第22 屆數位訊號處理創思設計競賽說明

A Leading Provider of Smart, Connected and Secure Embedded Control Solutions

SMART | CONNECTED | SECURE

Calvin Ho

Nov,12,2026

Microchip 組別說明

- **Microchip數位訊號處理器應用組：**作品限定使用Microchip公司處理器之自製或自組應用電路，並且整合現有軟硬體技術成為一個創新的應用系統。
- Microchip 可以提供入圍並參加決賽的團隊指定的開發工具以及 IC 樣品
- 參賽隊伍也可利用既有的開發設備來進行軟硬體等的系統整合
  - 如有特殊需求也可以協商
- **除了主辦單位提供的獎狀及獎金，Microchip 另外提供公司發行的獎狀 給獲得前三名及佳作的團隊**

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2026 Microchip 專案設計養成班 – 已實施

- 目標
  - 以一定期間且階段式的互動 Training，給予參加課程的同學具備獨立或是以團隊力量完成專案的素養以及能力。
  - 要求參加課程的同學必須使用課程所學，完成一個設計專案並參加一個公開的比賽或是公開發表所設計的專案。
- 對象
  - 以競賽為目標的在學學生以及該隊的指導教師
    - 計畫以 Microchip 各項 MCU or MPU/FPGA 為控制核心，完成一個設計專案，並參加公開比賽的大專院校的在學學生以及指導教師
    - Microchip 認可的競賽 (例如：南台科大舉辦的數位訊號處理創思設計競賽)，可以使用 Microchip 的方案參加任何單位舉辦的公開競賽。但是一定要有提案、評審等過程，並且要有專案成果的產出 (書面資料以及實際作品)
  - 以公開發表專案為目標的在學學生或是教師
    - 計畫以 Microchip 各項 MCU or MPU 為控制核心，完成一個設計專案並公開發表的大專院校的在學學生或是各級學校的教師。
    - 公開發表方式可以是論文的形式、公開頻道發表的文章或是長度最少 20 分鐘的 Youtube Video

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2026 Microchip 專案設計養成班

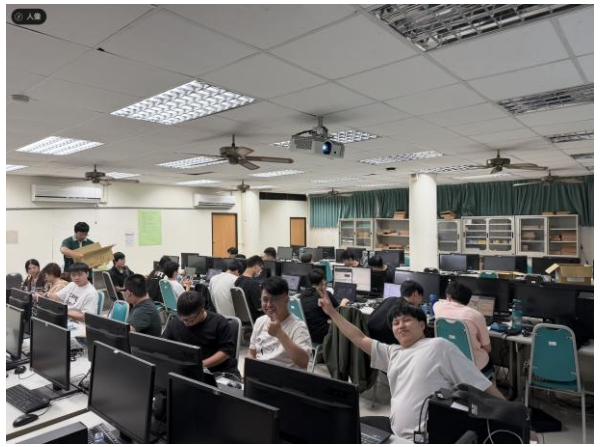
2026 年開課時間及地點:

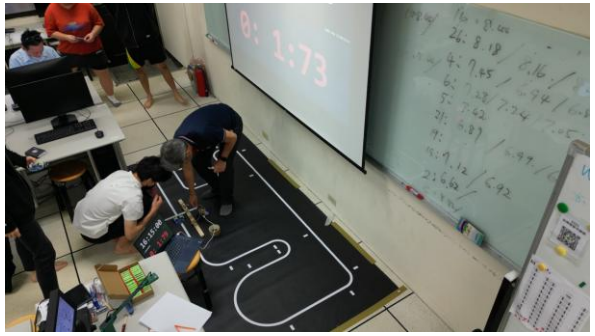
場次	時間
高雄科大場次	9 月 1~9 月 3
南台科大場次	7 月 29~7 月 31
虎尾科大場次	8 月 24~8 月 27

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2026 Microchip 專案設計養成班












Microchip - Corporate Overview

Leading Total Systems Solutions Provider:

- High-performance standard and specialized Microcontrollers, Digital Signal Controllers and Microprocessors
- Mixed-Signal, Analog, Interface and Security solutions
- Clock and Timing solutions
- Wireless and Wired Connectivity solutions
- FPGA solutions
- Non-volatile EEPROM and Flash Memory solutions
- Flash IP solutions



Headquartered near
Phoenix in Chandler, AZ

Microchip At a Glance



MICROCHIP

Revenue by End Market













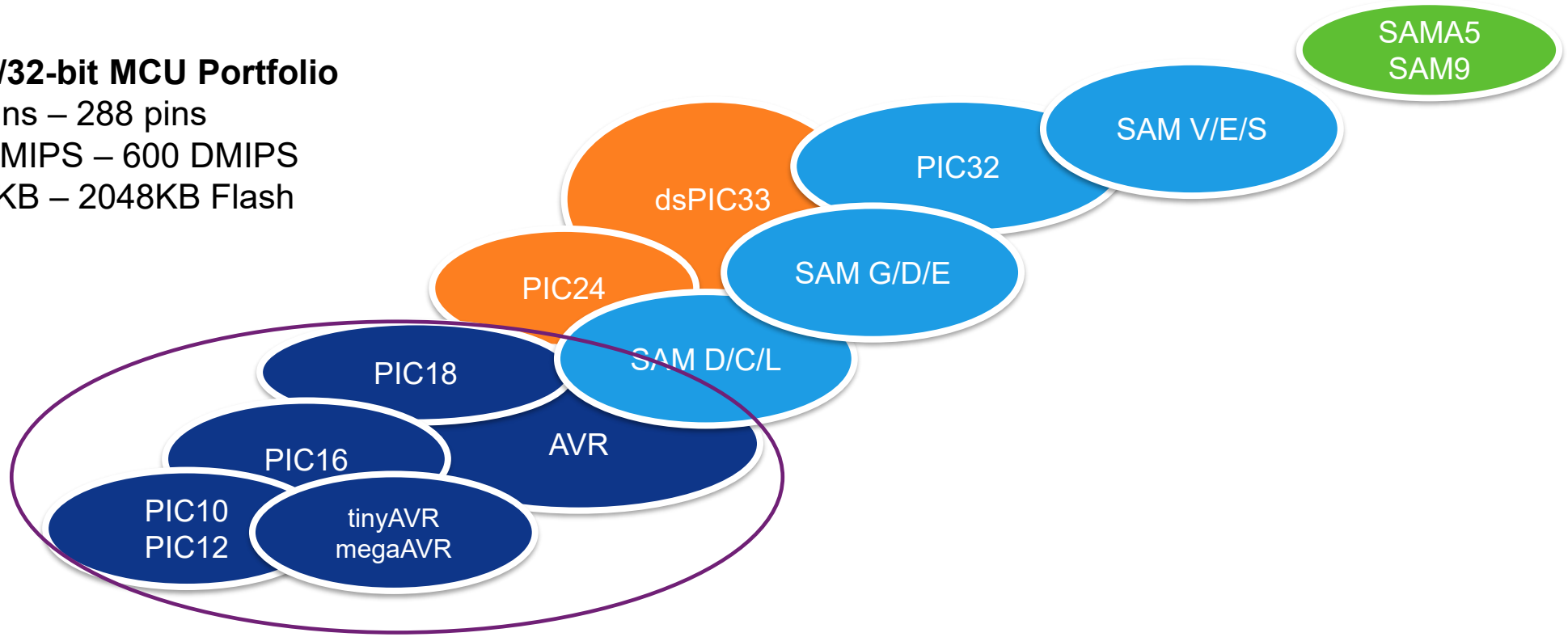
MICROCHIP

A Product for Every Need

2000+ Products – Broadest Portfolio – Unified Comprehensive Ecosystem

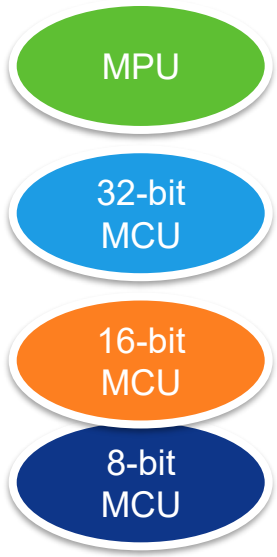
8-/16-/32-bit MCU Portfolio

- 6 pins – 288 pins
- 8 DMIPS – 600 DMIPS
- 0.5KB – 2048KB Flash



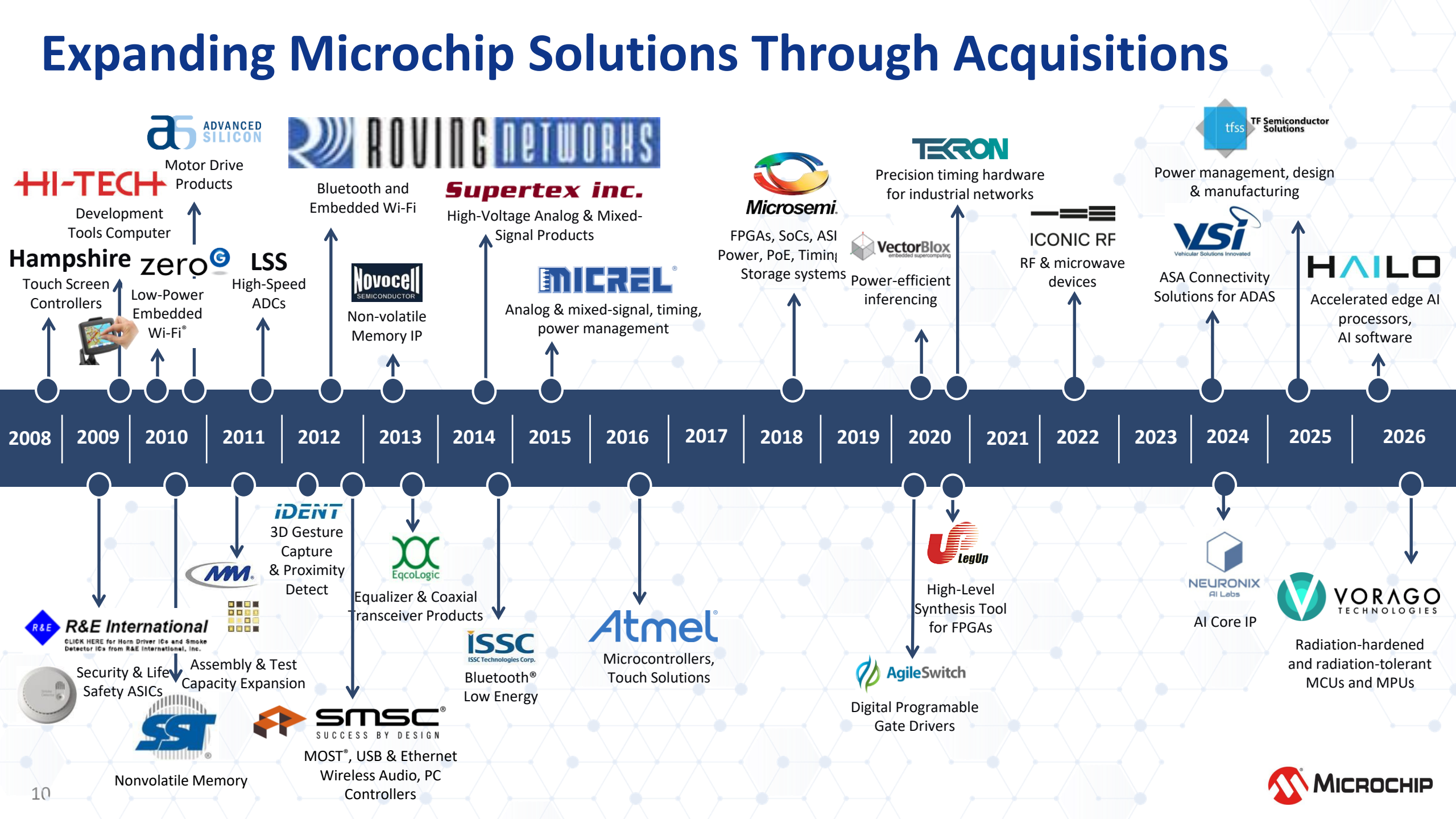
8-bit MCU Stronghold:

- PIC: 28 pins and below
- AVR: 24-48 pins
- PIC & AVR: 32KB and below

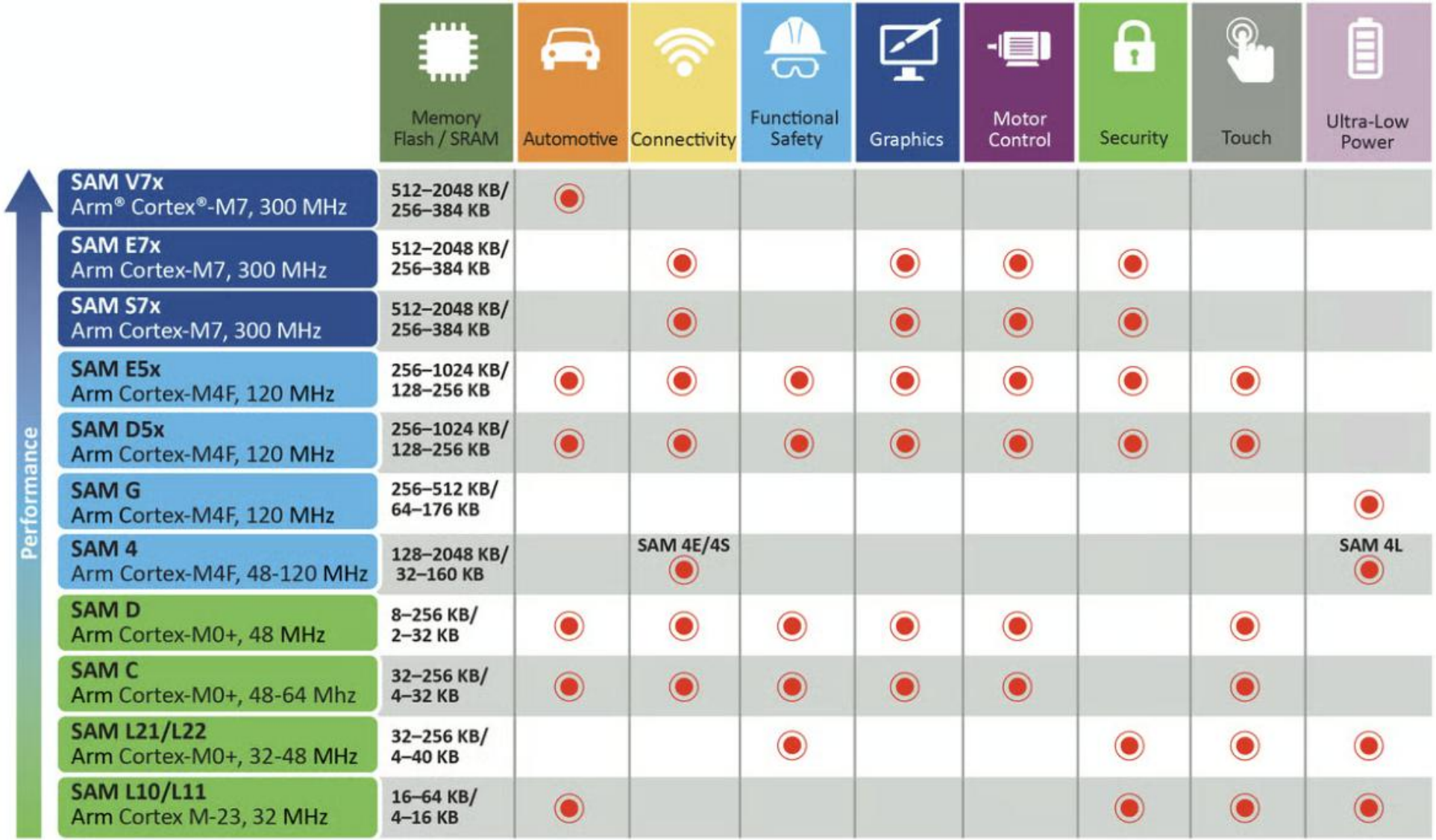


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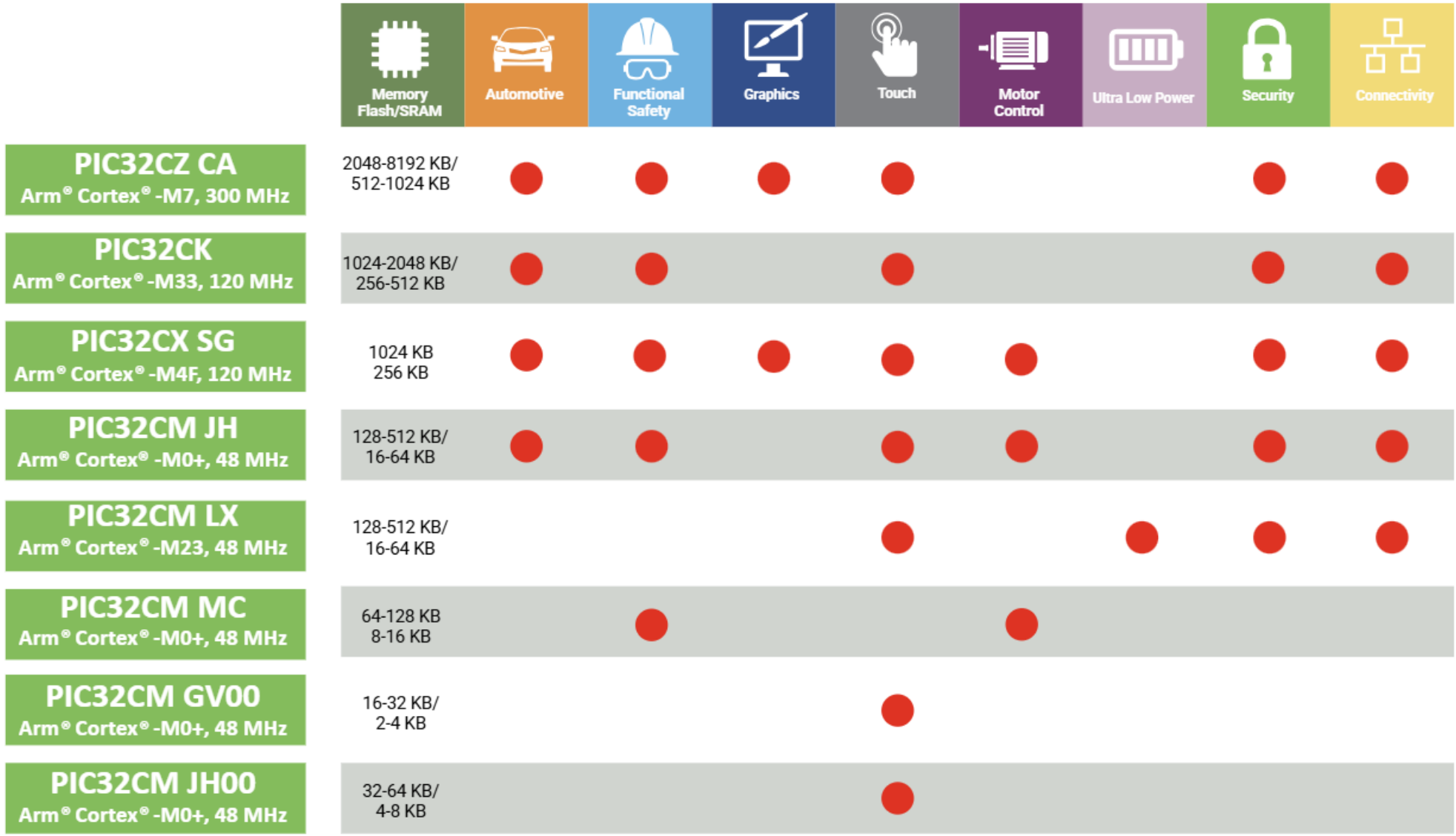
Expanding Microchip Solutions Through Acquisitions



Legacy 32-bit MCUs With Arm® Cortex® Cores



New 32-bit MCUs With Arm® Cortex® Cores



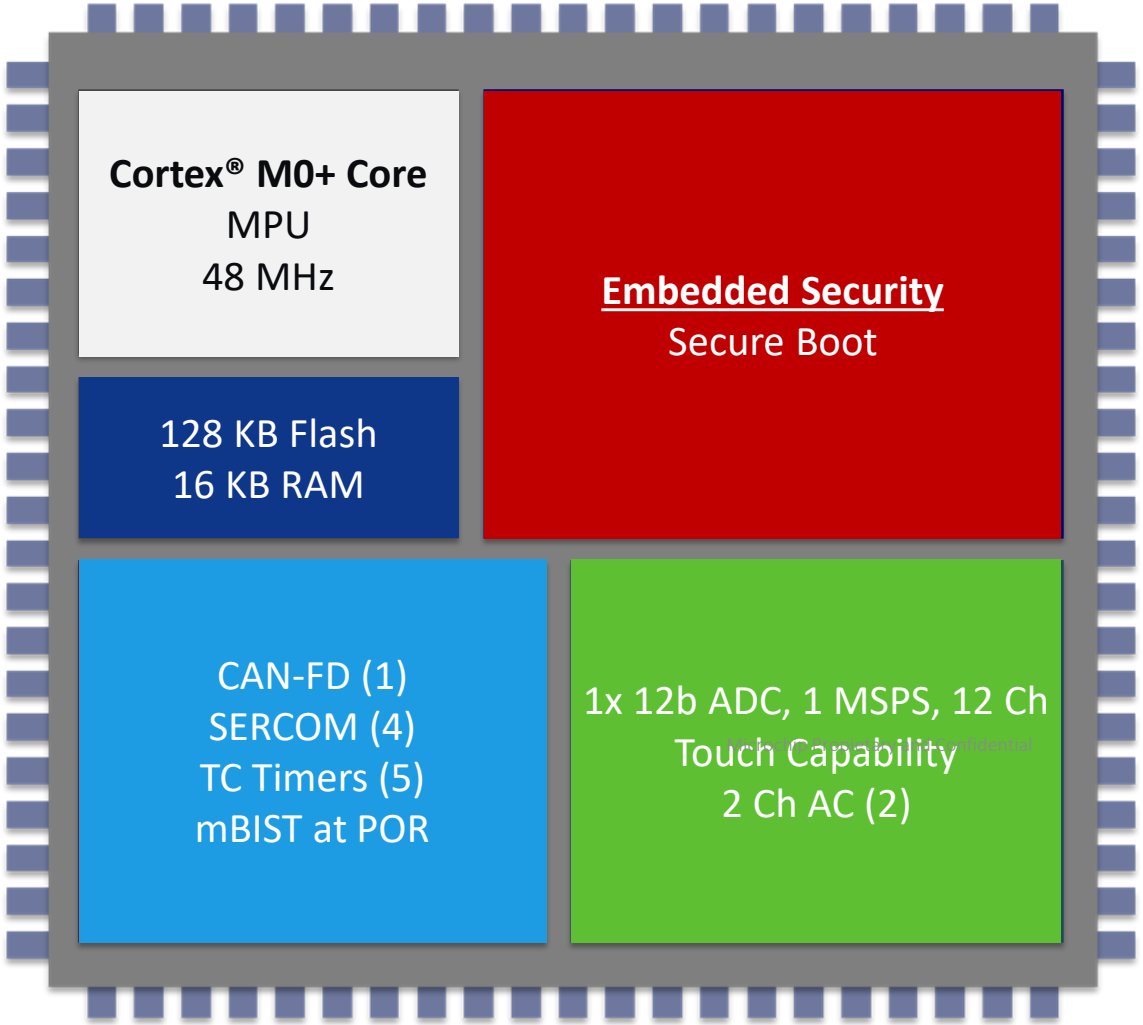
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MICROCHIP

