New Microchip Development Board Makes It Easy and Cost Effective to Design With 16-bit Microcontrollers and DSCs

Microstick for dsPIC33F & PIC24H Provides Small Size and Integrated Programmer/Debugger

Microchip’s Microstick for dsPIC33F and PIC24H development board, provides a complete, low-cost solution for designing with Microchip’s 16-bit PIC24H microcontrollers and dsPIC33F Digital Signal Controllers (DSCs), in a compact footprint. Microstick is low cost and offers an integrated USB programmer/debugger, which shortens learning curves. For maximum flexibility, the Microstick can be used stand-alone or plugged into a prototyping board. Additionally, educators are eligible for a 25% discount.

Many engineers, educators, students and hobbyists need a low-cost solution for working with and debugging code on 16-bit microcontrollers and DSCs. In addition to its' other benefits, the Microstick is populated with a socketed microcontroller that can be easily swapped out. The Microstick works with the PIC24HJ64GP502, which is the highest performance 16-bit MCU in the industry, and with the dsPIC33FJ64MC802 DSC, which seamlessly blends DSP and MCU resources into a single architecture. Software support includes the same free MPLAB® Integrated Development Environment (IDE) and software libraries that work with all of Microchip’s 8/16/32-bit PIC® microcontrollers and DSCs. Additionally, the dsPIC33F DSCs are supported by the free demo version of Microchip’s Device Blocksets for the MATLAB® language and Simulink® environment, which work seamlessly within the MPLAB IDE.

This combination of low-cost tools and free software provides an industry-leading platform for experimentation and development of smart-sensor and a host of other embedded control applications.

Microstick is great for anyone who needs a complete, low-cost development solution for working with the highest performing 16-bit microcontrollers available. The Microchip team worked with university professors to ensure that this board fits nicely into their curricula, but the benefits of this platform extend to a broad range of designers who want to get started with embedded development.

The Microstick for dsPIC33F and PIC24H (Part #DM330013) is available for purchase. The dsPIC33FJ64MC802 DSC and PIC24HJ64GP502 MCU are both included in the kit. Educators are eligible for a 25% discount.

For more information, visit: http://www.microchip.com/stellent/idcplg?IdcService=SS_GET_PAGE&nodeId=1406&dDocName=en548414
New Microchip PIC® Microcontrollers Integrate USB and Large RAM for Improved Throughput and Data Buffering; Reduce System Cost and Size

Microchip has announced the four-member **PIC24FJ256GB210** microcontroller family, which integrates USB for Embedded Host/Peripheral/On-the-Go and 96 Kbytes of RAM. This large RAM enables the buffering of sizeable amounts of data and better overall throughput for applications such as Ethernet connectivity, remote sensing, data logging and audio streaming. It can also be used to store generated images or data for dynamic content, such as real-time, remote sensor data graphs. In combination with Microchip’s free USB software library and TCP/IP stack, these MCUs lower system costs and footprints in a broad range of industrial, instrumentation/measurement, medical and consumer applications.

The requirements for embedded designs are rapidly expanding, including the widespread and growing adoption of connectivity and the ability to buffer large amounts of data. At the same time, the pressure to reduce cost and size is constant. Microchip integrates a USB peripheral and large amounts of RAM into a single microcontroller as small as 64 pins, along with Peripheral Pin Select to provide designers the flexibility to remap digital I/O pins. Additional peripherals include 24 channels of mTouch™ capacitive touch sensing, along with a free touch software library, and the 16-bit Enhanced Parallel Master/Slave Port, which enables wider peripheral selection and improved bandwidth when connecting to off-chip resources.

Microchip doesn’t stop at providing embedded designers with high levels of microcontroller integration and performance – we also help them get to market quickly using industry-leading software support and configuration tools, training and development boards. Maximum flexibility is ensured by Microchip’s unparalleled migration strategy, which allows designers to move among our large portfolio of 8/16/32-bit PIC microcontrollers through code compatibility and one universal MPLAB® development environment.

