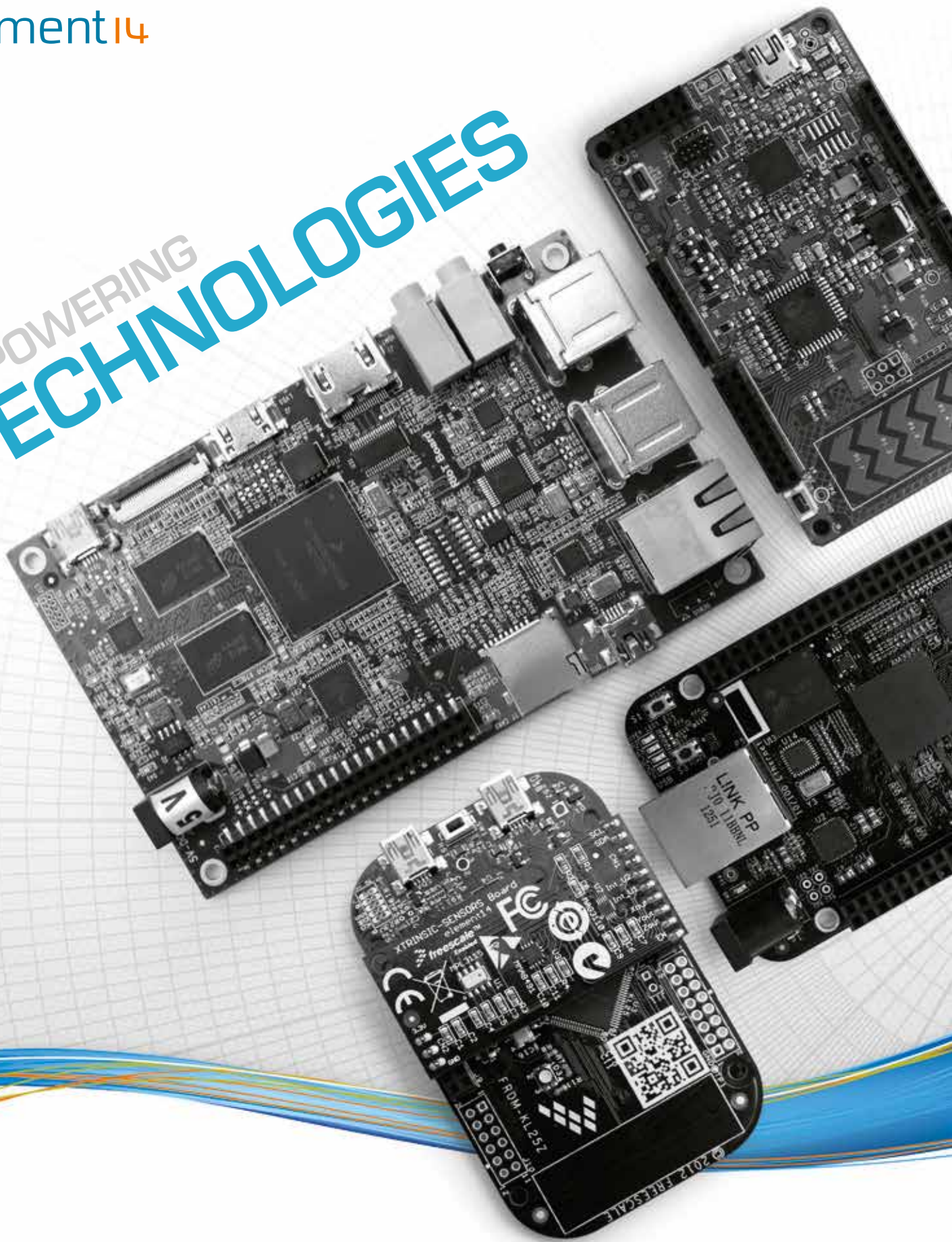


element14

EMPOWERING
TECHNOLOGIES



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PHONE: 65 6788 0200
FAX: 65 6788 0300

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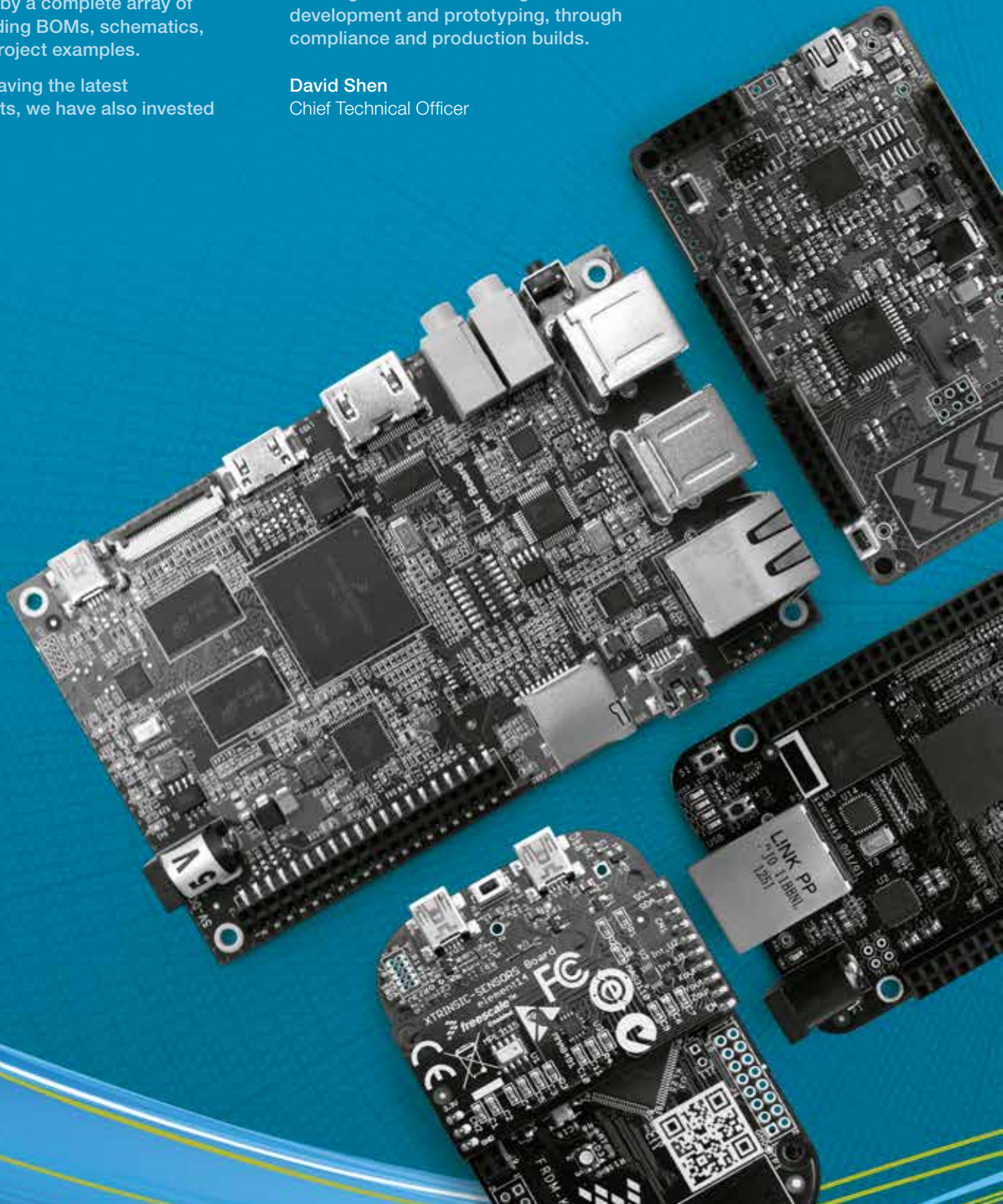
Time to market has never been more critical for every designer. That's why we've partnered with the top suppliers in embedded and analog design to produce the development kits engineers need to implement the latest technologies into their designs. With embedded and analog partners including Atmel, Freescale, Microchip, NXP and Texas Instruments as well as leading innovators like EnOcean and Wolfson Microelectronics, we are bringing to market the tools needed to develop solutions for today's hottest design trends including Low Power design, Rapid Prototyping, Wireless Connectivity and enabling the Internet of Things (IoT). We have designed these development kits to be cost effective and supported by a complete array of collateral including BOMs, schematics, software and project examples.

In addition to having the latest development kits, we have also invested

in solutions that cover the rest of the design flow including a complete line-up of hardware and software tools available from ARM and Keil as well as supplier specific design tools including Freescale's Code Warrior and TI's Code Composer to name a few. And, when you're ready to begin creating your prototype, bring your designs to life with our award winning EAGLE design tools from CadSoft.

For design support or answers to design related questions, interact with other engineers and experts on the element14 Community or feel free to contact our 24/5 technical support. For those jobs where you require additional design support, element14 also offers a full range of design services that range from board development and prototyping, through compliance and production builds.

David Shen
Chief Technical Officer





LOW POWER

KINETIS L & K SERIES

The Freescale ARM Cortex-M0+ based Kinetis L & K series of Freedom development platforms are ideal for developing low-cost, low power applications to replace 8- and 16-bit devices with 32-bit performance. The Kinetis K series adds full-featured ARM Cortex-M4 power to the Freedom Platform. The hardware design is Arduino™ form-factor compatible, featuring OpenSDA to simplify code development and an RGB LED, a 3-axis digital accelerometer, and a capacitive touch slider.



ULTRA LOW POWER

Freescale Freedom KL02Z



element14.com/FreedomBoard

FRDM-KL02Z

Order Code **2318317**

Freescale Kinetis KL02 based development platform for battery-powered and energy harvesting applications.

- MKL02Z32VFM4 MCU – 48 MHz, 32KB Flash, 4KB SRAM, 32QFN
- Capacitive touch slider, MMA8451Q accelerometer
- Flexible power supply options: coin cell battery, external source
- Form factor compatible with Arduino™ R3 pin layout
- OpenSDA debug interface



FEATURING DMA & DAC

Freescale Freedom KL05Z



element14.com/FreedomBoard

FRDM-KL05Z

Order Code **2254491**

Freescale Kinetis KL05 based development platform for portable applications, featuring DMA support, on-chip DAC, and built-in hardware touch sensing (TSI).

- MKL05Z32VFM4 in a 32 QFN package
- Capacitive touch slider, MMA8451Q accelerometer
- Flexible power supply options: OpenSDA USB, coin cell battery, external source
- Easy access to analog and digital MCU I/O via Arduino™ R3 compatible I/O connectors



FEATURING DMA, DAC & USB OTG

Freescale Freedom KL25Z



element14.com/FreedomBoard

FRDM-KL25Z

Order Code **2191861**

Featuring Freescale Kinetis L microcontroller with ARM® Cortex®-M0+ core, 3-axis digital accelerometer, RGB LED, and a capacitive touch slider, exclusively from element14.

- KL25Z128VLK4 – ARM® Cortex®-M0+ MCU
- 128KB flash, 16KB SRAM
- Up to 48 MHz operation
- USB full-speed controller



FEATURING DMA, DAC, USB OTG & I²S

Freescale Freedom KL26Z



element14.com/FreedomBoard

FRDM-KL26Z

Order Code **2318319**

Featuring Freescale Kinetis L superset microcontroller with I²S interface and an array of sensors. Ideal for low-power and consumer applications!

- Up to 48 MHz ARM® Cortex®-M0+ core
- 128KB Flash, 16KB RAM
- Dual role USB interface with mini-B USB connector
- USB 2.0 On-The-Go (Full Speed)



FEATURING LCD

Freemscale Freedom KL46



element14.com/FreedomBoard

FRDM-KL46Z

Order Code **2318318**

Freemscale Freedom Development platform based on the Kinetis L series microcontroller, offering full-speed USB and segment LCD controllers.

- Arduino™ R3 compatibility
- MMA8451Q accelerometer
- Open SDA debug interface
- MAG3110 low power digital 3D magnetic sensor
- MKL46Z256VLL4 MCU (48MHz, 256KB Flash, 32KB SRAM, 100LQFP Package)



FEATURING MIXED SIGNAL INTEGRATION

Freemscale Freedom K20



element14.com/FreedomBoard

FRDM-K20D50M

Order Code **2294097**

Featuring Freemscale Kinetis K microcontroller with ARM® Cortex®-M4 core and DSP capabilities, 3-axis digital accelerometer, RGB LED, capacitive touch slider, and ambient light sensor.

- Arduino™ R3 compatibility
- MK20DX128VLH5 MCU (50 MHz, 128KB Flash, 16 KB RAM, 32 KB FlexNVM, Low power, 64LQFP package)
- Dual-role USB interface with mini-B USB connector



NEXT GEN MCU

Freemscale Freedom K22F



element14.com/FreedomBoard

FRDM-K22F

Order Code **2428289**

Featuring a Kinetis K Next-Generation MCU with an ARM® Cortex®-M4 core, the K22F is designed for high integration USB applications thanks to its crystal-less USB controller.

- Arduino™ R3 Compatibility
- MK22FN512VLH12 MCU (120MHz, 512KB Flash, 128KB RAM, LQFP64 Package)
- RGB LED, accelerometer & magnetometer
- Easy to access MCU I/O



FEATURING ETHERNET & HIGH SRAM

Freemscale Freedom K64F



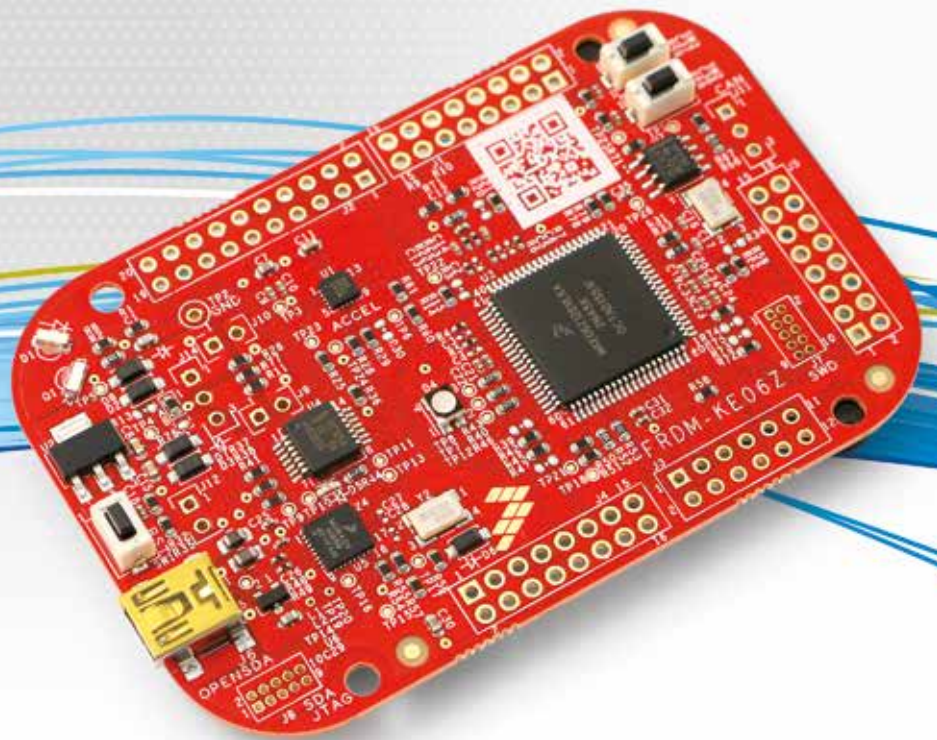
element14.com/FreedomBoard

FRDM-K64F

Order Code **2406741**

Featuring a Kinetis K series microcontroller, built on the ARM® Cortex®-M4 core, 1MB of flash, 256KB RAM, accelerometer and magnetometer.