PIC32CM JH 5V Cortex-M0+ Family

New 128KB Family Member Release – Compare to SAMC2x

In Production



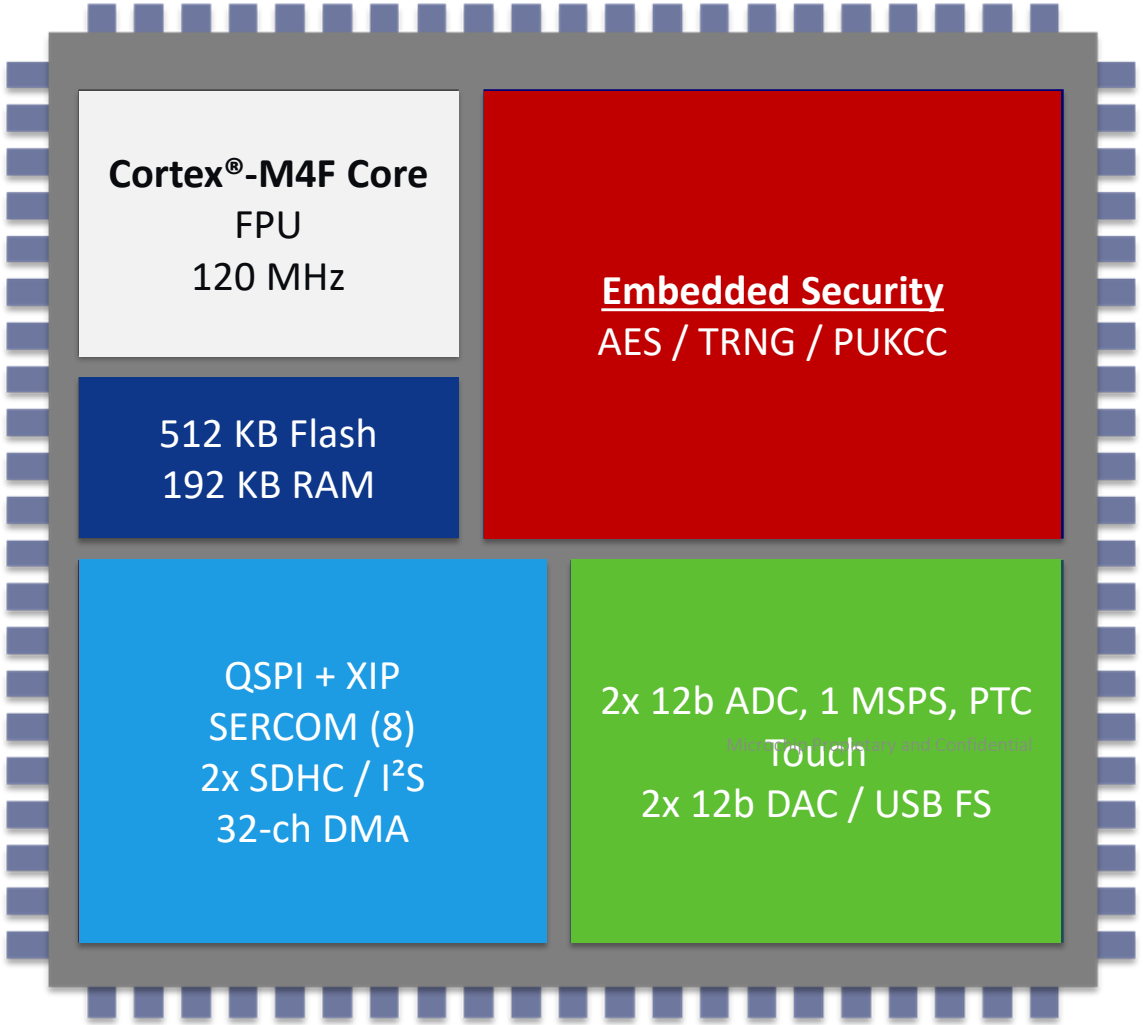
- **New Family Additions:**
  - Cost reduced version of strong PIC32CM JH Family
  - Adds 32 & 48-pin, 128KB flash with single CAN-FD
- **Key Features:**
  - True 5V with CAN-FD
  - mBIST at Power-on Reset
  - Secure Boot
  - Touch capability
- **Expands:**
  - 512KB & 256KB Family Launched Fall 2022

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ATSAMD51J19A Arm® Cortex®-M4F MCU

SAM D51: 120 MHz, 512 KB Flash, Integrated Security

In Production



Microchip Proprietary and Confidential

- **Performance & Memory:**
  - 32-bit Arm® Cortex®-M4F with FPU, up to 120 MHz
  - 512 KB dual-panel Flash with ECC + 192 KB SRAM
- **Key Features:**
  - QSPI with Execute-in-Place (XIP)
  - Up to 2 SDHC (SD/eMMC) + I²S audio
  - Hardware crypto: AES, TRNG, PUKCC, ICM
  - PTC touch, 32-ch DMA, 5 low-power modes
- **Package & Connectivity:**
  - 64-pin TQFP/VQFN, 51 I/O, USB FS, 1.71–3.6V
  - Learn more: microchip.com/ATSAMD51J19A

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Microchip 對參加南台科大舉辦的數位訊號處理創思設計競賽之特別 Support

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數位訊號處理創思設計競賽 Support

- Microchip 長期為數位訊號處理創思設計競賽之贊助方，有一個獨立的比賽組別 – E 組
- 此競賽的提案時間約為每年年底進行書審形式的初賽，決賽的時間為隔年的 3 月份
- 凡參加此競賽，除了可以得到特定開發工具 & Microchip Sample 的 support 之外，也可以申請最多 NT$2,500 的零件費用 (購買零件前須先申請通過後，以 Microchip 統編購買零件)

Microchip 針對設計競賽提供的開發工具

MICROCHIP

如何申請工具、零件及相關補助的費用

https://www.microchip.com.tw/download/2370/?tmstv=1794362873

項次	料號 & 品名	主要 CPU1	附註
1	APP-SAMD51/E51/CX 教育訓練實驗板	ATSAME51J20A	程式設計養成班工具
2	APP-Nano-BASE-TW + DM164150	PIC18F57Q43	
3	APP-Nano-BASE-TW + DM182030	PIC18F57Q84	
4	APP-MASTERS25-2 SAM9X75 MPU 實驗板	SAM9X75 32-bit MPU	
5	APP-Nano-BASE-TW + DM320119	SAMD21G17D	在文件和檔案名稱中搜尋文字
6.	APP-All MCU 2024 + PG164100 SNAP ATSAME51G19A, PIC18F57Q43, dsPIC33CK256MP505	4 種 Microchip MCU，包含 8、16、32 位元系列	
7.	APP-All MCU 2023 + PG164100 SNAP AVR128DA48, dsPIC33CH256MP505, PIC32CM2532LE00048	4 種 Microchip MCU，包含 8、16、32 位元系列	
8	APP-ESS-2025	PIC32CM JH 系列及 PICF16F13145	
9	APP-SAM9X60 Hobby Kit (WiFi 版)	SAM9X60 MPU	
10	APP-MASTERS26 + PG164100 SNAP	PIC32WM-BZ6204 具有 BLE 功能	
11	WIFI 7 CLICK - MiFi 的 Click 擴充版，需要擴充 WiFi 的功能可以申請此模組	ATWINC1510-MR210PB	
12	Others	請 e-mail microchip.tw@outlook.com	

開發工具及零件申請準則

Microchip 開發工具申請與借用規定

- 請在附件一填妥所需資料，並列出要申請的工具項目。
- 開發工具分為借用與贈與兩個階段。2027 年 3 月比賽結束前，工具一律以借用方式提供。
- 創意發想書未獲選進入 2027 年 3 月決賽，或獲選但未實際出賽的隊伍，須於 2027 年 4 月底前將工具歸還 Microchip。
- 實際參加 2027 年 3 月決賽的隊伍，無論名次均可保留所申請的開發工具，Microchip 將在決賽後把工具轉為贈與。

- **已參加過 Microchip 2026 專案設計養成班的同學已經擁有 APP-SAMD51/E51/CX 教育訓練實驗板 ，原則上不需申請**
  - 若因為實際專案的需求，還是可以提出對其他項目的申請但請加上用途說明
- **工具以及零件申請以組為單位，並非每位組員申請一個單項**

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本次說會的檔案下載方式

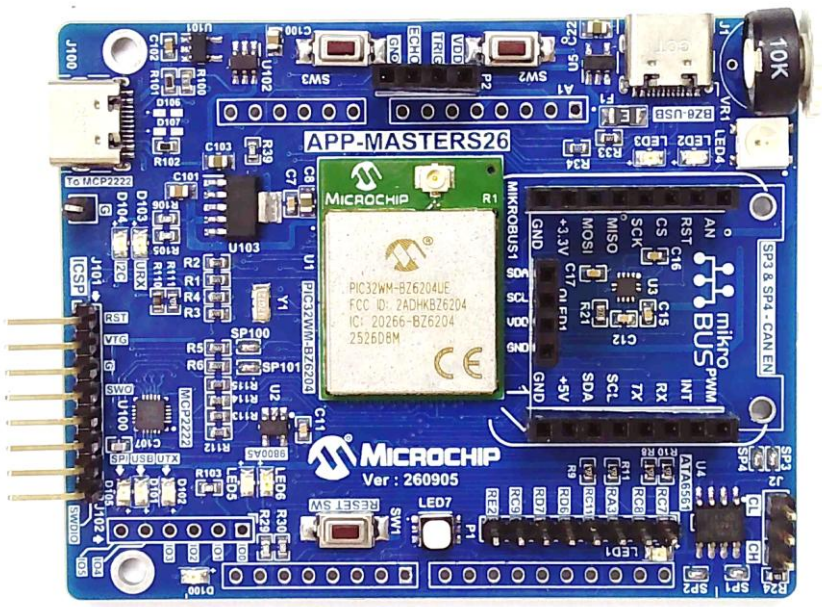
https://www.microchip.com.tw/download/2375/?tmstv=1794395380



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Microchip 提供競賽團隊的開發工具

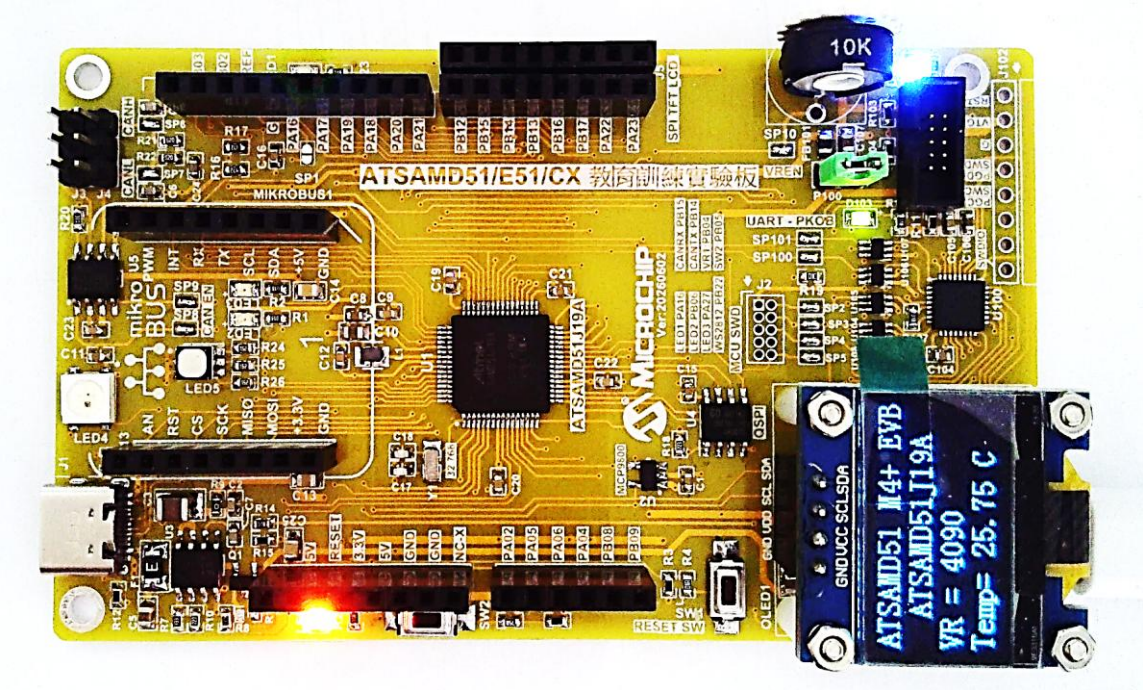
APP-MASTERS26



- 使用 **PIC32WM-BZ6204UE** 模組
- 具備 USB Type-C 介面、並已經建置以下的外接周邊
  - ✓ RGB LED 、獨立的 LED * 5、WS2812 One-Wire Color LED
  - ✓ 10K 可變電阻以及 2 個使用者按鍵
  - ✓ MCP9800A5 溫度 Sensor
  - ✓ ATA6561 CAN Transceiver
  - ✓ KXTJ3-1057 三軸加速度計
  - ✓ I2C 介面的 OLED Display
- 提供 mikroBUS 擴充介面，可延伸感測器與有線通訊實驗
- 保留 Arduino UNO 相容的擴充介面，可以輕鬆地與現有的擴充板對接
- 保留 ICSP 燒錄排針，可直接以 PICkit 進行燒錄與除錯
- 板上內建 MCP2222 多協定轉換器，可以利用 USB 來獲取 UART、I2C、SPI 介面的資料訊息
  - ✓ 附加 5 個狀態指示 LED