This new microcontroller family easily integrates into Microchip’s long-standing, modular development board system. A new **PIC24FJ256GB210** Plug-in Module (Part #MA240021) is available, which readily connects to the proven Explorer 16 Modular Development Board and its’ companion USB PICtail™ Plus daughter card.
Microchip Expands 1.8V Serial Flash Portfolio to Support the Latest Generations of Low-Power Electronic Devices

Microchip has announced the SST25WF080 serial Flash memory device – the newest member of the 25 series Serial Flash (SPI) memory family based on Microchip's proprietary SuperFlash® Technology. The low-voltage (1.8V), 8 Mbit device features extremely low standby power consumption of just 5 microamperes, active read current of 2 mA (typ., at 33 MHz) and is the highest-density product in the 25 series 1.8V Serial Flash (SPI) family. Featuring a 75 MHz clock frequency and operating temperature range of -40°C to +85°C, the device supports the latest generations of low-power electronic devices, such as tablet computers, hard-disk drives, Bluetooth® headsets, Wi-Fi® and wireless control devices, as well as camera modules.

Microchip is now the only company in the industry to offer a full 1.8V serial Flash memory product portfolio, with densities ranging from 512 Kbit to 8 Mbit. With its low power consumption and high-speed clock, the device enables longer battery life and extremely responsive systems in today’s consumer electronic devices. The SST25WF080 device is available in an 8-pin SOIC package in 10,000-unit quantities; and also in an 8-bump die Z-Scale™ package.

Samples and volume-production quantity orders can be placed, today at: http://www.microchip.com/samples/.
Microchip and Cymbet Release World’s First Energy Harvesting Application Development Kit Using eXtreme Low Power MCUs

Microchip Technology has partnered with Cymbet Corporation to provide the world’s first customizable energy harvesting application development kit – the **XLP 16-bit Energy Harvesting Development Kit**. This kit includes a modular development board populated with the **PIC24F16KA102** microcontroller – featuring eXtreme Low Power – and the capability to add PICtail™ daughter boards for the rapid evaluation of a wide variety of system functions, including ZigBee® and proprietary wireless connectivity, and SD memory cards. The PIC® MCU’s eXtreme low power technology allows users to gain the longest possible operation from the included Cymbet EnerChip™ EH Eval-08 Energy Harvesting Board, which harvests solar energy that is then stored in the EnerChip solid-state, rechargeable energy-storage devices.

Power condition and capacity are monitored by energy conscious software algorithms developed by Microchip and Cymbet. The monitored information can be reported to a PC user interface via a USB connection. Complete energy harvesting application firmware can be developed using the included **PICkit™ 3** programmer/debugger.

Energy harvesting is an emerging trend within the worldwide energy-efficiency movement. It enables designers to extend the life of their battery-powered applications or eliminate batteries altogether, by scavenging energy from sources such as the sun or ambient indoor light. The **XLP 16-bit Energy Harvesting Kit** provides a customizable development platform for designers to build and test their solar energy harvesting applications, without having to design any hardware. Example applications for this technology include portable consumer electronics, remote sensor networks, utility meters and portable medical devices.

Until now, energy harvesting kits were limited to demonstration. This new kit offers true application development capability, and pairs Microchip’s industry-leading eXtreme low power PIC microcontrollers with Cymbet’s innovative energy harvesting technology, for the longest and most efficient solar-power operation.

For more information, visit [http://www.microchip.com/energyharvesting](http://www.microchip.com/energyharvesting)
Microchip Expands Its EUI-48™ Family With Cascadeable I²C™ EUI-48 Serial EEPROM Device

Microchip has announced a new, cascadeable I²C™ serial EEPROM device with pre-programmed EUI-48™ node addresses.

This 24AA025E48 device expands Microchip's existing family of EUI-48 devices in I²C, SPI and UNI/O® buses. Also EUI-64™ compatible, the new device enables designers to add MAC addresses to their designs on-the-fly. The address pins on this device further enable designers to add more memory to their application, by allowing them to cascade up to eight EEPROM devices onto the I²C bus. Designers can add these capabilities without changing their existing I²C serial EEPROM device, and without having to pay for and register a block of code with the IEEE. Costs associated with serialization or programming are also eliminated, and the devices can be purchased without restrictions on volume, allowing designers to buy codes only when needed.

