



**PIC32 Microcontroller Families**  
With USB, CAN and Ethernet

**PIC<sup>®</sup>32<sup>®</sup>**

**PIC<sup>®</sup> MCU to the power of 32**

# Performance Leading **PIC<sup>32</sup>** Microcontroller

Building on the heritage of Microchip Technology's world-leading 8- and 16-bit PIC<sup>®</sup> microcontrollers, the PIC32 family delivers 32-bit performance and more memory to solve increasingly complex embedded system design challenges.

## High Performance & Memory

### Power your RTOS, Touch Screens and Complex Applications

- 80 MHz, 1.56 DMIPS/MHz MIPS M4K Core
- 512K Flash with pre-fetch cache
- 128K RAM for data and program execution
- Fast interrupts and context switch

## Fast, Easy Development

### Shorten Your Project Design Cycle

- Free Graphics, Touch Sense and file system source code
- Broad Third Party ecosystem
- \$49.99 starter kit with free C compiler
- Hardware trace for less than \$80

## Industry Leading Compatibility

### Create Scalable Products in a Consistent Environment

- Common MPLAB<sup>®</sup> development tools
- Pin & peripheral compatible with 16-bit PIC MCUs
- Common software stacks across MCUs
- Common tools environment ~600 PIC MCUs

## More Design Options

### Simplify Your System Design Through Integration

- Extensive analog and digital peripherals
- USB Host/Device/OTG, Dual CAN, 10/100 Ethernet
- Up to 16 DMA channels
- 16-bit parallel master port

## FREE Microchip Software Libraries

[www.microchip.com/pic32libraries](http://www.microchip.com/pic32libraries)

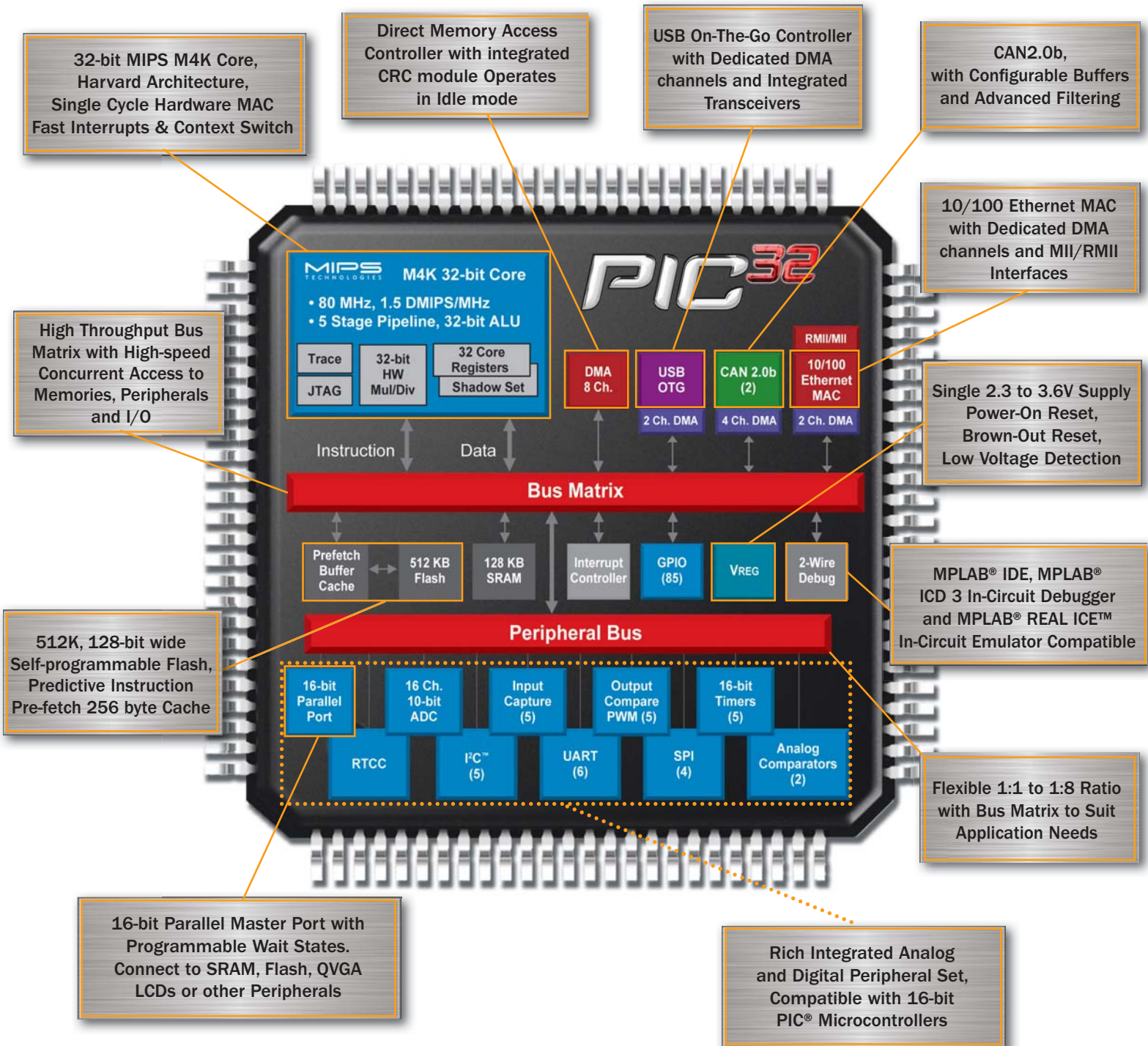
<b>USB</b>	USB Host, Device, On-the-Go with Class Drivers
<b>HMI</b>	Microchip Graphics Library Capacitive Touch Software
<b>CAN</b>	CAN API Library for PIC32 with Integrated CAN Controller (in compiler) Standalone CAN Library - includes support for MCP2515
<b>Connectivity</b>	Microchip TCP/IP with SSL and BSD IrDA <sup>®</sup> Stack* ZigBee <sup>®</sup> Pro Protocol Stack** ZigBee <sup>®</sup> Smart Energy Profile Suite** MiWi <sup>™</sup> Protocol Stack for 802.15.4 Networks
<b>Audio and Speech</b>	Audio Library for PIC32MX: Speex, ADPCM and WAV
<b>Encryption</b>	AES 128-, 196- and 256-bit Encryption & Decryption Library Public Key Cryptography Library (RSA)
<b>Basic Libraries</b>	16- and 32-bit File System Libraries FAT File System Library – FatFs DSP Library (located in MPLAB C compiler for PIC32) Math Library (located in MPLAB C compiler for PIC32) Peripheral Library (located in MPLAB C compiler for PIC32) EEPROM Emulation IEC 60730 Class B Software
<b>Boot Loader</b>	Serial Port Boot Loader USB Host Boot Loader**

