



**MICROCHIP**

# Development Tools Update

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We Make Innovative Design Easier

# Presentation Agenda

- Microchip dev tools strategy
- MPLAB® extensions for VS Code
- MPLAB Discover
- MCC: code configurator for Microchip ...
- AI coding assistant
- Zephyr support and roadmap



**Tool Ecosystems**

Visual Studio Code | iAR | SEGGER (It simply works!) | KEIL™ (Tools by ARM) | pyOCD

MPLAB X IDE | MPLAB EXTENSIONS | LAUTERBACH DEVELOPMENT TOOLS | Green Hills SOFTWARE | OpenOCD

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**MPLAB EXT** Microchip Technology [microchip.com](#) | 14,164 | ★★★★★ (3)

MPLAB Extension Pack installs basic MPLAB extensions to get started.

Disable | Uninstall |  Auto Update

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MICROCHIP **MPLAB DISCOVER** Search

Code Examples 7201 | All | Showing 1-20 of 37686 All

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**MPLAB EXT** **Code Configurator for Microchip devices** Microchip Technology [microchip.com](#) | ☆☆☆☆☆

Configure Code for devices by Microchip

Restart Extensions | Update to v0.1.3 | Disable | Uninstall |  Auto Update

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**MPLAB EXT** **MPLAB AI Coding Assistant** Microchip Technology [microchip.com](#) | 7,473 | ★★★★★ (3)

An AI code assistant optimized for using Microchip products.

Disable | Uninstall |  Auto Update

# Embrace Open Source and Industry Standards



Fully support our devices in all major partner eco systems

Meet the clients in the eco systems of their choice



CMSIS-DAP debug interface

Works with any tool ecosystem: Keil, IAR, Segger, Tasking, pyOCD, OpenOCD



CMSIS & Zephyr content

Leverage software reuse, lower learning curve, reduce costs and time to market

# Universal Content Support

## CMSIS PLIBs, Drivers, Middleware

- Modular
- Reusable
- Ecosystem-agnostic

## CMSIS Distribution

- Centralized in CMSIS Packs for easy access
- Version control and comprehensive documentation for all releases
- Distribute tools into CMSIS toolbox

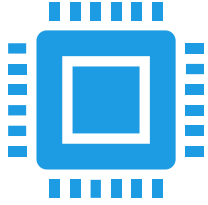
## Zephyr RTOS Integration

- Direct support for Zephyr RTOS in our drivers and middleware
- Devices and content compatible with the growing Zephyr ecosystem
- Collaboration with Zephyr community for upstream contributions
- Deploy tools into Zephyr community

## Developer Enablement

- Sample projects and reference designs for rapid prototyping
- Community forums/support channels for CMSIS and Zephyr-related queries
- Choices of tools

# Development Support



## MPLAB AI Coding Assistant

Code suggestions and auto-complete

Code generation from specifications

Error detection and debugging

Natural language Q&A

Paper napkin through production code



## Vectorized Content & Discover

Intelligent search and content recommendations

Personalized learning paths within MPLAB Extensions for VS Code

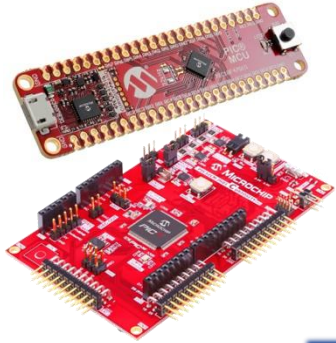


## Integrated Chat in MPLAB X IDE

Direct link to Live Chat  
Interface to Microchip chatbot

# Tools Ecosystem

## Curiosity Evaluation Kits



- Curiosity Nano provides MCU + debugger
- Enables rapid prototyping, easy evaluation
- Curiosity Pro expands options
- Switches, LEDs, USB
- Extension headers for I/O, Click boards

## Board Partners



## Development Tools

### Compilers



### Debuggers



### Software Assist



## Tool Ecosystems



## Operating Systems & Libraries

### Operating Systems



### Libraries



# Supporting VS Code – The Universal IDE

## Industry Standard

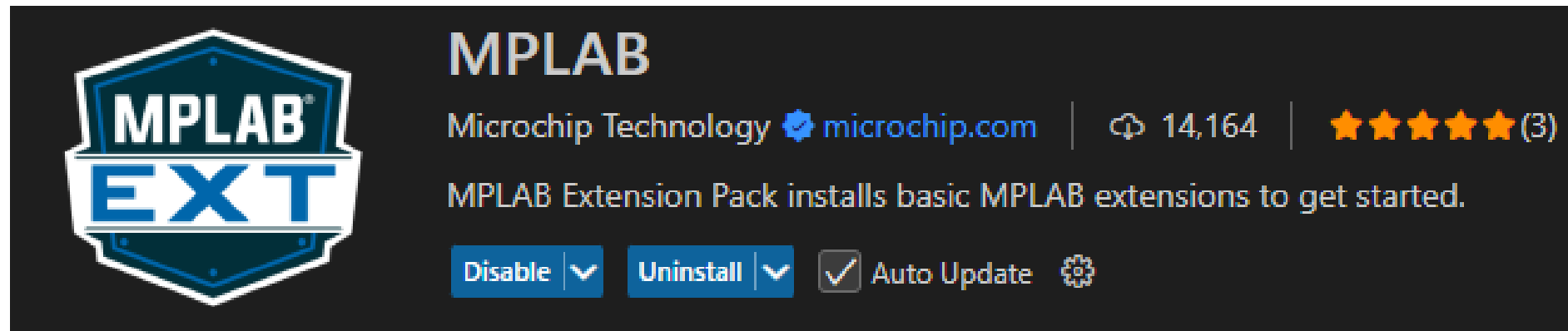
- VS Code is the most widely used IDE among developers globally.
- Microsoft reports over 50 million registered users of Visual Studio and VS Code combined, underscoring its massive adoption.

## Our Commitment

- Ensuring seamless integration of our tools, devices, and content with VS Code.
- Providing official extensions for device programming, debugging, and project management within VS Code.

# Presentation Agenda

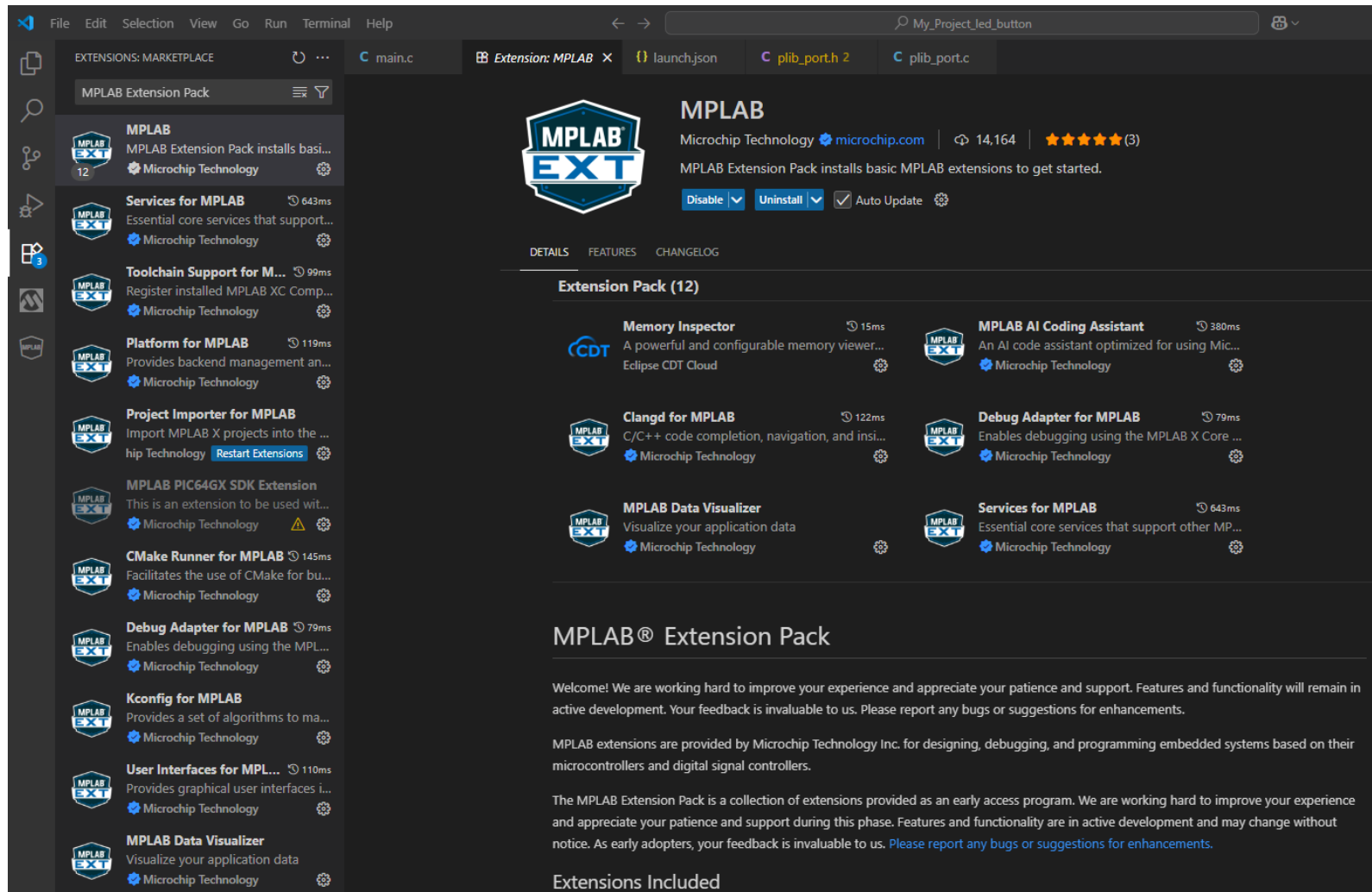
- Overall Microchip Dev Tools strategy
- **MPLAB® Extensions for VS Code**
- MPLAB Discover
- MCC: Code Configurator for Microchip ...
- AI Coding Assistant
- Zephyr support and roadmap



The screenshot shows the Visual Studio Code interface for the MPLAB EXT extension. On the left is the extension's logo, a shield-shaped emblem with 'MPLAB' in white on a dark blue background and 'EXT' in blue on a white background. To the right of the logo, the text 'MPLAB' is displayed in large white font. Below this, it says 'Microchip Technology' with a blue checkmark icon and the URL 'microchip.com'. Further right, there is a cloud icon, the number '14,164', and a row of five yellow stars with '(3)' next to them. Below the stars, a description reads: 'MPLAB Extension Pack installs basic MPLAB extensions to get started.' At the bottom, there are three blue buttons: 'Disable' with a dropdown arrow, 'Uninstall' with a dropdown arrow, and 'Auto Update' with a checked checkbox and a gear icon.

