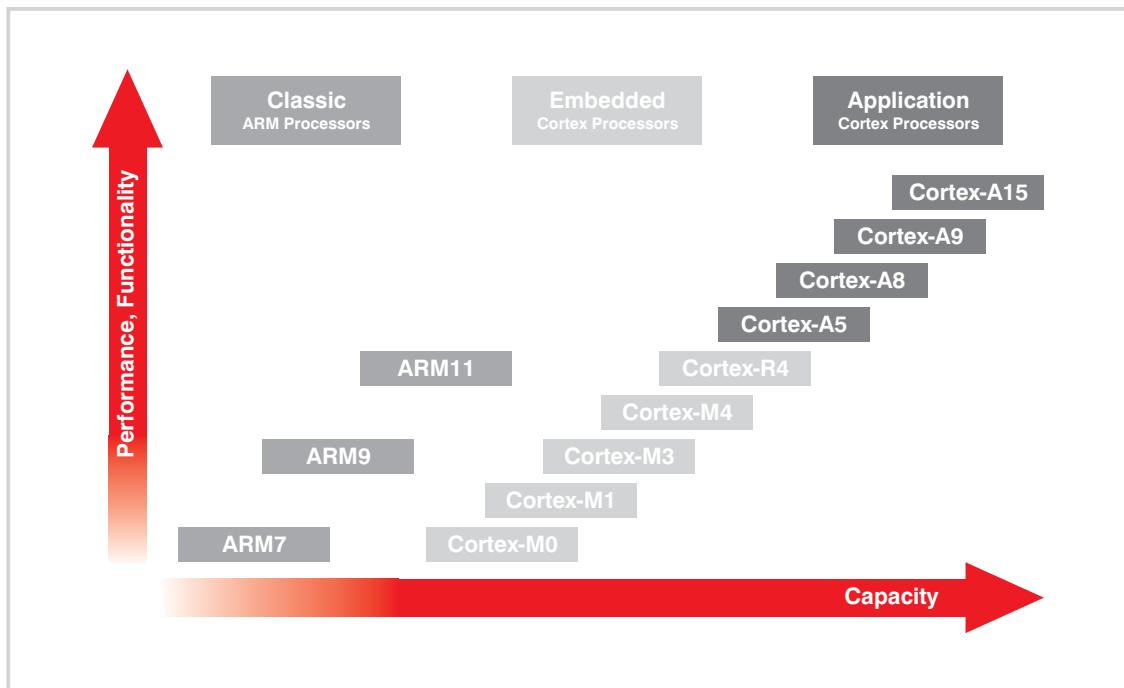
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The Architecture for the Digital World®

ARM®

ARM is the industry's leading provider of 32-bit embedded microprocessors, offering a wide range of processors based on a common architecture that deliver high performance, industry leading power efficiency and reduced system cost. Combined with the broadest ecosystem in the industry partners delivering silicon, tools and software, the wide portfolio of more than 20 processors are able to meet every application challenge. With more than 20 billion processors already created and in excess of 10 million shipped every day, ARM truly is "The Architecture for the Digital World®". This ARM Selector Guide provides an overview of our current ARM processor line card, featuring products of the Top-ARM processor vendors. Silica's local Application Engineers, many of them experts with in-depth ARM design knowledge, are ready to support you on your next ARM project - whether it's a redesign or a completely new design.



ARM Portfolio

	Cypress	Freescale	NXP	STMicro	TI	Xilinx
ARM7			LPC21xx, LPC22xx, LPC23xx	STR7xx		
Cortex-M0			LPC11xx, LPC122x	under development		
Cortex-M3	PSoC 5		LPC13xx, LPC17xx	STM32	Stellaris	
Cortex-M4		Kinetis	under development	under development	under development	
ARM9		i.MX2xx	LPC29xx, LPC31xx, LPC32xx	STR91x, SPEAr3xx	AR17x, AM18x	
ARM11		i.MX3xx				
Cortex-A8		i.MX5xx			AM35x, AM37x, AM389xx, C6A816x	
Cortex-A9		i.MX6xx under development		under development		under development

■ supported by Microsoft Windows CE

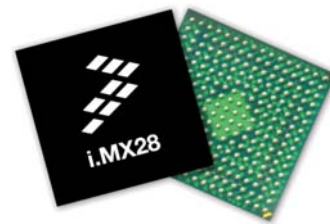
Brand-new ARM9[™] Multimedia Application Processor

The i.MX28 Applications Processor family integrates display, power management, and connectivity features unmatched in ARM9-based devices. All the advantages of ARM plus the enablement you need to design differentiated industrial, automotive and consumer products in less time.