Networking and wireless applications often require large amounts of memory for buffering data, as well as storing information, look-up tables and configuration settings. These types of applications also need MAC addresses, to provide a physical address that is identifiable on the network. The 24AA025E48 device meets these needs, and each device ships with unique, write-protected code.

As networking and wireless applications continue to grow over the next several years, the demand for MAC addresses is expected to follow. The 24AA025E48 device from Microchip provides quick and easy access to MAC addresses, at a low cost. Its' address pins enable users to quickly add an EUI-48 node address to an existing application without replacing their current I²C EEPROM device.

The 24AA025E48 device is supported by the MPLAB® Starter Kit for Serial Memory Products (Part #DV243003).

EDN China Innovation Award 2010

Microchip is participating in EDN China’s 6th Innovation Award, which is a recognized standard for product quality and innovation in the industry. This year, four new products are enrolled for competition. Together with other applications from our competitors, Microchip’s products are now open for online voting. Only products with the highest votes will be selected for final election.

From July 13th to September 10th, follow the steps below and vote for Microchip on the EDN website!

1. Register at http://space.ednchina.com/Member/Register.aspx
   -or directly log on if you are a member of EDN China http://award.ednchina.com/default.aspx, click on the log on area on the upper right corner

   -tick Microchip’s products below and click “submit”
   (i) Microprocessor/DSP – dsPIC33F“GS”DSC
   http://award.ednchina.com/Vote/CategoryVote.aspx?CategoryId=1
   (ii) Analog/ Mixed Signal IC – MCP3901
   http://award.ednchina.com/Vote/CategoryVote.aspx?CategoryId=2#c
   (iii) Passive Component & Sensor – mTouch
   http://award.ednchina.com/Vote/CategoryVote.aspx?CategoryId=7#c
   (iv) Embedded System – PIC32MX5/6/7 32
   http://award.ednchina.com/Vote/CategoryVote.aspx?CategoryId=9#c

EEPW Embedded System New Technology Award China 2010

Microchip is also participating in the EEPW Embedded System New Technology Award China this year, which is another recognized award in the industry. Three new products have been submitted for competition. Together with products from our competitors, Microchip’s products are now open for online voting. Only products with the highest votes will be selected for final election.

From July 13th to August 31st, complete the following steps and vote for Microchip on EEPW website!

1. Register as EEPW member: http://passport.eepw.com.cn/auth/publicregister

   -Select below Microchip’s products and click “submit”
   i) The 32-bit MCU - PIC32MX5/6/7 32
   ii) Best 8-bit MCU - PIC1XF182X 8
   iii) Best touch sensing MCU - mTouch

3. The system will automatically generate a vote summary page
TechToys Offers Flexible Third Party Solutions For 32-bit Development and More

TechToys, an authorized Microchip Design Partner, has many development boards for Microchip products.

The evaluation platform for 100-pin general purpose MCUs is a flexible development environment compatible with PIC32 and PIC24 100-pin Plug-in Modules. The board features a SPI EEPROM, SD card socket, digital temperature sensor, buzzer, LEDs and switches. The prototyping areas include breakouts for all MCU signals, and the board is MPLAB® IDA and PICKIT™ 3 ICD compatible.

The board also features built-in headers compatible with a wide variety of TFT and OLED LCD modules also sold by TechToys. Some modules include CMOS cameras and touch screens, and a variety of display controllers are available as well. Add on other components such as wireless modules, joysticks, IR, sensors and more to create the development environment you need.

For additional information on capabilities or to purchase a Microchip-based development kit, visit: www.techtoys.com.hk
Interact with Microchip at “MCHP Tube”

Microchip’s Academic Program team has launched a YouTube-based show called “MCHP Tube”. MCHP Tube is an online video newscast for all things Microchip with a focus on Academia. Here you’ll find the latest information on new products, technologies and software/hardware development tools from both Microchip and third-party sources.

It will be a monthly show targeting academics worldwide and will be divided into four sections as follows:

**Headliners** – we will discuss new academic-friendly development resources brought to you by Microchip and our authorized Design Partners.

**University Student Project** – students can submit a video featuring a student project based on Microchip products.

**Ask Microchip** – viewers can ask a question and a qualified Microchip support person will answer it.

**Where in the World is Marc McComb?** – Marc is Microchip’s academic sales engineer and in each edition will talk about new products and tools that are a good fit for academics.