- MK64FN1M0VLL12 – ARM® Cortex®-M4 core
- Three colour RGB LED
- Accelerometer
- Magnetometer
- Full speed USB controller



KE SERIES

Freescale's Freedom Development Platform for the KE series of devices is an evaluation and development tool ideal for rapid prototyping of MCU-based applications that require high reliability and robustness for complex, electrically noisy environments. The hardware design is form-factor compatible with popular third-party hardware designed to work with Arduino™ and Arduino™-compatible boards. The Freedom platform also features OpenSDA to simplify code development.



ROBUST & RELIABLE

Freescale Freedom KE02



element14.com/FreedomBoard

FRDM-KE02Z

Order Code **2341582**

Featuring Freescale Kinetis E low-power, highly robust, mixed-signal ARM® Cortex®-M0+ core, 20 MHz.

- 12-bit SAR ADC, Two analog comparators
- 6 and 2-channel FlexTimer/PWM (FTM)
- Two 8-bit SPI, I²C modules, Three UART modules
- Form factor compatible with Arduino™ R3 pin layout
- Motor control function interface for simple BLDC motor control



ROBUST & RELIABLE

Freescale Freedom KE02Z40M



element14.com/FreedomBoard

FRDM-KE02Z40M

Order Code **2406739**

Featuring Freescale Kinetis E low-power, highly robust, mixed-signal ARM® Cortex®-M0+ core, 40 MHz.

- Capacitive touch slider, MMA8451Q accelerometer, thermistor and tri-colour LED
- IrDA transmitter and receiver
- Form factor compatible with Arduino™ R3 pin layout



FEATURING PWT

Freescale Freedom KE04



element14.com/FreedomBoard

FRDM-KE04Z

Order Code **2406740**

Featuring Freescale Kinetis E low-power, highly robust, mixed-signal 32-bit microcontroller built on ARM® Cortex®-M0+ core, 48 MHz, 128k flash.

- Capacitive touch slider, MMA8451Q accelerometer, tri-colour LED
- IrDA transmitter and receiver
- Form factor compatible with Arduino™ R3 pin layout
- Motor control header for simple BLDC motor control on APMOTOR56F8000E



FEATURING PWT & CAN

Freescale Freedom KE06



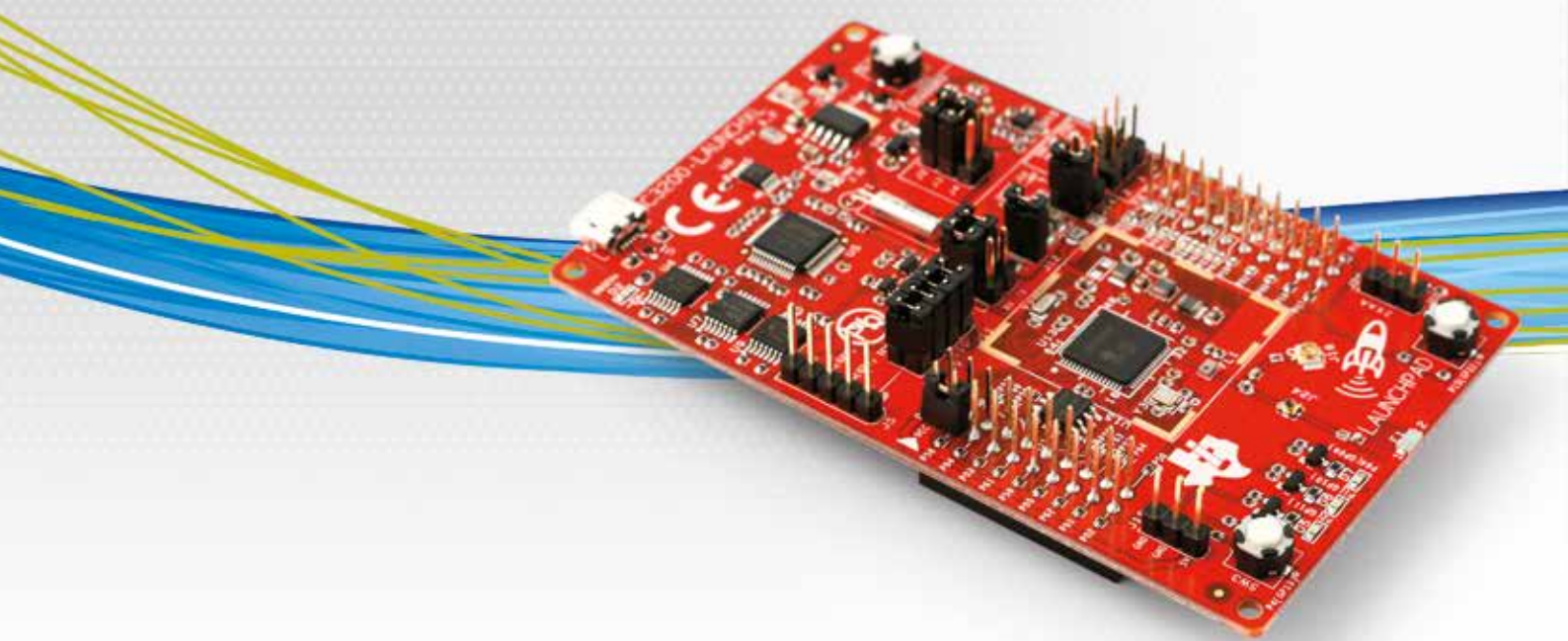
element14.com/FreedomBoard

FRDM-KE06Z

Order Code **2406738**

Featuring Freescale Kinetis E low-power, highly robust, mixed-signal 32-bit microcontroller built on ARM® Cortex®-M0+ core, 48 MHz, 128k flash.

- IrDA transmitter and receiver
- CAN communication
- MMA8451Q accelerometer, thermistor
- Motor control function for simple BLDC motor control on APMOTOR56F8000E
- Form factor compatible with Arduino™ R3 pin layout



WIRELESS CONNECTIVITY

TEXAS INSTRUMENTS LAUNCHPADS & BOOSTERPACKS

Traditional Wi-Fi solutions are designed for powerful microprocessors. The CC3100/CC3200 LaunchPad and BoosterPack undertakes nearly all the functions required for Wi-Fi and networking thereby taking the strain off the host processor. With a Wi-Fi network processor containing on-chip WLAN and TCP/IP stack, as well as the SimpleLink connection manager, Embedded Crypto engine with 256-bit encryption, WPA personal and enterprise security, the CC3100 and CC3200 make Wi-Fi design easy.



WI-FI LAUNCHPAD

Texas Instruments CC3200 LaunchPad



element14.com/LaunchPad

CC3200-LAUNCHXL

Order Code **2425502**

Created for the Internet of Things (IoT), the CC3200 LaunchPad is a wireless MCU that integrates a high-performance ARM® Cortex®-M4.

- CC3200 Wi-Fi application processor
- Standalone development platform featuring sensors, LEDs and push-buttons
- Supports 4 wire JTAG and 2 Wire SWD
- GDB (GNU Debugger) support over OpenOCD



WI-FI BOOSTERPACK

Texas Instruments CC3100 BoosterPack



element14.com/LaunchPad

CC3100B00ST

Order Code **2425500**

The CC3100 has the flexibility to add Wi-Fi to your design. Internet on chip contains all you need to easily create IoT solutions: security, quick connection, cloud support and more.

- U.FL On-board chip antenna
- 40 MHz crystal, 32 KHz crystal and oscillator
- 0.8 Mbit serial flash
- Power from on-board LDO using USB OR 3.3V from MCU LaunchPad



BOOSTERPACK DEBUGGER

Texas Instruments Advanced Emulation BoosterPack



element14.com/LaunchPad

CC31XXEMUBOOST

Order Code **2425501**

This Advanced Emulation BoosterPack is ideal for flashing updates to LaunchPad BoosterPacks such as the CC3100B00ST.

- FTDI debug support
- Enables enumeration SPI & GPIO for SimpleLink Studio
- Enumerates COM port for flashing
- Enables network processor logger output (TX only)
- 2 USB ports

element14 DESIGN CENTER BETA

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www.element14.com/designcenter



WIRELESS

Add Wi-Fi, NFC or region specific ISM band communications with the latest wireless development kits and add-ons from ST, NXP, EnOcean and element14 to your next design.



WI-FI SOLUTION

element14
WiFi

Exclusively from **element14**



element14.com/Embest

WIFI DONGLE

Order Code **2437981**

A high performance, cost-effective WLAN USB module.

- 802.11n (backwards compatible with 802.11g and 802.11b)
- Up to 150Mbps transmission speed
- Supports WPA-PSK / WPA2-PSK
- Uses the latest CCA air channel detection technology



WI-FI SOLUTION

ST/Murata
Discover Wi-Fi

Exclusively from **element14**



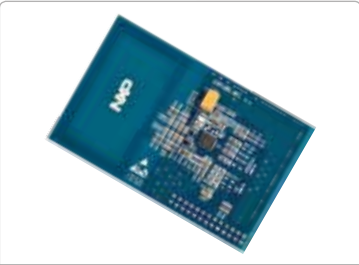
element14.com/STM32F4-Expansion

STM32F4DIS-WIFI

Order Code **2314509**

The Discover Wi-Fi add-on board provides an easy wireless connection to the STM32F4 Discovery Kit.

- 2.4 GHz IEEE 802.11b/g/n
- Built-in TCP/IP Stack, HTTP, DHCP, DNS, and Web Server
- Supports WPA/WPA2 PSK security
- JTAG Interface for Debugging



NFC

NXP
NFC Explore

Exclusively from **element14**



element14.com/ExploreNFC

EXPLORE-NFC

Order Code **2366201**

High-performance NFC compliant expansion board compatible with Raspberry Pi.

- Based on the NXP PN512, fully compliant with all 3 NFC modes (Reader, P2P and Card Emulation)
- Reader mode supports all 4 NFC tag types and NXP's MIFARE command set
- 50mm typical operation range



WIRELESS SENSING

EnOcean
868 MHz transceiver

Exclusively from **element14**



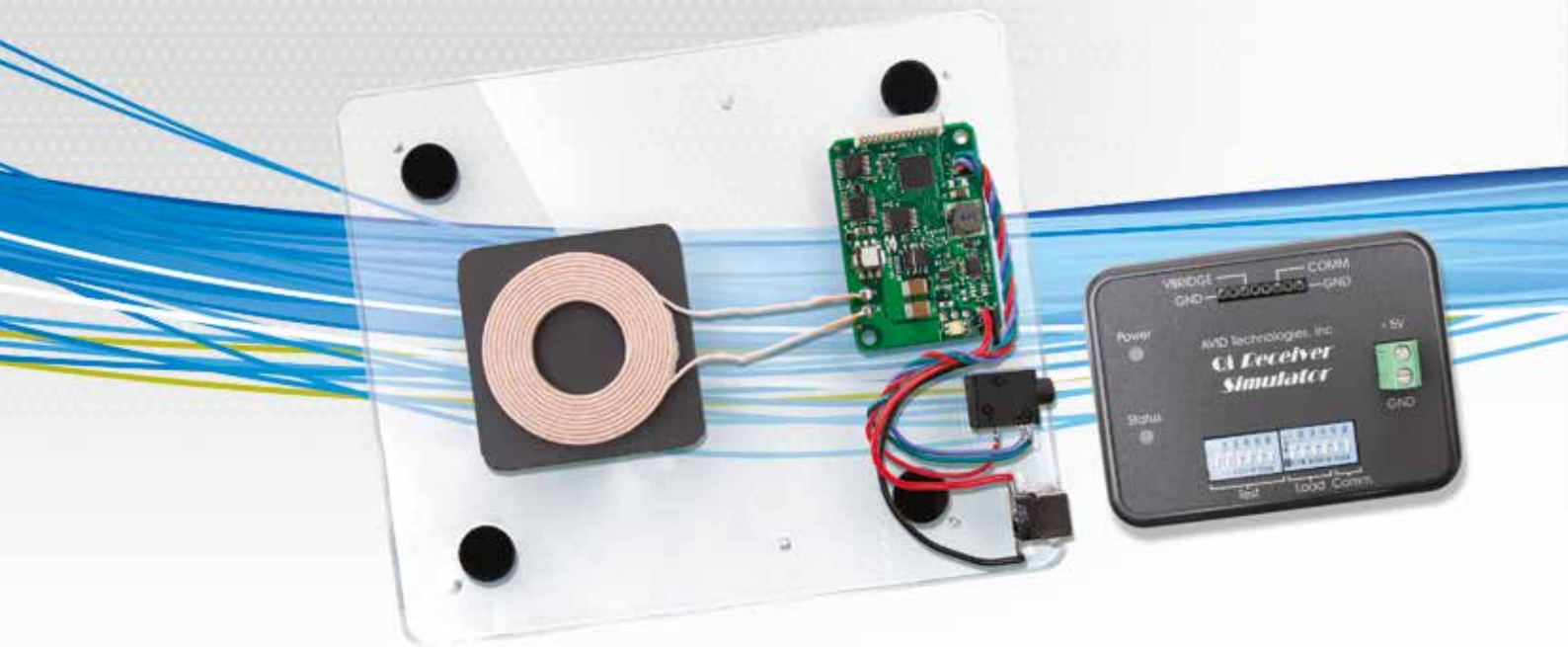
element14.com/EnOcean_Pi

ENOCEAN PI 868

Order Code **2322460**

A 868 MHz SMD mountable radio transceiver module enabling the realization of gateways for 868 MHz radio systems.

- Smart Ack controller functionality
- 125Kbps data rate and ASK modulation
- ESP3 support
- Bidirectional radio and serial interfaces



WIRELESS POWER

AVID Technologies Wireless Power Products are designed with best-practice methodologies to improve quality and help your time-to-market delivery. These products allow Qi pre-compliance testing, and validate the performance of your Qi wireless power transmitters and receivers. The Sniffer USB device captures the wireless communication packets and other system operating information between Qi compliant wireless charging system (TX and RX pair).

