

High-Performance PIC32MZ Embedded Connectivity (EC) Family

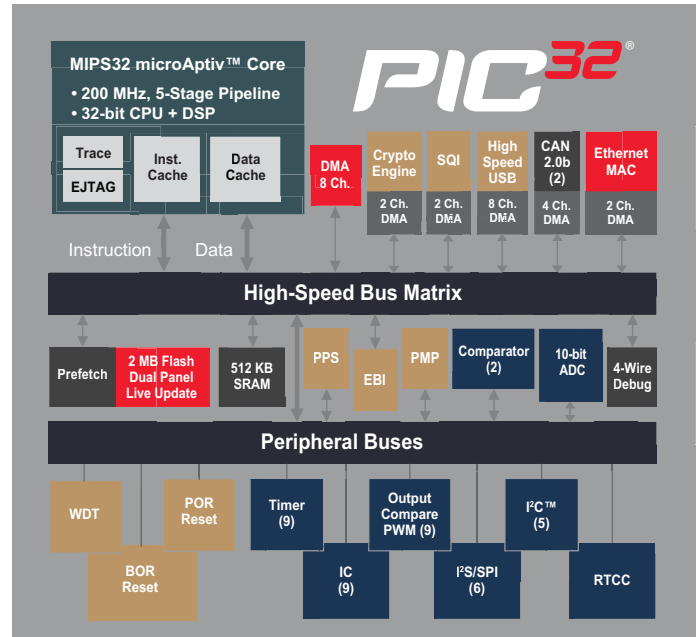
32-bit MCUs (up to 2 MB Live-Update Flash and 512 KB SRAM) with Audio and Graphics Interfaces, Hi-Speed USB, Ethernet and Advanced Analog

Summary

The PIC32MZ Embedded Connectivity (EC) family offers a high-performance MCU with MIPS32 microAptiv™ core running at 200 MHz/330 DMIPS. The core features an enhanced DSP functionality with four 64-bit accumulators, single-cycle MAC and a 5-stage pipeline. It is coupled with up to 2 MB Flash and 512 KB SRAM and several on-board advanced peripherals including I²S™/SPI for audio; 8-/16-bit Parallel Master Port (PMP) and External Bus Interface (EBI) for graphics or external memory; 48-channel, 10-bit Analog-to-Digital Converter (ADC); Hi-Speed USB 2.0-compliant Device/Host/OTG; 10/100 Mbps Ethernet MAC; Serial Quad Interface (SQI) for serial devices and Crypto Engine for reduced software overhead and easy execution of encryption/decryption.

Key Features

- 200 MHz/330 DMIPS microAptiv core
- DSP enhanced core:
 - Four 64-bit accumulators
 - Single-cycle MAC
- Up to 2 MB dual-panel Flash for live update support
- 10-bit, 48-channel ADC module
- Memory management unit for optimum embedded OS execution
- microMIPS™ mode for up to 35% code compression
- CAN, UART, I²C™, PMP, EBI, SQI and analog comparators
- SPI/I²S interfaces for audio processing and playback
- Hi-Speed USB Device/Host/OTG
- 10/100 Mbps Ethernet MAC with MII and RMII interface
- Temperature range: -40 to 85°C; -40 to 125°C (planned)



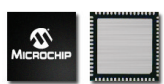
MPLAB® Harmony for PIC32

MPLAB Harmony is a flexible, abstracted, fully integrated firmware development environment for PIC32 microcontrollers. It enables robust framework development of interoperable RTOS-friendly libraries with quick and extensive Microchip support for third party software integration. MPLAB Harmony includes a set of peripheral libraries, drivers and system services that are readily accessible for application development. The code development format allows for maximum re-use and reduces time-to-market.

Applications	Operating System Abstract Layer (OSAL)	Middleware/ Software Libraries	Device Drivers	Development Software	Third Party Software
<ul style="list-style-type: none"> ■ Graphics applications ■ TCP/IP applications and utilities ■ USB applications 	<ul style="list-style-type: none"> ■ OSAL interface with “basic” and “none” implementation ■ OSAL implementation for FreeRTOS ■ OSAL implementation for Micrium µC/OS-III 	<ul style="list-style-type: none"> ■ Graphics ■ TCP/IP ■ USB ■ Cryptographic libraries ■ File systems ■ System services 	<ul style="list-style-type: none"> ■ ADC ■ Ethernet media access controller ■ Ethernet PHY interface ■ Controllerless graphics ■ Epson LCD controller ■ Non-volatile memory ■ SPI, UART, high-speed USB ■ Timer, parallel master port 	<ul style="list-style-type: none"> ■ MPLAB® X IDE ■ MPLAB XC32++ 	<ul style="list-style-type: none"> ■ FreeRTOS* ■ OpenRTOS* ■ TCP/IP* ■ SSL libraries

Additional software components planned
 *Sold and front line support provided directly by Microchip

