PIC32MM Family

eXtreme Low Power (XLP) Technology, Low-Cost 32-bit Microcontrollers

Summary

The PIC32MM family consisting of the GPL and GPM series is Microchip's lowest-power and most cost-effective family of 32-bit PIC32 microcontrollers. The PIC32MM XLP family of devices bridges the gap between our popular PIC24F XLP and PIC32MX families. For applications demanding increased connectivity with longer battery life and small form factors, the PIC32MM devices offer sleep modes as low as 500 nA and packages as small as 4 × 4 mm. Designed to offload the CPU and increase efficiency, the PIC32MM family features a rich set of Core Independent Peripherals (CIPs) making this family ideal for a wide variety of low-power applications. In addition, this family also takes advantage of the microAptiv™ UC core that uses compact microMIPS™ instructions and a shadow register set enabling a 79 CoreMark™ score at 25 MHz. The microMIPS ISA combines 16-bit and 32-bit instructions for compact code size reducing Flash usage.

Key Attributes

	PIC32MM0064GPL036 Family	PIC32MM0256GPM064 Family
ECC Program Flash (KB)	16–64	64–256
RAM (KB)	4–8	16–32
Pin Count	20–36	28–64
XLP - Sleep Mode with RAM retention	450 nA	650 nA
Core Independent Peripherals	ADC, Comparators, RTCC, WDT, Configurable Logic Cells (CLC), Flexible PWMs/IC/OC/Timers- MCCP and SCCP, CRC	ADC, Comparators, RTCC, WDT, Configurable Logic Cells (CLC), Flexible PWMs/IC/OC/Timers- MCCP and SCCP, CRC
USB	No	Yes
Hardware DMA	No	4-Channel DMA
Packages	20-pin: QFN, SSOP 28-pin: UQFN (4 x 4), QFN (6 x 6), SOIC, SSOP, SPDIP 36-pin: QFN (6 x 6) 40-pin: UQFN (5 x 5) with 36 I/O	28-pin: UQFN (4 x 4), QFN (6 x 6), SSOP 36-pin: QFN (6 x 6) 40-pin: UQFN (5 x 5) with 36 I/O 48-pin: UQFN (6 x 6), TQFP (7 x 7) 64-pin: QFN (9 x 9), TQFP (10 x 10)

PIC32MM0064GPL036 Family

PIC32MM0256GPM064 Family

www.microchip.com/PIC32MM

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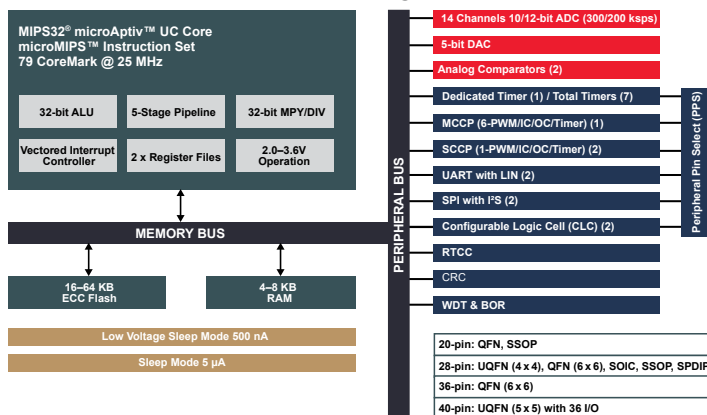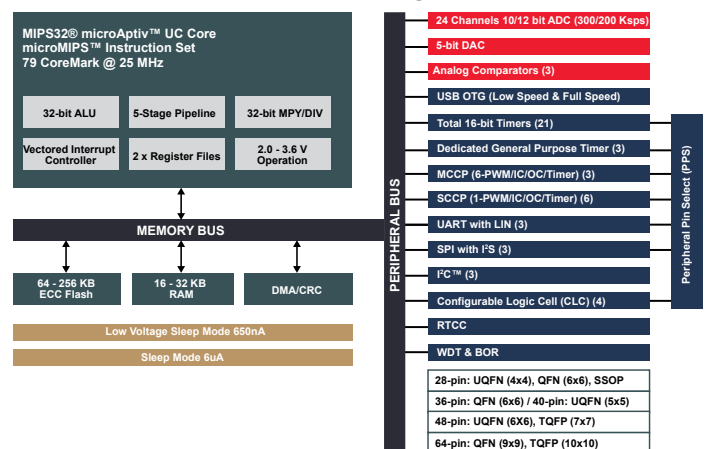
Target Applications

