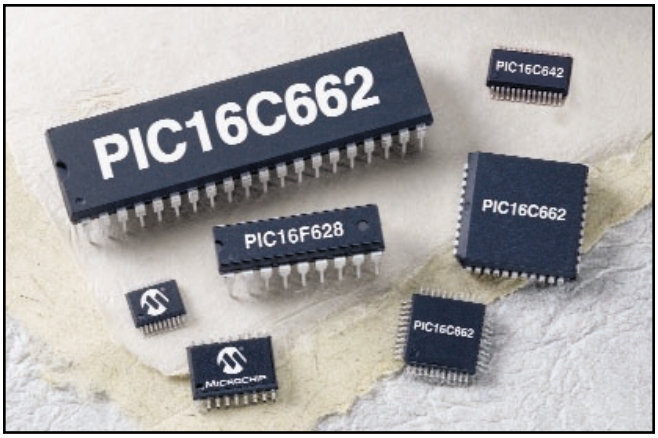
PIC16C6XX/F62X Microcontroller Family

Product Information

The PIC16C6XX/F62X microcontroller (MCU) family offers a wide range of options, from completely upward compatible devices in 18- to 44-pin packages to devices from low to high levels of digital peripheral integration. This family has a 14-bit instruction set, interrupt handling capability, multi-mode analog comparators, programmable voltage reference, brown-out detection and a deep 8-level stack. The PIC16C6XX/F62X family provides the performance and versatility to meet the most demanding requirements of today's entry level analog marketplace requirements for 8-bit applications. Plus, with FLASH program memory, PIC16F62X devices can be updated or reprogrammed at low voltages. The PIC16C6XX/F62X family is ideally suited for applications ranging from battery chargers to low power remote sensors.



High Performance RISC CPU:

- Only 35 instructions to learn
- All instructions are single cycle (200 ns) except for program branches which are two-cycle
- Operating speed: DC - 20 MHz clock input
  DC - 200 ns instruction cycle
- 512 x 14 words to 4096 x 14 words of EPROM/OTP/ROM/FLASH program memory
- 80 to 224 bytes of user RAM
- Up to 128 bytes data EEPROM memory
- Interrupt capability
- Special function hardware registers
- 8-level deep hardware stack
- Direct, indirect and relative addressing modes
- 13 to 33 I/O pins
- 18-, 20-, 28-, 40- and 44-pin DIP, SOIC, SSOP, PLCC, TQFP and MQFP packages

Peripheral Features:

- Analog comparator module with:
  – Two analog comparators
  – Programmable on-chip voltage reference (V_{REF}) module
  – Programmable input multiplexing from device inputs and internal voltage reference
  – Comparator outputs can be output signals
- Up to 3 timers:
  – Timer0: 8-bit timer/counter with 8-bit prescaler
  – Timer1: 16-bit timer/counter with prescaler, can be incremented during SLEEP via external crystal/clock
  – Timer2: 8-bit timer/counter with 8-bit period register, prescaler and postscaler
- One Capture/Compare/PWM (CCP) module
- Universal Synchronous Asynchronous Receiver Transmitter (USART/SCI)

Peripheral Features *(continued)*:

- Capture is 16-bit, max. resolution is 12.5 ns, compare is 16-bit, max. resolution is 200 ns, PWM max. resolution is 10-bit. Maximum PWM frequency @ 8-bit resolution = 32 kHz, @ 10-bit resolution = 8 kHz

Special Microcontroller Features:

- In-Circuit Serial Programming™ (ICSP™) of program memory (via two pins) for EPROM/OTP/FLASH
- Power-on Reset (POR), Power-up Timer (PWRT), and Oscillator Start-up Timer (OST)
- Brown-out Reset
- Watchdog Timer (WDT) with its own on-chip RC oscillator for reliable operation
- Parallel Slave Port (PSP) 8-bits wide, with external $\overline{RD}$, $\overline{WR}$ and $\overline{CS}$ controls
- Programmable code protection
- Power saving SLEEP mode
- Selectable oscillator options:
  EXTRC: External low cost RC oscillator
  INTRC: Internal Oscillator
  XT: Standard crystal/resonator
  HS: High speed crystal/resonator
  LP: Power saving, low frequency crystal

CMOS Technology:

- Low power, high speed CMOS technology offering a Migratable Memory™ path across EPROM/EEPROM/ROM/FLASH processes
- Fully static design
- Wide operating voltage range: 2.0V to 6.0V
- Commercial, Industrial and Extended temperature ranges
- Low power consumption:
  < 2 mA @ 5V, 4 MHz
  15 µA typical @ 3V, 32 kHz
  < 1 µA typical standby current @ 3V

PIC16C6XX/F62X Microcontroller Family *Continued*

Additional Information:

- Microchip's web site: ***www.microchip.com***
- Microchip's Technical Library CD-ROM, Order No. DS00161
- More than 112 Application Notes available:
  - *Embedded Control Handbook,* Order No. DS00092
  - *Embedded Control Handbook, Volume 2, Math Library,* Order No. DS00167
- Microchip's *Overview, Quality Systems and Customer Interface System,* Order No. DS00169
- Third party software and hardware support:
  - Emulators
  - Programmers
  - Gang Programmers
  - Software Tools
  - Development Boards and Accessories
  - Design Consultants
  - *Third Party Guide,* Order No. DS00104

PIC16C6XX/F62X 8-bit Microcontroller Family

Product	Program Memory Bytes	Program Memory Words	Program Memory Type	E²PROM Memory Types	Data RAM Bytes	Max. Speed MHz	I/O Pins	Brown-Out Detection	Comparators	Timers	ICSP™	Other Features	Pins
PIC16C620	896	512x14	OTP	—	80	20	13	Yes	2	1-8 bit, 1-WDT	Yes	25mA source/sink per I/O, programmable VREF	18, 20
PIC16C620A	896	512X14	OTP	—	96	20	13	Yes	2	1-8 bit, 1-WDT	Yes	25mA source/sink per I/O, programmable VREF	18, 20
PIC16C621	1792	1024x14	OTP	—	80	20	13	Yes	2	1-8 bit, 1-WDT	Yes	25mA source/sink per I/O, programmable VREF	18, 20
PIC16C621A	1792	1024x14	OTP	—	96	20	13	Yes	2	1-8 bit, 1-WDT	Yes	25mA source/sink per I/O, programmable VREF	18, 20
PIC16C622	3584	2048x14	OTP	—	128	20	13	Yes	2	1-8 bit, 1-WDT	Yes	25mA source/sink per I/O, programmable VREF	18, 20
PIC16C622A	3584	2048x14	OTP	—	128	20	13	Yes	2	1-8 bit, 1-WDT	Yes	25mA source/sink per I/O, programmable VREF	18, 20
PIC16CE623	896	512x14	OTP	128	96	20	13	Yes	2	1-8 bit, 1-WDT	Yes	25mA source/sink per I/O, programmable VREF	18, 20
PIC16CE624	1792	1024x14	OTP	128	96	20	13	Yes	2	1-8 bit, 1-WDT	Yes	25mA source/sink per I/O, programmable VREF	18, 20
PIC16CE625	3584	2048x14	OTP	128	128	20	13	Yes	2	1-8 bit, 1-WDT	Yes	25mA source/sink per I/O, programmable VREF	18, 20
PIC16C642	7168	4096x14	OTP	—	176	20	22	Yes	2	1-8 bit, 1-WDT	Yes	25mA source/sink per I/O, programmable VREF	28
PIC16C662	7168	4096x14	OTP	—	176	20	33	Yes	2	1-8 bit, 1-WDT	Yes	25mA source/sink per I/O, programmable VREF, Parallel Slave Port	40, 44
PIC16F627	1792	1024x14	FLASH	128	224	20	16	Yes	2	1-16 bit, 2-8 bit, 1-WDT	Yes	25mA source/sink per I/O, programmable VREF, 4 MHz internal oscillator, USART/SCI, CCP	18, 20
PIC16F628	3584	2048x14	FLASH	128	224	20	16	Yes	2	1-16 bit, 2-8 bit, 1-WDT	Yes	25mA source/sink per I/O, programmable VREF, 4 MHz internal oscillator, USART/SCI, CCP	18, 20
PIC16CR620A	896	512x14	ROM	—	96	20	13	Yes	2	1-8 bit, 1-WDT	—	25mA source/sink per I/O, programmable VREF	18, 20

Development Tools from Microchip		*Resale Price**
MPLAB® IDE	Integrated Development Environment (IDE)	FREE
MPASM™ Assembler	Universal PICmicro macro-assembler	FREE
MPLINK™ Object Linker/ MPLIB™ Object Librarian	Linker/Librarian	FREE
C compiler	Sold by third-party vendors (HI-TECH, IAR, CCS)	Contact Vendor
MPLAB® SIM	Software Simulator	FREE
ICEPIC™	Low cost in-circuit emulator	Starting at $789
MPLAB® ICE 2000	Full featured modular in-circuit emulator	Starting at $2,045
PICSTART® Plus	Entry level program loader & dev. kit with PICC Lite™ Compiler	$199
PRO MATE® II	Full featured, modular device programmer	Starting at $854

*All prices are manufacturer's suggested resale for North America.

†Contact Microchip for instructions on how to use the MPLAB® ICD with PIC16C72/73/74/76/77

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