The i.MX28 offers a high level of integration to reduce cost and complexity: On-chip power management eliminates external voltage regulation and ~20 discrete components (save \$2+). It powers other devices in the system and charges batteries.

Key Features

- 454 MHz ARM926EJ-S core w/32 KB Cache
- PMU with high efficiency on-chip DC/DC, supports Li-Ion batteries
- Dual Ethernet with RMIII support and L2 Switch
- Dual CAN interfaces
- LCD Controller with Touchscreen
- NAND support - SLC/MLC and eMMC 4.4 managed
- Hardware BCH (up to 20-bit correction)
- 200 MHz 16-bit DDR2, LV-DDR2, mDDR external memory support
- Dual High speed USB with embedded PHY
- Up to 8 General purpose 12-bit ADC channels and single 2 Msps ADC channel
- LCD Controller with Touchscreen
- Temperature sensor for thermal protection
- Multiple connectivity ports (UARTs, SSP, SDIO, SPI, I²C, I2S)
- Family of products supporting various feature sets
- Package: 289 BGA 14 x 14 mm², 8mm
- Temperature: -40...+85 °C (Industrial, Automotive) and -20...+70 °C



Key Applications

- Industrial
- Point-of-Sale
- Home & Office

Key Design Tips

A high quality development board is provided by Freescale as well as layout and design files for customer reference to reduce development efforts. Royalty-free Linux and WinCE BSP's are also available.

Cortex[™]-A8 Application Processor

The i.MX515 multimedia applications processor offers high performance processing optimised for the lowest power consumption for smartbooks, netbooks, and many other consumer and industrial applications as well including: portable media players, gaming consoles, secure handheld devices and applications requiring an advanced HMI. It features Freescale's advanced and power-efficient implementation of the Cortex-A8 core, which operates at speeds up to 800 MHz. Extended temperature is available for industrial focused devices running at up to 600 MHz.

Key Features

CPU-Complex

- 800 MHz Cortex-A8 CPU
- 32 KB instruction and data caches
- Unified 256 KB L2 cache
- NEON SIMD media accelerator
- Vector floating point co-processor

Multimedia

- OpenGL ES 2.0 and OpenVG 1.1 hardware accelerators
- Multi-format HD 720p video decoder and D1 video encoder hardware engine
- 24-bit primary display support up to WXGA resolution
- 18-bit secondary display support
- Analog HD720p component TV output
- High quality hardware video de-interlacing
- Image and video resize, inversion, and rotation hardware
- Alpha blending and color space conversion
- Video/graphics combining: four planes plus hardware cursor
- Display quality enhancement: color correction, gamut mapping, gamma correction

External Memory Interface

- mDDR and DDR2 SDRAM, 16/32-bit, 200 MHz
- SLC/MLC NAND flash, 8/16-bit

Security

- The i.MX51 processor provides additional security features making it the ideal solution for SOHO networking, routers or any other type of product needing secure system boot and tamper detection.

Interface Flexibility Advanced Power Management

Increased Security

Key Applications

- Smartbooks
- Mobile Internet Devices
- PMPs
- Gaming consoles
- Secure Devices
- Advanced HMI
- High-End-PDAs

Cortex™ -A8 Based Industrial MPU

The AM3517/05 are high-performance, industrial applications processors designed to provide best-in-class video, image, and graphics processing sufficient to support single board computers, home and industrial automation as well as digital signage. The device supports high-level Operating Systems (OSs), such as Linux and Windows CE.

Key Features

- 600 MHz Cortex-A8 core
- NEON SIMD Coprocessor and Vector Floating Point (FP) co-processor
- LCD controller and TV out
- Vector Floating Point compliant with the ANSI/IEEE Std 754-1985
- OpenVG 2D/OpenGL ES 3D-Graphics Engine – up to 10 M polygons per second (AM3517)
- HECC - CAN controller
- 16/32-bit DDR2 interface with 1 GByte total addressable space
- HD resolution display subsystem
- General purpose memory interface supporting 16-bit wide multiplexed address/data bus
- 3 removable media interfaces [MMC/SD/SDIO]
- 16-bit video input port capable of capturing HD video
- RMI EMAC controller 10/100 USB 2.0 HS compliant Host and OTG controllers w/PHY
- Display subsystem with PIP, color space conversion, rotation, and resizing support. For multiple concurrent image manipulation, and a programmable interface supporting a wide variety of displays
- NTSC/PAL video out
- POWERVR SGX™ Graphics Accelerator for 3D graphics
- Comprehensive power, reset and clock management
- Native 3.3 V I/O interfaces
- Commercial and industrial temperature grade
- 491-pin sBGA package (17 x 17, 0.65 mm pitch) and 484-pin PBGA (23 x 23, 1 mm pitch)