FOREIGN OBJECT DETECTION	FOREIGN OBJECT DETECTION	FOREIGN OBJECT DETECTION	BUNDLE
AVID Technologies Qi Set of Foreign Objects Exclusively from element14 element14.com/Qi 105-01 Order Code 2434598	AVID Technologies Qi FOD Transmitter Exclusively from element14 element14.com/Qi 104-01 Order Code 2434597	AVID Technologies Qi FOD Receiver Exclusively from element14 element14.com/Qi 103-01 Order Code 2434596	AVID Technologies Qi FOD TX + FOD RX + FO Set Exclusively from element14 element14.com/Qi 102B-01 Order Code 2434594
WPC specified foreign objects with attached thermocouples are used to monitor temperature rise at the interface surface as per WPC requirements. • Set of four foreign objects specified by WPC V1.1 • Mounted in PEEK high temp plastic frames • Objects include K-type thermocouples and connectors • Alignment fixture included for centre aligning TPR#5 coil holder and AVID's FOD Receiver coil holder	Allows developers to quickly characterize and debug wireless power receiver functionality and foreign object detection (FOD) performance. The FOD Transmitter accurately measures and reports transmitted power (PPT) and system power loss (Ploss). • USB/serial port for displaying PPT, PPR, Ploss, and other parameters • Fully functional Qi low power transmitter • Factory calibrated and characterized using AudioDev CATS Calibrator • Decodes standard 8-bit and high-res 16-bit received power packets	Allows developers to quickly characterize and test Qi wireless power transmitter functionality and foreign object detection (FOD) performance. The FOD Receiver accurately measures received power (PPR) and sends the WPC specified received power packets to the transmitter. • Fully functional Qi low power receiver • Test points for bridge voltage and digital comm. data • Factory calibrated and characterized using AVID FOD Transmitter	A bundle comprising of several Foreign Object detection devices. Provides a complete suite of FOD tools for testing your latest wireless power designs. Includes: • Qi Set of Foreign Objects • Qi FOD Transmitter • Qi FOD Receiver



LOW POWER

AVID Technologies Qi Receiver Simulator V1.1

Exclusively from **element14**



element14.com/Qi

102-02

Order Code **2434592**

The Qi Receiver Simulator is a low power receiver that can be used to test the operation and performance of Qi wireless power transmitters.

- Fully functional Qi low power receiver
- Test points for bridge voltage and digital comm. data
- Selectable internal loads up to 2.0W in 0.25W steps
- Reports proprietary 16-bit high resolution received power values in addition to the WPC required 8-bit packets
- Stand alone, easy to use device in rugged enclosure



MEDIUM POWER

AVID Technologies Qi Medium Power FOD Receiver

Exclusively from **element14**



element14.com/Qi

102-03

Order Code **2434593**

The Qi Medium Power FOD Receiver is a 15W receiver that can be used to test the operation and FOD performance of Qi wireless transmitters.

- Fully functional Qi medium power (15 Watt) receiver
- Test points for bridge voltage and digital comm. data
- Factory calibrated and characterized using AVID FOD Transmitter
- Accurately measures and reports PPR per WPC specifications
- Selectable internal loads up to 2.0W in 0.25W steps



ANALYSIS

AVID Technologies Qi Sniffer

Exclusively from **element14**



element14.com/Qi

101-01

Order Code **2434588**

The Qi Sniffer is a USB device that can be placed near a Qi compliant wireless power system (TX and RX pair) and used to capture the wireless communication packets and other system operating information.

- Contactless signal acquisition
- Intuitive Windows Application for real-time data display
- Decodes high resolution 16-bit received power packets sent by AVID Qi Receiver Simulator (V1.1 and newer) and AVID FOD Receiver devices
- Compatible with latest WPC Specifications



ANALYSIS

AVID Technologies Qi Sniffer Upgrade

Exclusively from **element14**



element14.com/Qi

101S-01

Order Code **2434589**

Qi Sniffer devices can be updated to add latest WPC spec compatibility and features by downloading and installing the latest application software and purchasing an upgrade key.

- Upgrades Qi Sniffer to support the latest WPC Specifications



RAPID PROTOTYPING BOARD

Atmel SAMA5D3 Xplained board



element14.com/SAMA5D3

ATSAMA5D3-XPLD

Order Code **2355198**

The SAMA5D3 Xplained is a rapid prototyping and evaluation platform for microprocessor-based design.

- SAMA5D36 ARM® Cortex®-A5 Microprocessor
- 2GBit DDR2 – Micron, 2GBit Flash – Micron
- Gigabit Ethernet, 10/100 Ethernet
- USB Device connector, 2 USB Host connectors
- Arduino™ R3 compatible headers

RAPID PROTOTYPING

SAMA5D3 XPLAINED

The SAMA5D3 Xplained, a rapid prototyping and evaluation platform, offers a rich set of ready to use connectivity and storage peripherals along with Arduino™ compatible expansion headers allowing for easy customization. A preinstalled Linux distribution and provided software package ensures that you are ready to begin development without delay. A full compliment of accessories is included below.



DISPLAY SOLUTION

Embest 4.3" LCD touchscreen module



element14.com/Embest

PDA – TM7000

Order Code **2414795**

Multi-touch capacitive LCD touchscreen module. A 7" variant is also available.

- Multi-touch: supports up to 10 touches
- Resolution of up to 800×480 (7") or 480×272 (4.3")
- Four capacitive user keys
- 200 bytes of non-volatile serial EEPROM



WI-FI SOLUTION

element14 WiFi

Exclusively from **element14**



element14.com/SAMA5D3

WIFI DONGLE

Order Code **2437981**

A high performance, cost-effective WLAN USB module.

- 802.11n (backwards compatible with 802.11g and 802.11b)
- Up to 150Mbps transmission speed
- Supports WPA-PSK / WPA2-PSK
- Uses the latest CCA air channel detection technology



DIGITAL IMAGING

Embest USB camera module



element14.com/Embest

CAM8100-U MODULE

Order Code **2136552**

1.3MP CMOS USB Digital Camera Module.

- Max frame rate of 15fps SXGA YUV format
- Sensor resolution of 1304×1036, SXGA
- Supports Linux and WinCE



DEBUGGING

Embest UART8000-U

Exclusively from **element14**



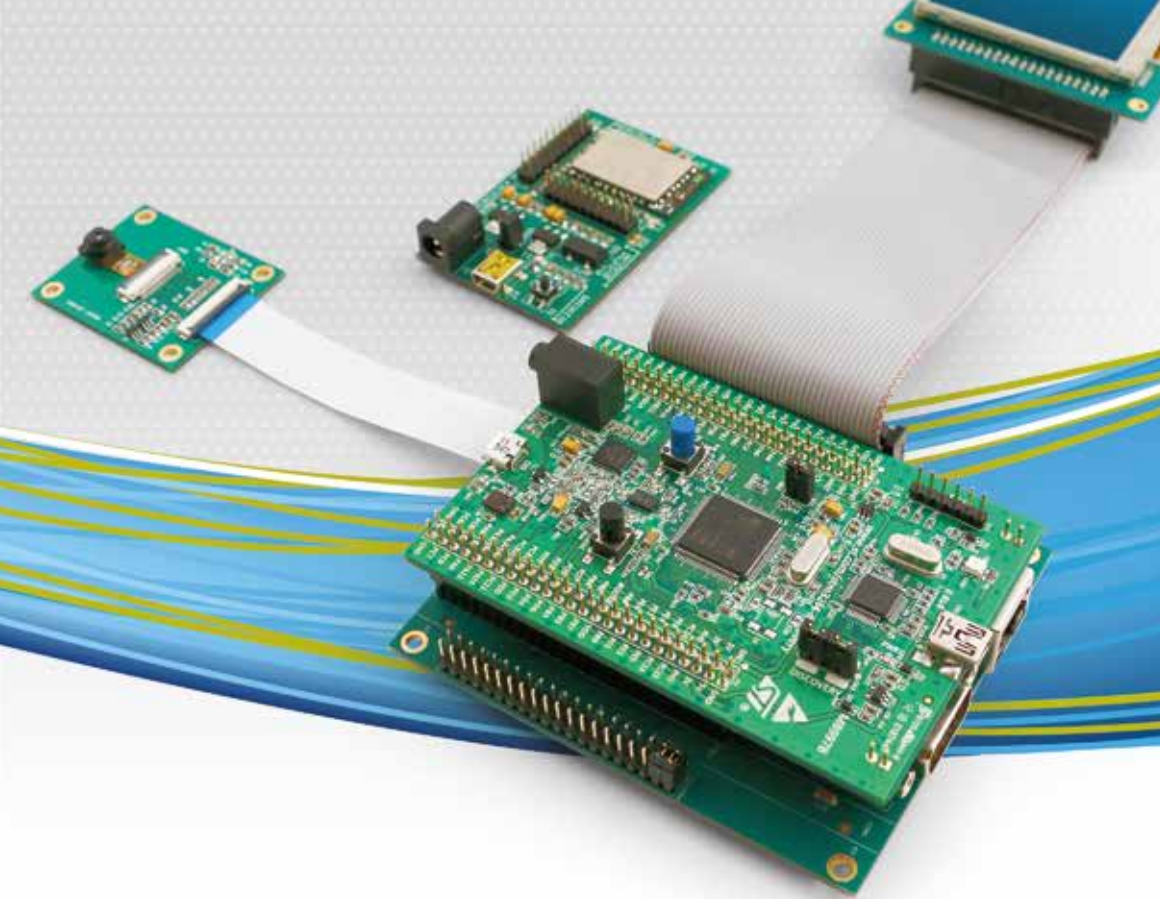
element14.com/SAMA5D3

UART8000-U

Order Code **2406742**

The UART8000-U is a USB to serial debugging cable that converts from USB to 3-pin TTL allowing for simple and quick debugging of compatible devices.

- High performance FTDI USB-to Serial chip FT230X
- Supports transfer speeds between 300baud and 3Mbaud
- 512byte transmission and reception buffers
- USB to 3-pin TTL



RAPID PROTOTYPING BOARD

ST Discovery Board



element14.com/STM32F4-Expansion

STM32F4DISCOVERY

Order Code **2009276**

The STM32F4DISCOVERY helps to discover the high-performance features of the STM32F4 and to develop user applications easily. It includes everything required for beginners and experienced users to get started quickly.

- STM32F407VGT6 MCU featuring 32-bit ARM Cortex-M4F core, 1 MB Flash, 192 KB RAM in LQFP100 package
- On-board ST-LINK/V2 with selection mode switch
- LIS302DL, ST MEMS motion sensor
- 3-axis Digital output accelerometer

DISCOVER MORE!

Take full advantage of your STM32F4 Discovery kit with these exclusive add-on boards. These accessories add a microSD card slot, Ethernet, Wi-Fi, a 1.3 Megapixel CMOS sensor and a 3.5" LCD board with touch screen capability in addition to a connector with UART, I2C, SPI, CAN, PWM and GPIO for easy access.



WI-FI SOLUTION

ST/Murata Discover Wi-Fi

Exclusively from **element14**



element14.com/STM32F4-Expansion

STM32F4DIS-WIFI

Order Code **2314509**

The Discover Wi-Fi add-on board provides an easy wireless connection to the STM32F4 Discovery Kit.

- 2.4 GHz IEEE 802.11b/g/n
- Built-in TCP/IP Stack, HTTP, DHCP, DNS, and Web Server
- Supports WPA/WPA2 PSK security
- JTAG Interface for Debugging



I/O & EXPANSION

ST Base Board

Exclusively from **element14**



element14.com/STM32F4-Expansion

STM32F4DIS-BB

Order Code **2250205**

Release the potential of the STM32F4 Discovery Kit with convenient access to serial ports, USB, Ethernet, Camera, TF Card and Touch Screen LCD interfaces.

- Base Board for STM32F4 Discovery Board
- Camera interface
- microSD card slot
- 4-wire resistive touch screen interface
- 10/100 Ethernet with IEEE 1588v2 (RJ45 connector)



DIGITAL IMAGING

ST Camera Module

Exclusively from **element14**



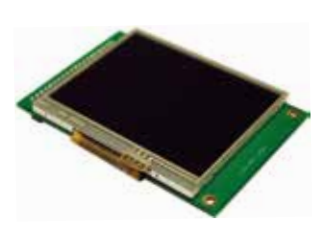
element14.com/STM32F4-Expansion

STM32F4DIS-CAM

Order Code **2250206**

1.3-megapixel CMOS camera module for STM32F4 Discovery Kit, supporting image preview, capture and storage, exclusively from element14.

- Supports image capture at up to 1280×1024 resolution
- Power Supplied from board
- Frame rate of 15fps for SXGA, 30fps for VGA, CIF



DISPLAY SOLUTION

ST LCD Module

Exclusively from **element14**



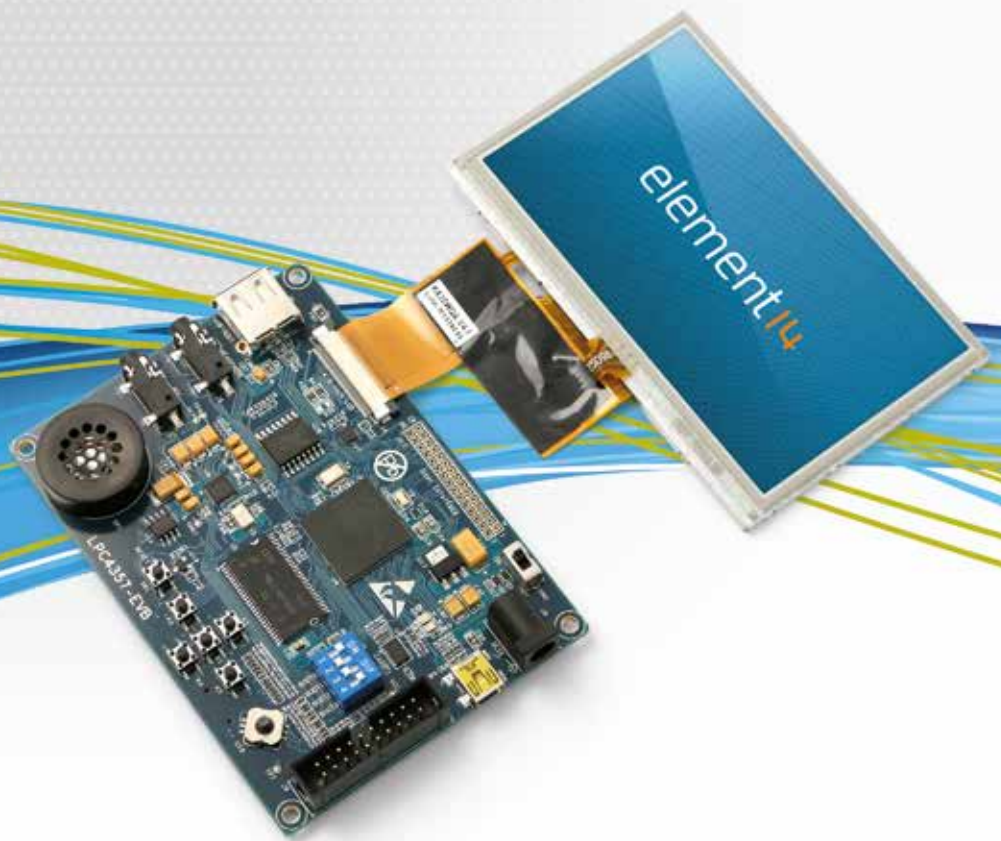
element14.com/STM32F4-Expansion

STM32F4DIS-LCD

Order Code **2250207**

3.5" LCD display and driver board, providing graphical display to your STM32F4 Discovery Kit.

