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Microchip Announces Higher Memory, Higher Pin Count Expansion of Enhanced 8-bit PIC(R) Microcontrollers (MCUs)

MCUs Feature Industry-Leading Integration and Low Power Operation

CHANDLER, Ariz.--(BUSINESS WIRE)-- Microchip Technology Inc. (NASDAQ: MCHP), a leading provider of microcontroller and analog semiconductors, today announced the expansion of its Enhanced 8-bit Mid-range core microcontroller (MCU) portfolio, with higher memory and pincount devices featuring nanoWatt XLP technology and industry-leading active power consumption. The PIC16F19XX MCUs feature a broad range of peripherals, including an mTouch(TM) capacitive touch-sensing module, LCD drive, multiple communications peripherals, and more Pulse-Width Modulator (PWM) channels, with independent timers. The new MCUs deliver increased performance for a wide variety of applications in the appliance (e.g., coffee makers, dishwashers, refrigerators); industrial (e.g., digital thermostats, security systems, utility metering); medical (e.g., thermometers, portable health-monitoring devices); and automotive (e.g., keyless entry, interior controls) markets, among others.

The PIC16F19XX MCUs provide up to 28 KB of Flash program memory and numerous enhanced capabilities such as data EEPROM, peripheral functionality over the full 1.8V - 5.5V operating voltage, 32-level bandgap reference and three rail-to-rail input comparators. The MCUs benefit from the enhanced Mid-range 8-bit architecture with 49 instructions for optimized program code and data handling, for both C and Assembly programmers. The "LF" family members feature nanoWatt XLP technology for extremely low sleep currents, as well as new enhancements that reduces the active power consumption by as much as 50%. The on-chip LCD drive supports up to 184 segments and provides a low-power drive mode for lower power operation while updating the display. The MCUs also include up to 5 Pulse-Width Modulation (PWM) channels with independent time bases for controlling various motor types and peripherals.

"Whether increasing battery life, lowering the electric bill or just caring for our environment, as consumers become more sensitive to the rising cost and availability of energy, total cost of ownership is becoming more significant in even the most basic electronics," said Tom Hackenberg, senior analyst, IMS Research Semiconductors Group.

Hackenberg continued, "The total cost of a system is not only the selling price, but how efficient that system can be run, and one of the biggest evolutions in lowering energy costs is designing smarter with more efficient processors. For a truly valuable system, the processor can't just have a lower active energy cost; it needs a lower average energy cost, which means lowering the voltage, the active and sleep currents and the amount of time spent in active mode. Using efficient processors to lower the energy usage of battery-operated devices, automated devices and smarter energy-sensitive devices is enabling. This

leads to lowest total cost of ownership and ultimately greater value and customer satisfaction."

"The PIC16F19XX MCUs represent a significant expansion of our enhanced 8-bit Mid-range core product family, which provides additional memory, peripherals and performance to meet these needs," said Steve Drehobl, vice president of Microchip's Security, Microcontroller and Technology Development Division. "These new MCUs feature several new and unique features; for example, the combination of segmented LCD drive and mTouch capacitive touch-sensing peripherals that enable low-cost user-interface designs."

Key Features

The following table summarizes key features of the PIC16F19XX MCUs.

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

Designers can also use Microchip's complete suite of standard development tools with the PIC16F193X and PIC16F194X MCUs, including the user-friendly and free MPLAB(R) IDE, along with 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/2TB9). More information on Microchip development tools is available at http://www.microchip.com/get/7VN5.

Packaging, Pricing & Availability

The PIC16F19XX MCUs are available in PDIP, QFN, SOIC, SSOP, TQFP and UQFN packages of varying sizes, from 28 to 64 pins, starting at $1.18 each, in 10,000-unit quantities. Samples of all 5 new MCUs are available today. Volume production is expected to begin in Q2 2010. For further information, contact any Microchip sales representative or authorized worldwide distributor, or visit Microchip's Web site at http://www.microchip.com/get/KJP5.

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/KWX0.

Photos and Block Diagram available through editorial contact or Flickr (feel free to publish):

PIC16F19XX Photo

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PIC16F19XX Block Diagram

http://www.microchip.com/get/D7LK

F1 Evaluation Kit

http://www.microchip.com/get/4B8G

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