Key Applications

- Industrial and home automation
- Point of service terminals
- Single board computers
- Digital signage
- Portable industrial products
- Portable media player
- Transportation/navigation
- Streaming video
- 2D/3D mobile gaming
- Video conferencing
- High-resolution still image
- Video capture in a single board computer
- Digital video camera
- Smart white goods



Key Design Tips

To help get started with the AM3517/05 Texas Instruments provide:

- TMDSEVM3517 Evaluation Module SDK-XAM3517-10-256512R Zoom
- AM3517 Experimenter Kit: <http://www.logicpd.com/products/development-kits/zoom-am3517-experimenter-kit>
- Power your processor with TI: www.ti.com/processorpower

NXP : LPC1100 Series



Cortex-M0

Market's First Cortex™ -M0 MPU

The Cortex-M0 processor is the smallest, lowest-power and most energy-efficient ARM processor available. The exceptionally small silicon area, low power, and minimal code footprint of the processor achieves 32-bit performance at an 8-bit price point, bypassing the step to 16-bit devices. The NXP LPC1100 series are the market's first released Cortex M0 based microcontroller family. The LPC1100 series uses the 32-bit RISC Cortex-M0 core operating up to 50 MHz. Each device has up to 32 kB of Flash and up to 8 kB of SRAM and are available in a variety of packages including PLCC44, LQFP48 and HVQFN33 options.

Key Features

- 50 MHz, 32-bit, Cortex-M0 core
- Up to 32 kB Flash/8 kB SRAM
- UART with fractional baud rate generation, internal FIFO and RS485 support
- SPI controller with FIFO and multi protocol capabilities
- I²C interface supporting full I²C specification and fast mode plus with 1 MBit data rate
- Analog Peripherals: 8-channel 10-bit A/D converter with a conversion rate of up to 250 k samples per second
- Up to 42 General Purpose I/O
- Four General purpose Counter/Timers with a total of 4 capture inputs and 13 match outputs
- Very low active power (~150 μA/MHz)
- Three reduced power modes: sleep, deep-sleep, and deep power-down
- On average 3-4 times higher performance than 8/16-bit MCUs
- Up to 40...50% smaller code size than 8/16-bit MCUs
- Thumb® instruction set for maximum code density
- Deterministic instruction execution timing
- Nested Vectored Interrupt Controller for fast deterministic interrupts
- Wakeup interrupt controller allows automatic wake from any priority interrupt
- Serial wire debug (only 2 pins required) with 4 break points and 2 watch points
- Pin to pin compatible with LPC1300 (Cortex-M3) device family
- Low cost development platforms

Key Applications

- Battery powered systems
- Consumer peripherals
- Remote sensors
- E-metering
- 8/16/32-bit applications

Key Design Tips

- LPCXpresso is NXP's low cost fully integrated development tool platform for the LPC1100 MCU family
- LPCXpresso is an end to end solution for creating applications all the way from initial evaluation to production
- LPCZone online training and community portal: www.nxp.com/lpczone
- LPC user group on Yahoo groups
- NXP MCU social media presence on YouTube and twitter



Cortex™ -M0 MCUs for a Total-CAN-Solution

NXP has introduced the first two devices, LPC11C12 and LPC11C14, in the LPC11C00 series featuring a Controller Area Network (CAN) 2.0B-compliant controller for industrial and embedded networking applications.

CAN has long been considered one of the best choices for robust real-time communication, but price-prohibitive for low-cost embedded applications. With the introduction of the LPC11C00 series, NXP now provides a new low-cost entry point and total CAN solution reducing product development risk, lowering total system cost, and speeding time to market for high-performance embedded designs.

Key Features

- 50 MHz Cortex-M0 processor with SWD/debug (4 break-points)
- 32 Vectored interrupts; 4 priority levels; dedicated Interrupts on up to 13 GPIOs
- CAN 2.0 B_C CAN controller with on-chip CAN open drivers
- UART, 2 SPI & I²C (FM+)
- Two 16-bit and two 32-bit timers with PWM/Match/Capture and one 24-bit system timer
- 12 MHz internal RC oscillator with 1% accuracy over temperature and voltage
- Power-On-Reset (POR); multi-level Brown-Out-Detect (BOD); 10...50 MHz Phase-Locked Loop (PLL)
- 8-channel high precision 10-bit ADC with ± 1 LSB DNL
- 42 fast 5 V tolerant GPIO pins, high drive (20 mA) on select pins
- Single 1.8...3.6 V power supply; 6.5 kV ESD for rugged applications