- 320×240 Resolution
- 262K colours
- 16-bit 8080 parallel system interface
- 4-wire resistive touch screen



MULTIMEDIA & INDUSTRIAL

Begin your next multimedia development or industrial project off with these kits from NXP and element14. Great for GUI development, the dual-core LPC4357 evaluation board is available with or without a 480×272 LCD module. For low cost control applications, check out the CoLinkEx_LPC11C14 EVB with its rich peripheral set or the Mini3250 for the fastest route into production.



GRAPHICAL DISPLAY

NXP LPC4357-EVB

Exclusively from **element14**



element14.com/LPCMM

LPC4357-EVB

Order Code **2148863**

High-performance, low-cost solution for developing DSP and MCU applications within a single architecture and development environment, exclusively from element14.

- 20-pin ARM® Cortex® debug header
- Spansion 256Mb QSPI flash, 32MB external SDRAM
- ARM® Cortex®-M4 with ARM® Cortex®-M0 coprocessor



GRAPHICAL DISPLAY

NXP LPC4357

Exclusively from **element14**



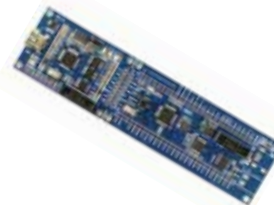
element14.com/LPCMM

LPC4357-K43WQA (WITH LCD)

Order Code **2218565**

High-performance, low-cost solution for developing DSP and MCU applications within a single architecture and development environment, exclusively from element14.

- 20-pin ARM® Cortex® debug header
- Spansion 256Mb QSPI flash, 32MB external SDRAM
- ARM® Cortex®-M4 with ARM® Cortex®-M0 coprocessor
- 4.3" touchscreen LCD module



FEATURING CAN CAPABILITY

Embest LPC11C14 evaluation kit



element14.com/Embest

COLINKEX_LPC11C14 EVB

Order Code **2136555**

Evaluation Kit based on the ARM® Cortex®-M0 based LPC11C14 Microcontroller.

- 8 channel 10-bit ADC converter
- Integrated PMU to minimize power consumption
- Two 16-bit timers and two 32-bit timers
- Wide range of interfaces including SPI, I2C



RAPID PROTOTYPING BOARD

element14 EDM6070AR-01

Exclusively from **element14**



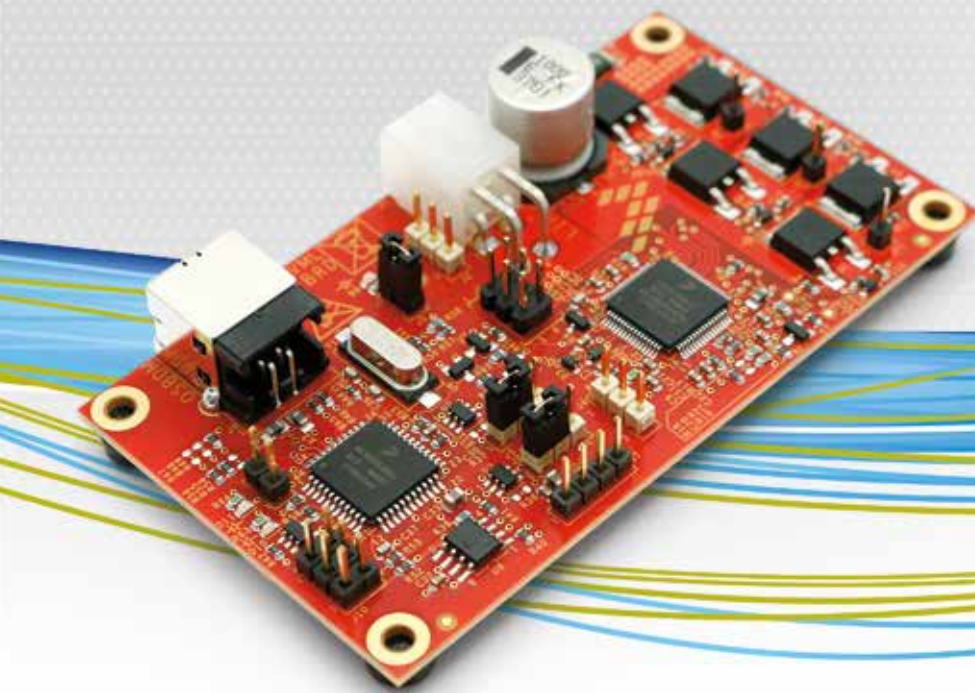
element14.com/EDM

EDM6070AR-01

Order Code **2364788**

The EDM6070AR-01 is an ARM® based, fully integrated Embedded Display Module solution for variety of embedded control HMI applications, designed and developed by element14.

- Atmel ARM9 AT91SAM9X35 industrial processor
- 7" LCD display and touch screen assembly
- 64KB internal ROM and 32KB internal SRAM, 256MB NANDFlash, 128MB SDRAM, 4Kb EEPROM, 4MB SPI Flash



SAFETY & CONTROL

Get up and running quickly with these core building blocks needed for industrial and consumer design. Whether developing for variable speed motor control and other safety critical applications or defining your own analog peripheral sets, element14 has the solutions for fit your design requirements.



MOTOR CONTROL

Freescal MagniV / MINIBRD



element14.com/magniv-minibrd

S12ZVML-MINIBRD

Order Code **2393630**

The MagniV S12ZVML-MINIBRD provides a low-cost and easy-to-use hardware and software motor control evaluation and development platform for Sensorless BLDC or PMSM motor control as well as Bidirectional DC motors.

- Supports low-voltage BLDC, PMSM and DC motors
- DC-bus overvoltage, overcurrent and undervoltage fault detection
- ANSI-C based motor control reference software with easy portability
- FreeMASTER visualization/configuration support



PROGRAMMABLE ANALOG

Cypress PSoC1

Exclusively from **element14**



element14.com/PSoC1

CY8CKIT-PSOC-024LP

Order Code **2356856**

Low-power, Arduino™ hardware-compatible shield development kit based on PSoC1, exclusively from element14.

- CY8C24x93: 8-bit Proprietary M8C CPU, Max operating frequency 24 MHz
- 8 kB to 32 kB Flash, 2 kB SRAM
- Full Speed USB 2.0, 10-bit ADC, 3x 16-bit Timers, 2x Comparators, 8-bit iDAC
- Thermistor and Humidity Analog Sensors, Potentiometer
- 4 Segment LCD
- IR LED for Remote Control
- Onboard Programmer



PROGRAMMABLE ANALOG

Cypress PSoC4 Pioneer kit



element14.com/PSoC4

CY8CKIT-042

Order Code **2311054**

Harness the power of an ARM® Cortex®-M0 combined with the fully customizable analog and digital fabric of the PSoC in the palm of your hands, exclusively from element14.

- CY8C4245AXI: 32-bit ARM® Cortex®-M0 48 MHz CPU
- 16-bit Timer/PWM, Low Power Comparator, 12-bit 1 Msps SAR ADC
- Programmable Analog and Digital Blocks
- 150 nA Hibernate/ 20 nA Stop Mode
- 1.71 – 5.5 V Operation
- Arduino™ Shield and Digilent® Pmo



SAFETY

Texas Instruments Hercules based LaunchPad



element14.com/LaunchPad

LAUNCHXL-RM42

Order Code **2341348**

Scalable performance, connectivity, and memory for safety-critical applications, including ISO 26262 and IEC 61508, based on the RM42x series of ARM® Cortex® microcontrollers from Texas Instruments.

- On-board USB XDS100v2 JTAG debug
- On-board SCI to PC serial communication
- 40-pin BoosterPack XL Header
- Ambient light sensor



SAFETY

Texas Instruments Hercules based LaunchPad



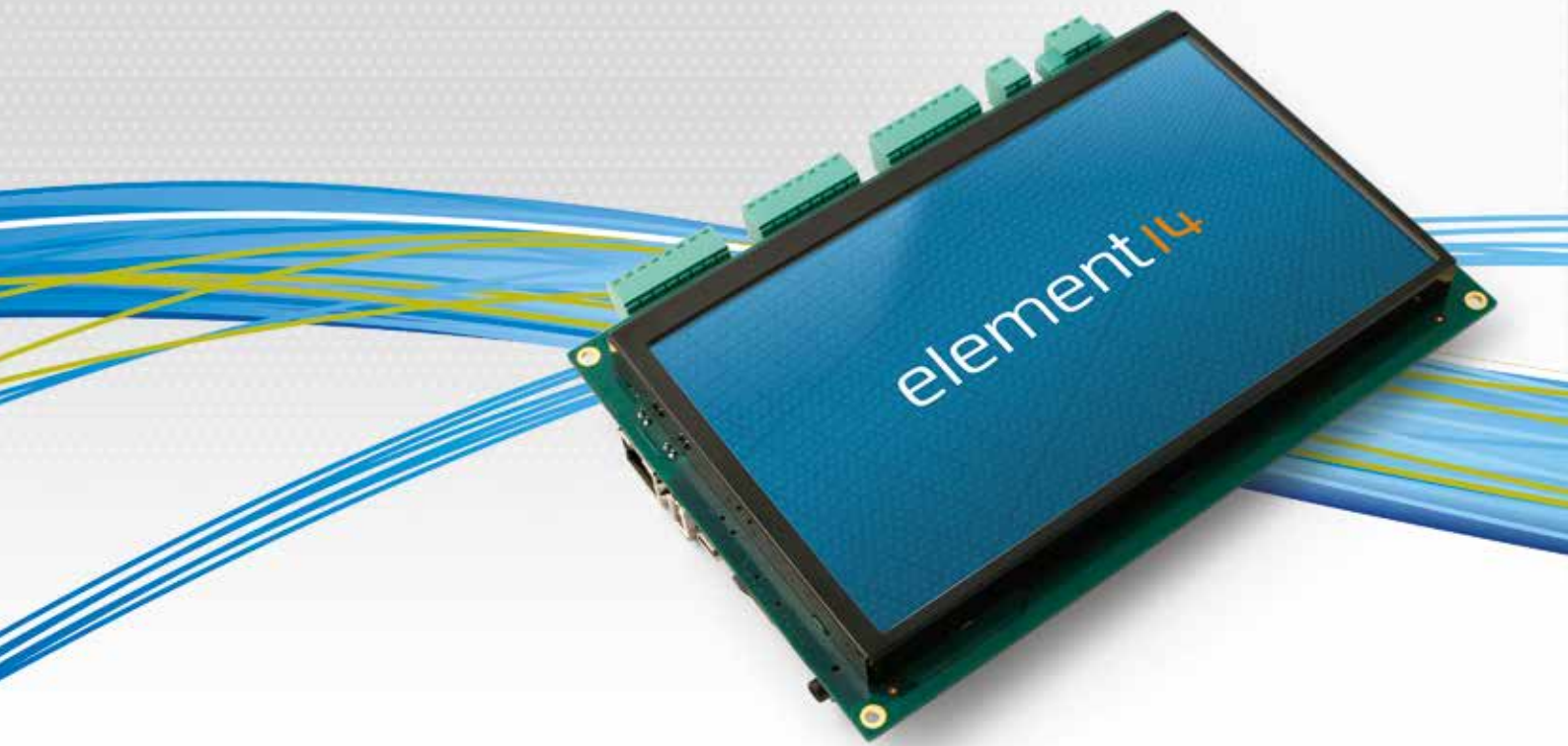
element14.com/LaunchPad

LAUNCHXL-TMS57004

Order Code **2341346**

Scalable performance, connectivity, and memory for safety-critical applications, including ISO 26262 and IEC 61508, based on the TMS570 series of ARM® Cortex® microcontrollers from Texas Instruments.

- On-board USB XDS100v2 JTAG debug
- On-board SCI to PC serial communication
- 40-pin BoosterPack XL Header
- Ambient light sensor



ATMEL BASED SBCS

Bring your product to market first with these Atmel based Single Board Computers and graphical display platforms featuring ARM core processors. A wide range of interfaces and peripheral sets make these platforms ideal for developing consumer, industrial and medical applications.



RAPID PROTOTYPING BOARD

element14
EDM6070AR-01

Exclusively from **element14**



element14.com/EDM

EDM6070AR-01

Order Code **2364788**

The EDM6070AR-01 is an ARM® based, fully integrated Embedded Display Module solution for variety of embedded control HMI applications, designed and developed by element14.

- Atmel ARM9 AT91SAM9X35 industrial processor
- 7" LCD display and touch screen assembly
- 64KB internal ROM and 32KB internal SRAM, 256MB NANDFlash, 128MB SDRAM, 4Kb EEPROM, 4MB SPI Flash



CORE MODULE

element14
MINI6935

Exclusively from **element14**



element14.com/Embest

MINI6935

Order Code **2364787**

A compact yet powerful embedded core module built on the Atmel AT91SAM9X35 processor.

- Quickly add extra functionality to reduce design time
- 128MB DDR2 SDRAM, 256MB NAND Flash, and 4MB of DataFlash



GRAPHICAL DISPLAY

Embest
AT91SAM9G45-EVK
evaluation kit



element14.com/Embest

AT91SAM9G45-EVK

Order Code **2057064**

An evaluation Kit for the AT91SAM9G45 microcontroller.

