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# Microchip Announces First Embedded Firmware Development Framework with Internal and 3rd Party Support, Licensing and Resale

*MPLAB® Harmony Integrates Expanding Set of Middleware, Drivers, Libraries and RTOSs; Simplifies 32-bit MCU Code Development, Reduces Integration Bugs, Speeds Designs*

CHANDLER, Ariz.--(BUSINESS WIRE)-- Microchip Technology Inc. (NASDAQ: MCHP), a leading provider of microcontroller, mixed-signal, analog and Flash-IP solutions, today announced the industry's most comprehensive 32-bit microcontroller **firmware development framework**—**MPLAB® Harmony**. This framework is the first to integrate the licensing, resale and support of both Microchip and third-party middleware, drivers, libraries and real-time operating systems. Currently, Harmony includes third-party offerings from Express Logic, FreeRTOS, InterNiche, WITTENSTEIN High Integrity Systems and wolfSSL, with many more on the way. The result is that developers can greatly simplify their **PIC32 MCU** code development process by reducing common integration bugs, thus accelerating time to market.

Watch a short video:

Watch a short video: www.microchip.com/get/8NXF (Photo: Business Wire)

**http://www.microchip.com/get/8NXF**
View a brief presentation: **http://www.microchip.com/get/WUVC**

With the growing complexity of embedded systems, industry studies have shown that software development accounts for 60% of the average design cycle. At the same time, designers are utilizing a variety of software with untested compatibility and multiple sources of purchasing and support. This causes increased verification and debug time after the design is completed, which can cost 10-30 times more than defects found during the design phase.

Microchip's new MPLAB Harmony framework reduces development time and costs by providing a single integrated, abstracted and flexible source for Microchip-tested, debugged and interoperable code. Additionally, Harmony provides a modular architecture that enables the efficient integration of multiple drivers, middleware and libraries, while offering an RTOS-independent environment. Not only does this pre-verification and integration speed development, it also increases reuse. On the hardware side, the Harmony framework makes it even easier to port code and migrate among all of Microchip's 32-bit PIC32 microcontrollers. And, by utilizing this single source for in-house and third-party code (both free and premium) that is supported by Microchip, designers can greatly increase their reaction times to their ever-changing end market requirements.

“MPLAB Harmony provides a new software development approach that is unmatched in the embedded industry,” said Rod Drake, director of Microchip’s MCU32 Division. “No one else provides a single, comprehensive firmware development framework where designers can download and find support for such a broad range of pre-tested, interoperable software.”

**Current Third-Party Partners**

Express Logic, William E. Lamie, President & CEO: “Deeply-embedded applications demand a high level of integration between the RTOS and IDE. Our advanced ThreadX® Real-Time Operating System, integrated within the MPLAB Harmony framework, is designed to ease the development of high-performance applications that take advantage of the latest advancements in 32-bit PIC32 microcontroller technology.”

FreeRTOS, Richard Barry, Director: “It has been great to collaborate with Microchip on MPLAB Harmony—a truly practical solution with unquestionable benefits for PIC32 users. MPLAB Harmony allows application programmers to write less code themselves, end up with a more reliable product and, of course, get that all important time-to-market advantage.”

InterNiche Technologies, Inc., Larry Larder, President: “InterNiche worked closely with Microchip’s application engineers to ensure that our low-cost TCP/IP object code and our source-code networking modules are compatible with the MPLAB Harmony platform. InterNiche offers a complete suite of commercial-grade network modules that are pre-integrated with MPLAB Harmony so that PIC32 customers can quickly add value to their designs while reducing time to market.”

SEGGER Microcontroller Systems, Ivo Geilenbruegge, Managing Director: “As a Microchip PIC32 ecosystem partner, SEGGER is excited about MPLAB Harmony’s progressive approach to flexible software development. SEGGER will be adding this framework support for our RTOS (embOS) and middleware, including emWin, the industry-leading embedded graphics package.”

WITTENSTEIN High Integrity Systems, Andrew Longhurst, Business Development Manager: “OPENRTOS delivers high performance while utilizing minimal resources. It is also easy to use and, when integrated with the other feature-rich MPLAB Harmony components, will ensure your next development is completed within the shortest time possible.”

wolfSSL, Larry Stefonic, CEO: “Developing secure software with cryptography is difficult and anxiety ridden, even for the most skilled and experienced engineers. With that in mind, wolfSSL is focused on providing security software that works seamlessly for the MPLAB Harmony developer. Our deep integration with the MPLAB Harmony framework reduces both project risk and security risk, because the cryptography libraries from wolfSSL come pre-tested and ready to use. Developers can implement wolfSSL crypto with MPLAB Harmony for both better productivity and peace of mind.”

**Pricing & Availability**

MPLAB Harmony is available today, and the basic framework is free. The first release provides initial support for the new PIC32MZ family, as well as the PIC32MX families. Full support for all PIC32 families is planned for the next version release, which is expected in March 2014. Once downloaded, there is a modular menu of free and premium software options that are also available today. The expanding list of initial offerings includes RTOSs—FreeRTOS from Real Time Engineers Ltd. and OPENRTOS from Wittenstein High Integrity

Systems—a TCP/IP stack from InterNiche Technologies, and a CyaSSL Embedded SSL Library from wolfSSL, among many others.

Microchip's comprehensive MPLAB Harmony Online Design Center, located at **http://www.microchip.com/get/V2PJ**, provides designers with a portal where they can easily download the framework and get started with their development. Additionally, the site offers many resources to users of the Harmony framework.

For more information, contact any Microchip sales representative or authorized worldwide distributor, or visit Microchip's Web site at **http://www.microchip.com/get/V2PJ**. For information on Microchip's extensive portfolio of 32-bit PIC32 microcontrollers and development tools, including a rich ecosystem of third parties, visit **http://www.microchip.com/get/TRRX.**

**Resources**

High-res Images Available Through Flickr or Editorial Contact (feel free to publish):

- Harmony Graphic: **http://www.microchip.com/get/SK62**
- Block Diagram: **http://www.microchip.com/get/G7ML**

Video Available Through YouTube or Editorial Contact (feel free to post):
**http://www.microchip.com/get/8NXF**

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**About Microchip Technology**

Microchip Technology Inc. (NASDAQ: MCHP) is a leading provider of microcontroller, mixed-signal, analog and Flash-IP solutions, 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 **http://www.microchip.com/get/7CB8**.

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**Tags / Keywords:** MPLAB Harmony, Software Framework, Integrated Software Framework, Microcontroller Development Platform, Microcontroller Development Framework, PIC32, Microchip, Interoperable Libraries, Integrated System Services, Abstract Architecture, RTOS Independent, Software Development Kit, SDK, InterNiche, OPENRTOS, FreeRTOS, wolfSSL

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