# MPLAB® Extension Pack

- Installs all basic MPLAB extensions to get started.
  - Project importer for MPLAB
  - Debug adapter for MPLAB core debugger
  - Toolchain support for MPLAB (XC compilers)
  - Clangd for MPLAB (code completion)
  - MPLAB data visualizer
  - MPLAB AI coding assistant
  - Code configurator for Microchip devices (MCC)



The screenshot shows the Eclipse IDE Marketplace interface. The left sidebar displays the 'MPLAB Extension Pack' with a list of 12 included extensions. The main panel shows the details for the 'MPLAB' extension, including its description, version, and a list of included extensions. The 'MPLAB' extension is described as 'MPLAB Extension Pack installs basic MPLAB extensions to get started.' and has a rating of 4.5 stars (3 reviews). The included extensions are:

- Memory Inspector
- MPLAB AI Coding Assistant
- Clangd for MPLAB
- Debug Adapter for MPLAB
- MPLAB Data Visualizer
- Services for MPLAB
- Project Importer for MPLAB
- MPLAB PIC64GX SDK Extension
- CMake Runner for MPLAB
- Debug Adapter for MPLAB
- Kconfig for MPLAB
- User Interfaces for MPLAB
- MPLAB Data Visualizer

[Time stamped Link](#)

# Presentation Agenda

- Overall Microchip Dev Tools strategy
- MPLAB® Extensions for VS Code
- **MPLAB Discover**
- MCC: Code Configurator for Microchip ...
- AI Coding Assistant
- Zephyr support and roadmap

The screenshot shows the top navigation bar of the MPLAB Discover website. On the left, there is the Microchip logo and the MPLAB Discover logo. In the center is a large search input field with a magnifying glass icon and the text "Search". To the right of the search field is a toggle switch labeled "Advanced search" with a question mark icon. Further right are a help icon (question mark) and a download icon. Below the search bar is a horizontal bar with three colored segments: orange, blue, and green. Below this bar is a navigation menu with a left arrow, a dropdown menu showing "Code Examples" with a count of "7201", and the word "All". On the right side of the navigation bar, it says "Showing 1-20 of 37686 All".



Search



- Code Examples **7190**
  - MCU/MPU Examples **7161**
  - FPGA Examples **29**
- Documentation **24126**
  - App Notes **3293**
  - Data Sheets **10475**
  - Reference Designs **160**
  - Online References **10198**
- Learning Resources **3020**
  - Videos **2319**
  - Webinars **215**
  - Microchip Blogs **486**
- Evaluation Boards **3194**
- Other/More **27**

All

Showing 1-20 of 37557 All

Name	Category
Sensorless FOC of ACIM using PLL estimator integrated with Power Factor Correction: MCHV-230VAC-1.5kW and dsPIC33AK128MC106 MC DIM	MCU/MPU Examples
AN1206 Sensorless FOC of ACIM using PLL Estimator: MCHV-230VAC-1.5kW and dsPIC33AK128MC106 MC DIM	MCU/MPU Examples
Curiosity Nano Explorer WS2812	MCU/MPU Examples
pic18f56q24 Light intensity measurement using MCC	MCU/MPU Examples
pic18f56q24-curiosity-nano-explorer-at24cm02-eprom	MCU/MPU Examples
pic18f56q24-curiosity-nano-explorer-25csm04-eprom	MCU/MPU Examples
pic18f56q24 curiosity nano explorer mcp23008 joystick	MCU/MPU Examples
pic18f56q24 Temperature measurement using MCC	MCU/MPU Examples
Host EEPROM program	MCU/MPU Examples
RF Transmitter and Receiver com.microchip.mcu32.mplabx.project.rf_transmit_receive_pic32wfi32e_curiosity	MCU/MPU Examples
RF Transmitter and Receiver com.microchip.mcu32.mplabx.project.rf_transmit_receive_sam_c21_xpro	MCU/MPU Examples
RF Transmitter and Receiver com.microchip.mcu32.mplabx.project.rf_transmit_receive_wb351_curiosity	MCU/MPU Examples



# MPLAB<sup>®</sup> Discover: Filtering



Advanced search



Example Component



- Code Examples **7190**
- MCU/MPU Examples **7161**
- FPGA Examples **29**
- Documentation **24126**
- App Notes **3293**
- Data Sheets **10475**
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All

Showing 1-20 of 37557 All

Name

Category

Sensorless FOC of ACIM using PLL estimator integrated with Power Factor Correction: MCHV-230VAC-1.5kW and dsPIC33AK128MC106 MC DIM	MCU/MPU Examples
AN1206 Sensorless FOC of ACIM using PLL Estimator: MCHV-230VAC-1.5kW and dsPIC33AK128MC106 MC DIM	MCU/MPU Examples
Curiosity Nano Explorer W52812	MCU/MPU Examples
pic18f56q24 Light intensity measurement using MCC	MCU/MPU Examples
pic18f56q24-curiosity-nano-explorer-at24cm02-EEPROM	MCU/MPU Examples
pic18f56q24-curiosity-nano-explorer-25csm04-EEPROM	MCU/MPU Examples
pic18f56q24 curiosity nano explorer mcp23008 joystick	MCU/MPU Examples
pic18f56q24 Temperature measurement using MCC	MCU/MPU Examples
Host EEPROM program	MCU/MPU Examples
RF Transmitter and Receiver com.microchip.mcu32.mplabx.project.rf_transmit_receive_pic32wfi32e_curiosity	MCU/MPU Examples
RF Transmitter and Receiver com.microchip.mcu32.mplabx.project.rf_transmit_receive_wb351_curiosity	MCU/MPU Examples

# MPLAB<sup>®</sup> Discover: Filtering



Advanced search ⓘ

Example ⓘ Component ⓘ  Search ⓘ

- Code Examples 16
  - MCU/MPU Examples 16
- Documentation 137
  - App Notes 7
  - Reference Designs 1
  - Online References 129
- Learning Resources 30
  - Videos 18
  - Webinars 2
  - Microchip Blogs 10
  - Evaluation Boards 15

All Showing 1-20 of 198 AI

Name	Category
pic18f56q24 curiosity nano explorer mcp23008 joystick	MCU/MPU Examples
▶ Wi-Fi Station(STA) Mode (Service)	MCU/MPU Examples
▶ Wi-Fi Access Point(AP) Mode (Service)	MCU/MPU Examples
▶ pic18f57q43-adcc-spike-detection-polled-mcc	MCU/MPU Examples
▶ pic18f57q43-adcc-basic-printf-polled-mcc	MCU/MPU Examples
▶ pic18f57q43-adcc-data-streamer-pwm-callbacks-mcc	MCU/MPU Examples
▶ pic18f57q43-adcc-spike-detection-callbacks-mcc	MCU/MPU Examples
▶ pic18f57q43-adcc-data-streamer-callbacks-mcc	MCU/MPU Examples
▶ pic18f57q43-adcc-basic-printf-callbacks-mcc	MCU/MPU Examples
▶ pic18f57q43-timer-toggle-led-callbacks-mcc	MCU/MPU Examples



# MPLAB<sup>®</sup> Discover: Harmony

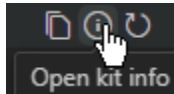
## MPLAB Kit Information: For the Kit You Have

Time stamped Link

Available at the



- Refresh
- Click on



The screenshot shows the MPLAB Discover website interface. The browser address bar displays 'https://mplab-discover.microchip.com/discover.microchip.com'. The search bar contains the part number 'PIC32CM5164JH01048'. On the left, a navigation menu is visible with the following categories and counts:

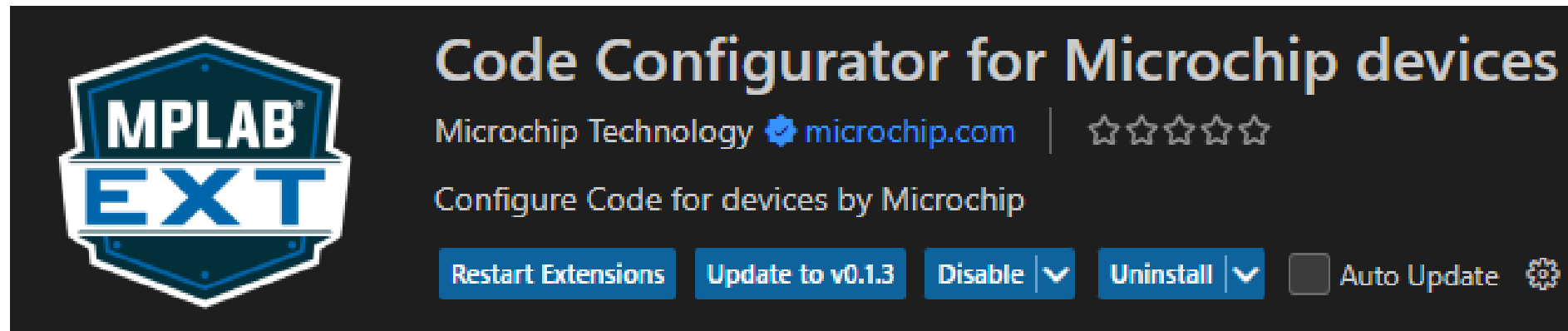
- Code Examples: 7171
- Documentation: 24007
- Learning Resources: 3011
- Evaluation Boards: 3196
- Other/More: 27

A callout box with a green arrow points to the 'Other/More' category, containing the text: 'To find examples, docs, etc. ...'. The search results on the right are listed under the heading 'All' and include the following items:

- Motor Control High Speed With AVR MCUs
- dsPIC33A CRC Advanced Demo
- Lack of Liquid Alarm Using the AVR64DD32 Microcontroller and MTCH9010 Liquid Detector
- Smart Retractable Roof Using the AVR16EB32 Microcontroller and MTCH9010 Liquid Detector
- EMAFE DMA Example - EMAFE Example application using DMA for PIC32CX MTS family.
- Multichannel Demo meter application (FreeRTOS) - Multichannel Demo meter application for PIC32CX MTC family (external AFE).
- EMAFE Polled Example - EMAFE Example application in Polling mode for PIC32CX MTS family.
- ICM Monitor Mode Example - ICM Example application in Monitor mode for PIC32CX MT family.