22

硬體平台：ATSAMD51/E51/CX教育訓練實驗板



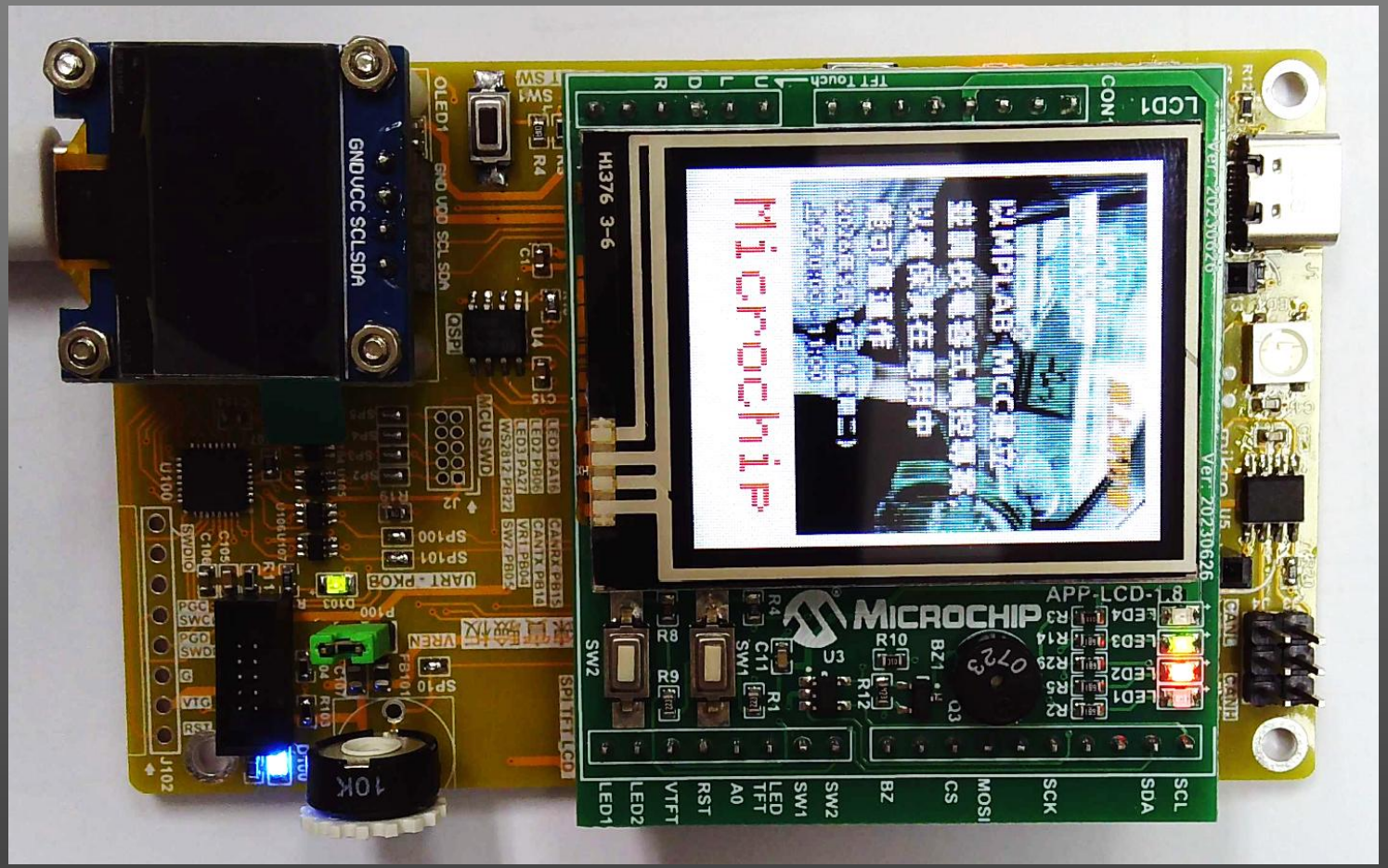
核心：ATSAMD51J19A

ARM Cortex-M4F @ 120 MHz · 512 KB Flash · 192 KB SRAM · 內建 FPU、USB

外接周邊

- SSD1306 OLED
- RGB LED (3-I/O)
- 10K 可變電阻
- MCP9800A5 溫度
- WS2812 (One Wire)
- USB Type-C

擴充示範：使用 Arduino 介面連接 APP-LCD1.8



可擴充周邊

- 1.8 吋 TFT Display (128*160) with ST7735 controller
- 蜂鳴器 (Control by PWM)
- KXTJ3-1057 三軸加速度計
- MCP79411 Real-time clock/calendar
- MCP9800A0 溫度 Sensor
- LED * 4
- 按鍵 * 2

APP-MASTERS25-2

- **APP-MASTERS25-2 是Microchip Taiwan 為了讓有志要探索 MPU 程式開發的工程師們，有一個快速開發的參考平台而開發的實驗板．設計的目標是要讓開發工程師有一個功能具備一定水準的入門評估套件，並且體驗 Microchip 提供的 SOM (System On Module) 解決方案是如何地簡單易用，且真實的實踐於您想製作的新硬體。**
- **APP-MASTERS25- 2 使用 SAM9X75D2GN4 這一個資源最豐富的 SOM，SOM 上面的主要資源如下**
  - 800Mhz SAM926 MPU
  - 2-Gbit DDR3L
  - 4-Gbit NAND Flash Memory
  - On-Board Power Management Unit (MCP16502TAB-E/S8B)
  - Gigabit Ethernet Transceiver (LAN8840T-V/PSA)



Microchip MPU 開發資源：Linux4sam

https://linux4sam.org/bin/view/Linux4SAM

Linux & Open Source for AT91 Microchip Microprocessors

Search

Print

LINUX4SAM

- Software tools
- AT91Bootstrap
- U-Boot
- Linux Kernel
- DT-Overlay

Open source solutions

- Yocto Project
- Buildroot
- OpenWrt

Applications

- Graphics Toolkit
- WiFi and Bluetooth

BOARDS

- SAM9X60 Curiosity
- SAMA7G5-EK
- SAMA5D2-ICP
- SAMA5D27 WLSOM1 EK
- SAM9X60-EK
- SAMA5D27 SOM1 EK
- SAMA5D2 PTC EK
- SAMA5D2 Xplained
- SAMA5D3 Xplained
- SAMA5D4 Xplained
- Older boards

FAQ

- FAQ updates by Boards
- FAQ updates by Components

USEFUL LINKS

- Microchip Microprocessors forums
- AT91 Community

Linux4SAM » WebHome

Welcome to Linux4SAM

Fork me on GitHub

Welcome to the main starting point for Linux OS on Microchip Microprocessors. Its aim is to centralize information about Linux kernel and open source projects on those products based on Arm cores (aka AT91).

Our goal is to be an interface with open source projects that include AT91 support. We do not want to duplicate information but to link as much as possible to good resources available on the Web.

Keep an eye on this website as it has been designed for instant update. We will try to make it live with the open source community and update AT91 information in those pages. To keep yourself informed, add WebRss or WebAtom feeds in your usual news reader.

Questions, feedback, patches and enhancement are the way open source communities live. Go to LinksToCommunities page for a natural way to interact with material presented on this website.

Latest News

Linux4SAM 2022.07 Curiosity demo directory NEW

New demo available for **SAM9X60 Curiosity** board. Based on updated components:

- Linux4Microchip based on Linux kernel 5.15.32
- Update to a new version AT91Bootstrap **4.0.4**
- U-Boot 2022.01 with Optimized/Improved NAND driver supporting Device Model
- New version for Microchip Ensemble Graphics Toolkit (EGT) **1.4** and associated applications
- Yocto Project 3.1 (Dunfell) with security LTS updates
- Buildroot generated from 2022.02.1 LTS revision using buildroot external

Enhancements are added on top of the official **v5.15** Linux kernel tag where most of the Microchip SoC features are already supported.

Here are the main additional enhancements:

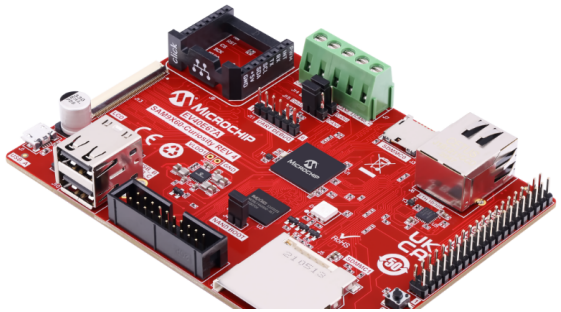
- Addition of support for the new SAM9X60 Curiosity kit

Demo Images. Choose *headless* (no video) or *graphics* option, your root filesystem flavor, flash and you're ready to go:

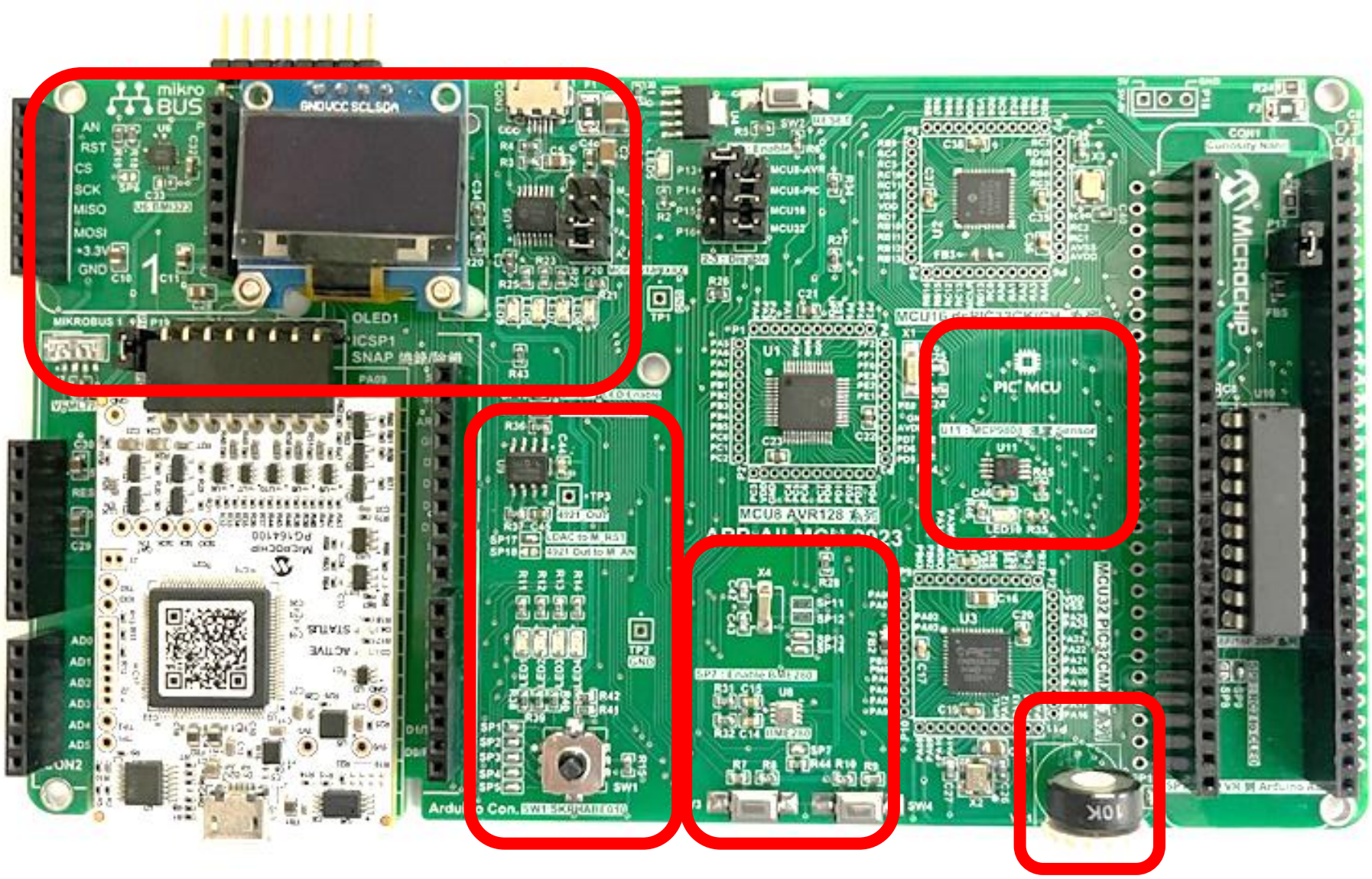
- Demo images for SAM9X60 Curiosity
- NAND and eMMC media types were flashed using SAM-BA 3.5

And all goodies of previous Linux4SAM revisions!

