32-bit Microcontroller Development Platform is Compatible with Arduino Hardware and Software

Microchip Technology, a leading provider of microcontroller, analog and Flash-IP solutions, and **Digilent** [1] today launched the first 32-bit-microcontroller-based, open-source development platform that is compatible with Arduino hardware and software. Designed and manufactured by **Digilent** [1], a **Microchip Authorized Design Partner** [2], the **chipKIT** platform is the first and only 32-bit Arduino solution in the industry to enable hobbyists and academics to easily, and inexpensively, integrate electronics into their projects, even if they do not have an electronic-engineering background.

The platform consists of two PIC32-based development boards and open-source software that is compatible with the Arduino programming language and development environment, thanks to the incredible work done by Mark Sproul and Rick Anderson through **Fair Use Building and Research Labs** [3]. The **chipKIT** [4] hardware is compatible with existing 3.3V Arduino shields and applications, and can be developed using a modified version of the Arduino IDE and existing Arduino resources, such as code examples, libraries, references and tutorials. The platform provides an unprecedented level of features for the Arduino community, and four times the performance of any existing Arduino solution at a low price—the boards start at just $26.95 each. A video can be viewed online at: http://www.microchip.com/get/D268 [5].

Hobbyists and academics from many disciplines, such as mechanical engineering, computer science and even art, want easy-to-use, low-cost solutions for creating projects. The PIC32-based **chipKIT** [4] boardsenable 80 MHz performance, and provide up to 512 KB Flash, with up to 128 KB RAM. The boards feature connectivity peripherals, including Ethernet, CAN, and USB (Full-Speed Host, Device and OTG); plus peripherals such as multiple timers, a 16-channel 1 MSPS Analog-to-Digital Converter (ADC), two comparators, and multiple I^2C, SPI, and UART interfaces. Not only is **chipKIT** [4] the first Arduino-compatible platform to provide 32-bit performance, but Microchip's PIC32 microcontroller is also the highest performance 32-bit microcontroller in its class, featuring the industry-leading MIPS32 M4K core from MIPS Technologies, Inc.

A tremendous software engineering effort has been invested to ensure maximum compatibility with existing Arduino shields, applications and courseware. The Arduino programming environment has been modified and extended so that it supports the PIC32-based chipKIT boards, as well as traditional Arduino boards. The Arduino standard libraries have been also been modified to support chipKIT boards and traditional Arduino boards. All of this work has been contributed back to the open-source Arduino community. Aside from a small number of shields that require 5V operation, many existing Arduino hardware and software sketches are

compatible with the chipKIT platform, without modification.

"Students, educators and hobbyists, with or without electronic-engineering backgrounds, are looking for inexpensive solutions that will enable them to easily integrate electronics into their projects," said Derek Carlson, Microchip's vice president of Development Systems. "The **chipKIT** [4] boards and software meet these needs, providing far more features, performance and functionality than any other Arduino solution on the market, at a low cost."

"The **chipKIT** [4] platform is the first and only 32-bit solution of its kind in the industry," said Clint Cole, president of Digilent, Inc. "Academics and hobbyists can plug the boards into their design, download the open-source software and have their project up and running in minutes."

Art Swift, vice president of marketing and business development for MIPS Technologies, Inc., said, "The **chipKIT** [4] platform enables academia and hobbyists to experience the superior performance efficiency of the MIPS® architecture, which many professional electronics designers have preferred for years."

Board-Specific Features, Pricing & Availability

The **chipKIT Uno32™** [6] (part # TDGL002) development board is a clone of the Arduino Uno board, and features 128 KB Flash program memory and 16 KB RAM, with two each of the I^2C, SPI and UART peripherals. This board is priced at $26.95 each. A clone of the Arduino Mega board, the **chipKIT Max32™** [6] (part # TDGL003) development board features 512 KB Flash program memory and 128 KB RAM, with USB, CAN and Ethernet communication, as well as 5 each I^2C, 4 each SPI, and 6 each UART peripherals. The chipKIT Max32 board is priced at $49.50 each. Both chipKIT boards can be ordered today, at **http://www.microchip.com/get/TDD2** [6]. Additionally, the open-source software for both boards is available today at **http://www.microchip.com/get/TDD2** [6]. chipKIT Network and I/O Shields are expected to be available in June 2011.

For more information, please visit the Digilent Web site (**http://www.microchip.com/get/TDD2** [6]), or contact Joe Harris at joe@digilentinc.com [7], or (509) 334-6306. More information is also available on Microchip's Web site, at **http://www.microchip.com/get/SDTW** [4].

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