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- **MCC: code configurator for Microchip ...**
- AI coding assistant
- Zephyr support and roadmap

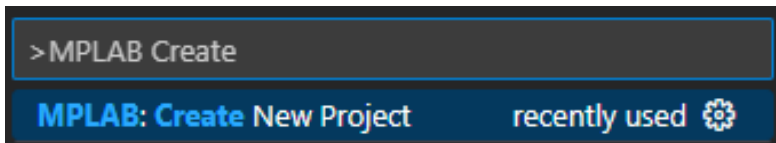


The screenshot shows the extension marketplace interface for the 'Code Configurator for Microchip devices' extension. On the left is the MPLAB EXT logo. The main title is 'Code Configurator for Microchip devices' in a large, bold font. Below the title, it says 'Microchip Technology' with a link to 'microchip.com' and a five-star rating. The description reads 'Configure Code for devices by Microchip'. At the bottom, there are several interactive buttons: 'Restart Extensions', 'Update to v0.1.3', 'Disable' with a dropdown arrow, 'Uninstall' with a dropdown arrow, and 'Auto Update' with a checkbox and a gear icon.

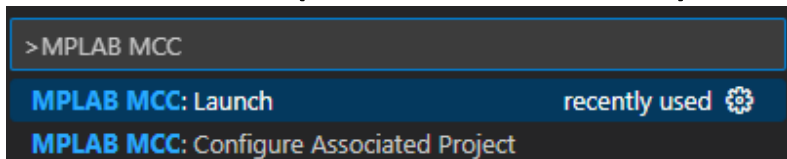
# Code Configurator for Microchip® Devices

- **MCC extension:**

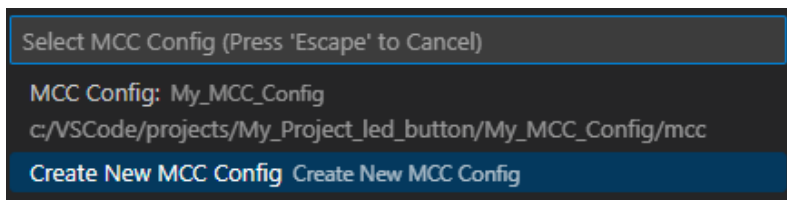
- **Import an existing MPLAB® project / create a new one**



- **Open MCC command (Ctrl + Shift + P)**



- **Create New MCC Config**



The screenshot shows the Visual Studio Marketplace page for the 'Code Configurator for Microchip devices' extension. The page features the MPLAB EXT logo, the extension name, and a 'Preview' badge. Below the name, it shows the publisher 'Microchip Technology' with a link to 'microchip.com' and a five-star rating. The description reads: 'Configure Code for devices by Microchip'. There are several action buttons: 'Restart Extensions', 'Update to v0.1.3', 'Disable', 'Uninstall', and 'Auto Update'. A navigation menu includes 'DETAILS', 'FEATURES', 'CHANGELOG', and 'DEPENDENCIES'. The main heading is 'Code Configurator for Microchip® devices'. A welcome message states: 'Welcome to the early access program. You are using an early version of this software. We are working hard to improve your experience and appreciate your patience and support during this phase. Features and functionality are in active development and may change without notice. As early adopters, your feedback is invaluable to us. Please report any bugs or suggestions for enhancements.' The 'Features' section is highlighted with a star icon and lists several capabilities: providing a graphical interface for peripheral configuration, generating initialization and driver code, including a Pin Manager tool, supporting integration with software libraries like the Foundation Services Library, offering core and library management through the MCC Content Manager, supporting independent MCC configurations, and providing example projects and templates.

# MCC Melody: Components and Builder

The screenshot shows the MCC Melody interface. On the left, the 'Device Resources' panel is expanded, showing a list of components such as Data Visualizer, Generic Driver Interfaces, Off-chip Device Drivers, Temperature, Drivers (CCP, CLC, Clock Reference, Comparator, CRC, CWG, DAC, DMA, DSM, FVR, HLVD, I2C), I2C (I2C\_Client, I2C\_Host, I2C\_Host Example), PWM, SMT, SPI, Timer, UART, ZCD, and System (CPU, PMD, WWDT, Hardware Peripherals). A blue callout box on the left points to this panel with the text: "Determines what you see in Device Resources".

In the center, the 'Content Manager (Project Scope)' is visible, showing a project graph with components like 'TIMER Example', 'Main', 'Timer2', 'TMR2', 'Data Streamer', and 'UART(None)'. A blue callout box points to the 'Content Manager' button with the text: "Content Manager (Project Scope): Available for project".

At the bottom, the 'System' section shows components like 'Clock Control', 'Interrupt Manager', and 'Pins'. Below that, the 'PIC18F57Q43' device is shown with a list of peripherals: ADCC (1), CCP, CRC (1), and CWG, DAC.

The screenshot shows the MPLAB Harmony IDE interface. On the left, the 'Device Resource' panel is expanded, showing a list of components such as Harmony, Peripherals (AC, ADC (ADC0, ADC1)), CAN, CCL, DAC, DIVAS, DSU, EIC, FREQM, PDEC, PM, RAM, RSTC, RTC, SERCOM (SERCOM0, SERCOM2, SERCOM3, SERCOM4, SERCOM5), SUPC, and TC (TC1, TC2, TC3). A blue callout box on the left points to this panel with the text: "Determines what you see in Device Resources".

In the center, the 'Project Graph' is visible, showing a project graph with components like 'TIMER Example', 'Main', 'Timer2', 'TMR2', 'Data Streamer', and 'UART(None)'. A blue callout box points to the 'Content Manager' button with the text: "Content Manager (Project Scope): Available for project".

At the bottom, the 'System' section shows components like 'Clock Control', 'Interrupt Manager', and 'Pins'. Below that, the 'PIC18F57Q43' device is shown with a list of peripherals: ADCC (1), CCP, CRC (1), and CWG, DAC.



# MCC Melody: Components and Builder



MPLAB X IDE v6.25 - MCC\_Melody\_Q43 : default

File Edit View Navigate Source Refactor Production Debug Team Tools Window Help

default [src] [log] [MCC] PC: 0x0 n ov z dc c : W:0x0 : bank 0 How do I? Keyword(s)

Projects x Files Services Kit Window x MCC x MCC Content Manager x

MCC\_Melody\_Q43  
Header Files  
Important Files  
Linker Files  
Source Files  
Libraries  
Loadables

Select Export/Import Option Submit Select Versions From File Select Latest Version(s) Apply Cancel

Type to Search Globally... Device: PIC18F57Q43 Content Type: MELODY Show Local Content Only

Content Libraries MCC Cores and Frontends

Component	Version	Status	Description
Libraries		☼	
Drivers		△	
PLIB		☼	
ADC *	5.0.0	Active version. Latest	12-bit Analog-to-Digital Converter with Computation (PIC16: 184xx, 191xx ; PIC18: K42, K83, Q40, Q41, Q43)
ADC - [local]	5.0.0 - [local]		Integrated Circuit peripheral with fast mode operation support (PIC18: K42, K83, Q43)
ADC - [remote]	5.0.0-rc.3 - [remote]		Interface module (PIC18: K42, K83, Q20, Q24, Q40, Q41, Q43, Q71, Q83, Q84)
ADC - [remote]	5.0.0-rc.2 - [remote]		16-bit timer/counter with configurable period, prescaler, and postscaler. (PIC16: 131xx, 152xx, 153xx, 171xx, 175xx, 180xx, 181xx, 183xx, 184xx, 188xx, 191xx ; PIC18: 42, Q10, Q20, Q24, Q40, Q41, Q43, Q71, Q83, Q84)
ADC - [remote]	5.0.0-feat.3 - [remote]		timer/counter with gated mode support and programmable internal or external clock sources. (PIC16: 131xx, 152xx, 153xx, 171xx, 175xx, 180xx, 181xx, 184xx, 191xx ; PIC18: K20, K40, K42, K83, Q10, Q20, Q24, Q40, Q41, Q43, Q71, Q83, Q84)
ADC - [remote]	5.0.0-feat.2 - [remote]		timer/counter with period match register and one shot mode support (PIC12: 161x ; PIC16: 161x, 176x, 177x, 131xx, 152xx, 171xx, 175xx, 180xx, 181xx, 184xx, 191xx ; PIC18: K40, K42, K83, Q10, Q20, Q24, Q40, Q41, Q43, Q71, Q83, Q84)
ADC - [remote]	5.0.0-feat.1 - [remote]		Universal Asynchronous Receiver Transmitter with Protocol Support (PIC18: K42, K83, Q20, Q24, Q40, Q41, Q43, Q71, Q83, Q84)
ADC - [remote]	5.0.0-dev.3 - [remote]		
Hardware Peripherals			
System			
Devices			
Examples			
MCC Melody Core *	2.9.1	Latest	Communicates with the MCC core, providing views and other functionality for MCC Melody