Package Options



64-lead QFN (MR)
9 × 9 × 0.9 mm



64-lead TQFP (PT)
10 × 10 × 1 mm



100-lead TQFP (PT)
12 × 12 × 1 mm



100-lead TQFP (PF)
14 × 14 × 1 mm



124-lead VTLA (TL)
9 × 9 × 0.9 mm



144-lead TQFP (PH)
16 × 16 × 1 mm



144-lead LQFP (PL)
20 × 20 × 1.4 mm



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PIC32MZ EC Devices

Device	Flash (MB)	RAM (KB)	Pin Count	Speed (MHz)	DMA Channels	ADC Modules	ADC Channels	ADC S/H	Analog Comp.	Input Capture	Output Compare	Timers	RTCC	SPI/I ² S™	I ² C™	UART	Hi-Speed USB	Ethernet 10/100	CAN 2.0b	Encryption	PMP Static EBI
PIC32MZ2048ECG144	2	512	144	200	8/12	1	48	1	2	9	9	9	1	6	5	6	1	1	-	-	✓/✓
PIC32MZ2048ECH144	2	512	144	200	8/16	1	48	1	2	9	9	9	1	6	5	6	1	1	2	-	✓/✓
PIC32MZ2048ECG124	2	512	124	200	8/12	1	48	1	2	9	9	9	1	6	5	6	1	1	-	-	✓/✓
PIC32MZ2048ECH124	2	512	124	200	8/16	1	48	1	2	9	9	9	1	6	5	6	1	1	2	-	✓/✓
PIC32MZ2048ECG100	2	512	100	200	8/12	1	40	1	2	9	9	9	1	6	5	6	1	1	-	-	✓/✓
PIC32MZ2048ECH100	2	512	100	200	8/16	1	40	1	2	9	9	9	1	6	5	6	1	1	2	-	✓/✓
PIC32MZ2048ECG064	2	512	64	200	8/12	1	24	1	2	9	9	9	1	4	4	6	1	1	-	-	✓/-
PIC32MZ2048ECH064	2	512	64	200	8/16	1	24	1	2	9	9	9	1	4	4	6	1	1	2	-	✓/-
PIC32MZ1024ECG144	1	512	144	200	8/12	1	48	1	2	9	9	1	1	6	5	6	1	1	-	-	✓/✓
PIC32MZ1024ECH144	1	512	144	200	8/16	1	48	1	2	9	9	9	1	6	5	6	1	1	2	-	✓/✓
PIC32MZ1024ECG124	1	512	124	200	8/12	1	48	1	2	9	9	9	1	6	5	6	1	1	-	-	✓/✓
PIC32MZ1024ECH124	1	512	124	200	8/16	1	48	1	2	9	9	9	1	6	5	6	1	1	2	-	✓/✓
PIC32MZ1024ECG100	1	512	100	200	8/12	1	40	1	2	9	9	9	1	6	5	6	1	1	-	-	✓/✓
PIC32MZ1024ECH100	1	512	100	200	8/16	1	40	1	2	9	9	9	1	6	5	6	1	1	2	-	✓/✓
PIC32MZ1024ECG064	1	512	64	200	8/12	1	24	1	2	9	9	9	1	4	4	6	1	1	-	-	✓/-
PIC32MZ1024ECH064	1	512	64	200	8/16	1	24	1	2	9	9	9	1	4	4	6	1	1	2	-	✓/-
PIC32MZ2048ECM144	2	512	144	200	8/18	1	48	1	2	9	9	9	1	6	5	6	1	1	2	✓	✓/✓
PIC32MZ2048ECM124	2	512	124	200	8/18	1	48	1	2	9	9	9	1	6	5	6	1	1	2	✓	✓/✓
PIC32MZ2048ECM100	2	512	100	200	8/18	1	40	1	2	9	9	9	1	6	5	6	1	1	2	✓	✓/✓
PIC32MZ2048ECM064	2	512	64	200	8/18	1	24	1	2	9	9	9	1	4	4	6	1	1	2	✓	✓/-
PIC32MZ1024ECM144	1	512	144	200	8/18	1	48	1	2	9	9	9	1	6	5	6	1	1	2	✓	✓/✓
PIC32MZ1024ECM124	1	512	124	200	8/18	1	48	1	2	9	9	9	1	6	5	6	1	1	2	✓	✓/✓
PIC32MZ1024ECM100	1	512	100	200	8/18	1	40	1	2	9	9	9	1	6	5	6	1	1	2	✓	✓/✓
PIC32MZ1024ECM064	1	512	64	200	8/18	1	24	1	2	9	9	9	1	4	4	6	1	1	2	✓	✓/-

Development Tools

PIC32MZ EC Starter Kit (DM320006/DM320006-C)



The PIC32MZ Starter Kit is the easiest and lowest-cost way to experience the high-performance and advanced peripherals integrated in the PIC32MZ MCUs. This starter kit features a socket

that can accommodate 10/100 Ethernet transceiver (RJ-45) plug-in connectors from various vendors for prototyping and development. The PIC32MZ EC Starter Kit comes in two versions: with and without an on-chip Crypto Engine.

Multimedia Expansion Board II (DM320005-2)



The Multimedia Expansion Board II is a highly integrated, compact and flexible development platform which works with the PIC32MZ Starter Kit. This kit features a 4.3" WQVGA projected capacitive touch

display daughter board. The kit also has an on-board 24-bit stereo audio codec, VGA camera, 802.11b/g wireless module, Bluetooth® HCI transceiver, temperature sensor, microSD™ slot and analog accelerometer.

PIC32MZ2048EC Processor Plug-In Module (PIM) (MA320012)



The PIC32MZ PIM is designed to demonstrate the capabilities of the PIC32MZ EC family of devices using the Explorer 16 Development Board.



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