The PIC18 microcontroller family provides PICmicro® devices in 18- to 80-pin packages, that are both socket and software upwardly compatible to the PIC16 family. The PIC18 family includes all the popular peripherals, such as MSSP, ESCI, CCP flexible 8- and 16-bit timers, PSP, 10-bit ADC, WDT, POR and CAN 2.0B Active for the maximum flexible solution. Most PIC18 devices will provide FLASH program memory in sizes from 8 to 128 Kbytes and data RAM from 256 to 4 Kbytes; operating from 2.0 to 5.5 volts, at speeds from DC to 40 MHz. Optimized for high-level languages like ANSI C, the PIC18 family offers a highly flexible solution for complex embedded applications.

**High Performance RISC CPU:**
- 77 instructions
- C-Language friendly architecture
- PIC16 source code compatible
- Linear program memory addressing to 2 Mbyte
- Linear data memory addressing up to 4 Kbytes
- Up to 10 MIPS operation:
  - DC - 40 MHz osc/clock input
  - 4 MHz - 10 MHz clock with PLL active
- 16-bit wide instructions, 8-bit wide data path
- Priority levels for interrupts
- 8 x 8 Single Cycle Hardware Multiplier

**Peripheral Features:**
- High current sink/source 25 mA/25 mA
- Up to four external interrupt pins
- Up to three 16-bit timer/counters
- Up to two 8-bit timer/counters with 8-bit period register (time-base for PWM)
- Secondary LP oscillator clock option - Timer1
- Up to five Capture/Compare/PWM (CCP) modules
- CCP pins can be configured as:
  - Capture input: 16-bit, resolution 6.25 ns (Tcy/16)
  - Compare: 16-bit, max. resolution 100 ns (Tcy)
  - PWM output: PWM resolution is 1- to 10-bit
    Max. PWM frequency @ 8-bit resolution = 156 kHz
    10-bit resolution = 39 kHz
- Master Synchronous Serial Port (MSSP) module
- Two modes of operation:
  - 3-wire SPI™ (supports all 4 SPI modes)
  - I²C™ Master and Slave mode
- Up to 2 Addressable USART modules (ESCI)
- Supports interrupt on Address bit
- Parallel Slave Port (PSP) module

**Analog Features:**
- 10-bit Analog-to-Digital Converter module (A/D) with:
  - Fast sampling rate
  - Up to 16 channels input multiplexor
  - Conversion available during SLEEP
  - DNL = ±1 LSB, INL = ±1 LSB

**Analog Features (Continued):**
- Programmable Low Voltage Detection (LVD) module
  - Supports interrupt-on-low voltage detection
- Programmable Brown-out Reset (BOR)
- Comparators

**Special Microcontroller Features:**
- Power-on Reset (POR), Power-up Timer (PWRT) and Oscillator Start-up Timer (OST)
- Watchdog Timer (WDT) with its own on-chip RC oscillator for reliable operation
- Programmable code protection
- In-Circuit Serial Programming™ (ICSP™) via two pins

**CMOS Technology:**
- Fully static design
- Wide operating voltage range (2.0V to 5.5V)
- Industrial and Extended temperature ranges

**Power Managed Features:**
- Dynamically switch to secondary LP oscillator
- Internal RC oscillator for ADC operation during SLEEP
- SLEEP mode (IPO < 1 µA typ.)
  - up to 23 individually selectable wake-up events
  - 3 edge selectable wake-up inputs
  - 4 state change wake-up inputs
- Internal RC oscillator for WDT (period wake-up)
- RAM retention mode (VDD as low as 1.5V)
- Up to 6 more Power Managed modes available on selected models (PIC18F1320/2320/4320 and PIC18F1220/2220/4220)
### Additional Information:

- Microchip’s web site: [www.microchip.com](http://www.microchip.com)
- Microchip’s PICmicro 18C MCU Reference Manual, Order No. DS39500
- Microchip’s CD-ROMs available:
  - Technical Library, Order No. DS00161
- Microchip’s Data Sheets available:
  - PIC18CXX2, Order No. DS39026
  - PIC18CXX8, Order No. DS30475
  - PIC18C601/801, Order No. DS39541
- Application Notes are available in:
  - Embedded Control Handbook, Order No. DS0092
  - Embedded Control Handbook, Volume 2, Math Library, Order No. DS00167
  - Embedded Control Handbook Update 2000, Order No. DS00711

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### PIC18 Microcontroller Family

<table>
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<th>Product</th>
<th>Program Memory</th>
<th>Data Memory</th>
<th>I/O</th>
<th>ADC</th>
<th>Timers 8/16-bit</th>
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**Abbreviation:**

- ADC = Analog to Digital Converter
- CCP = Capture/Compare/PWM
- C/SPI = Capture/SPI
- C = Register, I/O Port
- DM = Data Memory
- DM = Data Memory
- E = External Memory
- I = I/O Bit
- PC = Power Managed Mode
- PM = Pulse Width Modulation
- PW = Power Managed Mode
- SPI = Serial Peripheral Interface
- P = Parallel Port
- PIC = Inter-Integrated Circuit Bus
- USART = Universal Synchronous/Asynchronous Receiver/Transmitter

**Development Tools from Microchip**

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<th>Development Tool</th>
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<td>C compiler</td>
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<tr>
<td>PRO MATE® II</td>
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<td>PICSTART® Plus</td>
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**Resale Price*:**

- All prices are manufacturer’s suggested resale for North America.

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