Key Applications

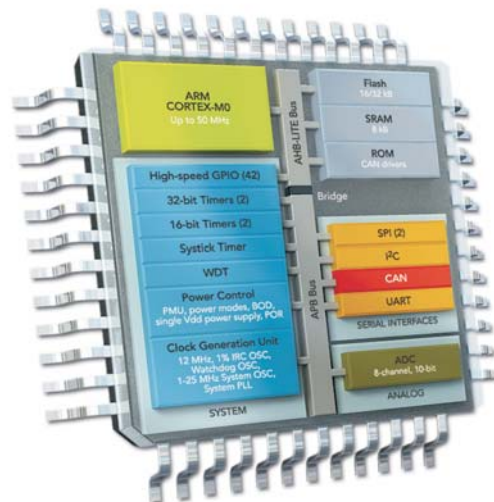
- eMetering
- Industrial and sensor based networks
- Elevator systems
- White goods

Useful links to get started

- www.nxp.com/microcontrollers
- www.nxp.com/lpczone
- www.mbed.org
- www.nxp.com/lpcxpresso

Key Design Tips

- The LPC1100 family is supported by the LPCXpresso, an easy-to-use, comprehensive development tool platform
- It is also supported by development tools from IAR, Keil, Hitex and Code Red



Cortex-M3

Cortex[™] -M3 based Programmable System-On-Chip

PSoC 5 is an architecture, not a specific device, with multiple product families with over 100 device options. It aims to satisfy your needs for flexibility, analog and digital performance, footprint reduction, and faster time-to-market. In most cases, our customers have saved money in design costs, rework, and their Bill Of Materials (BOM).

Surrounding a powerful Cortex-M3 core, an awesome amount of analog and digital peripherals can be selected, configured and even reconfigured in the application. Some of the more notorious analog peripherals are Delta Sigma ADC, DACs, rail to rail op amps, comparators, or analog multiplexers. With all these ingredients, a programmable analog signal chain can be easily built. Together with the DMA functionality, it is feasible to make work a data acquisition system while the Cortex core remains asleep.

On the digital side, various communication blocks are available: USB, CAN, I²C, SPI, I²S and UART. Next year, Ethernet will join the pack. The UDBs - Universal Digital Blocks - are the base for most of them, while are also able to act as DSP cells and, simultaneously, to build up to 192 macrocell CPLDs, depending on the number of UDBs in a specific part number.

Last but not least, almost every pin can be configured as analog, digital input or digital output with several degrees of drive strength, while a graphical utility in the PSoC Creator development system makes it a breeze for the designer to assign each signal to the more convenient pin.

Key Features

- 100 DMIPS Cortex-M3 based core running up to 80 MHz, with 24-channel DMA
- Fully pin, peripheral and binary compatible with PSoC3 - 30 DMIPS 8051 core based designs (even same development environment)
- High performance, configurable digital system that supports a wide range of communication interfaces, such as USB, I²C, and CAN
- High precision, high performance analog system with configurable up to 20-bit ADC, DACs, comparators, op amps, and programmable blocks to create PGAs, TIAs, mixers, etc.
- Easily configurable logic array
- Flexible routing to all pins
- Wide operating voltage range: 0.5...5.5 V
- Power consumption: 2 mA at 6 MHz
- Low power modes including:
 - 2 μ A sleep mode with real time clock and Low Voltage Detect (LVD) interrupt
 - 300 nA hibernate mode with RAM retention
- 28 to 72 I/O (62 GPIO, 8 SIO, 2 USBIO)
- Schmitt trigger TTL inputs
- LCD direct drive from any GPIO, up to 46 x 16 segments
- Capsense support for capacitive buttons
- Programming, Debug and Trace with JTAG, Single Wired Debug (SWG) and TRACEPORT interfaces
- Bootloader programming through I²C, SPI, UART, USB and other interfaces
- -40...+85 °C industrial temperature
- 68-pin QFN and 100-pin TQFP package options

Key Applications

- Analog and digital integration with BOM and board space reduction
- Human interface devices
- Sensing and data collection environments
- Industrial
- General purpose

Key Design Tips

With its unique array of configurable blocks, PSoC[®] 5 is a true system level solution providing MCU, memory, analog, and digital peripheral functions in a single chip. Designers can easily create system level designs using a rich library of prebuilt components and boolean primitives using PSoC[®] Creator[™], a hierarchical schematic design entry tool.