To submit a video on a student project or ask a question for the “Ask Microchip” section, email us at mchptube@microchip.com.

You can also visit [www.microchip.com/mchptube](http://www.microchip.com/mchptube) for more information on the show.

MCHP Tube provides the opportunity for Students, Teachers and Professors to interact with Microchip directly!!

Click on the image above to view the 3rd episode of MCHP Tube.

To view Microchip’s YouTube channel, click [HERE](http://www.microchip.com/mchptube).
Visit Microchip at Booth 201 to experience exciting demos, attend FREE technical training sessions, win prizes, and much more!

While you’re there, check out our latest product offerings – from our nanoWatt XLP eXtreme Low Power technology to our mTouch™ Sensing Solutions to our analog and interface devices and our serial EEPROMs ... we’ve got something for everyone!

Register Today for Microchip’s FREE 40 minute technical training sessions in our booth.

Register early – Seating is limited! All training session attendees will receive a FREE Enrollment Coupon - good for one Microchip Regional Training Center Course held in North America.

Microchip will have technical staff on hand to answer your design questions and demonstrate our latest technologies.

For more information, visit: http://esc-boston.techinsightsevents.com
Tuesday, September 21, 3:00 pm - 4:00 pm, ESC Theater 1

Live Tear Down: Smart Wireless Residential Thermostat
A smart wireless thermostat could remove some of the stress in your life. With such a device, you could be assured of not consuming too much energy unnecessarily, and you’d never have to worry about your pipes freezing while you’re away. In addition to talking to your home over a simple Internet connection, you could also have those “conversations” via an iPhone, Android phone or iPad. Radio Thermostat Company has developed a platform of wireless communicating residential automatic setback thermostats that will support virtually any type of communication required by the system integrator.

This teardown will cover the following subsystems/features:
- Wi-Fi Module and its communication and control by a server over the web using Microchip’s low power/low cost MRF24WB0M Wi-Fi radio
- USNAP SPI Radio bus protocol overview
- QVGA display using the low power PIC24FJ128GA010 and Microchip’s free QVGA library
- Power management and design concerns/issues needed to switch over from AC power and survive on batteries for over a year continuously
- Special features such as automatic setback energy savings modes

And don’t forget — at the conclusion of the presentation, one of these devices will be given away to a lucky attendee.

Thursday, September 23, 8:00 am - 9:15 am, Room 206

Join Jonathan Dillon, Senior Applications Engineer with Microchip Technology, as he explores...

"Authentication and Usage Information for Disposable Medical Accessories"
Jonathan will discuss how adding a small, low-cost microcontroller to a disposable medical accessory can improve safety, assist in investigations and prevent counterfeiting. A microcontroller can be used to create a digital signature that validates the accessory to the main system, preventing the use of counterfeit items, incorrect or already used accessories, and allowing verification of expiration dates and tracking via serial numbers. If the accessory already contains a microcontroller, then incorporating authentication may not add additional cost.

During his seminar the following topics will be discussed:
- Encryption methods suitable for small microcontrollers
- Key-management techniques for security
- Serialization and storage of usage information
- Low connection communication buses/methodologies
- Design techniques to minimize additional power consumption

Register Today

For more information, visit: http://esc-boston.techinsightsevents.com
Microchip’s 14th Annual MASTERS (Microchip’s Annual Strategic Technical Engineering Review) Conference takes place this August, so be sure to register online at www.microchip.com/usmasters. This is Microchip’s largest Conference and draws an audience of over 600 customers, Design Partners, Academic Partners, Third Party Partners & engineers from around the globe. We are offering more than 80 different engineer-to-engineer technical training classes to prepare embedded systems designers with extensive product and technology information.

Microchip’s MASTERS takes place at the JW Marriott Desert Ridge Resort from August 23rd-28th. Pre-Conference days are on the 23rd and 24th for those engineers that want to get ahead with in-depth training on tools, devices and applications. For the first time ever, we will also be offering optional night classes such as; “What’s New in Analog & Interface Products”, “16-bit & 32-bit/MPLAB® C Compiler Q&A”, “Digging Deeper into the PICkit™ 3 Debugger”, “From Concept to Prototype in 15 Minutes Using Flowcode” and other additional topics as well.