- External 256MB NANDFlash, 1MB NOR Flash, 4MB DataFlash
- 2 external 64MB DDR2 SDRAM
- 400MHz AT91SAM9G45 microcontroller
- Independently configurable I/Os supporting 1.8V or 3.3V operation



GRAPHICAL DISPLAY

Embest
SBC6845



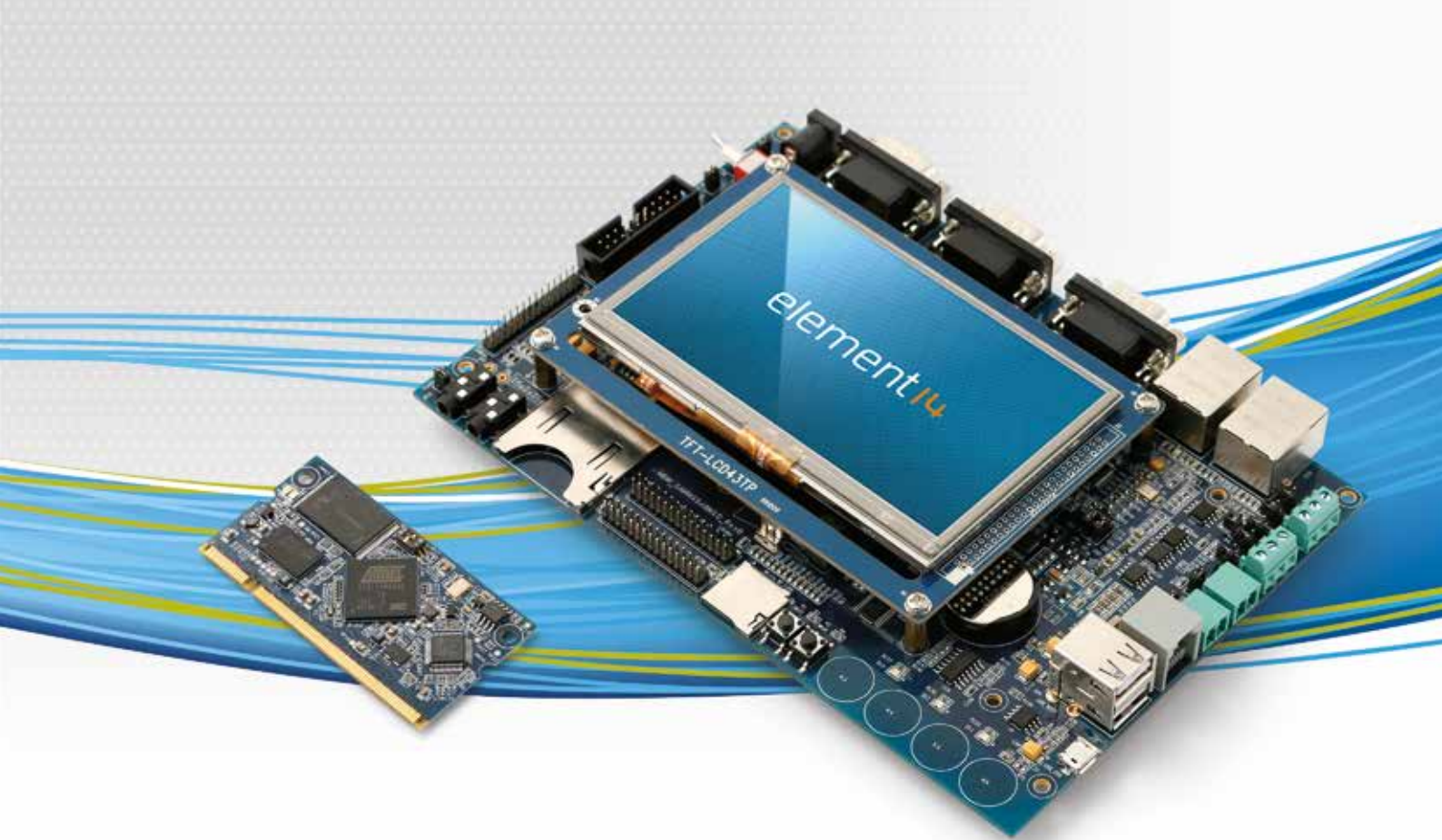
element14.com/Embest

SBC6845 WITH 4.3" LCD

Order Code **2136523**

A Single Board Computer based upon Atmel's 400MHz AT91SAM9G45 Microcontroller with 4.3" LCD.

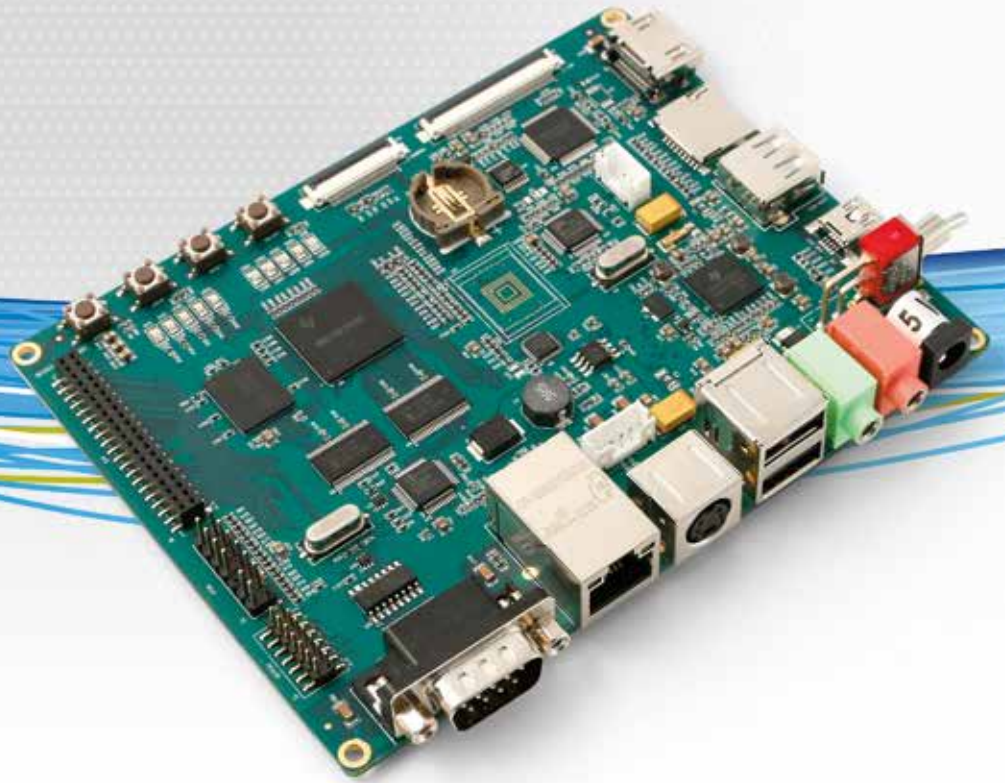
- 256MB NAND Flash, 2x64MB DDR2 SDRAM, 4MB Data Flash
- 4 wire resistive touch screen LCD interface
- RTC
- 16 GPIOs
- 6x6 keyboard interface



SAM9X5 SERIES

Embest Technologies has developed an expansive SBC offering that incorporates a main board and plug in processor module with all the I/O needed to develop on the Atmel SAM9G and SAM9X series of processors. Once complete, users can insert the processor module into their development or completed design.

			
RAPID PROTOTYPING BOARD	CORE MODULE	RAPID PROTOTYPING BOARD	CORE MODULE
Embest SAM9G35 evaluation kits	Embest SAM9G35 core modules	Embest SAM9X25/35 evaluation kits	Embest SAM9X25/35 core modules
 element14.com/Embest MBS-SAM9G35 Order Code 2136546	 element14.com/Embest MBC-SAM9G35 Order Code 2136540	 element14.com/Embest MBS-SAM9X25 / MBS-SAM9X35 Order Code 2136547 / 2136548	 element14.com/Embest MBC-SAM9X25 / MBC-SAM9X35 Order Code 2136541 / 2136542
An ARM® embedded core board which integrates the ATMEL AT91SAM9G35, operating at 400MHz. - Variety of 400MHz SAM9G35 Processors - Graphics LCD controller with 4 layer overlay, 2D acceleration 128MB DDR2 SDRAM, 256MB NANDFlash 10-bit ADC that supports 4 or 5 wire resistive touch screen panels. 50 GPIO user extension interface	ARM® core board based on the SAM9G35 microcontroller. - Variety of 400MHz SAM9G35 processors available 256 MB NAND Flash, 128MB DDR2 - Graphics LCD controller with 4 layer overlay and 2D acceleration - Shut down controller with four 32-bit battery backup registers	An ARM® embedded core board which integrates the ATMEL AT91SAM9x5, operating at 400MHz. - Variety of 400MHz SAM9x5 Processors - Graphics LCD controller with 4 layer overlay, 2D acceleration 128MB DDR2 SDRAM, 256MB NANDFlash 10-bit ADC that supports 4 or 5 wire resistive touch screen panels. 50 GPIO user extension interface	ARM® core board based on the SAM9x5 microcontroller. - Variety of 400MHz SAM9x5 processors available 256 MB NAND Flash, 128MB DDR2 - Graphics LCD controller with 4 layer overlay and 2D acceleration - Shut down controller with four 32-bit battery backup registers



MEDIA PROCESSING

If media processing is on your list of must haves, then look no further than this suite of development kits featuring TI's Sitara and DaVinci processors. These kits from Embest Technologies are feature rich with graphics acceleration and are ideal for demanding video applications including infotainment, gaming, data terminals and more.



GRAPHICAL DISPLAY

Embest **DevKit8600 AM3359** evaluation kit



element14.com/Embest

DEVKIT8600 WITH 4.3" LCD

Order Code **2136530**

AM3359 ARM® Cortex®-A8 microcontroller based evaluation board with a 4 wire, 4.3" LCD resistive touch screen.

- 512MB of DDR3 SDRAM and 512MB of NAND Flash
- Gigabit Ethernet
- Optional VGA, USB Wi-Fi, camera and 3G modules
- CAN 2.0 interface



MULTIMEDIA

Embest **SBC8100 PLUS**



element14.com/Embest

SBC8100 PLUS WITH 4.3" LCD

Order Code **2136526**

A single board computer based on Texas Instruments 1GHz DM3730 DaVinci digital media processor with 4.3" LCD.

- 256MB DDR SDRAM, 512MB NAND Flash
- VGA, S-VIDEO and LCD/touch screen interfaces
- CCD/CMOS camera interface
- On-board Wi-Fi/GPS
- RTC



MULTIMEDIA

Embest **DM3730** evaluation kit



element14.com/Embest

DM3730-EVK

Order Code **2057063**

TI DM3730 DaVinci digital media processor based evaluation kit with POWERVR SGX graphics accelerator.

- 1GHz DaVinci DM3730-EVK video processor, suitable for 720p HD (High Definition) video applications
- Supports up to 512MB DDR SDRAM and 512MB NAND Flash
- Programmable DSP engine allows multiple signal processing tasks such as image processing and analysis, digital filtering, and math functions.



GRAPHICAL DISPLAY

Embest **DevKit1207** evaluation kit



element14.com/Embest

DEVKIT1207

Order Code **2075387**

STM32F207IGT6 microcontroller based evaluation kit with a 4 wire, 3.5" TFT LCD resistive touch screen.

- 120MHz STM32F207IGT6 ARM® Cortex®-M3 32-bit Flash microcontroller
- Internal 1MB of Flash and 128KB (system) +4KB (backup) of SRAM
- G-sensor 3 axis acceleration sensor



GENERAL PURPOSE SBCS

For general purpose SBCs and development kits that require LCD or video out, look no further than Embest's lineup of low-cost ARM based solutions.



GRAPHICAL DISPLAY

Embest DK-LM3S9D96 development kit



element14.com/Embest

DK-LM3S9D96

Order Code **2057245**

A Stellaris LM3S9D96 development board providing a platform for developing systems around the advanced capabilities of the LM3S9D96 ARM® Cortex®-M3 based microcontroller.

- 80MHz LM3S9D96 microcontroller with 512K Flash, 96K SRAM
- 1MB serial Flash memory
- SAFERTOS operating system in microcontroller ROM
- Simple set up USB cable provides debugging, communication, and power



GRAPHICAL DISPLAY

Embest SBC6000X



element14.com/Embest

SBC6000X WITH 4.3" LCD

Order Code **2136531**

An embedded single board computer based on Atmel's 200MHz AT91SAM9261S microprocessor with a 4.3" LCD.

- 64M SDRAM, 4/8Mbyte DataFlash, 128MB NAND Flash, and 2Kbit EEPROM
- Touch screen (4-channel 12-bit ADC)
- RTC
- 16 GPIOs
- 4x4 keyboard interface



HIGH PERFORMANCE

Embest SBC8018



element14.com/Embest

SBC8018 WITH 4.3" LCD

Order Code **2136529**

A compact, low cost and high performance controller board based on TI's 375MHz AM1808 ARM9® low power application processor with a 4.3" LCD display.

- 128MB DDR SDRAM, 128MB NAND Flash
- Two CCD/CMOS camera interfaces
- LCD/Touch Screen interface (2048x2048)
- Serial ATA II connector
- RTC



OPEN SOURCE

Embest Cookie Board



element14.com/Embest

COOKIE NUMICRO EVB

Order Code **2136556**

Nuvoton M0516LBN ARM® Cortex®-M0 microcontroller based evaluation board.

- Fully compatible with Arduino™
- Various 32-bit ARM® Cortex® MCUs available (M0/M3/M4)
- CoLinkEx (USB-JTAG/SW debug probe) on board
- Up to 40 GPIO Pins



DEBUGGING

Embest XDS100V2



element14.com/Embest

XDS100V2

Order Code **2136553**

The second release of the XDS100 USB JTAG emulator technology supporting debugging of a variety of TI devices.

- Allows the user direct access between the host computer and the DSP through a 14-pin JTAG header.
- Support for Code Composer Studio™ v4 and newer
- Supports Code Composer Studio™ C2000 On-Chip Flash Programmer



CPU MODULES

MINI SERIES

Plug in Embest's ARM core modules into your design and spend time focusing on software development for processors and microcontrollers from leading semiconductor suppliers including Atmel, NXP and Texas Instruments.



PROTOTYPING MODULE

element14
MINI6935

Exclusively from **element14**



element14.com/Embest

MINI6935

Order Code **2364787**

A compact yet powerful embedded core module built on the Atmel AT91SAM9X35 processor.

- Quickly add extra functionality to reduce design time
- 128MB DDR2 SDRAM, 256MB NAND Flash, and 4MB of DataFlash



PROTOTYPING MODULE

Embest
MINI6045



element14.com/Embest

MINI6045 PROCESSOR CARD

Order Code **2136522**

A ready to use ARM® embedded controller board based on the 400MHz Atmel AT91SAM9G45 ARM® 926EJ-S microcontroller.

- 256MB DDR2 SDRAM, 256MB NAND Flash, 4MB DataFlash, 2Kbit EEPROM
- 40 pin LCD interface with 4 wire resistive touch screen interface (24-bit colour LCD)
- LVDS interface (Supports 8-bit LCD resolution up to 1280×860)
- RTC



PROTOTYPING MODULE

Embest
MINI6245



element14.com/Embest

MINI6245 PROCESSOR CARD

Order Code **2136520**

A compact ARM® embedded controller board based on the 400MHz Atmel AT91SAM9G45 ARM® 926EJ-S microcontroller.

- 128MB DDR2 SDRAM, 128MB NAND Flash and 1Kbit EEPROM
- LCD and touch screen interfaces
- Supports Linux and WinCE



PROTOTYPING MODULE

Embest
MINI8510



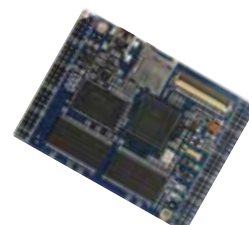
element14.com/Embest

MINI8510 PROCESSOR CARD

Order Code **2136527**

Processor Card based on TI's 1GHz DM3730 DaVinci Digital Media Processor.

- 256MB DDR SDRAM, 512MB NAND Flash
- 12-bit camera interface
- GPMC bus
- 12-bit camera interface



PROTOTYPING MODULE

Embest
MINI3250



element14.com/Embest

MINI3250 PROCESSOR CARD

Order Code **2136519**

A compact, stable and reliable ARM® based embedded controller board, based on NXP's 32-bit LPC3250 ARM926EJ-S core microcontroller.