PIC32MM0064GPL036 Family

- **Low Power/Wireless** — IoT sensor nodes, connected thermostats; environmental monitoring, remote controls, portable medical devices
- **Consumer** — game consoles, home healthcare, fitness devices
- **Industrial Control** — building automation, heating controls, lighting controls
- **Low-Cost Motor Control** — white goods, table-top appliances

PIC32MM0256GPM064 Family

- **Entertainment/Gaming Industry** — USB digital audio noise cancellation headsets, gaming controllers, USB power delivery management, drone controllers
- **IoT Sensor Nodes** — environmental monitoring, sensor control, smart remotes
- **Portable Medical Instruments** — home healthcare, fitness devices
- **Automation Control Applications** — smart locks, smart garage door openers, home security control panels
- **Low-Cost Motor Control** — white goods, tabletop appliances

Development Tools

Explorer 16/32 Development Board (DM240001-2)

The Explorer 16/32 Development Board is a flexible and convenient development, demonstration and testing platform for 16-bit PIC24 MCUs, dsPIC® DSCs and 32-bit PIC32 MCUs. The board accepts processor Plug-In Modules (PIMs) designed for the Explorer 16 or Explorer 16/32 Development Boards for easy device swapping.

PIC32MM0064GPL036 Plug-In Module (MA320020)
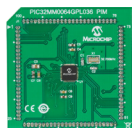
This PIM is designed to plug into the Explorer 16 or Explorer 16/32 Development Boards and demonstrates the capabilities of the PIC32MM "GPL" family of low-power and low-cost devices. The PIM includes the PIC32MM0064G-PL036 40-pin UQFN device, which has the most memory and highest pin-count of all devices in this family.

PIC32MM0256GPM064 Plug-In Module (MA320023)

The PIC32MM0256GPM064 PIM is designed to plug into the Explorer 16/32 Development Boards and is designed to enable users to explore the innovative features and capabilities of the PIC32MM "GPM" XLP family. The PIM includes the PIC32MM0256GPM064 64-pin TQFP device, which has the most memory and highest pin-count of all devices in this family.

PIC32MM Curiosity Development Board (DM320101)

The PIC32MM Curiosity Development Board is a simple and easy to use platform that facilitates quick PIC32MM GPL evaluation, experimentation and application prototyping. The board has an integrated programmer/debugger and offers various user interfaces like switches, LEDs, potentiometer and supports a MikroElektronika™ mikroBUS™ interface that lets you tap into the click boards™ ecosystem.

PIC32MM USB Curiosity Development Board (DM320107)

The PIC32MM Curiosity Development Board is a simple and easy to use platform that facilitates quick PIC32MM GPM evaluation, experimentation and application prototyping. The board has an integrated programmer/debugger and features two MikroElektronika mikroBUS expansion interfaces, USB micro B connector and two X32 Interfaces that facilitates access to the PIC32 Audio Codec Daughter Card making this an ideal evaluation board for audio applications.

MPLAB® Code Configurator

Microchip's MPLAB Code Configurator is free graphical programming environment that enables easy peripheral set-up, device configuration and pin mapping.

MPLAB Xpress Cloud-Based IDE

MPLAB Xpress Cloud-Based IDE is an online development environment that contains the most popular features of our award-winning MPLAB X IDE.

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