ENSEMBLE GRAPHICS TOOLKIT



2023 New - APP-All MCU 2023 通用實驗板



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APP-All MCU 2023 共通的周邊

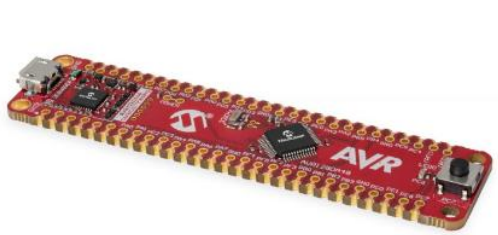
- ✓ 一個 I2C 介面的六軸 IMU - BOSCH BMI323
- ✓ 一個 I2C 介面的 Lighting Sensor – Vishay 的VEML7700-TT
- ✓ 一個 I2C 介面的 Humidity sensor - BOSCH BME280
- ✓ 一個 I2C 介面的 溫度 Sensor – Microchip MCP9808
- ✓ 一個 I2C 介面的 OLED Display - 單色128 * 64
- ✓ 一個 SPI 介面的 DAC – Microchip MCP4921
- ✓ 兩個 WS2812B One-Wire Color LED
- ✓ 一個 MCP2221A 作實驗板上的UART 以及 I2C 介面轉換至 USB 的介面 IC
- ✓ 一個 ALPS 的SKRHABE010 五向開關
- ✓ LED * 4
- ✓ Switch Button * 2

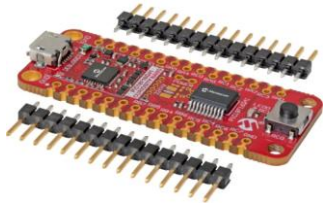
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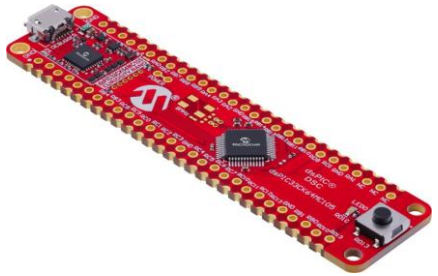
APP-All MCU 2023 所安裝的 Microchip MCU

- **MCU8 :**
  - AVR128DA48 – Refer to AVR128DA48 Curiosity Nano - DM164151
  - 20-Pin DIP PIC16F/18F – Refer to PIC18F16Q41 Curiosity Nano - EV26Q64A
- **MCU16 : dsPIC33CH256MP505 :**
  - **Main Core 90 MHz and Secondary Core 100 MHz Operation**
  - Refer to dsPIC33CK64MC105 Curiosity Nano - EV88G73A
- **MCU32 : PIC32CM2532LE0048 : Arm® Cortex®-M23**
  - Refer to PIC32CM LE00 Curiosity Pro Evaluation Kit - EV80P12A

pin-assignment for mikro BUS ☺



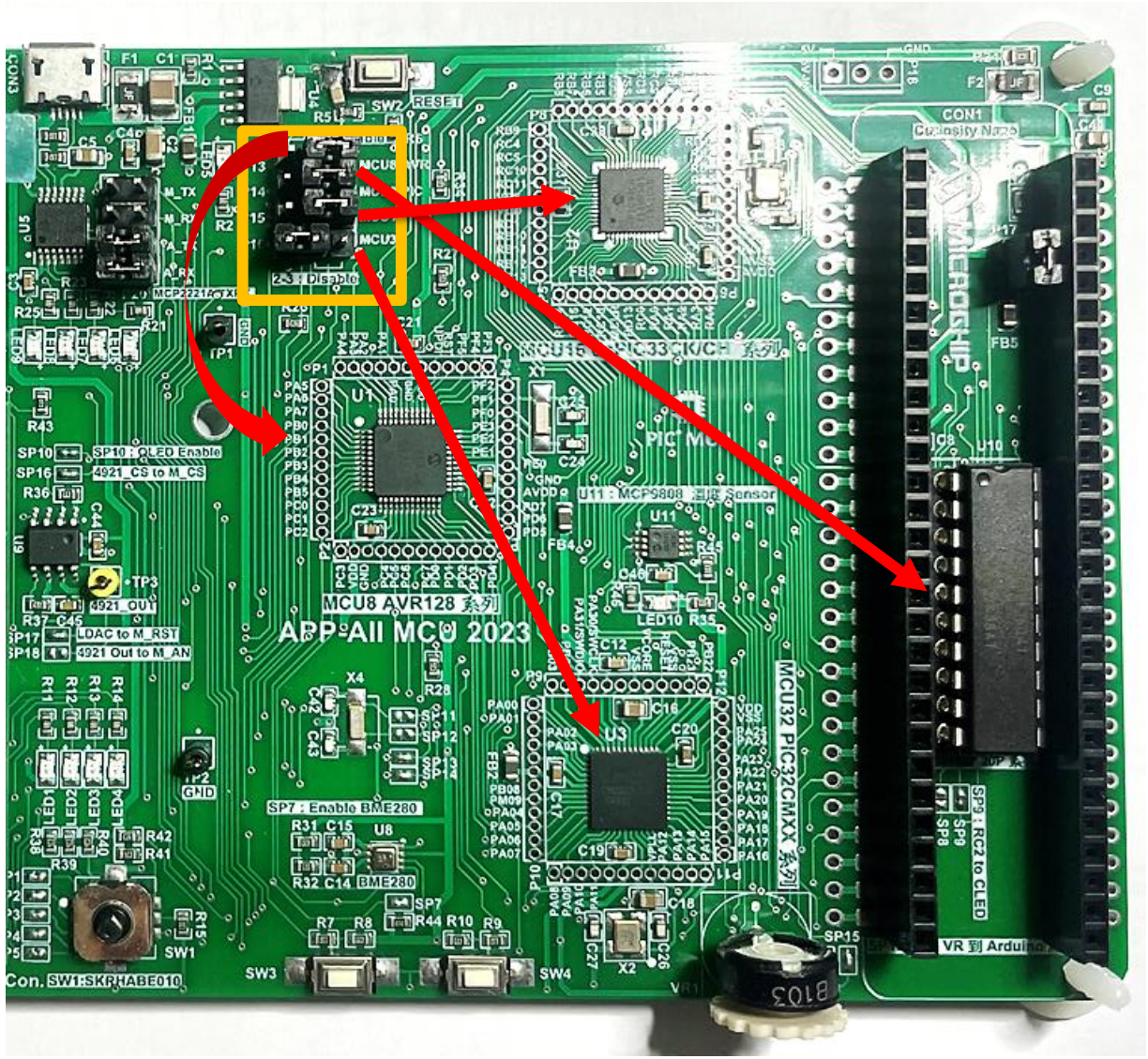






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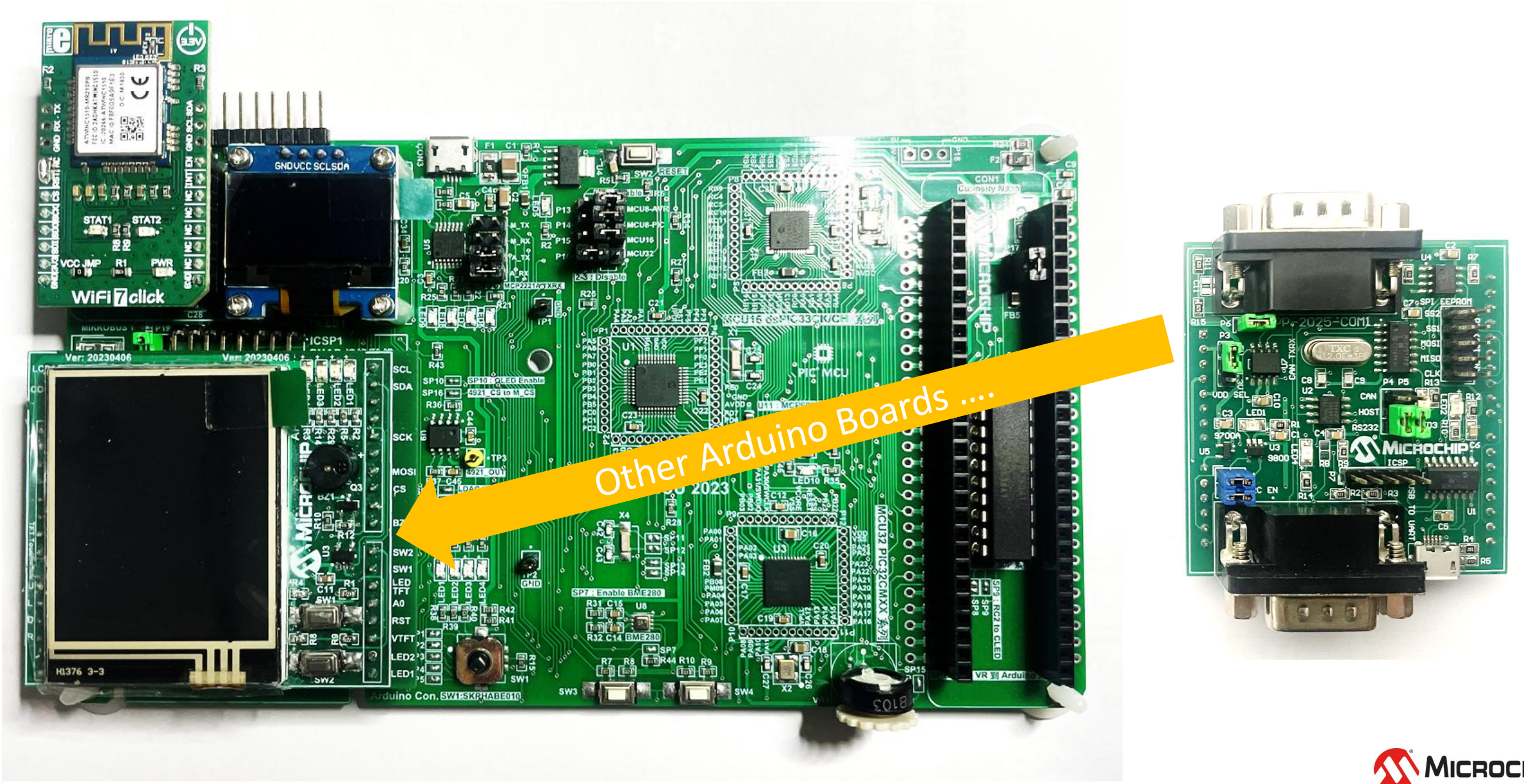
Use P13 ~ P16 to select the desired MCU



- **P13 :**
  - MCU8 – AVR128DA48
- **P14 :**
  - MCU8 – 20Pin PIC18/PIC16
- **P15 :**
  - MCU16 - dsPIC33CH256MP505
- **P16 :**
  - MCU32 – PIC32CM3532LE000048
- **Pin-1&2 : Reset Pin Release**
- **Pin-2&3 : Reset Pin HOLD**
- **Connect other Curiosity Nano EVB to CON1 for user defined MCU**
  - Must “HOLD” the RESET pins of other MCUs
- **Exception : You can Release 2+ MCUs to do multi-MCU interactive programming**
  - i.e. I2C Master/Slave Communication

MICROCHIP

APP-All MCU2023 使用 mikroBUS & Arduino 介面的擴充範例



APP-All MCU 2024 : 另一個 Microchip MCU 泛用平台



APP-All MCU 2024 上預置的 MCU 型號

- **8-bit MCU : PIC18F57Q43**
- **8-bit MCU : 在 U10 的位置上保留 20-pin 的 IC 腳座，可以自由使用相容的 PIC16F1/PIC18F MCU**
- **16-bit MCU : 100Mhz dsPIC33CK256MP505**
  - 具備 CAN FD 功能的 16-bit MCU
- **32-bit MCU : 120Mhz ATSAME51G19A**
  - 具備 USB、CAN FD 等功能的 32-bit ARM Cortex M4 MCU

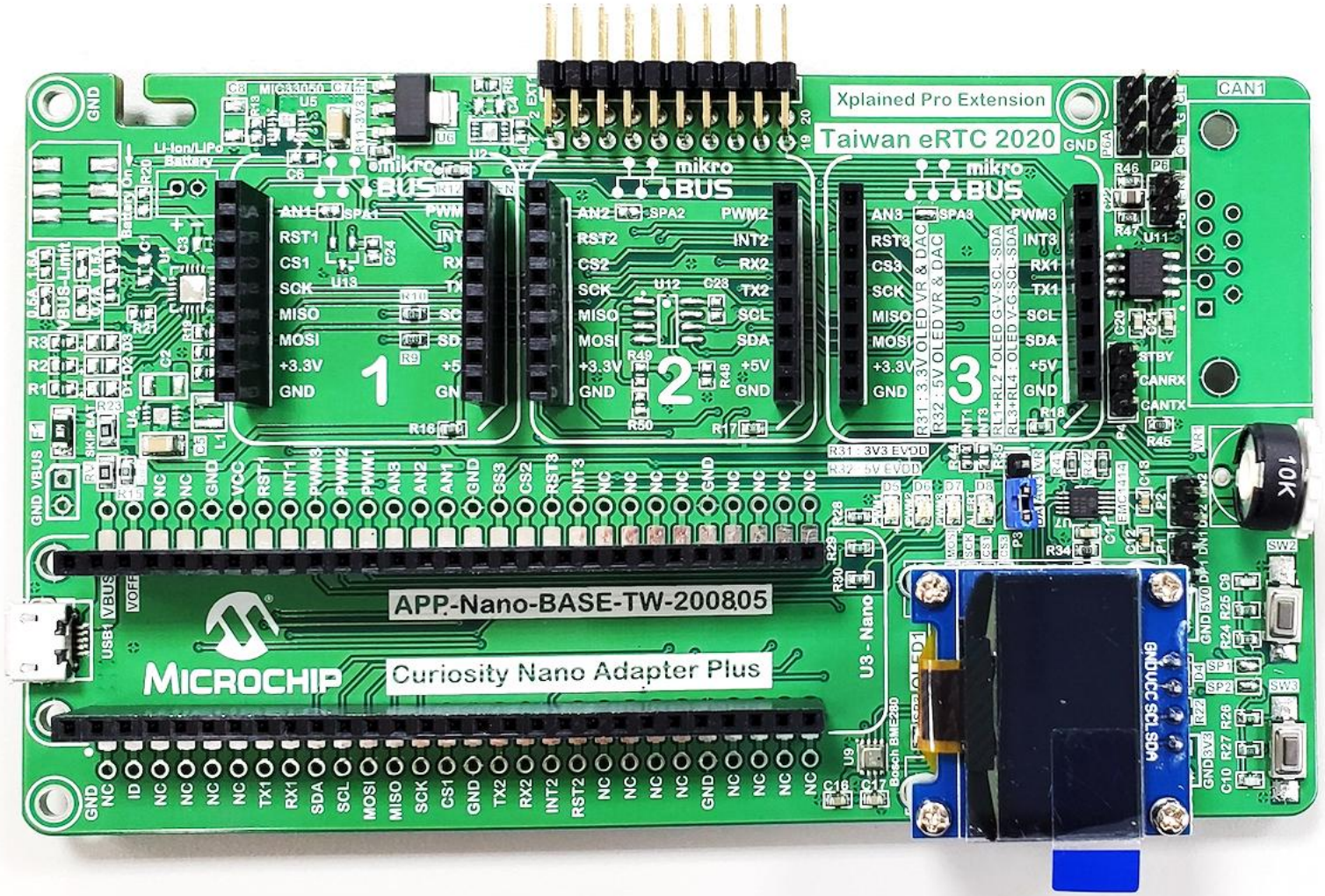
APP-All MCU 2024 內建的周邊

- 一個I2C 介面的三軸加速度計 KXTJ3-1057
- 一個I2C 介面的Lighting Sensor – Vishay 的VEML7700-TT
- 一個I2C 介面的Humidity sensor - BOSCH BME280
- 一個I2C 介面的溫度Sensor –Microchip MCP9808
- 一個I2C 介面的OLED Display -單色128 * 64
- 一個SPI 介面的DAC –Microchip MCP4921
- 兩個WS2812B One-Wire Color LED
- 一個MCP2221A 作實驗板上的UART 以及I2C 介面轉換至USB 的介面IC
- 一個ALPS 的SKRHABE010 五向開關
- CAN Transceiver : ATA6561
- CAN Connector (DB-9 & 排針)
- USB Connector : Type-C for USB Device function

