

February 26, 2008



# **Microchip Technology Expands 32-bit PIC32 MCU Family With USB On-The-Go Functionality and Boosts Performance to 80 MHz**

**PIC32 Family Has Integrated USB 2.0 OTG; Makes Adding USB Device, Embedded Host and Dual-Role OTG Connectivity Easy**

CHANDLER, Ariz.--(BUSINESS WIRE)--

Microchip Technology Inc. (NASDAQ:MCHP), a leading provider of microcontroller and analog semiconductors, today announced the addition of integrated USB 2.0 On-The-Go (OTG) functionality to its 32-bit PIC32 microcontroller family. Integrated USB OTG helps design engineers easily and cost-effectively address the growing demand for advanced USB connectivity in their end products. The PIC32 family brings more performance and memory to embedded designers while maintaining pin, peripheral and software compatibility with Microchip's 16-bit microcontroller and DSC families. The maximum operating frequency for the entire PIC32 family has been increased to 80 MHz, which further extends the performance reach of this new 32-Bit microcontroller product line. To further ease migration and protect tool investments, Microchip's is the only complete portfolio of 8-, 16- and 32-bit devices to be supported by a single Integrated Development Environment--the free MPLAB(R) IDE.

Consumers' desire for more engaging, easy-to-use and upgradable products is driving embedded designers to add the latest USB OTG capabilities. Some products, such as PCs, operate only in a host role, whereas others--for example, USB Flash drives--operate only as devices. Products with OTG functionality can operate in either role--even auto negotiating which will be the USB host or device when encountering another OTG product. The new PIC32 microcontrollers with integrated USB OTG provide designers with the flexibility to add all three modes of USB operation to their products. Additionally, these PIC32 MCUs include a USB OTG PHY, enabling even lower BOM costs and smaller PCB real estate.

"PIC(R) MCUs have long been the 8-bit microcontroller of choice for embedded USB applications," said Patrick Johnson, director of Microchip's High Performance Microcontroller Division. "The addition of USB OTG functionality to the PIC32 family builds on this track record by offering new levels of connectivity, performance and system capabilities to embedded application designers."

## **Example Applications**

The PIC32 family of microcontrollers is targeted at a wide variety of embedded applications, including the following examples: Industrial (security systems, power meters, smart-card/bar-code/access readers, instrumentation); Medical (patient monitors, dosing pumps, blood

analyzers); Automotive (vehicle dataloggers, radios, tachometers, vehicle tracking); Communication (power-line communication boards, media network controllers, GSM back-up controllers); Appliance (coffee makers, washing machines, fitness equipment, dishwashers, HVAC); and Consumer (GPS modules, home automation, MP3-player interfaces/adaptors).

## Development Tools and Software Support

All PIC32 family products are supported by Microchip's world-class development tools, including the MPLAB IDE, the MPLAB C32 C compiler, the MPLAB REAL ICE(TM) emulation system, the MPLAB ICD 2 in-circuit debugger, and the MPLAB PM3 universal device programmer.

Microchip also provides free source code for USB software stacks and class drivers to enable designers to get a head start on the development of their USB applications. Microchip's free USB Host Stack, Device Stack, and Class Drivers (HID, MSD, CDC, Custom) are available at [www.microchip.com/PIC32](http://www.microchip.com/PIC32). The free USB OTG Stack is currently in beta, with full release scheduled for the second quarter.

The PIC32 family enjoys broad tool support throughout the industry. Complete tool chains are available from Ashling, Green Hills, Hi-Tech and Lauterbach--including C and C++ compilers, IDEs and debuggers. RTOS support is available from CMX, Express Logic, FreeRTOS, Micrium, Segger and Pumpkin. Graphics tools providers include EasyGUI, Segger, RamTeX and Micrium. A full list of third-party support for the PIC32 family can be found at [www.microchip.com/PIC32](http://www.microchip.com/PIC32).

## USB Starter Board and Development Platforms

The PIC32 USB Starter Board comes complete with everything that developers need to get started, including the USB-powered MCU board, the MPLAB IDE and MPLAB C32 C compiler, documentation, sample projects with tutorials, schematics, and 16-bit compatible peripheral libraries. Application expansion boards are also being made available, which plug into the expansion slot on the bottom of the MCU board. The PIC32 USB Starter Board (part # DM320003) is expected to be available in the second quarter at [www.microchipdirect.com](http://www.microchipdirect.com).

Owners of the Explorer 16 development board can purchase a \$25 USB OTG PIC32 plug-in module (part # MA32002) and a USB PICtail(TM) Plus Daughter Board (part # AC164131). Both are orderable today at [www.microchipdirect.com](http://www.microchipdirect.com).

## Pricing and Availability

The four new PIC32 family members with USB OTG have Flash program memory sizes from 128 Kbytes to 512 Kbytes in 64- or 100-pin TQFP packages, with prices starting at \$4.65 each for the 128 KB Flash 100-pin PIC32MX440F128L, in 10,000-unit quantities. The USB OTG capable devices have been sampling into early-adopter designs, and are now available for broader sampling. Volume production for all four members is expected in the second quarter of 2008. For sample availability or additional information, contact any Microchip sales representative or authorized worldwide distributor, or visit [www.microchip.com/PIC32](http://www.microchip.com/PIC32).

## Microchip Customer Support

Microchip is committed to supporting its customers by helping design engineers develop products faster and more efficiently. Customers can access four main service areas at

[www.microchip.com](http://www.microchip.com). The Support area provides a fast way to get questions answered; the Sample area offers free evaluation samples of any Microchip device; microchipDIRECT provides 24-hour pricing, ordering, inventory and credit for convenient purchasing of all Microchip devices and development tools; finally, the Training area educates customers through webinars, sign-ups for local seminar and workshop courses, and information about the annual MASTERS events held throughout the world.

### About Microchip Technology

Microchip Technology Inc. (NASDAQ: MCHP) is a leading provider of microcontroller and analog semiconductors, providing low-risk product development, lower total system cost and faster time to market for thousands of diverse customer applications worldwide.

Headquartered in Chandler, Arizona, Microchip offers outstanding technical support along with dependable delivery and quality. For more information, visit the Microchip website at [www.microchip.com](http://www.microchip.com).

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