Click To Open Release Notes

Click To Open Version History

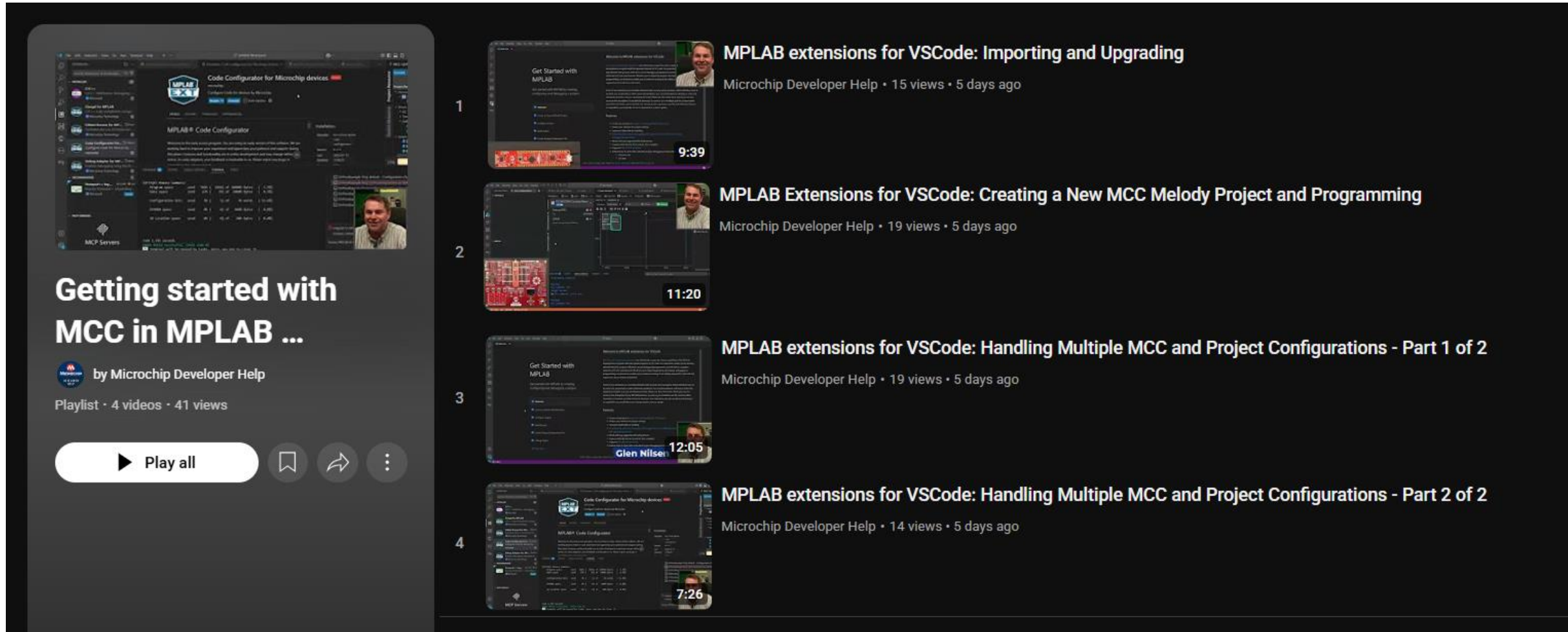
Change Log

Content Manager Help

Release Notes

# Demos: From Getting Started with MCC in VS Code

## Code Configurator for Microchip® Devices - [YouTube](#)



**Getting started with MCC in MPLAB ...**  
by Microchip Developer Help  
Playlist · 4 videos · 41 views

**1** **MPLAB extensions for VSCode: Importing and Upgrading**  
Microchip Developer Help · 15 views · 5 days ago  
9:39

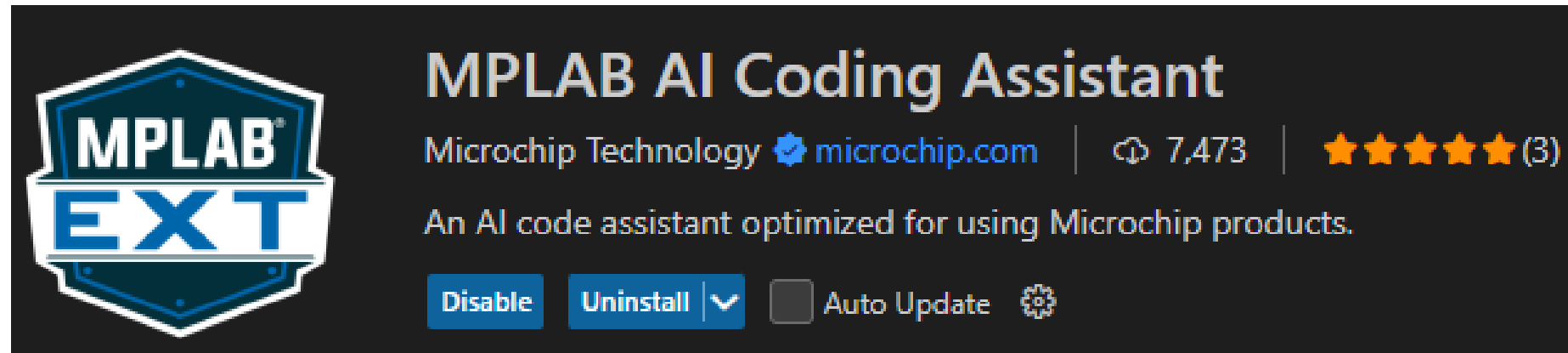
**2** **MPLAB Extensions for VSCode: Creating a New MCC Melody Project and Programming**  
Microchip Developer Help · 19 views · 5 days ago  
11:20

**3** **MPLAB extensions for VSCode: Handling Multiple MCC and Project Configurations - Part 1 of 2**  
Microchip Developer Help · 19 views · 5 days ago  
12:05  
Glen Nilser

**4** **MPLAB extensions for VSCode: Handling Multiple MCC and Project Configurations - Part 2 of 2**  
Microchip Developer Help · 14 views · 5 days ago  
7:26

# Presentation Agenda

- Overall Microchip dev tools strategy
- MPLAB extensions for VS Code
- MPLAB Discover
- MCC: code configurator for Microchip ...
- **AI coding assistant**
- Zephyr support and roadmap



The screenshot shows the VS Code interface for the MPLAB AI Coding Assistant extension. On the left is the MPLAB EXT logo, which consists of a blue shield with 'MPLAB' in white and 'EXT' in blue. To the right of the logo, the extension name 'MPLAB AI Coding Assistant' is displayed in a large, bold font. Below the name, it shows 'Microchip Technology' with a blue Microchip logo and the website 'microchip.com'. Further right, there is a download icon followed by '7,473' and a star rating of five stars with '(3)' reviews. Below this information, a description reads 'An AI code assistant optimized for using Microchip products.' At the bottom of the extension card, there are four controls: a blue 'Disable' button, a blue 'Uninstall' button with a dropdown arrow, a grey 'Auto Update' checkbox, and a gear icon for settings.

## Smarter Coding with AI

# MPLAB® AI Coding Assistant

[YouTube](#)

## MCC extension:

- Tailored for developing with Microchip products,
- Facilitating development of Microchip-specific features with New
  - slash commands,
  - shortcuts
  - common use cases.
- Developer Help [docs](#)

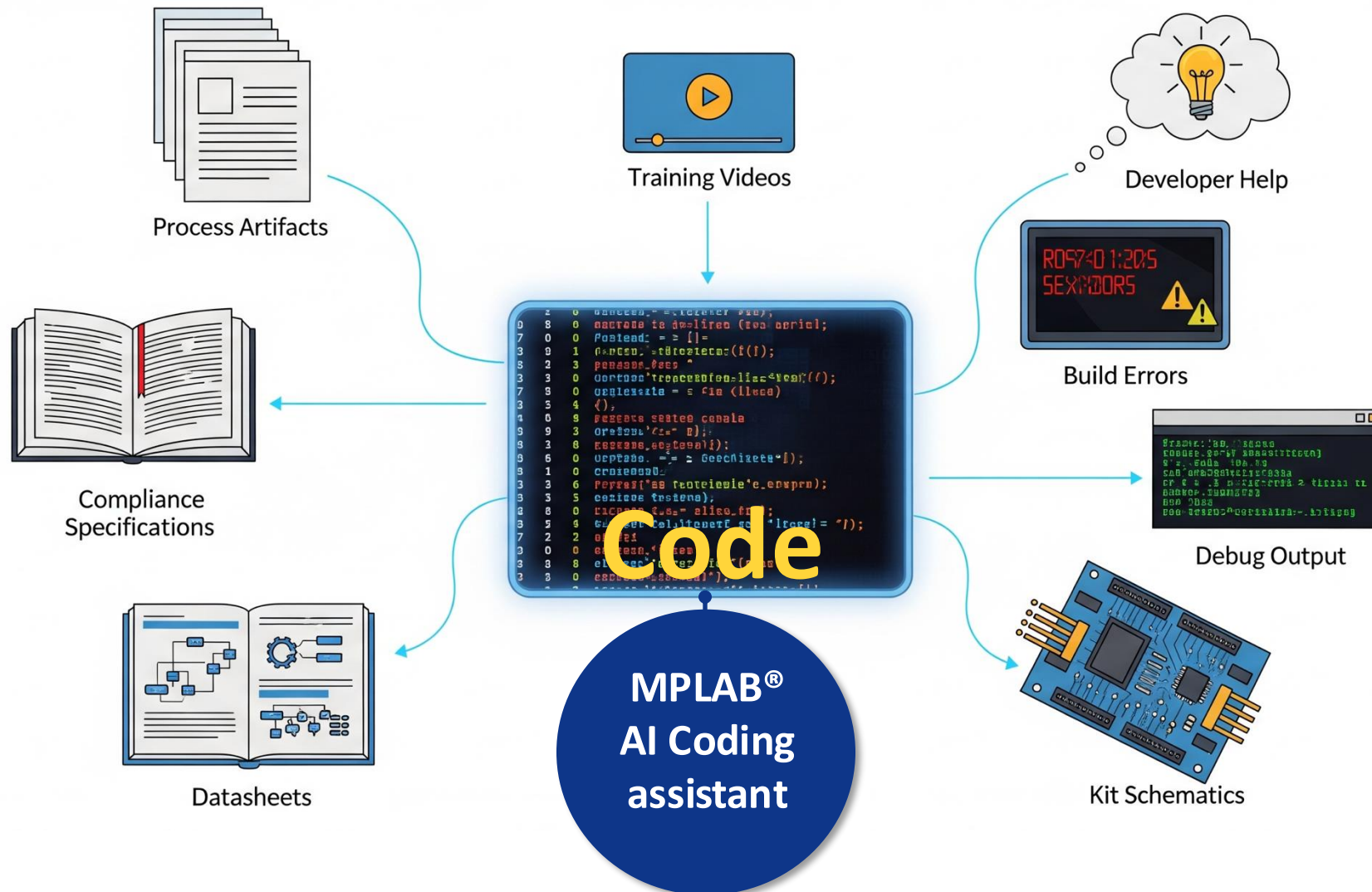


The screenshot shows the Visual Studio Code Marketplace page for the 'MPLAB AI Coding Assistant' extension. The extension is by Microchip Technology, with a link to microchip.com. It has 6,766 installations and a 5-star rating from 3 reviews. The description states it is an AI code assistant optimized for using Microchip products. Below the description are controls for 'Disable', 'Uninstall', and 'Auto Update' (checked). The page includes tabs for 'DETAILS', 'FEATURES', and 'CHANGELOG'. The main heading is 'MPLAB® AI Coding Assistant'. The description text reads: 'The MPLAB® AI Coding Assistant is a free, customized version of the Continue extension from Visual Studio Code Marketplace, one of the leading open-source AI code assistant on the market today. Tailored specifically for users developing Microchip products, this free tool facilitates the development of Microchip-specific features, new slash commands, shortcuts and common use cases. With the MPLAB® AI Coding Assistant, you will be interacting with a Microchip-trained virtual assistant chatbot that will answer your Microchip-specific product coding questions. MPLAB® AI Coding Assistant is continuously updated with Microchip-specific information, allowing you to:'

- Develop and edit Microchip product-specific code seamlessly and with fewer hallucinations than publicly available AI tools
- Access Microchip data sheets without leaving the editor
- Take advantage of the Autocomplete feature, which provides suggestions as users type their code
- Generate, review, explain and comment on code
- Automate mundane tasks such as commenting code
- Enhance productivity for product development

# MPLAB® AI Assisted Development Ecosystem

## Empowering Developers for Faster, Smarter Code Development



# Topic 1: MPLAB® AI Coding assistant

The screenshot shows a code editor window with the following content:

```
1 // Code generated by MCHP Chatbot
2 /*****
3 Main Source File
4
5 Company:
6   Microchip Technology Inc.
7
8 File Name:
9   main.c
10
11 Summary:
12   This file contains the "main" funct
13
14
15   ins the "main" funct
16   calls the "SYS_Init
17   modules in the syst
18   *****/
```

A blue callout bubble with the text "MPLAB® AI Coding assistant" is positioned over the code. A blue arrow points from the bubble to the code. The IDE interface also shows a file explorer on the left with a project named "GAME\_GSENSOR" and a sidebar on the right titled "MICROCHIP" with a list of MCP servers.