- 64MB SDRAM, 128MB NANDFlash, 4MB NOR Flash
- Vector floating point (VFP) co processor
- 32768Hz RTC



CORE MODULE

Embest SAM9X35 core modules



element14.com/Embest

MBC-SAM9X35

Order Code **2136542**

ARM® core board based on the SAM9X35 microcontroller.

- Variety of 400MHz SAM9X35 processors available
- 256 MB NAND Flash, 128MB DDR2
- Graphics LCD controller with 4 layer overlay and 2D acceleration
- Shut down controller with four 32-bit battery backup registers

SAM9X5 CPU MODULES

Embest Technologies has developed the market's smallest CPU core processor modules, based on the Atmel SAM9G and SAM9X series of processors, allowing engineers to quickly develop, debug and demonstrate their designs with reduced time to market. Industrial grade connectors help to achieve seamless stability and connectivity to your custom designed boards.



CORE MODULE

Embest SAM9G25 core modules



element14.com/Embest

MBC-SAM9G25

Order Code **2136539**

ARM® core board based on the SAM9G25 microcontroller.

- Variety of 400MHz SAM9G25 processors available
- 256 MB NAND Flash, 128MB DDR2
- Graphics LCD controller with 4 layer overlay and 2D acceleration
- Shut down controller with four 32-bit battery backup registers



CORE MODULE

Embest SAM9G35 core modules



element14.com/Embest

MBC-SAM9G35

Order Code **2136540**

ARM® core board based on the SAM9G35 microcontroller.

- Variety of 400MHz SAM9G35 processors available
- 256 MB NAND Flash, 128MB DDR2
- Graphics LCD controller with 4 layer overlay and 2D acceleration
- Shut down controller with four 32-bit battery backup registers



CORE MODULE

Embest SAM9G45 core modules



element14.com/Embest

MBC-SAM9G45

Order Code **2136535**

ARM® core board based on the SAM9G45 microcontroller.

- Variety of 400MHz SAM9G45 processors available
- 256 MB NAND Flash, 128MB DDR2
- Graphics LCD controller with 4 layer overlay and 2D acceleration
- Shut down controller with four 32-bit battery backup registers



CORE MODULE

Embest SAM9X25 core modules



element14.com/Embest

MBC-SAM9X25

Order Code **2136541**

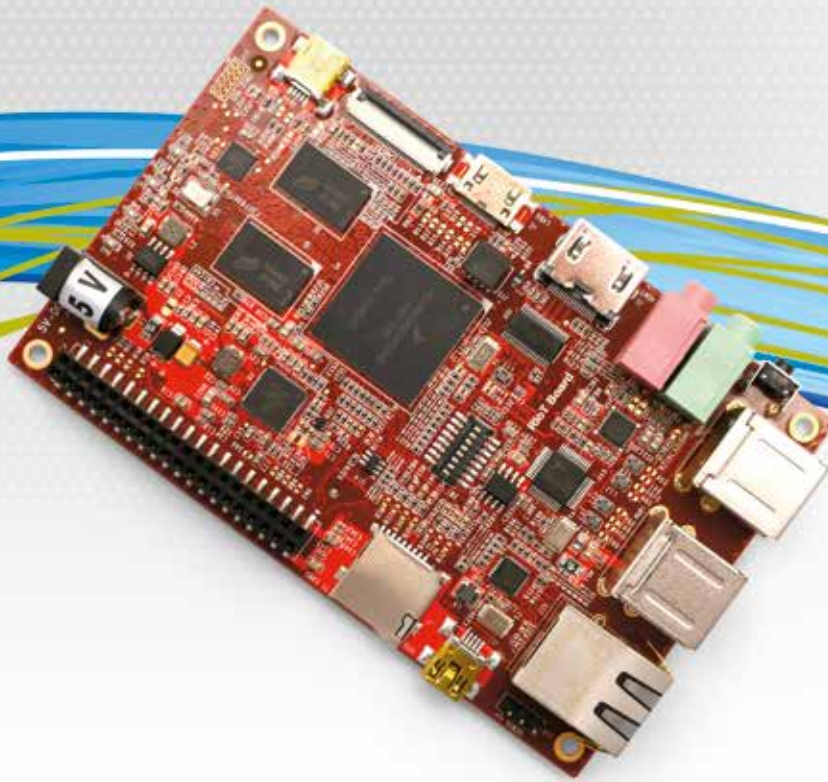
ARM® core board based on the SAM9X25 microcontroller.

- Variety of 400MHz SAM9X25 processors available
- 256 MB NAND Flash, 128MB DDR2
- Graphics LCD controller with 4 layer overlay and 2D acceleration
- Shut down controller with four 32-bit battery backup registers

IoT

RIOTBOARD

The RIoTboard is an open source platform that is Revolutionizing the Internet of Things. The platform is ideal for Android and GNU/Linux development and designed for and supported by a community of Design Engineers and Application Developers.



i.MX 6 PLATFORM: SINGLE

Freescale RIoTBoard

Exclusively from **element14**



RIoTboard.org

MCIMX6 SOLO

Order Code **2355353**

RIoTBoard is an Open Source Community supported single board computer designed for the Internet of Things, featuring the i.MX 6Solo ARM® Cortex®-A9 processor from Freescale.

- Freescale i.MX 6Solo processor based on ARM® Cortex®-A9 architecture, operating at speeds up to 1 GHz.
- High-performing video processing unit which covers SD-level and HD-level video decoders and SD-level encoders as a multi-standard video codec engine
- 1GByte of 32-bit wide DDR3 @ 800 MHz
- 4GByte EMMC Flash



WI-FI SOLUTION

element14 WiFi

Exclusively from **element14**



element14.com/RIoTboard

WIFI DONGLE

Order Code **2437981**

A high performance, cost-effective WLAN USB module.

- 802.11n (backwards compatible with 802.11g and 802.11b)
- Up to 150Mbps transmission speed
- Supports WPA-PSK / WPA2-PSK
- Uses the latest CCA air channel detection technology



DISPLAY SOLUTION

element14 LCD display for i.MX 6 boards

Exclusively from **element14**



element14.com/IMX6

LCD8000-97C

Order Code **2364786**

The LCD8000-97C is a portable 9.7" display module that integrates a capacitive multi-touch screen with LVDS interfaces and supports a resolution of 1024×768 with 262K colours to provide an excellent and smooth touch interface experience.

- 1024×768 resolution
- 262K colours
- Multi touch



DIGITAL IMAGING

Embest USB camera module

Exclusively from **element14**



element14.com/Embest

CAM8100-U MODULE

Order Code **2136552**

1.3MP CMOS USB Digital Camera Module.

- Max frame rate of 15fps SXGA YUV format
- Sensor resolution of 1304×1036, SXGA
- Supports Linux and WinCE



DEBUGGING

Embest UART8000-U

Exclusively from **element14**



element14.com/RIoTboard

UART8000-U

Order Code **2406742**

The UART8000-U is a USB to serial debugging cable that converts from USB to 3-pin TTL allowing for simple and quick debugging of compatible devices.

- High performance FTDI USB-to Serial chip FT230X
- Supports transfer speeds between 300baud and 3Mbaud
- 512byte transmission and reception buffers
- USB to 3-pin TTL



i.MX 6

Experience true scalability with SBCs featuring Freescale's i.MX 6 Dual and Quad-core processors. These boards are ideal for small hubs or end-point IoT applications.



i.MX 6 PLATFORM: DUAL

element14
MarSboard



element14.com/IMX6

MARS BOARD

Order Code **2362785**

Low-cost, highly-integrated development kit based on Freescale's i.MX 6Dual. The MarS Board is a ready-to-run platform with ported Linux or Android OS.

- ARM® Cortex®-A9 MPCore™ 2x CPU Processor at 1 GHz
- 4GBytes of eMMC, 1GByte of DDR3 SDRAM, 2MByte of SPI Flash
- NEON SIMD Media Accelerator, 2D and 3D Hardware Graphics Accelerator, 1080p HD Video Encode/Decode Engine



i.MX 6 PLATFORM: QUAD

Freescale
SABRE Lite

Exclusively from **element14**



element14.com/IMX6

MCIMX6Q-SL

Order Code **2124398**

Evaluate the powerful i.MX 6Quad multimedia application processor from Freescale Semiconductor, exclusively from element14.

- ARM® Cortex® A9 MPCore™ 4x CPU Processor (with TrustZone) @1 GHz
- 1GByte of 64-bit wide DDR3 @ 532 MHz
- 10/100/Gb IEEE1588 Ethernet
- HDMI, LVDS, parallel RGB interface, touch screen interface



WI-FI SOLUTION

element14
Wi-Fi

Exclusively from **element14**



element14.com/IMX6

WIFI DONGLE

Order Code **2437981**

A high performance, cost-effective WLAN USB module.

- 802.11n (backwards compatible with 802.11g and 802.11b)
- Up to 150Mbps transmission speed
- Supports WPA-PSK / WPA2-PSK
- Uses the latest CCA air channel detection technology



DISPLAY SOLUTION

element14
LCD display for i.MX 6 boards

Exclusively from **element14**



element14.com/IMX6

LCD8000-97C

Order Code **2364786**

The LCD8000-97C is a portable 9.7" display module that integrates a capacitive multi-touch screen with LVDS interfaces and supports a resolution of 1024x768 with 262K colours to provide an excellent and smooth touch interface experience.

- 1024x768 resolution
- 262K colours
- Multi touch



BEAGLEBONE BLACK

The element14 BeagleBone Black is the newest member of the BeagleBoard family of single-board computers, providing a lower-cost, high-expansion focused BeagleBoard with a low cost ARM Sitara™ AM3358 processor from Texas Instruments. The element14 BeagleBone Black is internet-ready and runs Angstrom, Ubuntu, Android and Debian.



RAPID PROTOTYPING BOARD

element14 BeagleBone Black

Exclusively from element14



element14.com/BeagleBone

BBONE-BLACK-4G

Order Code **2422228**

The new element14 BeagleBone Black, proudly manufactured by element14.

- Processor: TI Sitara AM3358AZCZ100, 1 GHz, 2000 MIPS
- 4GB 8-bit eMMC on-board flash storage
- SDRAM: 512MB DDR3L 800MHZ
- 3D graphics accelerator
- 2× PRU 32-bit microcontrollers



DISPLAY SOLUTION

element14 BB View 4.3" LCD cape

Exclusively from element14



element14.com/BeagleBone

BB VIEW_43

Order Code **2364756**

Portable resistive touchscreen LCD Cape for BeagleBone boards.

- 4.3" resistive touchscreen LCD module
- Resolution: 480×272
- Five switches (four for GPIOs and one for BOOT)
- Two user defined LEDs
- Full access to all the GPIOs via two 46-pin connectors
- Powered directly from BeagleBone boards, no external power supply required



DISPLAY SOLUTION

element14 BB View 7" LCD cape

Exclusively from element14



element14.com/BeagleBone

BB VIEW_70

Order Code **2364757**

Portable resistive touchscreen LCD Cape for BeagleBone boards.

- 7" resistive touchscreen LCD module
- Resolution: 800×480
- Five switches (four for GPIOs and one for BOOT)
- Two user defined LEDs
- Full access to all the GPIOs via two 46-pin connectors
- Powered directly from BeagleBone boards, no external power supply required



DEBUGGING

Embest UART8000-U

Exclusively from element14



element14.com/BeagleBone

UART8000-U

Order Code **2406742**

The UART8000-U is a USB to serial debugging cable that converts from USB to 3-pin TTL allowing for simple and quick debugging of compatible devices.

- High performance FTDI USB-to Serial chip FT230X
- Supports transfer speeds between 300baud and 3Mbaud
- 512byte transmission and reception buffers
- USB to 3-pin TTL



WI-FI SOLUTION

element14 WiFi

Exclusively from element14



element14.com/BeagleBone

WIFI DONGLE

Order Code **2437981**

A high performance, cost-effective WLAN USB module.

- 802.11n (backwards compatible with 802.11g and 802.11b)
- Up to 150Mbps transmission speed
- Supports WPA-PSK / WPA2-PSK
- Uses the latest CCA air channel detection technology



HAPTICS

Texas Instruments Haptic BoosterPack

Exclusively from **element14**



element14.com/LaunchPad

BOOSTXL-HAPTOUCH

Order Code **2362893**

Capacitive touch functionality with haptics technology in a single TI BoosterPack.

- 122 haptic effects featuring industry-leading haptic technology from Immersion – Royalty free
- Full programmability with JTAG emulation and software development kit
- Evaluate with a motor-based (ERM) or spring-based (LRA) actuator
- Feel the music with Audio2Haptics™ technology

SENSING AND MOBILITY

Sensing and mobility are key to making the Internet of Things a reality. Check out these low power sensing and battery charging platforms that incorporate the latest technologies from Freescale and Texas Instruments.



SENSORS

Freescale XL Star



element14.com/XL_Star

STAR-XL-S08

Order Code **1864565**

Combines an 8-bit HCS08 MM128MM128 microcontroller, MMA8451Q three axis accelerometer, MC34673MC34673 battery charger and an open source BDM interface on a single board.

- 128KB Flash and 12KB SRAM
- Open source BDM
- Up to 78 GPIOs



SENSORS

Freescale Xtrinsic-Sensor board

Exclusively from **element14**



element14.com/SensorEVK

XTRINSIC-SENSORS-EVK

Order Code **2308734**

A low-cost sensors evaluation kit based on three Xtrinsic sensors and the Freescale FRDM-KL25Z Freedom platform with accompanying software. An ideal platform for developing projects and designs that detect and measure motion, position, altitude, pressure, and magnetic fields.

- MPL3115: High-Precision Pressure Sensor [50 to 110kPa, 2.5v]
- MAG3110: Low-power 3D Magnetometer
- MMA8491Q: 3-Axis, Digital Accelerometer



GPRS SOLUTION

Embest GPRS8000-S



element14.com/Embest

GPRS8000-S MODULE

Order Code **2136550**

ARM® based embedded quad band GPRS module (850MHz/900MHz/1800MHz/1900MHz).

- Supports the GSM 2/2+ standard
- Output power class 4 (2W) at 850MHz/900MHz and class 1 (1W) at 1800MHz/1900MHz
- Control via AT commands (GSM 07.07, 07.05 and SIMCom extended AT command)
- Supports low power mode



MOBILE POWER SOLUTION

Texas Instruments Battery BoosterPack

Exclusively from **element14**



element14.com/LaunchPad

BOOSTXL-BATTPACK

Order Code **2313552**

Add battery power and management capabilities to your TI LaunchPads, exclusively from element14.

- Works with all existing LaunchPads
- Includes 3.7V 1200mAh Lithium Polymer battery
- Charges through USB
- Outputs: Battery temp, voltage, average current, charge state, design and remaining capacity



PI ACCESSORIES

I/O

Connect your Raspberry Pi to the real world and allow the Raspberry Pi to control and sense physical devices such as lights, motors and sensors using PiFace Digital and Xtrinsic Sensor board. Still need more? Use PiStack to cascade up to four expansion boards to your Raspberry Pi, exclusively from element14.