Cortex™ -M3 Low Cost MCU with USB

The LPC1311/13/42/43 are Cortex-M3 based microcontrollers for embedded applications featuring a high level of integration and low power consumption. The Cortex-M3 is a next generation core that offers system enhancements such as enhanced debug features and a higher level of support block integration. The LPC1311/13/42/43 operate at CPU frequencies of up to 72 MHz. The Cortex-M3 CPU incorporates a 3-stage pipeline and uses a Harvard architecture with separate local instruction and data buses as well as a third bus for peripherals. The Cortex-M3 CPU also includes an internal prefetch unit that supports speculative branching. The peripheral complement of the LPC1311/13/42/43 includes up to 32 kB of flash memory, up to 8 kB of data memory, USB device (LPC1342/43 only), one Fast-mode Plus I²C-bus interface, one UART, four general purpose timers, and up to 42 general purpose I/O pins.

Key Features

- Cortex-M3 processor, running at frequencies of up to 72 MHz
- In-System Programming (ISP) and In-Application Programming (IAP) via on-chip bootloader software
- Selectable boot-up: UART or USB (USB on LPC134x only)
- Serial interfaces:
 - USB 2.0 full-speed device controller with on-chip PHY for device (LPC1342/43 only)
 - UART with fractional baud rate generation, modem, internal FIFO, and RS-485/EIA-485 support
 - SSP controller with FIFO and multi-protocol capabilities
 - I²C-bus interface supporting full I²C-bus specification and Fast-mode Plus with a data rate of 1 Mbit/s with multiple address recognition and monitor mode
- Other peripherals:
 - Up to 42 GPIO pins with configurable pull-up/pull-down resistors
 - Four general purpose timers/counters with a total of four capture inputs and 13 match outputs
 - Programmable WatchDog Timer (WDT)
 - System tick timer
- Single 3.3 V power supply (2.0...3.6 V)
- 10-bit ADC with input multiplexing among 8 pins
- Available as 48-pin LQFP package and 32-pin HVQFN package

Key Applications

- eMetering
- Lighting
- Industrial Networking
- Alarm systems
- White good

Key Design Tips

Discover the performance of the LPC1313 or LPC1343 Cortex-M3 core with the LPC1313-Stick or LPC1343-Stick. The LPC-Stick is a small modular evaluation kit with optional extension boards.



NXP : LPC176x



Cortex-M3

Cortex™ -M3 MCU with USB, CAN

The NXP LPC176x series uses a low power, cost effective Cortex-M3 core that operates at up to 100 MHz. Each device has up to 512 kB of Flash and up to 64 kB of SRAM. The LPC1700 series features a multilayer AHB bus that allows high-bandwidth peripherals such as Ethernet and USB to run simultaneously, without impacting performance. The LPC176x devices are available in an LQFP-100 package.

Key Features

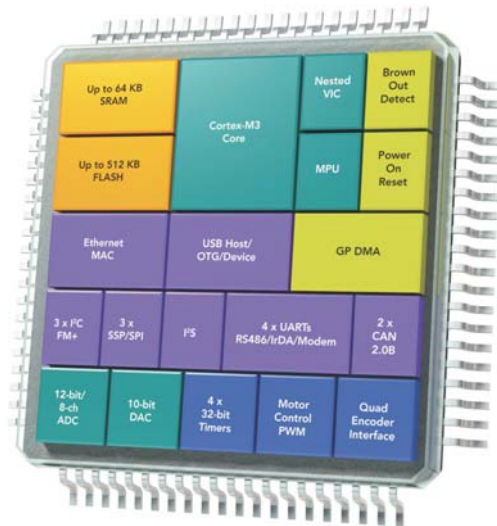
- Cortex-M3 core
 - 100 MHz operation
 - Nested vectored interrupt controller for fast deterministic interrupts
 - Wake-up interrupt controller allows automatic wake from any priority interrupt
- Memory protection unit
- 4 reduced power modes: Sleep, deep-sleep, power-down and deep power-down
- Memories: up to 512 kB Flash and up to 64 kB SRAM
- Serial peripherals:
 - 10/100 Ethernet MAC
 - USB 2.0 full-speed device/host/OTG controller with on-chip PHY
 - 4 x UARTs with fractional baud rate, RS-485, modem control and IrDA
 - 2 x CAN 2.0B controllers
 - 3 x SSP/SPI controllers, 3 x I²C interfaces, I²S for digital audio
- 8-channel 12-bit ADC, up to 1 MHz, 10-bit DAC
- Real-time clock operating at < 1 μA
- 8-channel general purpose DMA controller
- Motor control PWM and quadrature encoder interface
- 4 x 32-bit general purpose timers/counters
- 4 MHz internal RC oscillator trimmed to 1% accuracy

Key Applications

- eMetering
- Lighting
- Industrial Networking
- Motor control
- White goods
- Alarm systems

Key Design Tips

The LPC1700 series is pin compatible with the popular NXP LPC2300 series of ARM7 microcontrollers, allowing designers to compare the M3 and ARM7 cores in the same socket and simply choose the microcontroller that is best for their application.