# What is MPLAB<sup>®</sup> AI Coding Assistant

Game\_GSensor

EXTENSIONS: MARKETPLACE

mplab ai coding assistant

**MPLAB AI Codin...** 6K ★ 5  
An AI code assistant optimize...  
Microchip Technology **Install**

**MPLAB**  
MPLAB Extension Pack install...  
Microchip Technology

**Services for MPLAB** 1582ms  
Essential core services that su...  
Microchip Technology

**CMake Runner for ...** 201ms  
Facilitates the use of CMake f...  
Microchip Technology

**Platform for ...**  
Provides ba...  
Microchip

**MICROCHIP**

Models Local Assistant

Chat Microchip GPT

Autocomplete Microchip Coder

Edit Microchip GPT

Apply No Apply models. Using Chat model

Embed Transformers.js (Built-In)

Rerank No Rerank models

+ Add Models

Ask anything, '/' for prompts, '@' to add context

Agent Microchip GPT

Last Session

**Free!**

Show All Commands Ctrl + Shift + P

File Ctrl

**MPLAB extension to VS Code**

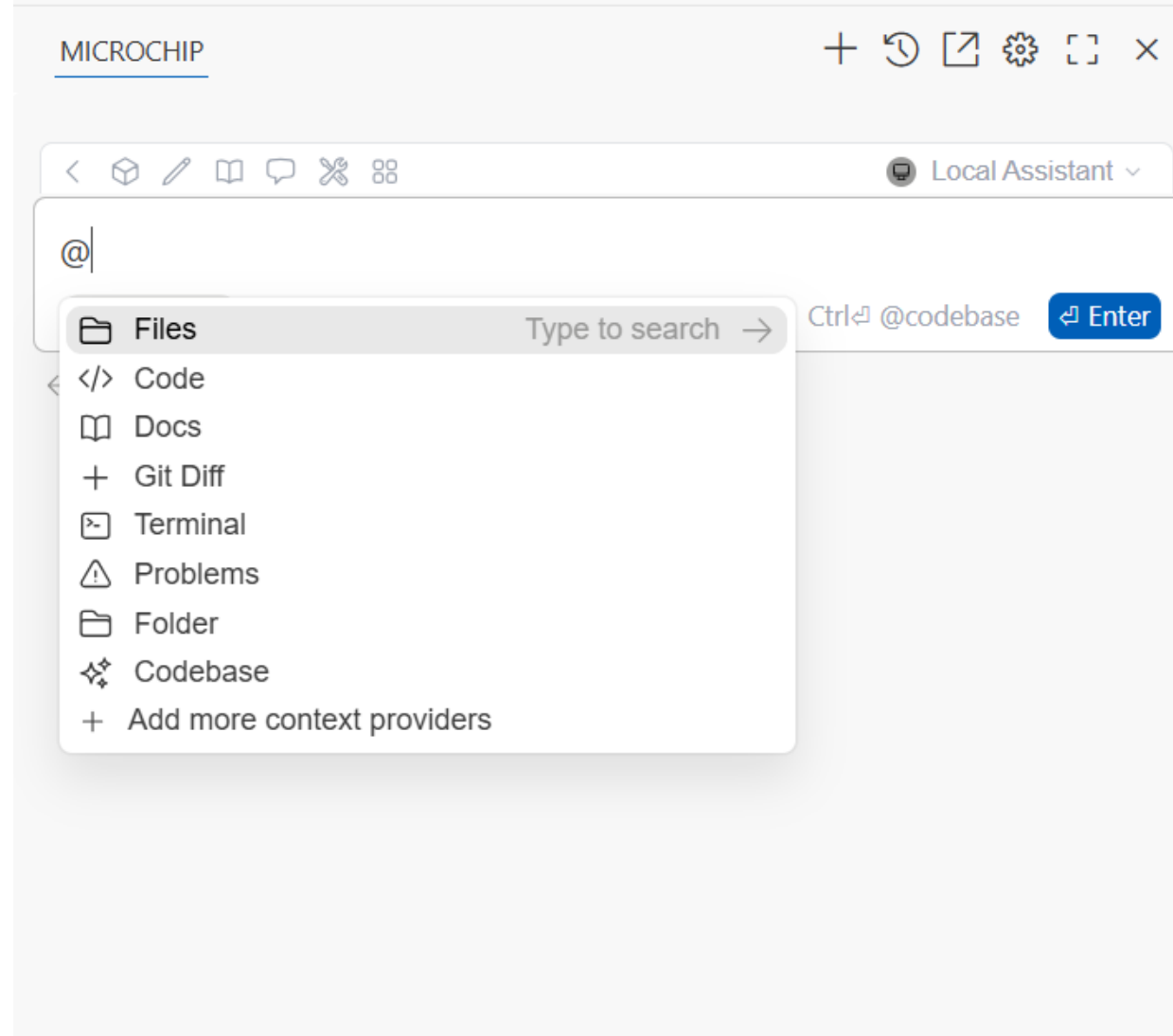
**Microchip Chat & Autocomplete models**

**Does not store User data**

**Bring your own LLM**

# MPLAB<sup>®</sup> Workspace Context Providers

- **@File**
  - Reference any file in current workspace
- **@Code**
  - Reference specific functions or classes
- **@Git Diff**
  - Reference changes to current branch
- **@Terminal**
  - Reference last command in IDE terminal
- **@Problems**
  - Get Problems from the current file
- **@Codebase**
  - Reference most relevant snippets from your workspace



# Topic 2: MPLAB<sup>®</sup> Agent

The screenshot shows the MPLAB IDE interface. The Explorer pane on the left displays the project structure for 'GAME\_GSENSOR', including files like 'misra\_rules.yaml', 'project\_rules.yaml', and 'APP055 BOM.csv'. The main editor window shows the 'main.c' file with the following content:

```
1 // Code generated by MCHP Chatbot
2 /*****
3 Main Source File
4
5 Company:
6   Microchip Technology Inc.
7
8 File Name:
9   main.c
10
11 Summary:
12   This file contains the "main" funct
13
14 Description:
15   This file contains the "main" funct
16   "main" function calls the "SYS_Init
17   machines of all modules in the syst
18 *****/
```

On the right side, the 'MICROCHIP' MCP interface is visible. It lists several MCP servers: 'mchp-docs' (5 connections), 'mchp-polarion' (10 connections), 'mchp-atlassian' (36 connections), and 'mchp-bitbucket' (21 connections). Below this is a search bar with the text 'Ask anything, '/' for prompts, '@' to add context' and a dropdown menu set to 'Agent' and 'Microchip GPT'. A blue circle with a white arrow points from the MCP interface to the AI-generated code in the editor.



# MPLAB<sup>®</sup> Agent, in a Nutshell

The screenshot displays the MPLAB IDE interface. On the left is the Explorer pane showing a project named 'GAME\_GSENSOR' with a 'src' folder containing various source files like Delay.h, GraphicApp.c, and main.c. In the center, a cartoon character wearing a blue cap with the Microchip logo and green wings stands on a large, faint 'X' watermark. Below the character are keyboard shortcuts: 'Show All Commands Ctrl + Shift + P' and 'Ctrl + P'. On the right, the Microchip Assistant panel is open, showing a 'Built-In' section with a list of tools and their status (Automatic). A search bar at the bottom of the assistant panel contains the text 'Agent Microchip GPT'. A blue line points from the search bar to the character.

EXPLORER

GAME\_GSENSOR

src

- Delay.h
- GraphicApp.c
- GraphicApp.h
- GraphicLib.c
- GraphicLib.h
- LCM.c
- LCM.h
- main.c
- Math3D.c
- Math3D.h
- Microchip\_Logo.h
- MotionApp.c
- MotionApp.h
- myprintf.c
- myprintf.h
- buildpro.bat
- env.bat

MICROCHIP

Local Assistant

**Built-In**

- builtin\_read\_file Automatic
- builtin\_edit\_existing\_file Automatic
- builtin\_create\_new\_file Automatic
- builtin\_run\_terminal\_command Automatic
- builtin\_grep\_search Automatic
- builtin\_file\_glob\_search Automatic
- builtin\_search\_web Automatic
- builtin\_view\_diff Automatic
- builtin\_read\_currently\_open\_file Automatic

