

MPLAB® Harmony v3

Unified Software Development Framework for 32-bit MCUs and MPUs

Summary

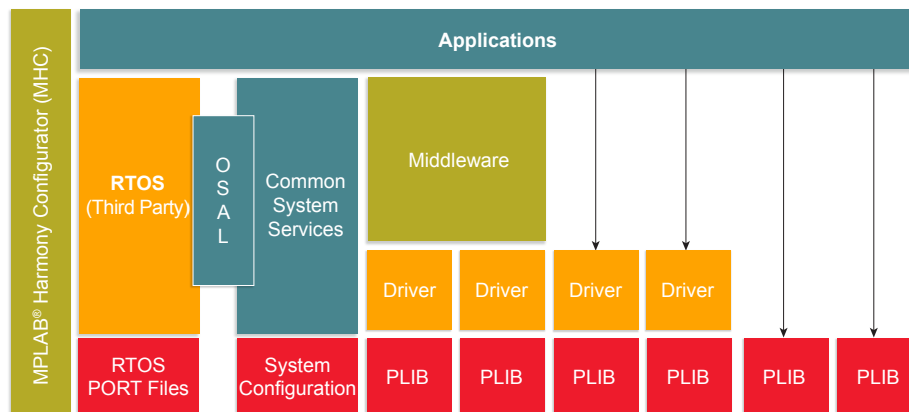
A unified and powerful content development and delivery environment, MPLAB® Harmony Software Framework v3 together with MPLAB X Integrated Development Environment (IDE), enhances your application development experience with a set of optimized peripheral libraries, simplified drivers and modular software downloads.

MPLAB Harmony v3 provides a unified platform with flexible choices spanning architectures, performance and application focus. It enables development of robust, interoperable, RTOS-friendly applications with quick and extensive support for third-party software integration. The improved MPLAB Harmony Configurator (MHC), now with a modular download manager, alleviates you from non-differentiating tasks to select and configure all MPLAB Harmony components in a graphical way, including middleware, system services and peripherals.



Key Highlights

- Unified Development Platform supports both PIC® and SAM 32-bit microcontrollers and microprocessors
- MPLAB Harmony Configurator (MHC) enables easy setup configurators for clock, I/O pin, ADC, interrupt, DMA, MPU, Event, QTouch®, as well as Harmony Graphics Composer and Display Manager
- FreeRTOS integration optional available
- MPLAB Harmony is delivered via GitHub to streamline application development:
 - Optimized peripheral libraries for size and performance
 - Simplified drivers supporting development at silicon level
 - Smaller/Modular downloads of software or services
- Powerful Middleware
 - TCP/IP, Wi-Fi®
 - TLS (wolfSSL TLS), Crypto
 - USB Device and Host
 - Audio and Bluetooth®: USB Audio, Hardware Codec, Software Codec, BT/BLE
 - Graphics: MPLAB Harmony Graphics Composer, Screen Designer, Display Manager
 - Many more: Motor Control, QTouch, Bootloaders, DSP/Math, etc.



Tools and Demo Examples

Development Kits

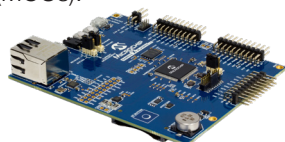
ATSAMC21N-XPRO/ ATSAMD21-XPRO

The SAMC21N/SAMD21 Xplained Pro Evaluation Kits



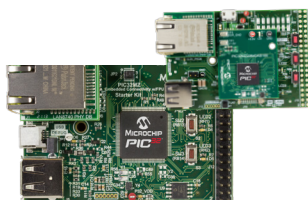
ATSAME54-XPRO

The SAM E54 Xplained Pro Evaluation Kit is a hardware platform for evaluating SAM D5x/E5x series microcontrollers (MCUs).



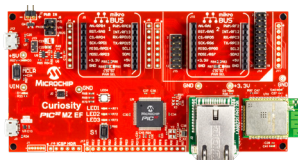
DM320007-C/DM320010-C

PIC32MZ EF (Connectivity)/PIC32MZ DA (Graphics) Starter Kits



DM320104

The Curiosity PIC32MZEZ Development Board, including on board Wi-Fi module



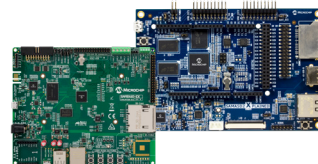
DM320113

The SAM E70 Xplained Ultra Evaluation Kit is a hardware platform for evaluating the ATSAME70 and ATSAMS70 families of microcontrollers (MCU).



ATSAMA5D2C-XULT/ ATSAM9X60-EK

The SAMA5D2 Evaluation Kit is a fast prototyping and evaluation platform for the SAMA5D2 series of MPUs. The SAM9X60 Evaluation Kit is ideal for evaluating and prototyping with the high performance, ultra-low power SAM9X60 ARM926EJ-S based MPU.



MPLAB Harmony v3: Demo Examples

Connectivity (TCP/IP, USB)	Audio	Graphics	Motor Control
TCP/IP Demo	Audio Microphone	Aria Quickstart (gateway demo)	AN2757: Sensored FOC Speed Control for a PMSM and Flux Weakening
Wi-Fi® Demo	Encoders and decoders	Aria Benchmark (graphics performance measuring)	
USB Demo	USB Speaker, microphone USB Smart Speaker	Aria Showcase	AN2590: PMSM Sensorless FOC (ROLO based Sensorless FOC) + Windmilling
Bluetooth® Demo	Audio + Bluetooth	Aria Weather Forecast	

Available Resources

- **MPLAB Harmony v3 Landing Page:** <https://www.microchip.com/mplab/mplab-harmony>
- **MPLAB Harmony v3 Device Support:** https://github.com/Microchip-MPLAB-Harmony/Microchip-MPLAB-Harmony.github.io/wiki/device_support
- **GitHub MPLAB Harmony v3 Wiki Page:** <https://github.com/Microchip-MPLAB-Harmony/Microchip-MPLAB-Harmony.github.io/wiki>
- **GitHub MPLAB Harmony v3 User Guide:** <https://microchip-mplab-harmony.github.io/>

Complementary Devices

- **Wireless Connectivity:** Wi-Fi, Bluetooth, BLE, LoRa, IEEE 802.15.4, Sub-G
- **Wired Connectivity and Interface:** CAN Transceivers, Ethernet PHY
- **Industrial Networking:** EtherCAT
- **CryptoAuthentication Device:** ATECC608A, ATSHA204A
- **Clock and Timing:** MEMs Oscillator
- **Analog:** Op Amp, Motor Driver
- **Power Management:** Linear and Switching Regulators

Services and Third Party

- **Microchip Training:** www.microchip.com/training/
- **Third Party Solutions:** FreeRTOS, Micrium and wolfSSL
- **Integrated Development Environment:** IAR

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