STM32 Releasing your Creativity

The STM32 family of 32-bit Flash microcontrollers based on Cortex-M3 processor is built to offer new degrees of freedom to MCU users. It brings a complete 32-bit product range that combines high performance, real time, low power and low voltage operation, while maintaining full integration and ease of development. A rich portfolio supports engineers to address their requirements:

1. STM32F100 Value Line

The STM32 Value line complements the STM32 Cortex-M3 microcontroller product portfolio by offering a low-cost product line that is pin-to-pin compatible with the STM32 portfolio. It brings new features such as new 16-bit timers and CEC function to expand the range of applications addressed in consumer, appliance and industrial segments. Based on the Cortex-M3 core running at up to 24 MHz, the STM32 Value line offers excellent Cost - performance - peripherals trade-off.

Key Features

- Up to seven PWM 16-bit timers including advanced control timer for a total of 26 channels
- On-chip 12-bit dual channel DAC with DMA support and output buffers
- Consumer electronics control (CEC) peripheral CEC, 400 kHz I²C, up to 12 Mbit/s master and slave SPI, up to 3 Mbit/s USART
- CRC (cyclic redundancy check) with DMA support eases Flash memory integrity check
- Built-in POR, PDR, LVD, watchdog timer, factory trimmed 8 MHz RC oscillator and 40 kHz for RTC and watchdog

Key Applications

- Electricity meters
- Low-end UPS
- Home appliance
- Motor control
- Power tools
- Evaluation board: STM32100B-EVAL



2. STM32L Ultra Low Power

The STM32L offers specific features for ultra-low-power applications, such as advanced ultra-low-power modes, optimised dynamic run consumption and specific safety features. The balance between high performance and ultra-low power using different modes ensures optimal energy consumption, whatever your application is, and this throughout its life time.

Key Features

- Ultra low power proprietary 130 nm technology, ultra low leakage
- Ultra low power design (clock gating, low power Flash with power off capability, voltage scaling)
- Very low consumption/performance ratio
- Sub 1 μ A hardware RTC and Auto Wake-up Unit
- Sub-second hardware RTC Precise synchronisation in RF networks, sensors and alarms
- Range of low power modes (up to 6)
- Advanced and flexible clock system (multiple internal and external clock sources)
- Direct memory access on board (up to 7 channel DMA)
- Ultra fast wake-up from lowest low power
- Power supply VDD min: 1.65 V
- Analog functional down to 1.8 V
- Ultra low power and ultra safe features (POR, PDR, BOR, PVD, unique ID, backup clock)
- Flash protection, Flash with Error Code Correction (ECC)

Key Applications

- Handheld applications
- Alarm systems
- Medical applications
- Metering
- Sensor electronics

Evaluation board:

STM32L15x low-power board; STM32L152-EVAL

3. STM32W Radio Frequency SoC

With these new members, the STM32 family is expanding to the wireless network domain bringing outstanding radio and low-power microcontroller performances. With a configurable total link budget up to 109 dB and the efficiency of the Cortex-M3 core, the STM32W is a perfect fit for the wireless sensor network market. Compliant with the IEEE 802.15.4 radio standard, this open and flexible platform supports the most popular protocol stacks such as RF4CE, ZigBee-PRO, 6LoWPAN and more.

Key Features

- IEEE 802.15.4 2.4 GHz outstanding performances
- Cortex-M3 core
- Low-power architecture
- Open platform with extra resources for application integration:
Configurable I/Os, ADC, timers, SPI, UART
- Main software libraries:
EmberZnet PRO, RF4CE, IEEE 802.15.4 MAC
- Available in both SoC (QFN48) and coprocessor (QFN40) versions

Key Applications

- Smart energy networks, metering
- Home automation
- Consumer electronics, remote controls
- Healthcare and medical equipment



Evaluation boards:

STM32W108B-SK: application board + Primer2 + network analyser and IAR compiler

STM32W108B-KEXT: set of 4 additional application boards to build a mesh network

4. STM32XL: 1 MB Flash

The STM32XL devices are an integral part of STM32F101, 102 and 103 family. Neither the technology has been changed nor the electrical parameters; they are pin to pin compatible as well as software compatible.