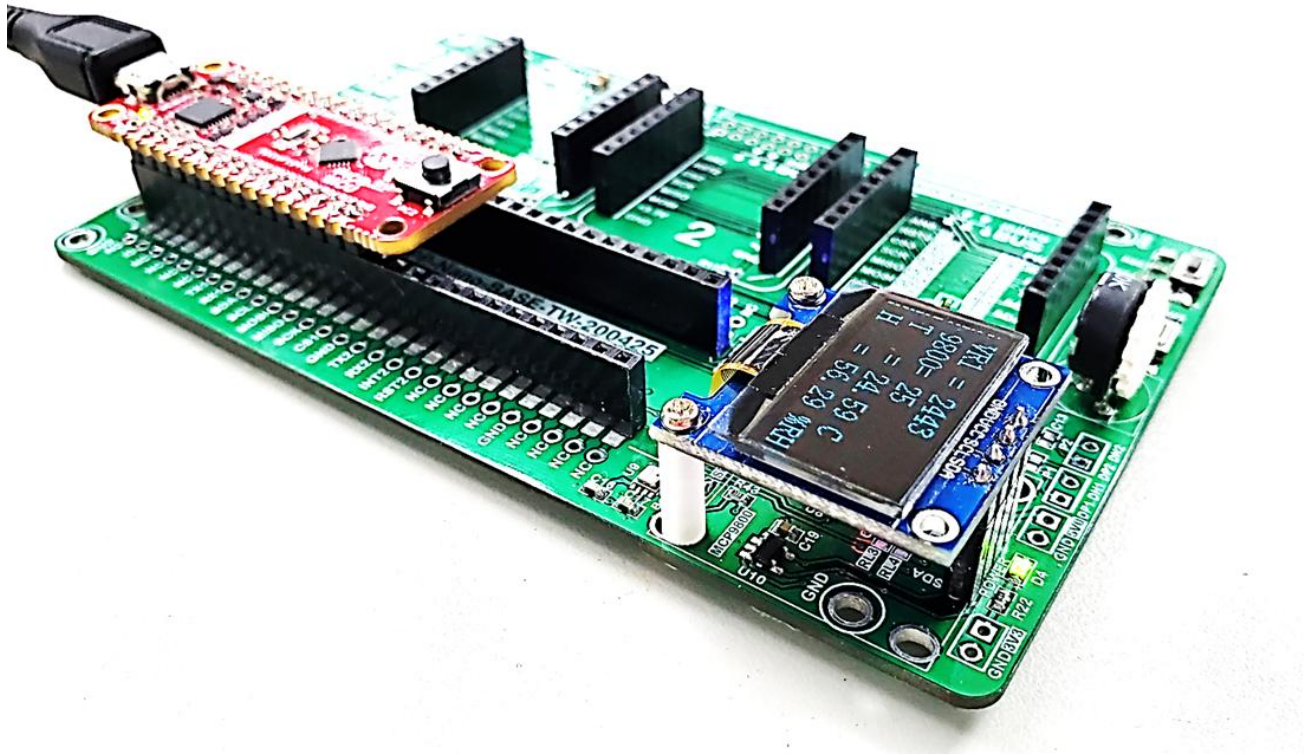
MICROCHIP

APP-Nano-BASE-TW 台灣加強版 – 相容於AC164162

目的 : 讓入門的學習更為方便、容易 --- 增加許多基礎周邊

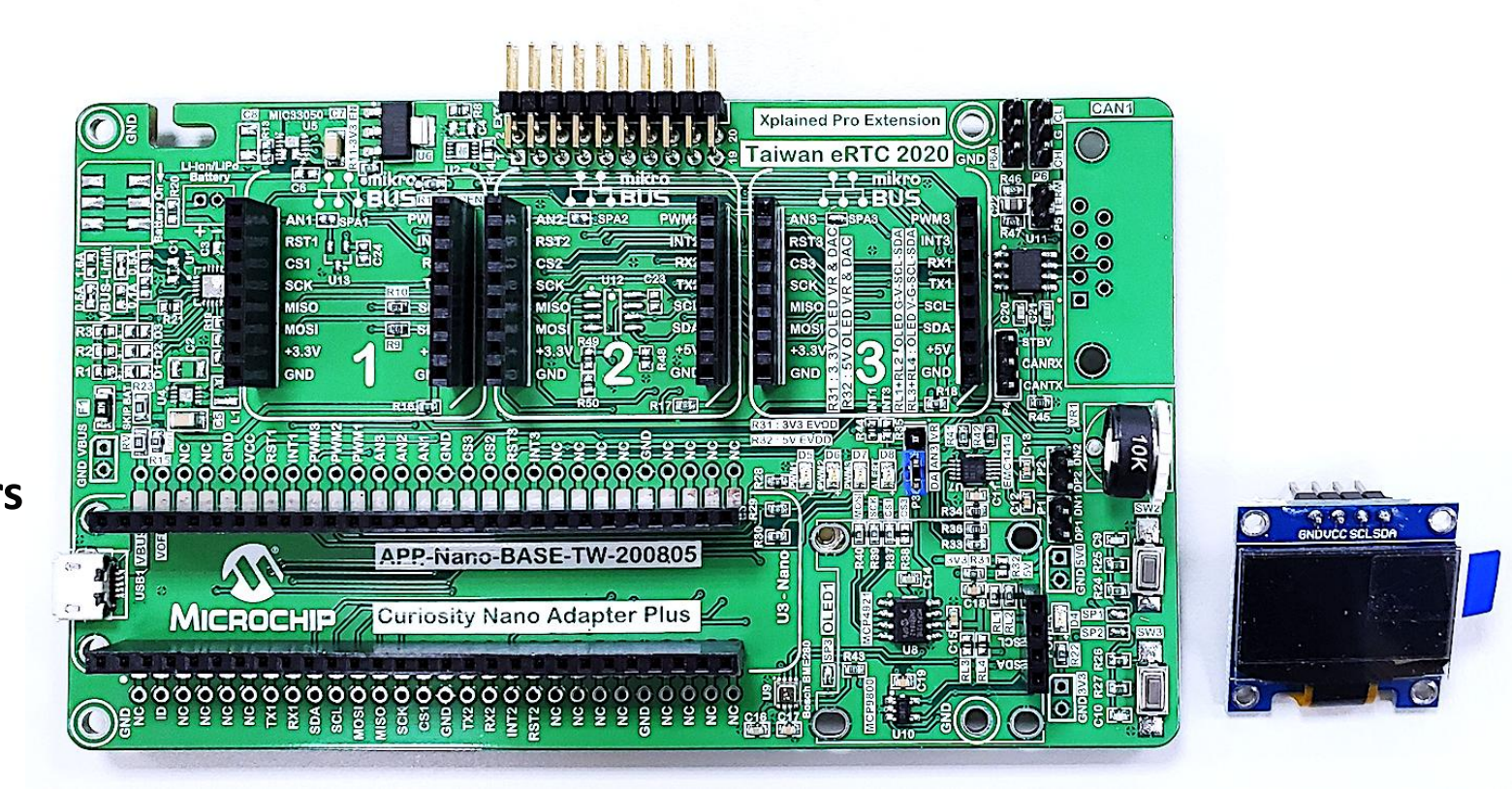


APP-Nano-BASE-TW Nano Board 使用範例
(實驗底板不含紅色的 Curiosity Nano Board)



AC164162 可以搭載數十種以上的 Microchip Curiosity Nano . 但是 APP-Nano-BASE-TW 加上更多的預置功能

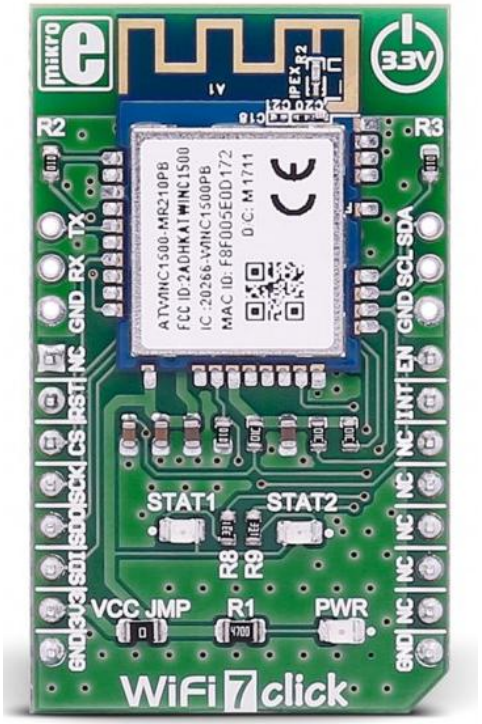
- **2 個按鍵開關做信號輸入練習**
  - INT1 & INT2 Pin
- **4 個 LED 進行狀態輸出指示**
  - PWM1 , PWM2 , PWM3, ALERT (TEMP)
- **1 個 VR 作為可辨的類比輸入**
  - AN3
- **1 個使用 I²C 的 OLED Display**
  - (SH1106 controller)SDA & SCL
- **2 個 I²C Temp Censor**
  - MCP9800 & EMC1414
- **1 個 SPI 介面的 DAC**
  - MCP4921
- **1 個 CAN Transceiver & Connectors**
- **獨立的 USB 電源供應**
- **Bosch Sensor BME280**
  - Humidity sensor
  - Barometric pressure
  - Ambient Temperature



WIFI 7 CLICK

- 讓你的應用輕易的將 **WiFi** 的功能加入

Type	WiFi
Applications	Optimized for low power IoT applications
On-board modules	ATWINC1510-MR210PB
Key Features	IEEE® 802.11 b/g/n 20MHz solution, integrated PCB antenna, supports IEEE 802.11 WEP, WPA, WPA2 Security
Interface	GPIO,SPI
Compatibility	mikroBUS
Click board size	M (42.9 x 25.4 mm)
Input Voltage	3.3V