I/O & CONTROL

OpenLX SP PiFace Digital

Exclusively from **element14**



element14.com/RaspberryPi

PIFACE DIGITAL

Order Code **2218566**

Drive outputs to power motors, actuators, LEDs or anything you can imagine, exclusively from element14.

- 2 Changeover relays, 8 Open-collector outputs, and 8 Digital inputs
- 8 LED indicators and 4 switches
- Graphical emulator and simulator, easy-to-use with Python, Scratch, and C



I/O & MOTOR CONTROL

Fen Logic Assembled Gertboard



Exclusively from **element14**



element14.com/RaspberryPi

GERTBOARD

Order Code **2250034**

A flexible experimentation board for your Raspberry Pi, exclusive to element14.

- 18V/2A bidirectional motor control
- 6 open-collector outputs
- 10-bit ADC / 8-bit DAC
- 3 push switches, and 12 LEDs



EXPANSION

OpenLX SP PiStack

Exclusively from **element14**



element14.com/RaspberryPi

PISTACK

Order Code **2327992**

Connect up to 4 additional I/O boards to the Raspberry Pi, exclusively from element14.

- 5V barrel jack for additional power (5.5mm OD 2.1mm ID Barrel)
- Chain multiple PiStacks for additional expansion



SENSORS

Freescall Sense-board



Exclusively from **element14**



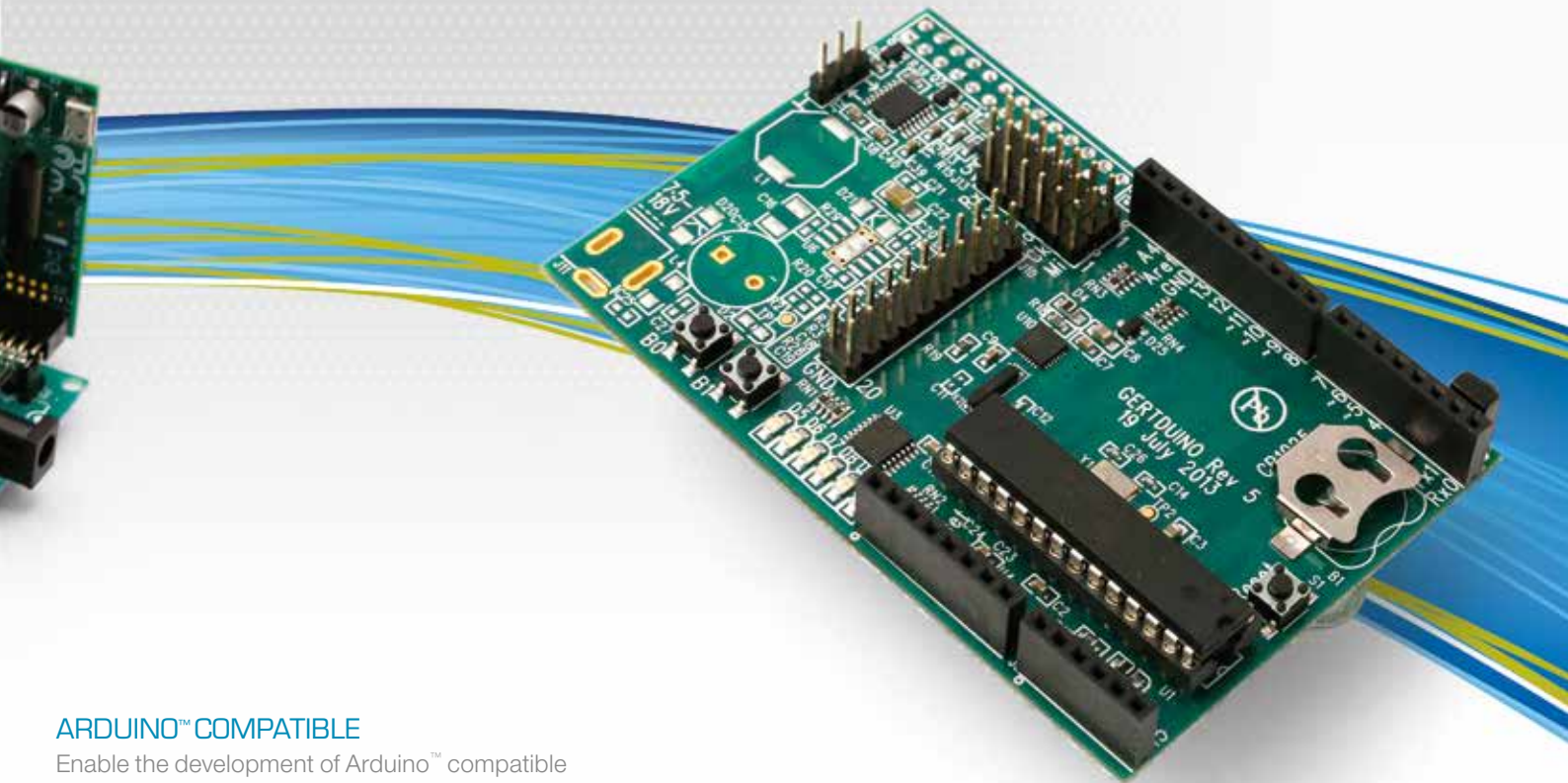
element14.com/MEMS_Sensor

XTRINSIC-SENSE-BOARD

Order Code **2365353**

An ideal platform for developing projects and designs that detect and measure motion, position, altitude, pressure, and magnetic fields.

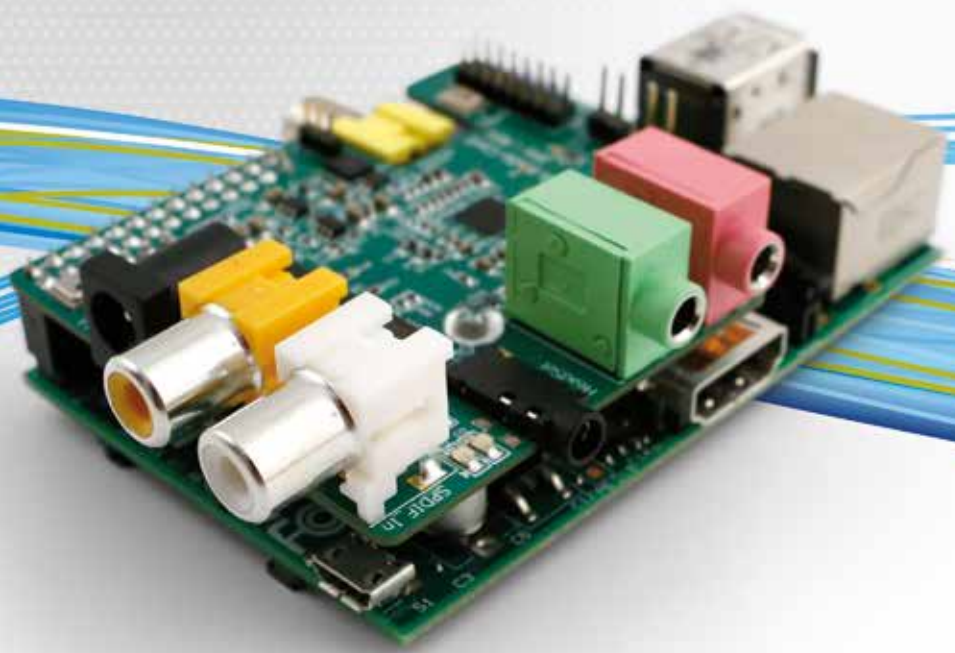
- Raspberry Pi and Freedom KL25Z compatible connectors
- Arduino™ compatible footprint
- MPL3115: High-Precision Pressure Sensor [50 to 110kPa, 2.5v]
- MAG3110: Low-power 3D Magnetometer
- MMA8491Q: 3-Axis Digital Accelerometer



ARDUINO™ COMPATIBLE

Enable the development of Arduino™ compatible applications for the Raspberry Pi using 32-bit, high-performance ARM or PIC32 MCU based expansion boards, exclusively from element14.

 32-BIT Embest Embedded Pi Exclusively from element14  element14.com/Embedded-Pi EMBEDDED PI Order Code 2301086 Embedded Pi brings together Arduino™, Raspberry Pi, and 32-bit ARM® development in a single STM32-based platform. • Provides Raspberry Pi with easy access to abundant Arduino™ shields • 128KB of flash memory and 20KB of SRAM • FREE CoCoX ARM® development tool platform	 GPIO EXPANSION Fen Logic GertDuino  Exclusively from element14  element14.com/Gertduino GERTDUINO Order Code 2344460 Arduino™ Uno functionality for your Pi, exclusively from element14. • Atmel ATmega328 and ATmega48 • Pin compatible with Arduino™ Uno • 5V, RS232 level shifter • RTC with Pi wake-up	 32-BIT element14 chipKIT Pi Exclusively from element14  element14.com/chipKIT_Pi CHIPKIT PI Order Code 2328004 Arduino™ Compatible chipKIT Platform for Raspberry Pi based on the PIC32MX250F128B Microcontroller. • Designed exclusively for the Raspberry Pi and Arduino™ ecosystems • Enables the development of 3.3V Arduino™ compatible applications for the Raspberry Pi • Supports the chipKIT multi platform IDE (MPIDE)	 I/O & MOTOR CONTROL Fen Logic Assembled Gertboard  Exclusively from element14  element14.com/RaspberryPi GERTBOARD Order Code 2250034 A flexible experimentation board for your Raspberry Pi, exclusive to element14. • 18V/2A bidirectional motor control • 6 open-collector outputs • 10-bit ADC / 8-bit DAC • 3 push switches, and 12 LEDs
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AUDIO/VISUAL

Upgrade your Raspberry Pi with HD quality audio using the Wolfson Audio card, enhancing the Raspberry Pi audio features beyond its native HDMI output. Alternatively, unleash your Raspberry Pi from its keyboard, mouse and monitor! With PiFace Control & Display.



HD AUDIO

Wolfson HD audio board

Exclusively from **element14**



element14.com/Wolfson

WOLFSON PI AUDIO CARD

Order Code **2347264**

24-bit, 192kHz HD audio for your Raspberry Pi.

- Two MEMS microphones on-board for stereo recording
- High SNR (Signal to Noise Ratio) for high quality playback and recording
- 3.5mm 4-pole jack ideal for a VOIP headset
- On-board class D power amplifier for external speakers with an auxiliary power input



CONTROL & DISPLAY ALL-IN-ONE

OpenLX SP PiFace Control and Display (formerly LCD)

Exclusively from **element14**



element14.com/ControlAndDisplay

PIFACE CONTROL & DISPLAY

Order Code **2344458**

Display status information, messages and menus, and control your Pi with an IR remote control or on-board buttons with the PiFace™ Control & Display, exclusively from element14.

- 16 character by 2 line alphanumeric display with user definable custom characters
- IR receiver
- 3-position navigation switch, 5 tactile switches
- Quick and easy menu building Python libraries provided



DIGITAL IMAGING

Embest Pi Camera



element14.com/RaspberryPi

RPI CAMERA BOARD

Order Code **2302279**

5 megapixel custom designed add-on for Raspberry Pi, featuring a fixed focus lens.

- 2592×1944 pixel static images
- Video supports 1080p at 30fps, 720p at 60fps and 640×480p 60/90 recording



DISPLAY SOLUTION

Embest PiView



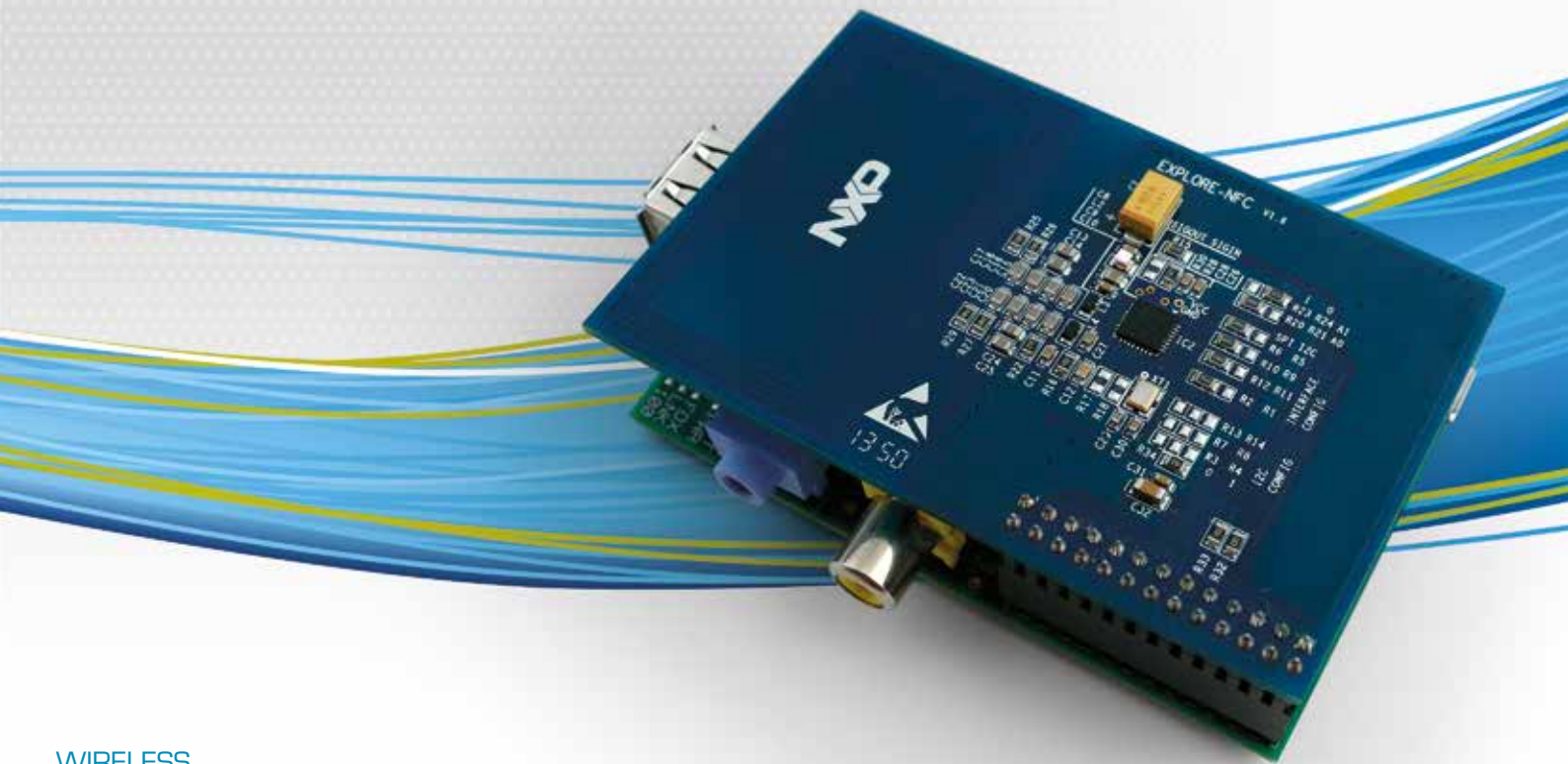
element14.com/RaspberryPi

PIVIEW

Order Code **2133899**

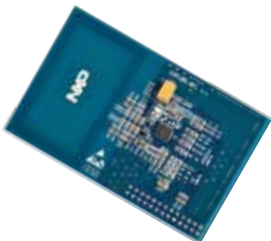
PiView converts HDMI signals from the Raspberry Pi into analog signals for use with VGA monitors.