\* Contact Microchip for availability.

\*\* Software planned for future - get the latest updates at [www.microchip.com/pic32libraries](http://www.microchip.com/pic32libraries).

[www.microchip.com/PIC32](http://www.microchip.com/PIC32)

# Inside the PIC<sup>32</sup> Microcontroller



Package Options	
64-pin	100-pin
64-lead TQFP 10 x 10 (PT)	100-lead TQFP 14 x 14 (PF)
64-lead QFN 9 x 9 (MR)	100-ball BGA 10 x 10 (BG)
100-lead TQFP 12 x 12 (PT)	

# Developing with the PIC<sup>32</sup> Microcontroller

Microchip is the only silicon vendor with a full 8-, 16- and 32-bit microcontroller portfolio supported by a unified development environment. The MPLAB<sup>®</sup> IDE is free and easy to use.



## PIC32 Starter Kits




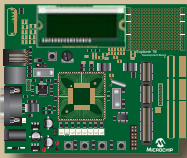
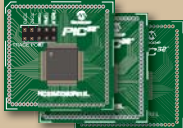




Getting started is easy with any of the fully integrated PIC32 Starter Kits featuring simple installation, getting started tutorial and PIC32 starter board with easy USB connection to your PC. The Starter Kits include:

- MPLAB IDE and MPLAB C32 C Compiler†
- PIC32 Starter Board with Integrated Programmer and Debugger
- Code Examples, Documentation, Tutorials and Sample Projects, Optional I/O Expansion board allows signal breakouts and connections for PICtail™ Plus Daughter Cards

†Lite version has **no code size limit** and full optimizations. After 60 days some optimizations are disabled.

## PIC32 Development Tools

Choose a Platform:

Starter Kit Platform			OR	Explorer 16 Platform	
<b>PIC32 Starter Kit (DM320001)</b>	<b>PIC32 USB Starter Kit II (DM320003-2)</b>	<b>PIC32 Ethernet Starter Kit (DM320004)</b>		<b>Explorer 16 Development Board (DM240001)</b>	<b>PIC32 Plug-in Modules (MA320001) (MA320002) (MA320003)</b>
					
OPTIONAL				+	
<b>PIC32 I/O Expansion Board (DM320002)</b>				AND	
				<b>MPLAB<sup>®</sup> ICD 3 In-Circuit Debugger (DV164035)</b>	<b>MPLAB<sup>®</sup> REAL ICE™ In-Circuit Emulation System (DV244005)</b>
	<b>Multimedia Expansion Board (DM320005)</b>				
				OR	

## PICtail™ Boards Common to Both Development Platforms

**Graphics Daughter Board with 3.2" Display Kit (AC164127-3)**



**ECAN/LIN Daughter Board (AC164130)**



**MRF24WB0MA Wi-Fi Daughter Board (AC164136-4)**



**MRF24J40MA 2.4 GHz RF Card (AC164134)**



... and many more!