Ask anything, '/' for prompts, '@' to add context

Agent Microchip GPT

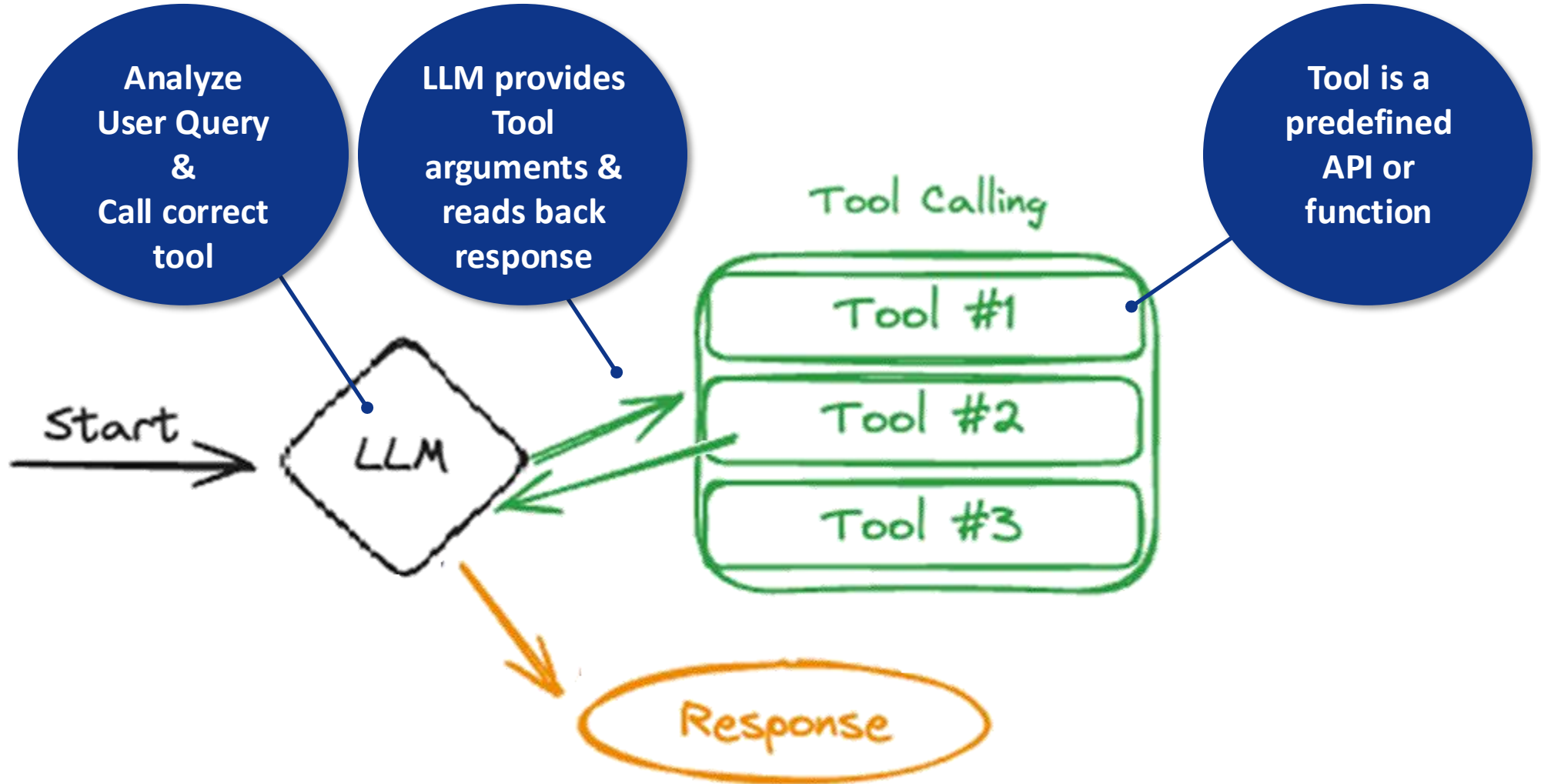
Acts on  
your  
behalf

Uses  
Tools

Follows  
Rules

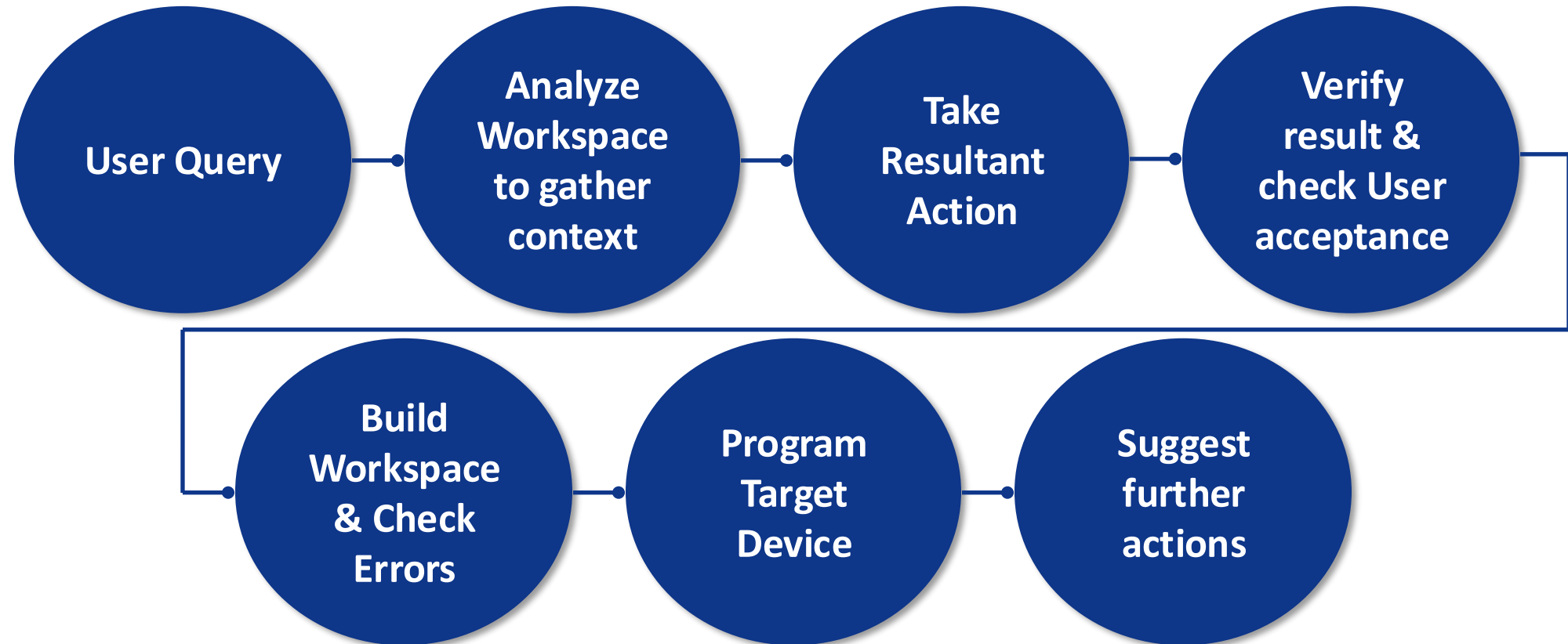
Analyzes &  
edits  
Workspace  
files

# Overview: Tools & LLM Tool Calling



# MPLAB<sup>®</sup> Agent Workflow

Code, Build, Program



# Topic 3: MPLAB<sup>®</sup> MCP

The screenshot shows the Visual Studio Code (VS Code) interface. On the left is the Explorer sidebar showing a project named 'GAME\_GSENSOR'. The main editor window displays the file 'main.c' with the following content:

```
1 // Code generated by MCHP Chatbot
2 /*****
3 Main Source File
4
5 Company:
6   Microchip Technology Inc.
7
8 File Name:
9   main.c
10
11 Summary:
12   This file contains the "main" funct
13
14 Description:
15   This file contains
16   "main" function ca
17   machines of all m
18 *****/
```

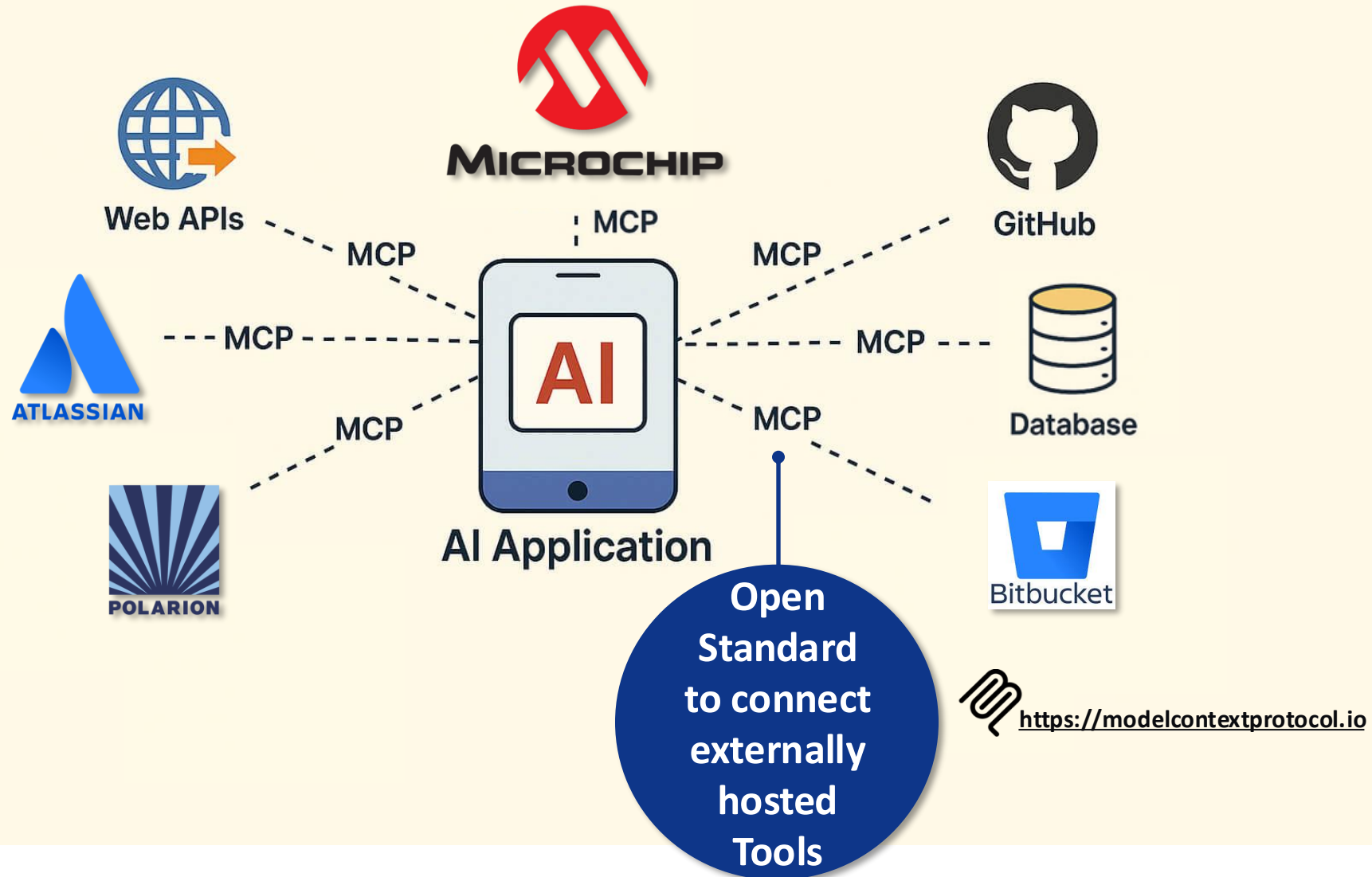
On the right side of the VS Code window, there is a 'MICROCHIP' MCP interface. It features a 'Local Assistant' dropdown menu with several MCP servers listed:

- mchp-docs (5 connections)
- mchp-polarion (10 connections)
- mchp-atlassian (36 connections)
- mchp-bitbucket (21 connections)

Below the list is a button labeled '+ Add MCP Servers'. At the bottom of the MCP interface is a text input field with the placeholder text 'Ask anything, '/' for prompts, '@' to add context'. The input field contains 'Agent' and 'Microchip GPT'. A blue circle with the text 'MPLAB<sup>®</sup> MCP' is overlaid on the bottom right of the code editor, with a line pointing to the MCP interface.