- No external power supply required
- Handles display resolutions of up to 1080p



WIRELESS

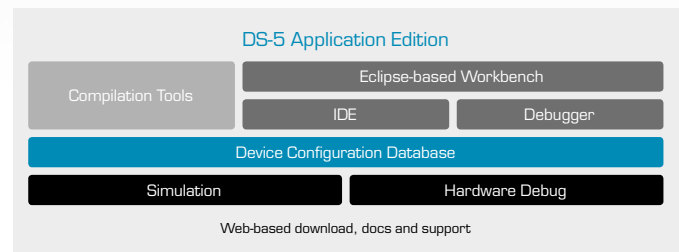
Expand the capabilities of your Raspberry Pi to include EnOcean wireless, self-powered sensors and transform your RPi into a gateway for home and building automation application. Or implement external user interfaces for industrial and consumer devices by using our high performance full NFC compliant expansion board.

			
WI-FI SOLUTION	NFC	WIRELESS SENSING	WIRELESS SENSING
Embest WiPi  Exclusively from element14  element14.com/RaspberryPi WIPI Order Code 2133900 A high performance, cost-effective WLAN USB module. • 802.11n (backwards compatible with 802.11g and 802.11b) • Up to 150Mbps transmission speed • Supports WPA-PSK / WPA2-PSK • Uses the latest CCA air channel detection technology	NXP NFC Explore  Exclusively from element14  element14.com/ExploreNFC EXPLORE-NFC Order Code 2366201 High-performance NFC compliant expansion board compatible with Raspberry Pi. • Based on the NXP PN512, fully compliant with all 3 NFC modes (Reader, P2P and Card Emulation) • Reader mode supports all 4 NFC tag types and NXP's MIFARE command set • 50mm typical operation range	EnOcean 868 MHz transceiver  Exclusively from element14  element14.com/EnOcean_Pi ENOCEAN PI 868 Order Code 2322460 A 868 MHz SMD mountable radio transceiver module enabling the realization of gateways for 868 MHz radio systems. • Smart Ack controller functionality • 125Kbps data rate and ASK modulation • ESP3 support • Bidirectional radio and serial interfaces	EnOcean Wireless sensor kit  Exclusively from element14  element14.com/EnOcean_Pi SENSOR KIT-868 Order Code 2382274 Self-powered sensor kit ideal for enthusiasts and designers to start up with home automation. • EU Frequency: 868 MHz • Wireless Sensor module with built-in antenna • No cables required • Ideal Energy Harvesting Solution

ARM application development tools



ARM DS-5 toolchain is a flexible and powerful suite of software development tools designed to help you develop software applications which are highly optimised for ARM application processors such as the Cortex-A8 and Cortex-A9 series.



ARM DEVELOPMENT STUDIO 5 (DS-5™)

DS-5 suite features an Eclipse based environment that combines a powerful C/C++ editor and project manager with a Linux/Android aware debugger and extra tools such as the ARM Streamline performance analyser. Eclipse users will feel at home in this user-friendly environment, though leading-edge comprehensive support is also offered by ARM in the form of technical documentation, videos, blogs and online seminars.

DS-5 supports the 32-bit and 64-bit versions of these x86 host platforms:

- Windows XP Professional Service Pack 3
- Windows 7 Professional and Enterprise
- Red Hat Enterprise Linux 5 Desktop and Workstation

DS-5 EDITIONS

Feature	Application Edition	Linux Edition	Professional Edition
Eclipse IDE and Project Manager	✓	✓	✓
GNU Compiler for Linux	✓	✓	✓
Linux Application Debugger	✓	✓	✓
Streamline Performance Analyzer	✓	✓	✓
Real-Time System Models	✓	✓	✓
Boot Code and Driver Debug (JTAG)		✓	✓
Boot Code and Driver Trace		✓	✓
ARM Compiler			✓
Processor Support	Apps cores	Apps cores	Any core

DEBUGGERS AND PROGRAMMERS

DSTREAM: High-Performance Debug and Trace

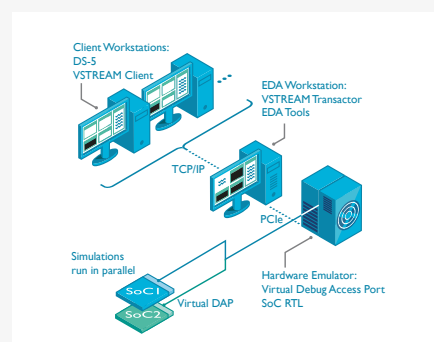
The ARM DSTREAM high-performance debug and trace unit enables powerful software debug and optimization on any ARM processor based hardware target. Featuring a 4GB trace buffer and hardware acceleration, DSTREAM enables the connection of DS-5 Debugger, RVD, and third party debuggers to ARM processor-based devices via JTAG or Serial-Wire Debug.

VSTREAM: Virtual Debug Interface

VSTREAM is a fast and flexible virtual debug interface that connects software debuggers to hardware assisted verification systems such as Cadence Palladium, Eve ZeBu and Mentor Veloce. VSTREAM also supports RTL simulators for Cadence Incisive, Mentor ModelSim, Questa and Synopsys VCS. VSTREAM enables more efficient interface for software development in the early stages of system design, reducing project risk and improving the utilization of hardware emulators and time-to-market.

RealView ICE (RVI) and RealView Trace 2 (RVT2)

RealView ICE (RVI) and RealView Trace 2 (RVT2) are ARM's legacy target connection units. While RVI provide run-control debug functionality for both DS-5 and RVDS users, RVT2 adds trace capabilities to RVI for RVDS users only.

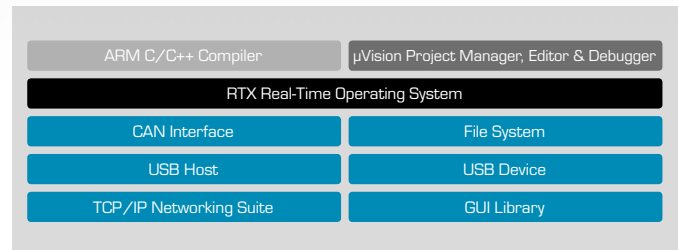


Keil MDK-ARM™ microcontroller tools

ARM® KEIL®
Microcontroller Tools

Keil MDK-ARM is the complete software development toolchain that supporting ARM7, ARM9, Cortex-M, and Cortex-R4 processor-based devices.

The MDK toolchain consists of µVision IDE/Debugger, ARM C/C++ Compiler, Keil RTX real-time operating system and essential middleware components. µVision integrates project management, editor and debugger in a single easy-to-use environment while the fully integrated ARM C/C++ Compiler offers significant code-size and performance benefits to the embedded developer, however, MDK can also be used with the GNU GCC Compiler.



MDK EDITIONS

Feature	MDK-Professional	MDK-Standard	MDK-Cortex-M	MDK-Lite*
µVision IDE	✓	✓	✓	✓
ARM Compiler	✓	✓	✓	✓
RTX RTOS (with Source Code)	✓	✓	✓	✓
Middleware Component Libraries				
TCP/IP Networking Suite	✓			
Flash File System Library	✓			
USB Device Interface	✓			
USB Host Interface	✓			
CAN Driver	✓			
GUI Library	✓			
Debug and Trace Support	•ULINK-ME •ULINK2 •ULINKpro •Data and Event Trace (SWV) •Streaming Instruction Trace (ETM) •Embedded Trace Buffer (ETB) •Micro Trace Buffer (MTB) •Code Coverage •Performance Analyzer •Execution Profiling			
ARM Processor Support	•Cortex-M0, M0+, M1, M3, M4 •Cortex-R4 •ARM7 •ARM9	•Cortex-M0, M0+, M1, M3, M4 •Cortex-R4 •ARM7 •ARM9	•Cortex-M0, M0+, M1, M3, M4	•Cortex-M0, M0+, M1, M3, M4 •Cortex-R4 •ARM7 •ARM9

*Code size limited to 32KB

DEBUGGERS AND PROGRAMMERS

ULINKpro D

The ULINKpro D Debug and Trace Unit connects the host USB port to the target system. While it does not support ETM instruction trace the same high debug performance as ULINKpro has been maintained and can also be used with the DS-5 Development Studio for debug on the ARM Cortex®-M, Cortex-R and Cortex-A series processors.

ULINKpro

Provides unique streaming trace directly to your PC, enabling advanced analysis of your applications such as Execution Profiling and Code Coverage. Delivers real-time data and instruction trace streaming via USB. ULINKpro supports: ARM7, ARM9, and Cortex-M devices, Data and Instruction Trace for Cortex-M

ULINK2

The Keil ULINK2 Debug Adapter allows you to program and debug embedded programs on target hardware. ULINK2 may be used for on-chip debugging (using on-chip JTAG, SWD, or SWV), and Flash Memory Programming (using user-configurable Flash programming algorithms). ULINK2 supports various ARM7, ARM9, Cortex-M, 8051, and C166 devices.

The ULINK Debug Adapters complete the toolchain by connecting the host USB port to the target system by JTAG or SWD, allowing for debug and analysing embedded programs running on target hardware.



CadSoft Eagle PCB design software

For over 25 years, CadSoft has been helping makers, hobbyist, students, educators and design engineers innovate. Now the fastest growing commercial PCB design solution, find out how EAGLE's capabilities and value have gotten even better!



WHY EAGLE?

- Professional-grade schematic, layout and autorouter with common interface.
- Perpetual license with maintenance and support included.
- DesignLink: real-time access to the element14 component database for part research and selection.
- Links to popular prototype vendors for low cost, low volume fabrication and assembly services.
- Over 50,000 component libraries available.
- Fully supported on Window, Linux and Mac.
- Educational and Multi-User discounts available.

EAGLE MODULES

Schematic

Allows up to 999 sheets to support complex designs.

Enables individualization of schematics and sheets with descriptions.

Controls the schematic through Electrical Rule check (ERC).

Arranges schematic sheets through drag & drop.

Creates boards with a single mouse click.

Layout

Performs a Design Rule Check to ensure all connections are correct.

Supports differential pair routing and meanders.

Allows automatic BGA escape routing (ULP).

Manages different assembly variants.

Offers an easy-to-use dimensioning tool.

Autorouter

Automatically routes single connections, selected connections or entire board.

Interactive "follow me router".

Supports blind and buried vias for multi-layer designs up to 16 layers.

Allows users to specify custom routing features, incl. layer preference, routing grid etc.

NEW IN VERSION 7

Improved autorouter

Pre-route option that will result in more cost effective, efficiently routed PCBs, requiring less manual interaction.

Multi-threaded support optimizes EAGLE's use of multi-core hardware by running each routing variant on its own processor simultaneously. End-users benefit from multiple configurations of the same routed board to choose from, and can select the best outcome for their design.

Support for hierarchical design

Supports larger, more complex designs.

Helps organize large schematic designs into small functional blocks which can be assigned to team members.

Encourages design re-use by allowing blocks of one design to be used in others.

element14 Design Services

element14 Design Services, powered by AVID and Embest Technologies, offers design services and manufacturing of advanced electronic products.

From concept to design, through prototype and production, element14 design services can support any aspect of the electronic design process as well as provide full turnkey product development in areas that span medical, aerospace and military, automotive, industrial control and consumer markets.

Design Services benefits

- Wide breadth of capabilities in a broad array of technologies
- Vast experience with client diversity from Fortune 100 to funded start-ups
- Faster time to market and proven development teams
- In house capability for most short runs and expedited schedules

TECHNOLOGY COMPETENCIES

Embedded (ARM Cortex, MSP430, PIC, AVR, S08), Analog Systems.

FPGA, CPLD, VHDL (Cyclone, Spartan, Arria), ASIC conversion.

Advanced PCB, integrated device packages.

RF, RFID, NFC (MIFARE, ISO/IEC 14443, 802.11).

High speed digital design and analysis.

Power management and conversion. Motor control.

ENGINEERING DESIGN AND DEVELOPMENT SERVICES

Hardware design, simulation and validation

Digital, analog, power, RF and RFID, wireless power systems.

FPGA design and implementation, ASIC conversion.

Software development

Embedded firmware development and integration.

Control, I/O processing, communications, user interface.

Application, driver software development for Windows and/or Linux.

Advanced PCB design services

PCB Design, layout, fabrication, assembly services.

Simulation, verification, prototype development.

PADS, EXPEDITION, Cadence- Allegro, Altium, PCAD, EAGLE CAD tool competencies.

Mechanical design, 3D board design, rapid prototyping.

Customer validation, testing and certification

Prototype assembly, qualification testing, design validation.

Certification support – CE, UL, FCC, MIL, automotive, hazardous location.

Production test system design and build, test software application development.

Full turnkey product development

From conceptualization and specification.

Including prototype and verification.

To manufacturing release and production support.

Scalable. Innovative. Leading.

Your Number One Choice for ARM Solutions

Freescal is the leader in 32-bit embedded control, offering the market's broadest and best-enabled portfolio of solutions based on ARM® technology. Our end-to-end portfolio of high-performance, power-efficient MCUs and digital networking processors help realize the potential of the Internet of Things, reflecting our unique ability to deliver scalable, systems-focused processing and connectivity.

Our large ARM-powered portfolio includes scalable MCU and MPU families from small ultra-low-power Kinetis MCUs to i.MX and Vybrid multimedia processors with advanced performance and feature integration and QorIQ communications processors that deliver industry-leading power and performance. Each family has been designed to offer a broad range of performance, peripheral and packaging options, providing migration paths for end-product platform development. All families are supported

by industry-leading enablement (software and tool) bundles from Freescal and the extensive ARM ecosystem. Combined, our Kinetis, i.MX, QorIQ and Vybrid solutions offer the highest level of integration, the most comprehensive software and hardware enablement, and the broadest range of performance available within the ARM community. Whether you are a consumer, industrial, automotive or networking product designer, our ARM-based product families offer a solution that meets your requirements.



Kinetis MCUs

Hardware- and software-compatible ARM Cortex®-M0+ and ARM Cortex®-M4 MCU families with exceptional low-power performance, feature integration and Freescal enablement support



i.MX Applications Processors

Ultra-versatile solutions for multimedia and display applications with multicore scalability and market-leading power, performance and integration



QorIQ Communications Processors

Next-generation QorIQ processors are based on Layerscape architecture—the industry's first software-aware, core-agnostic architecture that delivers unprecedented efficiency and scale for the smarter, more capable networks of tomorrow—end to end



Vybrid Controller Solutions

Real-time, highly integrated solutions with dual-display capability to enable your system to control, interface, connect, secure and scale

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