Key Features

- Drop in replacement for more memory Flash and RAM
- Two banks of 512 KB Flash
- "Read while write" capability -> Bank0 can be read while Bank1 is written

Key Design Tips for all Family Members

ST has released a complete software tool library compliant to CLASS_B (IEC60335), MISAR_C and CMSIS. All libraries are written in ANSI-C and include:

- Standard peripherals - GPIO, USART, ADC, DAC etc.
- Motor Control library - sensorless vector control for 3-phase brushless motors
- DSP library - PID, IIR, FFT, FIR etc.
- USB library - mass storage, HID, DFU, CDC, audio
- Ethernet libraries from ST and third-party such as Interniche, KEIL, IAR, Micrium, Quadros etc.
- USB-OTG libraries of third parties such as HCC_Embedded, KEIL, IAR, Micrium, Quadros etc.

Hardware: Evaluation Boards from ST and Third Parties: Keil; IAR; Hitex etc.

Solutions for Complex Embedded Systems

Texas Instruments has acquired Luminary Micro®, a market-leading supplier of Cortex-M3-based 32-bit microcontrollers. With this acquisition, TI now offers the Stellaris® portfolio, which addresses mainstream 32-bit MCU applications with the general-purpose processing power of the industry-standard Cortex-M3 core and advanced communication. The Stellaris family is positioned for cost-conscious applications requiring significant control processing and connectivity capabilities including motion control, remote monitoring, HVAC and building controls, network appliances and switches, factory automation, electronic point-of-sale machines, test and measurement equipment, medical instrumentation, and gaming equipment.

Key Features

- Extensive portfolio ranging from 8 k to 256 k Flash
- Only Cortex-M3 MCU with integrated 10/100 Ethernet MAC AND PHY
- Advanced communication capabilities, USB Host/Device/OTG, CAN controllers, I²C, I²S and extended peripheral interface
- High speed, 5 V tolerant GPIOs with programmable drive capability
- Single-cycle flash up to 50 MHz
- Royalty free StellarisWare™ software
- SafeRTOS™ in ROM on selected Stellaris® devices
- Open-tooled reference design kits and quick-start evaluation kits
- Up to two quadrature encoder inputs
- 8 channels of advanced motion control PWM with programmable deadband timers
- Up to 4 fault-condition handling inputs in hardware quickly provide low-latency shutdown

Key Design Tips

- Easy to learn and adopt with complete, open-tool Stellaris reference design kits and production modules (www.ti.com/stellariskits)
- StellarisWare software includes source code and royalty-free libraries (Peripheral Driver Lib, Graphics Lib, USB Lib, IEC 60730 Lib)
- Accelerate your Wireless/RFID development with Stellaris wireless reference design kits based on DK-LM3S9B96 and TI Low Power Wireless devices (CC25xx) and TRF7960TB HF RFID Reader Module. Support for ZigBee® and SimpliciTI™ wireless protocols and ISO/IEC 14443A (RFID - MIFARE®) protocol includes firmware, documentation and example applications
- Learn more about Stellaris wireless solutions at www.ti.com/stellariswireless
- Power your processor with TI: www.ti.com/processorpower

Key Applications

- Motion control
- Industrial automation
- Wireless networking
- Medical
- Security and access
- Appliances
- Transportation



Freescale : Kinetis



Cortex-M4

200+ new ARM MCUs with Outstanding Features

Based on Freescale's new 90 nm TFS (Thin Film Storage) Flash technology Freescale offers a never seen bundle of analog and digital IPs. Kinetis has the new FlexMemory block, that can virtualize the NVMemory. This new feature allows the user to write to a RAM, while the FlexMemory handles the Flash. The user decides a RAM/Flash policy allocation ratio, so that the FlexMemory can reach up to 10 Million Write/Erase cycles.

KINETIS is an ULP 90 nm Cortex-M4 core. It's the first broad-market mixed-signal MCU family based on the new Cortex-M4. Cortex-M4 adds DSP capability, a single precision FPU and a guaranteed single-cycle MAC (32 x 32) in respect to Cortex-M3. Double check the top in class quantity and quality of the integrated mixed-signal peripherals. Depending on the derivatives K10 to K70 you can select and add some interesting features: USB OTG (FS & HS), LCD (segm./graphics), NAND Flash, FPU, Ethernet, Crypto, CANs, HW Tamper, DRAM, and an impressive amount of common peripherals!

The complimentary MQX RTOS operating system, supplied as Codewarrior library, is the fastest way to support Ethernet, USB and FAT file system.