# Overview: Model Context Protocol



# MCHP Docs MCP Server

EXPLORER

- GAME\_GSENSOR
  - .mplab\agent\_rules
    - misra\_rules.yaml
    - project\_rules.yaml
  - .vscode
  - cmake
  - Game\_GSensor.X
  - schematic
    - APP055 BOM.csv
    - APP055 NETLIST.net
    - APP055 Schemantic.pdf
    - APP055 v1.10.png
  - src
    - config
    - packs
    - Alphabet\_Fonts.h
    - Delay.c
    - Delay.h
    - GraphicApp.c

MICROCHIP

Local Assistant

**mchp-docs**

- > get\_example\_projects Automatic
- > get\_videos Automatic
- > get\_evaluation\_boards Automatic
- > search\_datasheet Automatic
- > search\_user\_guide Automatic

Ask anything, '/' for prompts, '@' to add context

Agent Microchip GPT

Last Session

Tools to Search Microchip Documentation

# Search Datasheet Information

The screenshot displays the MPLAB IDE interface with the 'Game\_GSensor' project open. The Explorer pane on the left shows the project structure, including files like 'misra\_rules.yaml', 'project\_rules.yaml', and 'APP055 BOM.csv'. A large blue circular callout with a magnifying glass icon is centered over the IDE, containing the text 'Search Datasheet for any information'. A blue line points from this callout to the 'Local Assistant' chat window on the right. The chat window has a header 'MICROCHIP' and a toolbar with icons for navigation and editing. The input field contains the text 'Ask anything, '/' for prompts, '@' to add context'. Below the input field, there are dropdown menus for 'Agent' (set to 'Agent') and 'Microchip GPT'. The chat area shows a 'Last Session' header and a large, faint magnifying glass watermark in the background.

# Search Evaluation Board Userguide

The image shows a screenshot of an IDE interface. On the left is the Explorer panel showing a project structure for 'GAME\_GSENSOR'. The central editor area is mostly blank, overlaid with a large magnifying glass icon and a blue circular callout containing the text: 'Search Evaluation board Userguide for any information'. On the right is a chat window titled 'MICROCHIP' with a 'Local Assistant' header. The chat input field contains the text: 'Ask anything, '/' for prompts, '@' to add context'. Below the input field are buttons for 'Agent', 'Microchip GPT', and a share icon. The chat history shows 'Last Session'. The IDE's status bar at the bottom indicates 'Autocomplete' is active and shows 'MPLAB'.

File Edit Selection View Go ... ← → Game\_GSensor

EXPLORER

- GAME\_GSENSOR
  - .mplab\agent\_rules
    - misra\_rules.yaml
    - project\_rules.yaml
  - .vscode
  - cmake
  - Game\_GSensor.X
  - schematic
    - APP055 BOM.csv
    - APP055 NETLIST.net
    - APP055 Schemantic.pdf
    - APP055 v1.10.png
  - src
    - config
    - packs
    - Alphabet\_Fonts.h
    - Delay.c
    - Delav.h
- OUTLINE
- TIMELINE

MICROCHIP

Local Assistant

Ask anything, '/' for prompts, '@' to add context

Agent Microchip GPT

Last Session

Autocomplete MPLAB

# Search Example Projects

The image shows a screenshot of an IDE interface. On the left is the Explorer pane showing a project named 'GAME\_GSENSOR' with various files and folders. On the right is a chat window titled 'MICROCHIP' with a text input field containing the prompt: 'Ask anything, '/' for prompts, '@' to add context'. A blue circle with white text 'Query Microchip Discover to get available Example projects' is overlaid on the center, with a line pointing to the chat input field. The IDE status bar at the bottom shows 'MPLAB' and 'Autocomplete'.

# Get Evaluation Boards Info for your Device

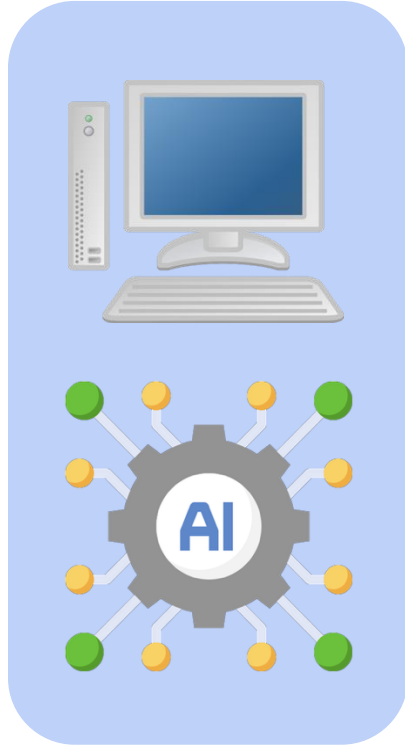
The image shows a screenshot of an IDE interface. On the left is the Explorer panel showing a project named 'GAME\_GSENSOR' with various files and folders. The central workspace is mostly empty, overlaid with a large blue circular callout bubble containing the text: 'Query Microchip Discover for available Evaluation Boards'. On the right is the Microchip Local Assistant chat window, which has a header 'MICROCHIP' and a search bar with the text 'Ask anything, '/' for prompts, '@' to add context'. Below the search bar are dropdown menus for 'Agent' and 'Microchip GPT'. The chat window also shows a 'Last Session' button. The bottom status bar of the IDE displays 'MPLAB' and 'Autocomplete'.

# Search Developer Help Videos

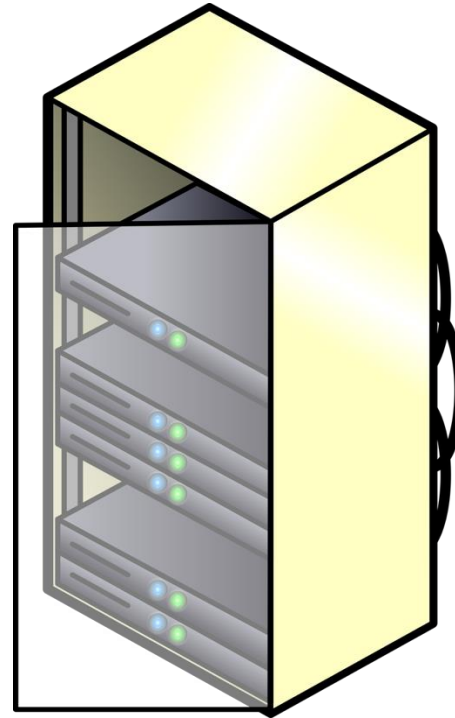
The image shows a screenshot of an IDE interface. On the left is the Explorer panel showing a project structure for 'GAME\_GSENSOR'. The central workspace contains a large magnifying glass icon. A blue circle with the text 'Search Microchip Developer help Videos' is overlaid on the magnifying glass, with a line pointing to the chat window on the right. The chat window is titled 'MICROCHIP' and contains a text input field with the placeholder text 'Ask anything, '/' for prompts, '@' to add context'. Below the input field are dropdown menus for 'Agent' and 'Microchip GPT'. The chat window also shows a 'Last Session' button. The IDE status bar at the bottom indicates 'MPLAB' and 'Autocomplete'.

# Microchip<sup>®</sup> Documentation in any AI Tool

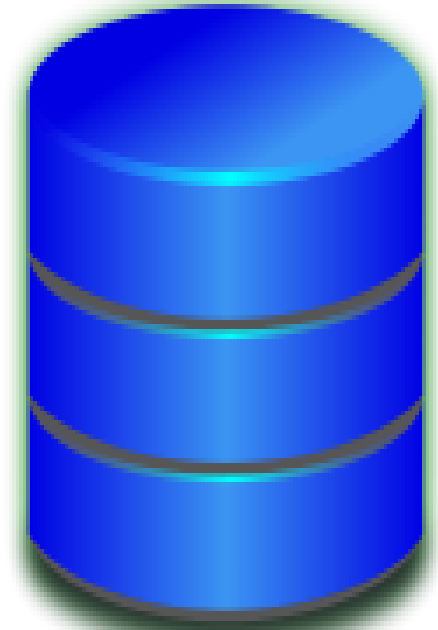
## Using Model Context Protocol (MCP)



Any AI such as Cursor,  
GitHub, Windsurf, etc.



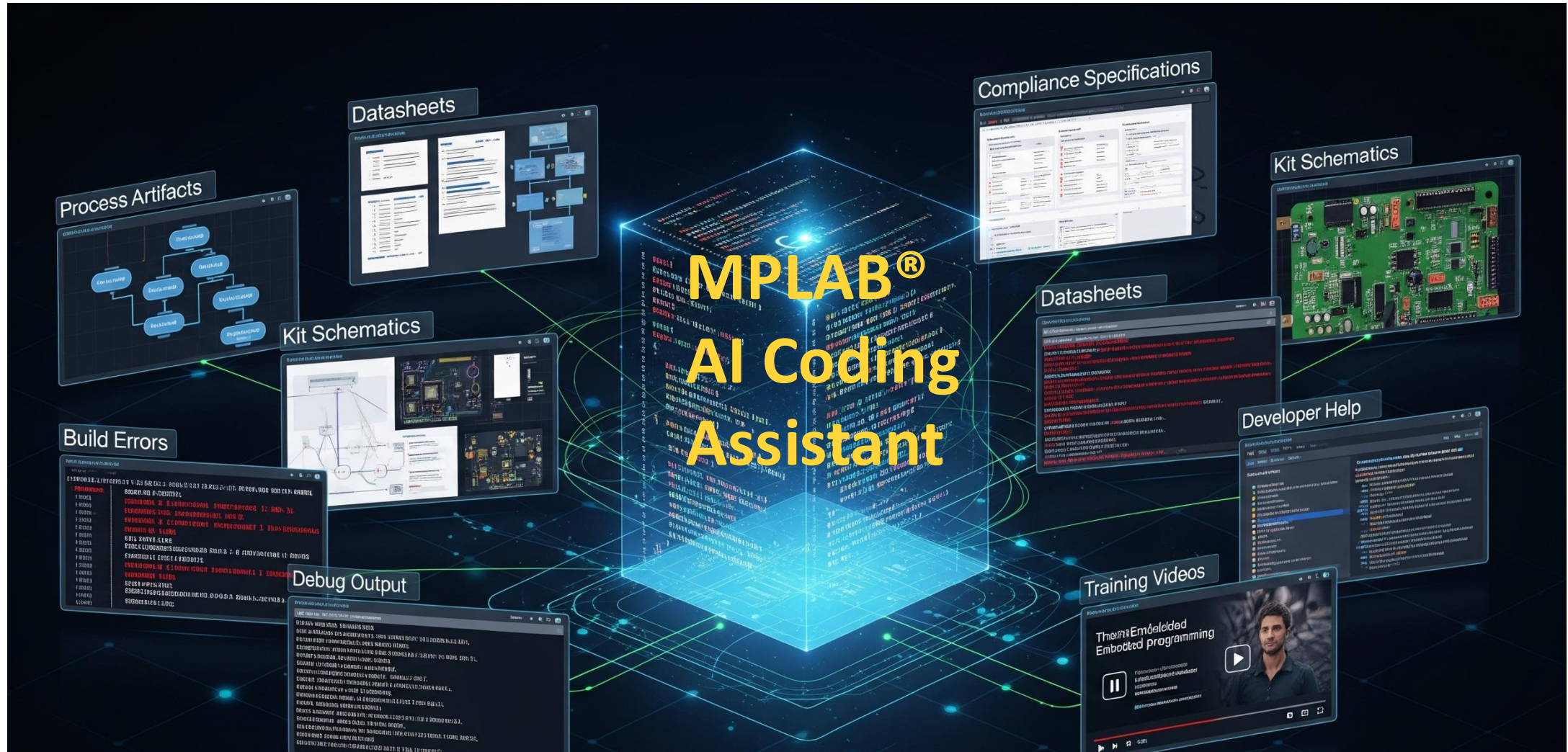
Microchip MCP  
Server



Microchip  
Vectorized  
Documentation

# Summary

## Empowering Developers for Faster, Smarter Code Development



# Presentation Agenda

- Overall Microchip dev tools strategy
- MPLAB<sup>®</sup> extensions for VS Code
- MPLAB Discover
- MCC: code configurator for Microchip ...
- AI coding assistant
- **Zephyr support and roadmap**