The Conference offers many other activities throughout the week. Beginning Wednesday we will have an “Ask the Experts” area where you can get answers to all your technical questions and see product demos, a development tools store where you can purchase discounted tools and a Microchip merchandise store to buy logo items such as shirts and gifts. We will also have a Cyber Café setup with computers and wireless internet so that you can check email inbetween classes or in the evenings. During class breaks and evenings you can browse our exhibitor lobby and discuss your needs with a select group who will have demos, literature and technical experts waiting to help you.

After dinner each night we will be offering events for kids and adults alike. Bring your family and enjoy the Hover Mouse competition, have fun with the “Shadow Wall,” build a robot or a beer boat to race, take a virtual Fab Tour, watch “Jesterz” comedy club perform and play endless Wii games. We will also be offering a daily Meet & Greet for any attendees guests that are not attending classes and would like some suggestions on what to do during the day while visiting Arizona.

We look forward to seeing you at the MASTERS conference in Arizona. 2010 MASTERS Conference are also being held in Korea, China and India. Check our website at www.microchip.com/masters for details and dates.

Register online, today at: http://www.microchip.com/usmasters
Join Microchip at the Annual 2010 Metering Europe Convention
September 22-24

Metering, Billing/CRM Europe 2010 is THE industry leading meeting place for smart metering professionals and the only event that will give you a real return on knowledge, time and investment!

The 2010 conference program will focus on five major themes:

- Successful smart metering programmes and the move to a smart grid infrastructure
- Smart metering data handling, discussing the increasing need for system security and data privacy
- Implementing and preparing your business for a smart communication infrastructure
- New value added services and customer management through smart metering systems
- Enhanced billing operations for smarter utilities

Register online, today at: http://www.metering-europe.com/
Join Microchip At The Following Worldwide Events

Darnell Group is combining its nanoPower Forum and Digital Power Forum into one event in Chicago, IL.
Microchip’s Jason Tollefson, Product Marketing Manager presents...

Jonathan Dillon, Senior Applications Engineer, Microchip Technology presents...

“Power Management for Embedded Microcontrollers”
Register online at: http://www.darnell.com/store/product_info.php?cPath=1&products_id=113

Join Jonathan Dillon, Senior Applications Engineer and Michael Stuckey, Applications Engineer, Security Microcontroller & Technology Development Division, Microchip Technology, as they discuss...

“Secure Digital Authentication of Battery Packs.”
Third-party, unauthorized batteries may offer reduced system performance and have reduced built-in protection, which may impact the overall safety of the system. Battery packs can securely authenticate themselves to the system via the addition of software functions to an existing battery-monitoring processor, or by embedding a small embedded microcontroller, to prevent the use of unauthorized packs. Authentication can prevent the use of counterfeit batteries and can allow electronic tracking of battery serial numbers for warranty and safety reasons.
Register online at: http://www.batterytechexpo.com/register.php?n=reg

Keith Curtis, Technical Staff Engineer, Microchip Technology presents...

“A Simple Topology for Solar-Charged Battery Systems.”
Solar power chargers are convenient, in that they provide a completely wireless power system. Unfortunately, the stacked efficiency of the various switching converters typically results in a loss of 20 to 30 percent. Learn how efficiency can be increased when using a converter topology, while decreasing both cost and board space. The secret is a unified system that handles maximum power conversion for the solar cells, battery charging and load regulation. This presentation will discuss the topology in depth, including tradeoffs and the role of load regulation.
Register online at: http://www.infowebcom.com/event_reg/bp10_reg/

Chris MacCallum, Applications Engineer, Microchip Technology presents...

