Digital Signal Controllers and PIC24 Microcontrollers Provide Enhanced Functionality

Microchip Technology, a leading provider of microcontroller, analog and Flash-IP solutions, today announced 60 MIPS 16-bit dsPIC® Digital Signal Controllers (DSCs) **[1]** and PIC24 microcontrollers (MCUs) **[1].** Based upon the next-generation dsPIC DSC/PIC24 MCU core, the 60 MIPS dsPIC33 and PIC24 "E" **[2]** devices offer larger (536 KB) Flash memory, more RAM (52 KB), greater I/O capability with 144-pin packages, a USB **[3]** 2.0 OTG interface, and expanded motor-control **[4]**, graphics, audio, and real-time embedded-control capabilities over the previous-generation dsPIC DSC/PIC24 MCU core. In support of the first nine dsPIC33 and PIC24 "E" devices released today, Microchip launched two USB starter kits and five Plug-In Modules (PIMs) that can be used with its Multimedia Expansion Board **[5]**, motor-control development kits **[4]**, and Explorer 16 **[6]** development platforms. Also available are 30 software libraries and application notes on topics such as speech and audio, encryption/decryption, communications, and motor control. The new devices and comprehensive support package help customers create high-performance designs in less time.

Microchip's dsPIC33E DSCs and PIC24E MCUs are fully compatible with the existing broad portfolio of dsPIC33F DSCs and PIC24H/PIC24F MCUs, software libraries and tools, providing a solid growth path for current customers. The new USB **[3]** 2.0 On-The-Go (OTG) peripheral enables a connection to a PC, Flash drive and other USB-enabled devices, and 60 MIPS performance means the new devices support high-end industrial and commercial applications, such as Servo motor control, solar inverters, and running dual 3-phase motors in parallel. Additionally, a new, independent Pulse Width Modulation (PWM) mode supports multiple stepper motors and dead-time compensation, which reduces software overhead. Three on-chip analog comparators further reduce system cost and the number of external components required.

"Microchip continues to invest in its 16-bit **[1]** product lines," said Sumit Mitra, vice president of Microchip's High-Performance Microcontroller Division. "Building upon the success of previous-generation dsPIC DSCs and PIC24 MCUs, the new 'E' core devices, and their extensive support resources, provide the increased performance, integration, and whole-product solution that customers need for their increasingly complex designs."

The first dsPIC33 and PIC24 "E" devices include four each of the SPI and UART interfaces, as well as two I^2C™ interfaces. A new auxiliary Flash module enables designers to program or erase Flash data without slowing normal CPU operation, which is critical for motor-control **[4]**, power-conversion **[7]** and many other applications that require on-the-fly programming. Improved Direct Memory Access (DMA) functionality automatically starts linked DMA operations, and the improved debugger capability enables complex breakpoints for faster debugging. Additionally, with enhanced timer capabilities, the dsPIC33 and PIC24 "E" devices' Input-Capture and Output-Compare modules are more flexible and powerful.

Development Support

Microchip announced the USB Starter Kit (part # DM330012, $65) and PIC24E USB Starter Kit (part # DM240012, $65), today. These starter kits can be used for stand-alone development and also work with Microchip development platforms such as its Multimedia Expansion Board **[5]** (part # DM320005 **[5]**) to enable the development of high-impact user interfaces.

Additionally, several Plug-In Modules (PIMs) were introduced today for Microchip's Explorer 16 Development Board **[6]** and motor-control development kits **[4]**, including the dsPICDEM™ MCHV **[8]** (part # DM330023 **[8]**), dsPICDEM MCLV **[9]** (part # DM330021 **[9]**) and dsPICDEM MCSM **[10]** (part # DM330022 **[10]**) kits. New PIMs include the dsPIC33E 100-pin PIM for Motor-Control, General-Purpose and Graphics applications (part # MA330025-1, $25); PIC24E 100-pin PIM for General-Purpose and Graphics Applications (part # MA240025-1, $25); dsPIC33E 144-pin PIM for General-Purpose and Graphics Applications (part # MA330025-2, $30); dsPIC33E 144-pin PIM for Motor-Control Applications (part # MA330025-3, $40); and PIC24E 144-pin PIM for General-Purpose and Graphics Applications (part # MA240025-2, $30).

The dsPIC33E Dual Motor Control PIM (part # MA330027, $175) enables designers to control two motors using one dsPIC33E DSC and is expected to be available in July 2011.

The dsPIC33E and PIC24E devices are also supported by Microchip's standard development tools, including the MPLAB® IDE **[11]**, MPLAB ICD 3 In-Circuit Debugger **[12]** and REAL ICE™ In-Circuit Emulator **[13]**, as well as the MPLAB C Compiler for PIC24 MCUs and dsPIC DSCs **[14]** (also known as the MPLAB C30 C Compiler). For more information, visit http://www.microchip.com/get/BDKV **[1]**.

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