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Microchip Sets New Benchmark for Low-Power Microcontrollers (MCUs); Significantly Expands Enhanced 8-bit PIC(R) MCU Portfolio

New MCUs Feature Less Than 50 A/MHz Active Current; Industry-Leading Peripheral Integration

CHANDLER, Ariz.--(BUSINESS WIRE)-- Microchip Technology Inc. (NASDAQ: MCHP), a leading provider of microcontroller and analog semiconductors, today unveiled several new 8-bit PIC(R) microcontrollers (MCUs) that set the industry benchmark for low-power microcontrollers and peripheral integration. These new MCUs feature active currents of less than 50 A/MHz and sleep currents down to 20 nA. The PIC12F182X MCUs extend Microchip's Enhanced Mid-range 8-bit core product line into the 8-pin segment, and include mTouch(TM) capacitive touch-sensing, and communications peripherals. The PIC16F19XX MCUs feature a broad range of peripherals, such as mTouch capacitive touch-sensing module, LCD drive, multiple communications and more Pulse width Modulator (PWM) peripherals. All of these general-purpose MCUs are well suited for applications in the appliance; consumer; industrial and automotive markets, among others. A video demonstrating the PIC16LF1823 MCU's low active current is available through editorial contact, or YouTube (feel free to embed on your Web site): http://www.microchip.com/get/MSD1.

nanoWatt XLP technology remains the standard for battery-friendly MCUs, which, combined with the extremely low active-current consumption of these new MCUs, improves overall energy efficiency to levels currently not readily available. Microchip's Enhanced Mid-range 8-bit architecture provides an up to 50% increase in performance, and 14 new instructions that result in up to 40% better code execution over previous-generation 8-bit PIC16 MCUs. The PIC1XF182X MCUs include dual I^2C(TM)/SPI interfaces, multiple PWM channels with independent time bases, a Data Signal Modulator, and other peripherals that enable designers to combine many functions into a single MCU. The PIC16F19XX MCUs provide up to 28 KB of Flash program memory and numerous enhanced capabilities. The on-chip LCD drive supports up to 184 segments and provides a low-power drive mode for increased efficiency. The MCUs also include up to 5 Pulse-Width Modulation (PWM) channels with independent time bases for controlling various motor types and peripherals.

"With active current of less than 50 A per MHz, Microchip has set the new industry benchmark for low-power microcontrollers," said Tony Massimini, chief of technology with Semico Research Corporation. Massimini continued, "These low active currents, plus sleep currents down to 20 nA and the industry-leading number of peripherals integrated onto the PIC12F182X, PIC16F182X and PIC16F19XX MCUs, enable engineers to create battery-friendly designs that also incorporate capacitive touch sensing, LCD, communications and other functions, which will help differentiate their products in the marketplace."

Steve Drehobl, vice president of Microchip's Security, Microcontroller and Technology Development Division, said, "Microchip further solidifies its low-power leadership with the introduction of the PIC1XF182X and PIC16F19XX 8-bit microcontrollers. The new MCUs represent a significant expansion of our enhanced Mid-range 8-bit core product family, which provides additional memory, peripherals and performance. The improvements to the active power consumption in combination with our XLP technology set the industry standard for low power operation in small 8-bit MCUs."

Key Features

Feature	PIC1XF182X MCUs	PIC16F19XX MCUs
Max. Frequency	32 MHz	32 MHz
Internal Oscillator	31.25 kHz to 32 MHz, Software Selectable	31.25 kHz to 32 MHz, Software Selectable
Program Memory	Up to 14 KB Flash	Up to 28 KB Flash
Data EEPROM	256 Bytes	256 Bytes
Data Memory	Up to 1 KB	Up to 1 KB
Timers	Up to 4 x 8-bit, 1 x 16-bit, with Real-Time Clock Support	Up to 4 x 8-bit, 1 x 16-bit, with Real-Time Clock Support
Communication	Up to 2 x MI2C/SPI 1 x EUSART	Up to 2 each x MI2C/SPI and EUSART
Analog-to-Digital Converter	Up to 12 x 10-bit	17 x 10-bit
Comparators	Up to 2 x with Rail-to-Rail Inputs	Up to 3 x with Rail-to-Rail Inputs
PWM Channels	Up to 4 with Independent Time Bases	Up to 5, with Independent Time Base
Operating Voltage	1.8 - 5.5V (including full analog peripheral operation)	1.8 - 5.5V (including full analog peripheral operation)
Standby Current	20 nA @ 1.8V, Typical	60 nA @ 1.8V, Typical
mTouchCapacitive Touch Sensing	Up to 12 Channels	Up to 16 Channels
LCDDrive	N/A	Up to 184 Segments
Other Capabilities	Data Signal Modulator	N/A

Development Tool Support

Designers can use Microchip's F1 Evaluation Platform (part # DM164130-1, $39.99) for developing with enhanced 8-bit PIC MCUs. The platform includes a 44-pin development board populated with a PIC16LF1937 MCU, prototyping space, 3V LCD glass, support for the PICkit(TM) 3 In-Circuit Debugger/Programmer (part # PG164130, $44.95), as well as a motor-control add-on. Additionally, the PIC16F1937 Plug-In Module (part # MA160012, $25) for Microchip's PIC18 Explorer Board (part # DM183032, $99.99) is available.

Microchip's PICDEM(TM) Lab Development Kit (part # DM163035, $124.99) can be used with the PIC1XF182X MCUs. The kit comes complete with a development board containing five popular 8-bit PIC MCUs; a bag of discrete components; a debugger/programmer, and a CD containing a User's Guide, labs and application examples.

Microchip's complete suite of standard development tools can also be used with the new MCUs, including the user-friendly and free MPLAB(R) IDE, along with the selection of the HI-TECH C(R) compiler for PIC16 MCUs. The HI-TECH C Lite edition is a completely free, fully functional compiler with no time limitations. For applications with limited program space, the Standard and PRO editions offer denser code and improved performance. Additionally, there is a variety of debugging hardware, from the popular PICkit 3 In-Circuit Debugger/Programmer ($44.95), to the MPLAB ICD 3 In-Circuit Debugger ($189.99), MPLAB PM3 Universal Device Programmer ($895), and MPLAB REAL ICE(TM) In-Circuit Emulator ($499.98). All of these tools can be purchased today, at microchipDIRECT (http://www.microchip.com/get/7KL8). More information on Microchip development tools is available at http://www.microchip.com/get/29KM.

MCU Packaging, Pricing & Availability

The PIC1XF182X and PIC16F19XX MCUs are available in DFN, PDIP, QFN, SOIC, TQFP, TSSOP and UQFN packages of varying sizes, from 8- to 64-pins; at prices ranging from $0.69 to $1.74 each, in 10,000-unit quantities. For further information, contact any Microchip sales representative or authorized worldwide distributor, or visit Microchip's Web site at http://www.microchip.com/get/Q9LC.

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, Ariz., Microchip offers outstanding technical support along with dependable delivery and quality. For more information, visit the Microchip website at http://www.microchip.com/get/ETHB.

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Photo
http://www.microchip.com/get/D02U

PIC12F182X Block Diagram
http://www.microchip.com/get/GLF1

PIC16F182X Block Diagram
http://www.microchip.com/get/55BT

PIC16F19XX Block Diagram
http://www.microchip.com/get/TKB4

F1 Evaluation Kit
http://www.microchip.com/get/T35N

PICDEM(TM) Lab Development Kit
http://www.microchip.com/get/0FQH

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