Key Features

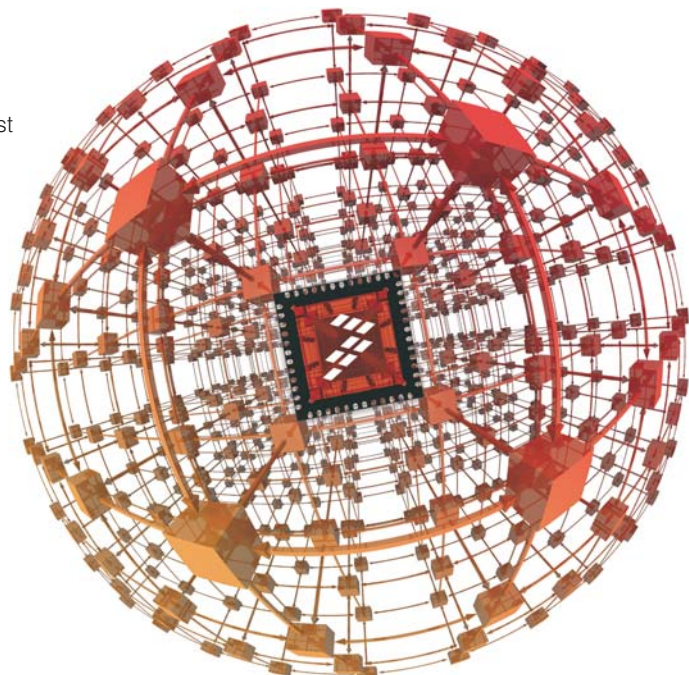
- Impressive selection and quality of peripherals
- Ultra low power
- FlexMemory
- Over 200 p/n for the widest scalability
- Pin to pin compatibility
- Different packages with a PCB routing policy makes package migration easy
- Unprecedented family scaling
- Performance from 50...180 MHz
- GUARANTEED product lifetime: www.freescale.com/productlongevity
- Complimentary high value RTOS MQX

Key Applications

- Metering
- PLC
- Thermostats
- GPS receivers
- Building automation

Key Design Tips

Common IP lets you migrate your SW over different CPU cores, too. Great scalability lets you pay for just what you need. Low cost Demo Boards available. Third parties ARM eco system.





Windows Embedded Compact 7

Operating Systems for ARM

Software Enablement: WEC7 for ARM

ARM and Microsoft have been collaborating for more than 13 years across a range of technologies and product categories. Microsoft® Windows Embedded CE is a 32-bit, componentized open operating system designed to power small footprint devices and enable fast time to market for highly differentiated products. Windows Embedded CE is used in a wide variety of devices from Portable Media Players to Voice-over-IP phones.

The new Windows Embedded Compact 7, next generation and upgrade of the Windows Embedded CE 6.0 operating system, will be available in Q2 2011. It will include support for more ARM architectures including ARMv7, ARMv7 NEON™ and SMP (Multicore support) to fully exploit the performance of Freescale, NXP and Texas Instruments ARM processors. The new CE Compiler will support both the ARM V7 and the ARM floating point directly.

The planned integration of Visual Studio 2008 allows easy debugging and deployment of CE images. As WEC7 supports Silverlight 3.0 engineers can – with help of the Expression Blend 3.0 feature - almost automatically generate exciting and visually compelling animated graphic user interfaces. The new OS is equipped with a multi touch interface that supports panning and pinch to zoom so that complex control processes can easily be operated.

Planned Features

- Visual Studio 2008 Integration of Platform builder and Expression Blend 3.0
- Silverlight 3.0 Support
- ARM V7 instruction set and ARM floating point unit support of compilers
- SMP Multicore Support for ARM and x86
- Multi touch and gesture input
- Internet Explorer 8.0 support
- Flash 10.1
- Windows Media Player customizable through XAML UI, multi touch
- Windows 7 network stack with NDIS 6.1 support for higher data rates
- Realtime, possible ISR latency periods of 10 μs – competitive with most realtime OS
- Bluetooth 2.1, DLNA 1.5, MTP, WMDC 6.1 are features which secure data transfer of any kind

Key applications

- Industrial control
- Navigation systems
- Handheld/Measurement devices
- Man-to-Machine interfaces with small to medium sized displays
- Medical devices
- Control applications with realtime requirements

Supported ARM MCUs/Processors

	Supplier	Product	Windows CE
ARM9	Freescale	i.MX2xx	5.0, 6.0
	NXP	LPC31xx	6.0
	NXP	LPC32xx	6.0
	TI	AM17x	5.0, 6.0
	TI	AM18x	5.0, 6.0
ARM11	Freescale	i.MX3xx	5.0, 6.0
Cortex-A8	TI	AM35x	6.0
	TI	AM37x	6.0
	Freescale	i.MX5xx	6.0

More information at : www.mseembedded.biz