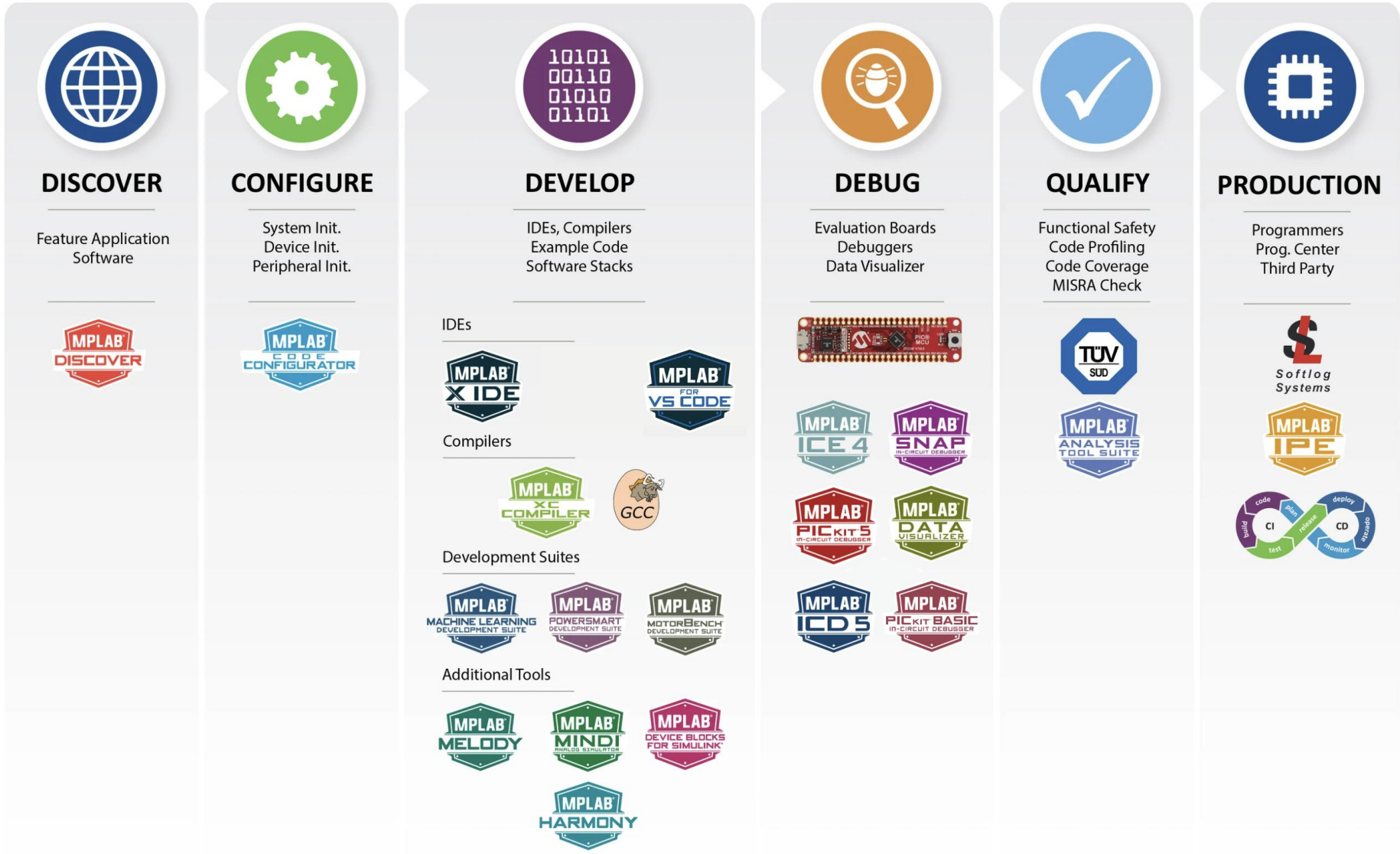


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Microchip 開發工具生態鏈

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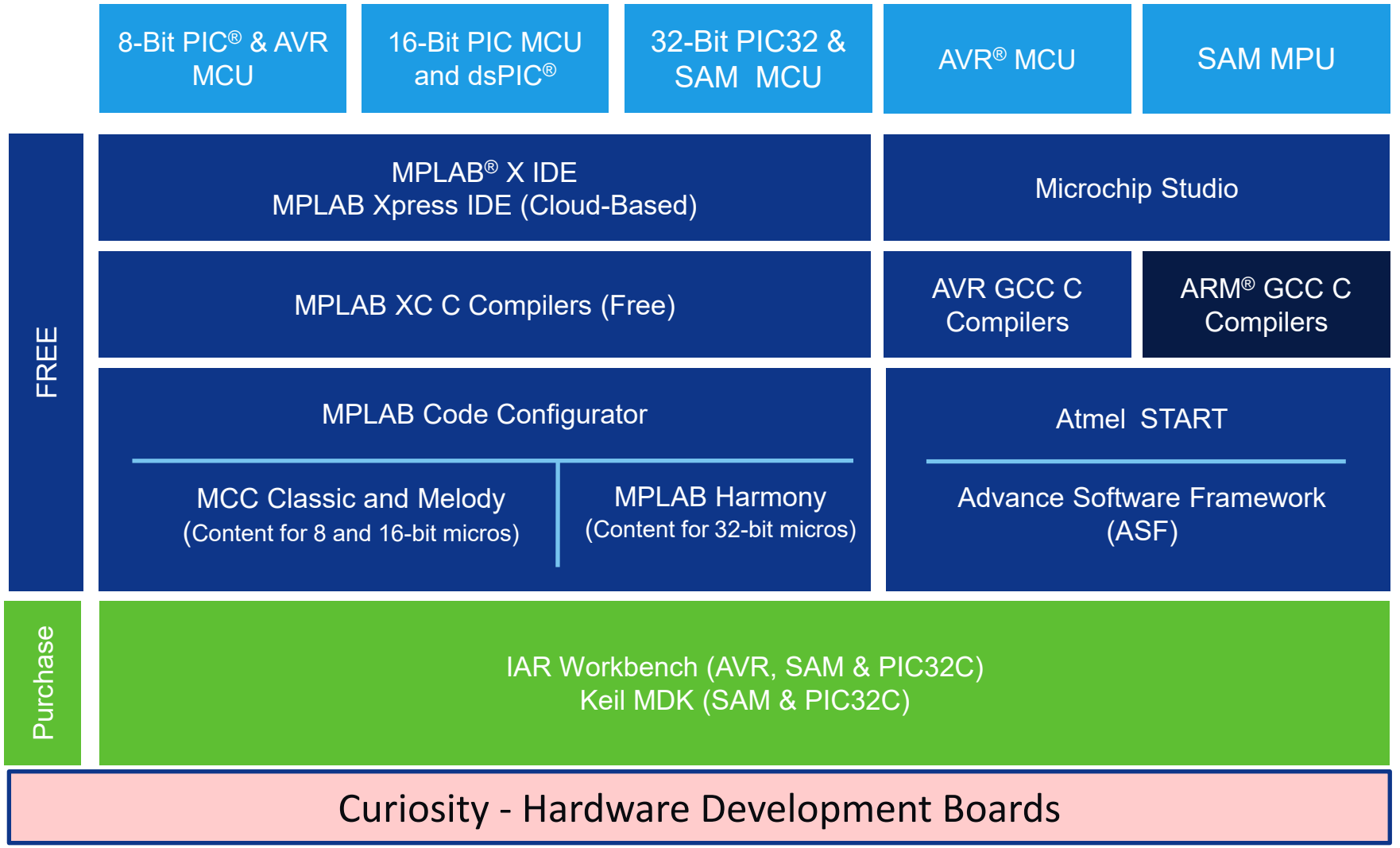
MCU and MPU Development Tool Ecosystem



MICROCHIP

Unified Development Tool Ecosystem

Microchip 內部和第三方無與倫比的互補性



MICROCHIP

Tools Ecosystem

Meeting the developers in their ecosystem of choice

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

adafruit
sparkfun ELECTRONICS
MIKROE
seeed studio
ARDUINO

Development Tools

Compilers

MPLAB XC COMPILER
GCC
LLVM COMPILER INFRASTRUCTURE

Debuggers

MPLAB PICkit BASIC IN-CIRCUIT DEBUGGER
MPLAB PICkit 5 IN-CIRCUIT DEBUGGER
SEGGER It simply works!

Software Assist

MPLAB DISCOVER
SIEMENS
CELUS
percepio
wolfSSL

Tool Ecosystems

MPLAB FOR VS CODE
Visual Studio Code
MPLAB X IDE
iar
LAUTERBACH DEVELOPMENT TOOLS
SEGGER It simply works!
Green Hills SOFTWARE
KEIL Tools by ARM
OpenOCD
pyOCD

Operating Systems & Libraries

Operating Systems

SEGGER It simply works!
freeRTOS
Green Hills SOFTWARE
Zephyr™
ECLIPSE THREADX

Libraries

Zephyr™
CMSIS
MPLAB MELODY
MPLAB HARMONY

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軟體開發平台 MPLAB X IDE - Free



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開始專案的開發 MPLAB XIDE



- **Pick your operating system: Windows®, Linux® and macOS®**
- **Pick your compiler: MPLAB® XC, GCC or third-party**
- **Pick your programmer/debugger:**
  - MPLAB ICE 4, MPLAB ICD 4, MPLAB PICkit™ 4, MPLAB Snap
  - Atmel-ICE
  - Third-party
- **Extensions let you do even more!**

8/16/32 位元 MCU 的 C Compiler – Free

MICROCHIP Products Solutions Tools and Software Support Education About Order Now

Tools and Software / MPLAB® XC Compilers

License Change Notice Downloads Documentation License Details High Priority Access (HPA)

MPLAB® XC Compilers

Available as free, unrestricted-use downloads, our award-winning MPLAB® XC C Compilers are comprehensive solutions for your project's software development. Finding the right compiler to support your device is simple:

- MPLAB XC8 supports all 8-bit PIC® and AVR® microcontrollers (MCUs)
- MPLAB XC16 supports all 16-bit PIC MCUs and dsPIC® Digital Signal Controllers (DSCs)
- MPLAB XC32/32++ supports all 32-bit PIC and SAM MCUs and MPUs

The first versions of the MPLAB XC compilers that supported Catalina were:

- MPLAB XC8 - v2.20
- MPLAB XC16 - v1.50
- MPLAB XC32 - v2.41

MPLAB® XC COMPILER

MPLAB® X IDE and MPLAB Tools for VS Code®

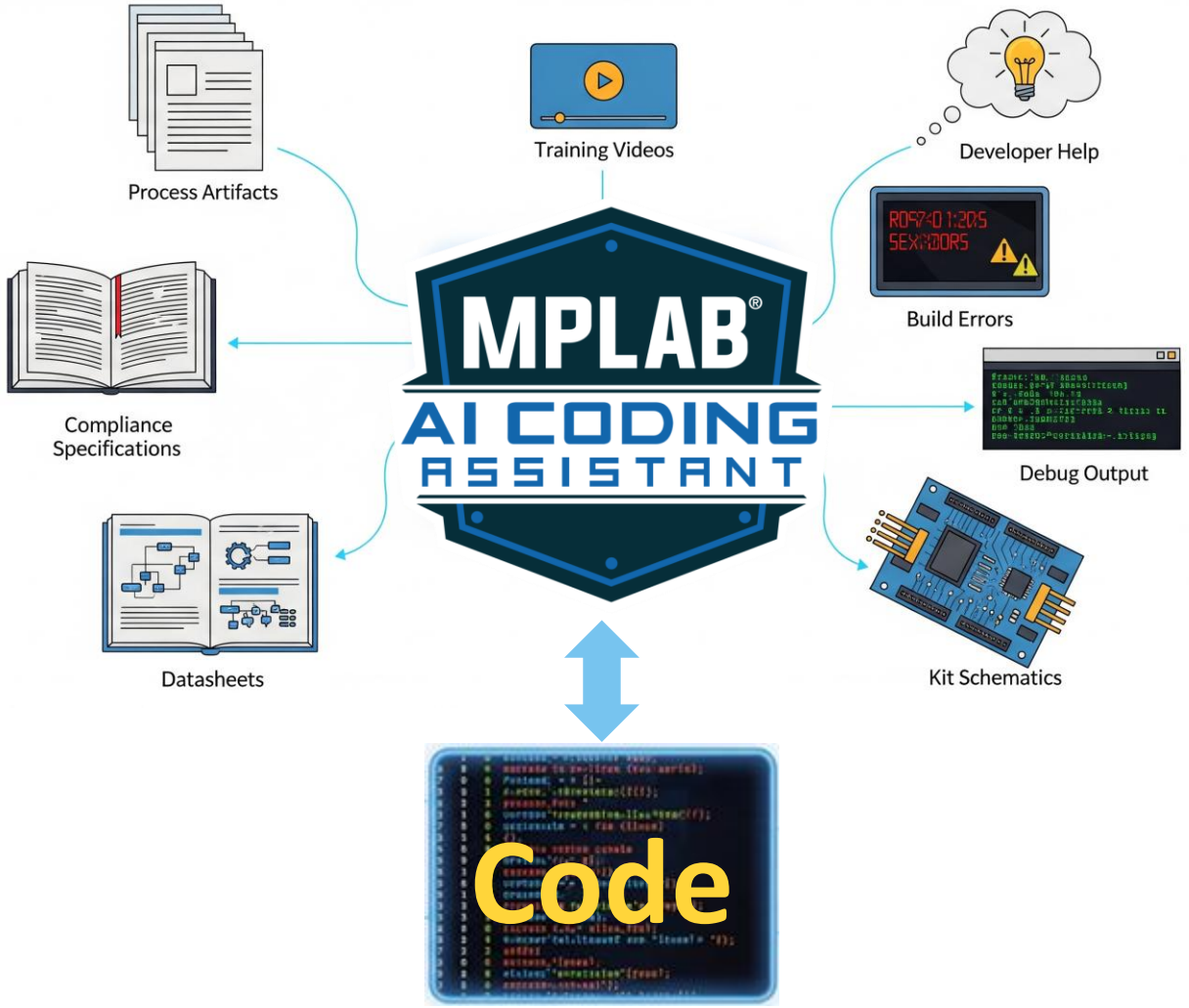
Use Our Development Tools in VS Code®

- **Overview**
  - Combines the power of the MPLAB development ecosystem with the versatility of VS Code
  - Provides a seamless, flexible, and efficient development environment
- **Highlights**
  - Extension support for Data Visualizer
  - Extension support for AI Coding Assistant
  - Extension support for MPLAB Code Configurator