“Battery Pack Authentication via Secure Digital Signatures.”
Prevent the use of counterfeit or incorrect batteries by implementing digital authentication of the battery pack using a small embedded microcontroller. Digital authentication relies on the battery pack responding correctly to a challenge communication from the system, where the response is based on an encryption of the challenge by both parties. Learn about creating random challenges, battery pack encryption schemes and how to implement them, as well as communication methods that add minimal overhead.
Register online, today at: http://www.electronic-displays.de/registration.html

Register for one or more of these great events at the links above!
Microchip Technology's video announcements:

- Steve Sanghi 2010 Executive of the Year EETimes ACE Awards
- Microchip Technology and Nectar Join Forces
- ESC Silicon Valley 2010 Microchip Montage
- Microchip Technology releases new Serial SRAMs ESC Silicon Valley 2010
- Smart Energy Solutions from Microchip

Microchip Technology's video training

Microchip offers a wide variety of video training tools available online to boost your technical and product knowledge and enhance your current project or future products.

- mTouch™ Solutions for Analog Resistive Touch Screen
- Microchip Technology Multimedia Expansion Board
- Microchip Wireless Development Environment Introduction
- Graphics Display Designer Introduction
- PIC24FJ256DA210 Development Board Overview
- Microchip Graphics Solution for Human Interface Applications
- Understanding Government and Industry RF Certification
- Microchip ZigBee® RF4CE Demonstration
- LIN Driver Configuration Tool for PIC Microcontrollers
- MCP1640 Sync Boost Converter Evaluation Board

View The Microchip YouTube Channel at: http://www.youtube.com/user/MicrochipTechnology
In tough economic times, companies often look for ways to trim expenses as a means to cope with a downturn in sales. One of the areas often targeted for cutbacks is employee training. There is not only the direct cost of the training to contend with, but also travel expenses and time an employee spends away from the job. During this challenging business climate, however, competitive pressures and technology changes don’t stop and it is training that can help a company be better positioned to take advantage of the potential upswing.

Microchip, with its global network of Regional Training Centers (RTCs) and third-party training partners, is here to help companies stay competitive with cost-effective, local training. To help companies deal with issues of travel expense and time, classes are given not only in Microchip’s facilities, but are also taken on the road. Customized customer premise sessions can be scheduled offering the most convenience. Time away can be managed more efficiently with the flexibility of half or full day class sessions.

To be effective in teaching, instruction must take into account the needs and expertise level of the attendee. Microchip’s Regional Training Center classes are developed to provide a coordinated flow, enabling engineers to implement a solution to their product development needs. Instruction is developed and presented in product, technology and implementation classes that are grouped into application based curriculum.

Each curriculum flow enables the individual to engage with the training at a level that meets his or her current knowledge and needs. The intent is to provide training that is relevant to each attendee while eliminating the frustration often associated with attending classes that present too much known information or assume a level of knowledge beyond what the attendee currently possesses.

Product/tool classes provide knowledge on how Microchip’s products and development tools operate. This knowledge provides the foundation upon which all application instruction is based. Attendance at one of these classes can provide significant value through the reduction in time associated with instruction manuals and data sheet review or trial and error attempts to learn individually. Market forces constantly press companies to add functionality and features to their products often outside their areas of core competence. As a result, engineers must continually broaden their knowledge base. Microchip’s technology classes are intended to help engineers gain an understanding of a new field.

Implementation classes combine elements of product and technology instruction to teach engineers how to design a real world application. Classes at this level provide how-to instruction rather than what or why instruction. Microchip is currently offering classes in the following curriculum: DSP, Ethernet, Human Interface, Motor Control, Power Management, Signal Chain, System Design and USB. Future curriculum is expected to include CAN/LIN, IrDA®, Lighting and RF.

With a worldwide network of Regional Training Centers and certified third-party trainers, Microchip makes it easy to enhance your technical skills, with locations in nearly every metropolitan area across the world!

For those organizations who desire to have a number of employees attend a course at the same time, Microchip can customize any curriculum to meet your specific needs. Our instructors arrive at your location with all presentation materials and equipment, making it easy for your whole team to benefit from a specific course topic in one setting. In addition to the instruction, most Regional Training Center classes offer the opportunity to purchase a set of the development tools used in the class at a discounted price.

If the class you are interested in is not scheduled in your area, you can sign up to receive an alert when a session is scheduled.

For information on scheduling custom in-house training, contact your local RTC directly or visit the Microchip RTC web site: www.microchip.com/RTC

For a complete list of classes and locations, visit www.microchip.com/RTC
### What's New in Microchip Literature?

#### Application Note

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#### Product Brief

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#### User's Guide

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#### FRM Chapter

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