# PIC16F630/676 Microcontroller Family

The PIC16F630/676 microcontroller products merge all the advantages of the mid-range x14 architecture and the flexibility of FLASH program memory into a 14-pin package. The PIC16F6XX devices feature a 14-bit instruction set, small footprint package, and a wide operating voltage of 2.0 – 5.5 volts. In addition, these devices offer an internal programmable 4 MHz oscillator, on-board EEPROM Data Memory, on-chip voltage reference and up to 8 channels of 10-bit A/D. These 14-pin microcontrollers provide the features and intelligence not previously available due to cost and board space limitations. With the flexibility of FLASH and an excellent development tool suite including a low cost In-Circuit Debugger (ICD), In-Circuit Serial Programming™ (ICSP™) and full ICE 2000 emulation, these devices are ideal for just about any embedded control application.

High-Performance RISC CPU:

- Only 35 single word instructions to learn
- All single cycle instructions except program branches, which are two-cycle
- Operating Speed: DC - 20 MHz oscillator/clock input
  DC - 200 ns instruction cycle
- Memory:
  – 1024 x 14 words of FLASH Program Memory
  – 64 x 8 bytes of Data Memory (SRAM)
  – 128 x 8 bytes of EEPROM Data Memory
- 8-level deep stack
- Direct, indirect, and relative addressing modes for data and instructions

Peripheral Features:

- High current sink/source: 25 mA
- 12 I/O pins with individual direction control
- Programmable interrupt-on-pin change
- Programmable pull-ups on input pins
- Timer0 module: 8-bit timer/counter with 8-bit prescaler
- Timer1 module: 16-bit timer/counter with prescaler, can be incremented during SLEEP via external crystal/clock
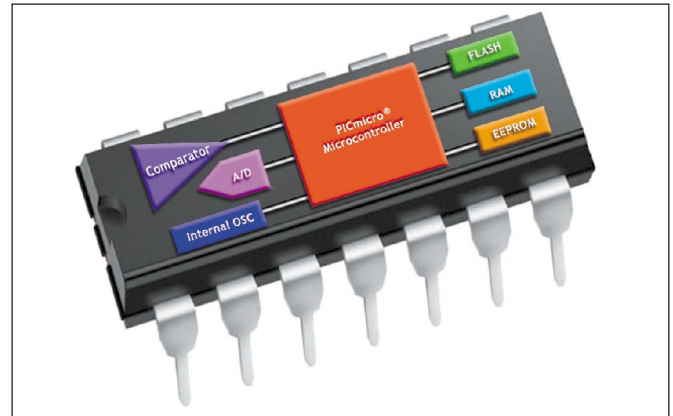
Advanced Analog Features:

- Analog-to-Digital Converter A/D with:
  – 10-bit resolution
  – Programmable 8-channel input
  – Voltage reference input

- Analog Comparator module with 1 comparator:
  – Programmable On-Chip Voltage Reference (CV_{REF}) module
  – Programmable input multiplexing from device inputs
  – Comparator output is externally accessible

Special Microcontroller Features:

- 100,000 erase/write cycle FLASH program memory
- 1,000,000 erase/write cycle data EEPROM memory
- Low power Brown-out Reset (BOR)
- Low power Power-on Reset (POR)
- Watchdog Timer (WDT) with its own on-chip RC oscillator for reliable operation
- Programmable code protection
- Power saving SLEEP mode
- Internal 4 MHz oscillator
- In-Circuit Serial Programming™ (ICSP™) via two pins
- Low cost MPLAB® In-Circuit Debugger (ICD)

CMOS Technology:

- Low power, high speed FLASH technology
- Fully static design
- Wide operating voltage range (2.0V to 5.5V)
- Industrial and Extended temperature ranges
- Low power consumption

MICROCHIP

PICmicro® Microcontrollers

Additional Information:

- Microchip's web site: www.microchip.com
- Microchip's Technical Library CD-ROM, Order No. DS00148
- *Application Notes are available in:*
  - Embedded Control Handbook, Order No. DS00092
  - Embedded Control Handbook Update 2000, Order No. DS00711
- *Microchip's Quality Systems and Customer Interface System, Order No. DS00169*

PIC12F629/675 Microcontroller Family											
Device	FLASH Program Memory Bytes	Data RAM Bytes	EEPROM Data Bytes	I/O Pins	ADC 10 bits	Comparator	BOR	Timers	ICSP™	Comments
PIC16F630	1792	64	128	12	–	1	Yes	1x8-bit, 1x16-bit, 1-WDT	Yes	4 MHz Internal Oscillator, ICD*
PIC16F676	1792	64	128	12	8	1	Yes	1x8-bit, 1x16-bit, 1-WDT	Yes	4 MHz Internal Oscillator, ICD*

* Requires purchase of separate adapter module.

Abbreviation:	ADC = Analog-to-Digital Converter	ICSP™ = In-Circuit Serial Programming	ICD = In-Circuit Debugger
	WDT = Watchdog Timer	BOR = Brown-out Reset	

Development Tools from Microchip	
MPLAB® IDE	Integrated Development Environment (IDE) (Hardware/Software Project Manager)
MPASM™ Assembler	Universal PICmicro Macro-assembler Software
MPLINK™ Object Linker	Linker Software
MPLIB™ Object Librarian	Librarian Software
MPLAB SIM Simulator	Software Simulator
MPLAB ICE 2000	Full-featured Modular in-circuit Emulator
PICSTART® Plus Programmer	Entry-level Program Loader and Development Kit
PRO MATE® II Device Programmer	Full-featured, Modular Device Programmer
MPLAB ICD2	In-Circuit Debugger
AC162052	Header Adapter for ICD2

Americas		Asia/Pacific		Europe	
Atlanta	(770) 640-0034	Australia	61-2-9868-6733	Austria	43-7242-2244-399
Boston	(978) 692-3848	China – Beijing	86-10-85282100	Denmark	45-4420-9895
Chicago	(630) 285-0071	China – Chengdu	86-28-86766200	France	33-1-69-53-63-20
Dallas	(972) 818-7423	China – Fuzhou	86-591-7503506	Germany	49-89-627-144-0
Detroit	(248) 538-2250	China –Shanghai	86-21-6275-5700	Italy	39-039-65791-1
Kokomo	(765) 864-8360	China –Shenzhen	86-755-82350361	United Kingdom	44 118 921 5869
Los Angeles	(949) 263-1888	Hong Kong	852-2401-1200		
New York	(631) 273-5305	India	91-80-2290061		
Phoenix	(480) 792-7966	Japan	81-45-471-6166		As of 08/01/02
San Jose	(408) 436-7950	Korea	82-2-554-7200		
Toronto	(905) 673-0699	Singapore	65-6334-8870		
		Taiwan	886-2-2717-7175		

Microchip Technology Inc. · 2355 W. Chandler Blvd. · Chandler, AZ 85224-6199 · (480) 792-7200 · Fax (480) 792-9210