## PIC32 Product Family

Device	Flash KB + Boot Flash	SRAM KB	Pin Count	MHz	SPI	I <sup>2</sup> C™	UARTs	DMA Channels General/Dedicated	USB	10/100 Ethernet	CAN 2.0b	IC/OC/PWM	10-bit ADC 1 Msps	Analog Comparator	Timers 16b/32b	RTCC	Parallel Master Port	JTAG Program, Debug, Boundary Scan
PIC32MX320F032H	32 + 12	8	64	40	2	2	2	0/0	N	N	N	5/5/5	16 ch	2	5/1	1	Y	Y
PIC32MX320F064H	64 + 12	16	64															
PIC32MX320F064L			80															
PIC32MX320F128H	128 + 12	16	64															
PIC32MX320F128L			100															
PIC32MX340F128H			32	64														
PIC32MX340F128L				100														
PIC32MX340F256H	256 + 12	32	64															
PIC32MX360F256L			100															
PIC32MX340F512H	512 + 12	32	64															
PIC32MX360F512L			100															
PIC32MX420F032H	32 + 12	8	64	40	1	2	2	0/2	Y	N	N	5/5/5	16 ch	2	5/1	1	Y	Y
PIC32MX440F128H	128 + 12	32	64	80	1													
PIC32MX440F128L			100	80	2													
PIC32MX440F256H	256 + 12	32	64	80	1													
PIC32MX460F256L			100	80	2													
PIC32MX440F512H	512 + 12	32	64	80	1													
PIC32MX460F512L			100	80	2													
PIC32MX534F064H	64+12	16	64	80	3													
PIC32MX534F064L			100	80	4	5												
PIC32MX564F064H		32	64	80	3	4												
PIC32MX564F064L			100	80	4	5												
PIC32MX564F128H	128+12	32	64	80	3	4	6	Y	N	1	5/5/5	16 ch	2	5/1	1	Y	Y	
PIC32MX564F128L			100	80	4	5												
PIC32MX575F256H	256 + 12	64	64	80	3	4	8/4	Y	Y	N	5/5/5	16 ch	2	5/1	1	Y	Y	
PIC32MX575F256L			100	80	4	5												
PIC32MX575F512H	512 + 12	64	64	80	3	4	6	Y	Y	N	5/5/5	16 ch	2	5/1	1	Y	Y	
PIC32MX575F512L			100	80	4	5												
PIC32MX664F064H	64+12	32	64	80	3	4	4/4	Y	Y	N	5/5/5	16 ch	2	5/1	1	Y	Y	
PIC32MX664F064L			100	80	4	5												
PIC32MX664F128H	128+12	32	64	80	3	4	6	Y	Y	N	5/5/5	16 ch	2	5/1	1	Y	Y	
PIC32MX664F128L			100	80	4	5												
PIC32MX675F256H	256 + 12	64	64	80	3	4	8/4	Y	Y	N	5/5/5	16 ch	2	5/1	1	Y	Y	
PIC32MX675F256L			100	80	4	5												
PIC32MX675F512H	512 + 12	64	64	80	3	4	6	Y	Y	2	5/5/5	16 ch	2	5/1	1	Y	Y	
PIC32MX675F512L			100	80	4	5												
PIC32MX695F512H		128	64	80	3	4												
PIC32MX695F512L			100	80	4	5												
PIC32MX764F128H	128+12	32	64	80	3	4	4/6	Y	Y	1	5/5/5	16 ch	2	5/1	1	Y	Y	
PIC32MX764F128L			100	80	4	5												
PIC32MX775F256H	256 + 12	64	64	80	3	4	8/8	Y	Y	2	5/5/5	16 ch	2	5/1	1	Y	Y	
PIC32MX775F256L			100	80	4	5												
PIC32MX775F512H	512 + 12	64	64	80	3	4	6	Y	Y	2	5/5/5	16 ch	2	5/1	1	Y	Y	
PIC32MX775F512L			100	80	4	5												
PIC32MX795F512H		128	64	80	3	4												
PIC32MX795F512L			100	80	4	5												

### Third-party Application Software and Hardware Support

- Ashling Microsystems
- AVIX-RT
- CMS Systems
- Digilent Inc.
- easyGUI
- eflightworks
- expresslogic
- Free RTOS
- Green Hills Software Inc.
- Lauterbach
- Macraigor Systems
- Micrium
- Micro/sys Inc.
- OLIMEX Ltd.
- Pumpkin
- RAMTEX International
- RoweBots Research Inc.
- SEGGER
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- TechToys Company

For up-to-date information about our 32-bit portfolio, related development tools and technical support, visit: [www.microchip.com/PIC32](http://www.microchip.com/PIC32)

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[www.microchip.com](http://www.microchip.com)

Microchip Technology Inc.  
2355 W. Chandler Blvd.  
Chandler, AZ 85224-6199