

Microchip's 1 Megabit PICmicro® Microcontroller Family

Product Information

The PIC18FXX20 FLASH MCU family features a cost-effective, enhanced RISC core that contains up to 128 Kbytes of linearly addressable program memory. Designed for high-end applications requiring a complex user interface, the PIC18FXX20 family offers flexibility of field self-programmability, larger memory and data arrays for text storage, higher pin packages and an industry leading peripheral set. The 80-pin devices also offer an external memory bus capable of addressing up to 2M bytes of program memory. Users who prefer to program in C and require an RTOS or communication stacks, such as TCP/IP, will benefit from this new FLASH family of PICmicro® MCUs. This 8-bit family offers an affordable, large memory, high performing architecture allowing new opportunities across all market segments that may include applications such as security systems, motor control, POS terminals, instrumentation and monitoring, power conditioning, thermostats and consumer audio/video.

Key Features:

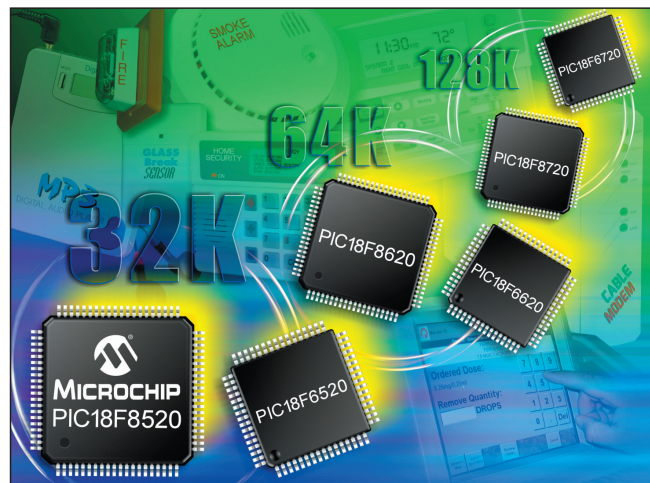
- 32K to 128 Kbytes of FLASH Program Memory (Linear)
- 2 Mbytes External Memory (16-bit, Linear)
- 4 Kbytes of RAM (Linear)
- 1 Kbytes of data EEPROM
- Three serial communication interfaces:
 - 2 x AUSART (supporting RS-232 and RS-485)
 - 1 x MSSP (providing I²C™ or SPI™ interface)
- 25 MHz operation, 6 MIPS (PIC18FX620, PIC18FX720)
- 40 MHz operation, 10 MIPS (PIC18FX520)
- 8 x 8-bit Single Cycle Hardware Multiplier

Peripheral Features:

- Five timers/counters:
 - Timer0 module: 8-bit/16-bit timer/counter
 - Timer1 module: 16-bit timer/counter
 - Timer2 module: 8-bit timer/counter
 - Timer3 module: 16-bit timer/counter
 - Timer4 module: 8-bit timer/counter
- Secondary oscillator clock option - Timer1
- Five Capture/Compare/PWM (CCP) modules:
 - Capture is 16-bit, max. resolution 6.25 ns (T_{cy}/16)
 - Compare is 16-bit, max. resolution 100 ns (T_{cy})
 - PWM output: PWM resolution is 1- to 10-bit
- Parallel Slave Port (PSP) module
- High Current sink/source (25 mA/25 mA) on up to 68 I/O pins
- Four external edge programmable interrupt pins

Advanced Analog Features:

- Analog-to-Digital Converter A/D with:
 - 10-bit resolution
 - 16-channel input multiplexor
 - Conversion available during SLEEP



Advanced Analog Features (Cont.):

- Programmable 16-level Low Voltage Detection (LVD) module
 - Supports interrupt on Low Voltage Detection
- Programmable Brown-out Reset (BOR)
- Analog Comparator module with 2 comparators:
 - Programmable On-Chip Voltage Reference (CVREF) module
 - Comparator outputs are externally accessible

Special Microcontroller Features:

- 100,000 erase/write cycle Enhanced FLASH program memory typical
- 1,000,000 erase/write cycle data EEPROM memory typical
- 5 second programming time (max speed)
- FLASH/Data EEPROM Retention: > 40 years
- Self-reprogrammable under software control
- 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
- Selectable oscillator options including:
 - 4x Phase Lock Loop (of primary oscillator)
 - Secondary Oscillator (32 kHz) clock input
- In-Circuit Serial Programming™ (ICSP™) via two pins
- MPLAB® In-Circuit Debug (ICD2) via two pins

CMOS Technology:

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



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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

PIC18FXX20 Family Lineup

Device	FLASH Program Memory	Data RAM Bytes	Memory Type	EEPROM Data	I/O Pins	ADC 10-bits	Serial I/O	Programmable Brown-out Detection	PWM	Comparators	Timers	ICSP™	CCP	Pins
PIC18F6520	32768	2048	FLASH	1024	52	12	2 AUSART M ² C/SPI	Yes	5	2	3-16 bit, 2-8 bit, 1 WDT	Yes	5 CCP	64L TQFP
PIC18F6620	65536	3840	FLASH	1024	52	12	2 AUSART M ² C/SPI	Yes	5	2	3-16 bit, 2-8 bit, 1 WDT	Yes	5 CCP	64L TQFP
PIC18F6720	131072	3840	FLASH	1024	52	12	2 AUSART M ² C/SPI	Yes	5	2	3-16 bit, 2-8 bit, 1 WDT	Yes	5 CCP	64L TQFP
PIC18F8520	32768	2048	FLASH	1024	68	16	2 AUSART M ² C/SPI	Yes	5	2	3-16 bit, 2-8 bit, 1 WDT	Yes	5 CCP	80L TQFP
PIC18F8620	65536	3840	FLASH	1024	68	16	2 AUSART M ² C/SPI	Yes	5	2	3-16 bit, 2-8 bit, 1 WDT	Yes	5 CCP	80L TQFP
PIC18F8720	131072	3840	FLASH	1024	68	16	2 AUSART M ² C/SPI	Yes	5	2	3-16 bit, 2-8 bit, 1 WDT	Yes	5 CCP	80L TQFP

Development Tools Support

Hardware:

MPLAB® ICE 2000 Emulator: System consists of: emulator pod (ICE 2000), processor module (PCM18XE1), device adapter and transition socket.

Programmer: PRO MATE® II modular device programmer (socket module sold separately).

In-Circuit Serial Programming™ socket module AC004004.

	Pkg.	Emulator Pod	ICE 2000 Processor Module	Device Adapters	ICE 4000 Processor Module	Device Adapters	Transition Socket	PRO MATE II Socket Module
PIC18F6520	64PT	ICE 2000	PCM18XE1	DVA18PQ640	PMF18WA0	DAF18-1	XLT64PT2	AC174008
PIC18F6620	64PT	ICE 2000	PCM18XE1	DVA18PQ640	PMF18WA0	DAF18-1	XLT64PT2	AC174008
PIC18F6720	64PT	ICE 2000	PCM18XE1	DVA18PQ640	PMF18WA0	DAF18-1	XLT64PT2	AC174008
PIC18F8520	80PT	ICE 2000	PCM18XE1	DVA18PQ800	PMF18WA0	DAF18-1	XLT80PT	AC174011
PIC18F8620	80PT	ICE 2000	PCM18XE1	DVA18PQ800	PMF18WA0	DAF18-1	XLT80PT	AC174011
PIC18F8720	80PT	ICE 2000	PCM18XE1	DVA18PQ800	PMF18WA0	DAF18-1	XLT80PT	AC174011

Software:

Integrated Development Environment

MPLAB® IDE, Microchip's Integrated Development Environment with project manager, editor, simulator, assembler, linker and librarian (V.6.00.01 and later).

Debugger:

MPLAB ICD 2 In-Circuit Debugger module (DV164005).

Demonstration Board:

PIC18FXX20 64/80-pin TQFP Demo Board (DM183020).

Microchip Compilers:

MPLAB C18

Third Party Compilers:

Company:

IAR Systems
HI-TECH Software
CCS

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