ZEPHYR<sup>®</sup>

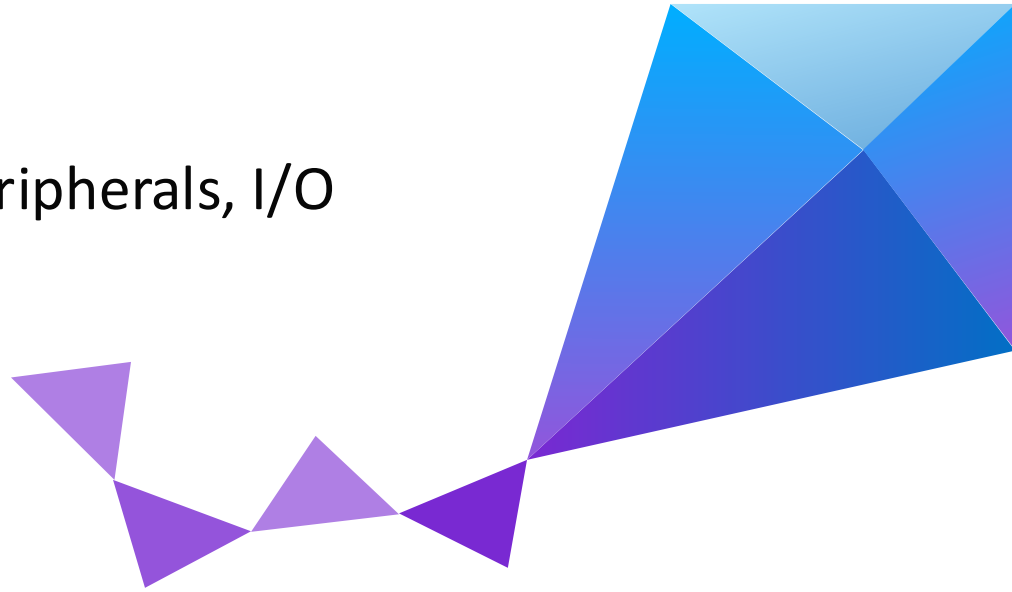
# What is Zephyr OS



- **Real Time OS (RTOS)**
- **Board support packages for many devices**
- **Kernel services and OS services**
- **Supported by Linux Foundation and several large vendors**
- **Open source software**

# What is Zephyr?

- **Real Time Operating System:**
  - Multitasking / Threads
  - Resource management – memory, peripherals, I/O
- **Middleware:**
  - TCP/IP
  - CAN
  - USB
  - Much More
- **Device management:**
  - Board support packages for many devices  
(DeviceTree – text based abstraction to help manage device types)
  - Many vendors SOC's (MCU's)
  - Many peripheral drivers – on board and external
- **IDE agnostic**
  - NOT MPLABX/MCC/Harmony



# Why are Customers Choosing Zephyr?

- **Open source / rapid development**
  - Apache 2.0
  - Managed in github
- **Modern design patterns**
  - Managed by Linux Foundation
  - Portable, modular code
- **Vendor and community support**
  - NXP, Nordic, Microchip
  - Community support forums, discord, wiki, videos
  - Vendor agnostic development environment – devs play in Zephyr ecosystem
- **Easy\* addition and configuration of middleware modules**

\*once a comfort level is achieved



# What Microchip Devices are Supported?

*Community*

- SAM4E Xplained Pro
- SAM4L-EK
- SAM4S Xplained
- SAM E70(B) Xplained
- SAM V71(B) Xplained Ultra
- SAM C21N Xplained Pro Evaluation Kit
- SAM D20 Xplained Pro Evaluation Kit
- SAM D21 Xplained Pro Evaluation Kit
- SAM E54 Xplained Pro Evaluation Kit
- SAM L21 Xplained Pro Evaluation Kit
- SAM R21 Xplained Pro Evaluation Kit
- SAM R34 Xplained Pro Evaluation Kit

*Microchip*

- M2GL025 Mi-V
- MEC15xxEVB ASSY6853
- MEC172xEVB ASSY6906
- mpfs\_icle
- PIC64
- PIC32C families\*
- WBZ451
  
- Winc1500
- RF2xx
- AT24/25/45
- ENCxx/KSZxx/LANxx
- GPIO expanders, mixed signal

# MCU Zephyr Roadmap

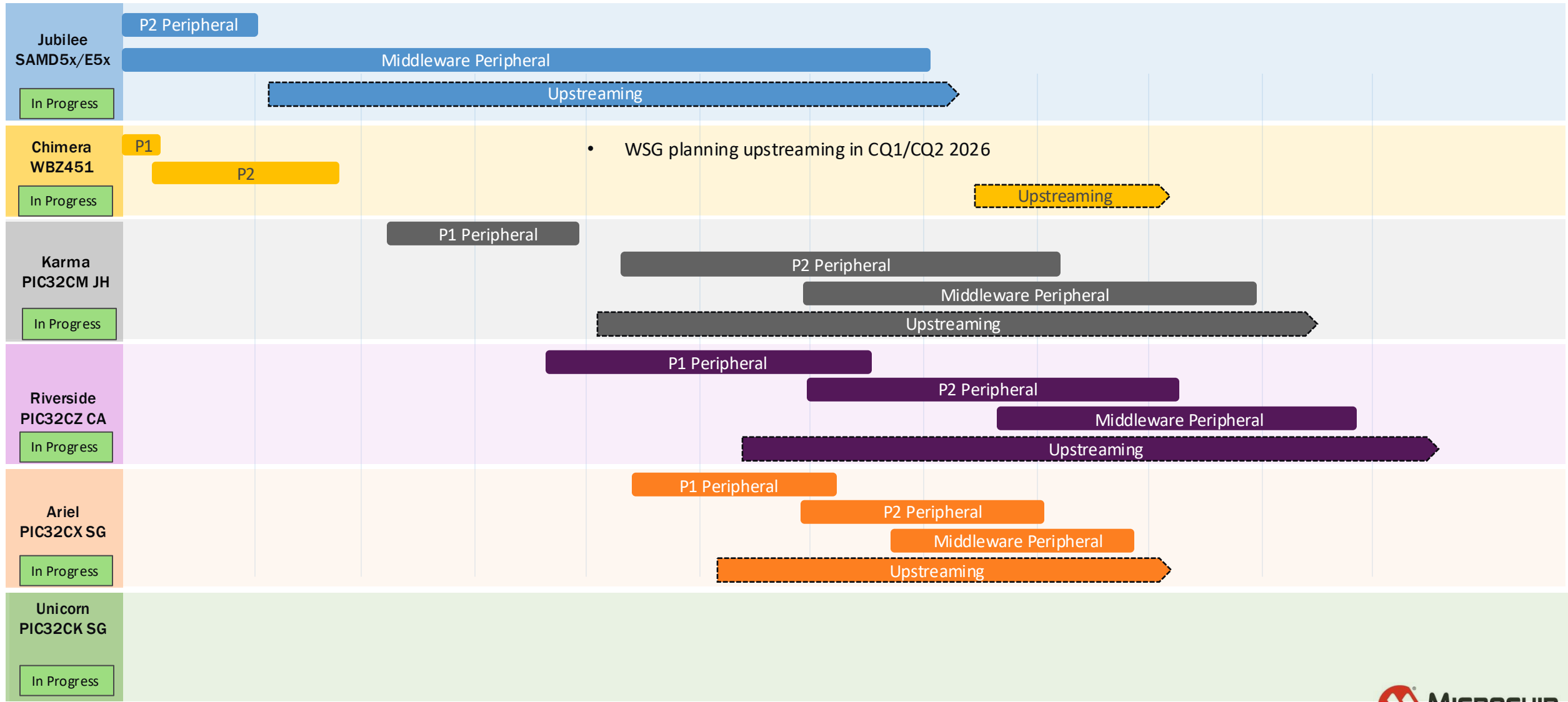
Last Updated: 26 Nov 2025

2025

2026

Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

Sep 25 Oct 25 Jan 26 Mar 26



• WSG planning upstreaming in CQ1/CQ2 2026



# Presentation Agenda

- Microchip dev tools strategy
- MPLAB extensions for VS Code
- MPLAB Discover
- MCC: code configurator for Microchip ...
- AI coding assistant
- Zephyr support and roadmap



**Tool Ecosystems**

MPLAB X IDE Visual Studio Code iAR LAUTERBACH DEVELOPMENT TOOLS SEGGER It simply works! KEIL™ Tools by ARM OpenOCD pyOCD Green Hills SOFTWARE

**MPLAB EXT**  
Microchip Technology [microchip.com](https://microchip.com) | 14,164 | ★★★★★ (3)  
MPLAB Extension Pack installs basic MPLAB extensions to get started.  
Disable Uninstall  Auto Update

Advanced search

MICROCHIP MPLAB DISCOVER

Search

Code Examples 7201 All Showing 1-20 of 37686 All

**MPLAB EXT**  
**Code Configurator for Microchip devices**  
Microchip Technology [microchip.com](https://microchip.com) | ☆☆☆☆☆  
Configure Code for devices by Microchip  
Restart Extensions Update to v0.1.3 Disable Uninstall  Auto Update

**MPLAB EXT**  
**MPLAB AI Coding Assistant**  
Microchip Technology [microchip.com](https://microchip.com) | 7,473 | ★★★★★ (3)  
An AI code assistant optimized for using Microchip products.  
Disable Uninstall  Auto Update