MPLAB® AI Coding Assistant

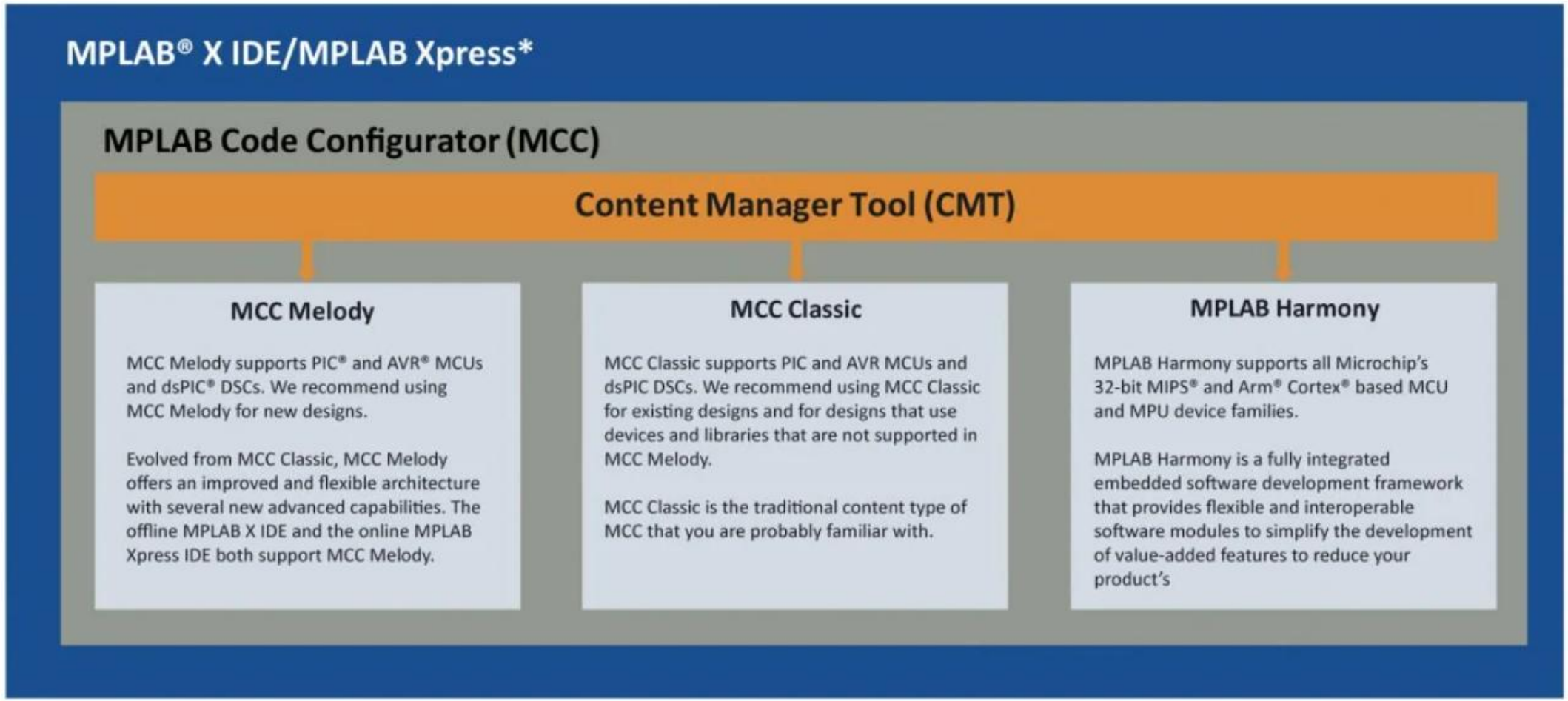
Empowering Developers for Faster, Smarter code development



- **Expert Partner, fully integrated in the IDE**
- **Advanced Autocomplete & Error Detection (MISRA standards)**
- **September Update**
  - AI Workspace Agent
    - Ability to create / modify files
  - Documentation MCP Tools
    - Search Datasheet, User guide, Videos
    - List Example projects, Kit support

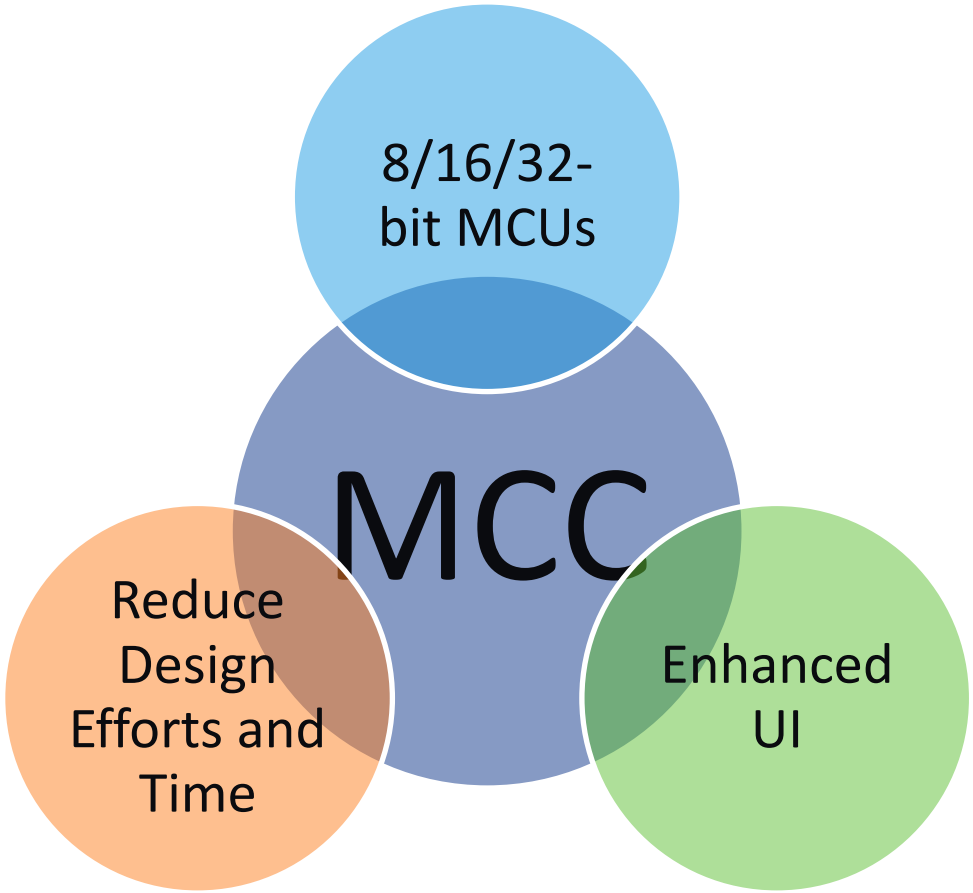
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MPLAB Code Configure



MCC : Unified Code Configurator

- **One Development Path**
  - User friendly experience to scale across different MCU cores
  - Save developer's time to learn new development environment
- **Enhanced Configurator UI**
  - Integrate key Harmony features for better and intuitive user experience
  - Reduce developer's design effort and time



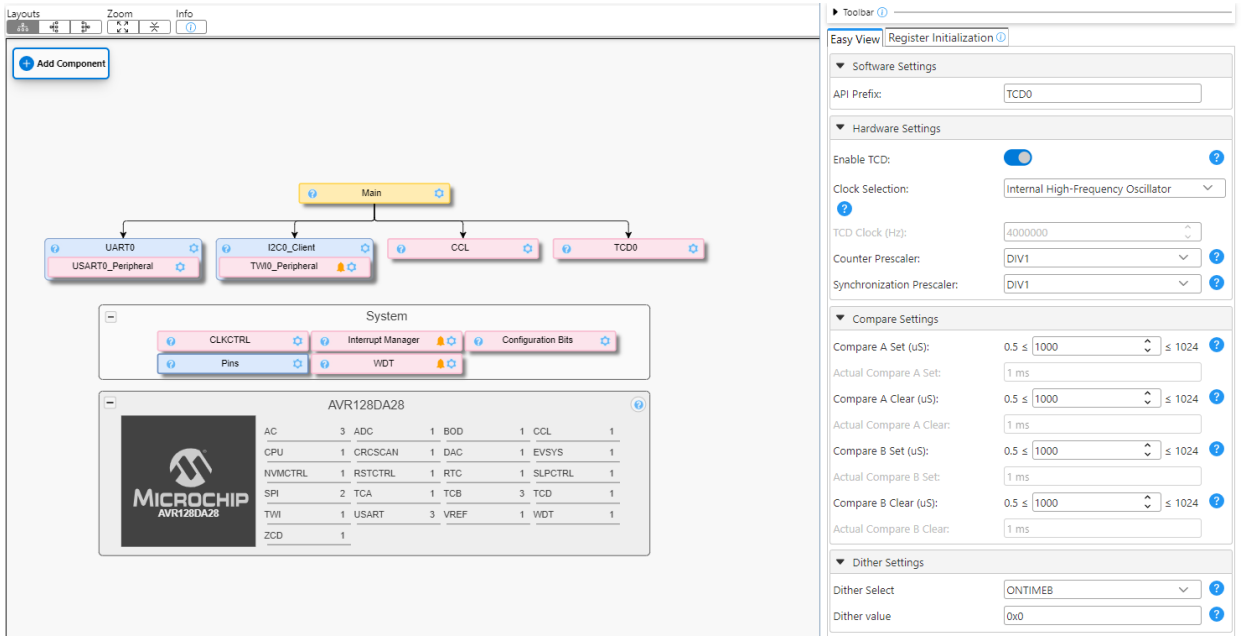
✓ Video: MCC Content Manager for MPLAB Harmony v3 projects
✓ Video: Getting Started with MPLAB® Harmony v3 Using MPLAB Code Configurator

MICROCHIP

MPLAB® Code Configurator

Race Through Code Generation Graphically

- **Intuitive graphical configuration**
  - Enabling quick start development
  - Automated configuration of peripherals
  - Accelerates generation of production-ready code
- **Hierarchical application builder**
  - Block diagram view of software modules
  - Highlights dependencies
  - Provides added context to module configuration
- **Supports MPLAB Harmony and Melody content**

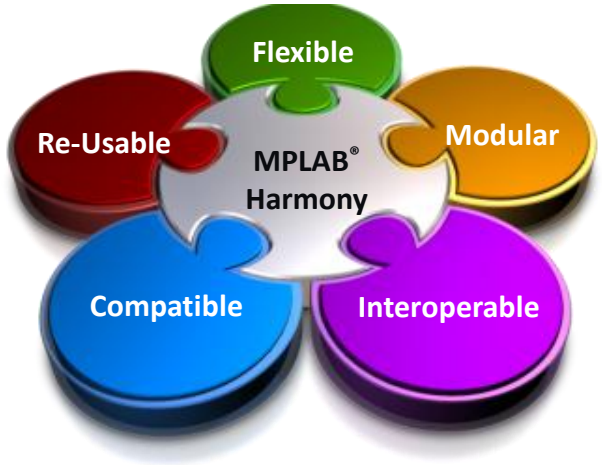


If you love MCC….Now available as VS Code® Extension

MPLAB® Harmony Speeds Development

An extension of the MPLAB ecosystem to create embedded systems firmware solutions for 32-bit MCU and MPU devices

- **MPLAB Harmony provides:**
  - Demo/Example Applications
  - Layered & Modular Libraries
    - Peripheral Libraries
    - Drivers & Services
    - Middleware
  - Software Stacks
    - USB, TCP/IP, Graphics, Security Solutions, Motor Control, Audio, etc.
  - Firmware Reference Model
  - Learn More About MPLAB Harmony



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Microchip MCU 開發階段建議的除錯/燒錄器



MPLAB® PICkit™ 5 In-Circuit Debugger

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MPLAB® ICD 5 In-Circuit Debugger/Programmer

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MPLAB® ICE 4 In-Circuit Emulator, Programmer and Debugger

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MPLAB® ICD 4 In-Circuit Debugger

The MPLAB® ICD 4 In-Circuit Debugger/Programmer is Microchip's fastest, cost-effective debugging and programming tool for PIC® Microcontrollers (MCUs), Microprocessors (MPUs) and dsPIC® Digital Signal

Learn More



MPLAB® SNAP

The MPLAB® Snap In-Circuit Debugger/Programmer allows affordable, fast and easy debugging and programming of PIC®, dsPIC® and AVR flash MCUs and MPUs, using the powerful graphical user

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MPLAB® PICkit™ 4 In-Circuit Debugger

The MPLAB® PICkit™ 4 In-Circuit Debugger/Programmer allows fas and easy debugging and programming of PIC®, dsPIC®, AVR, SAM and CEC flash microcontrollers and microprocessors.

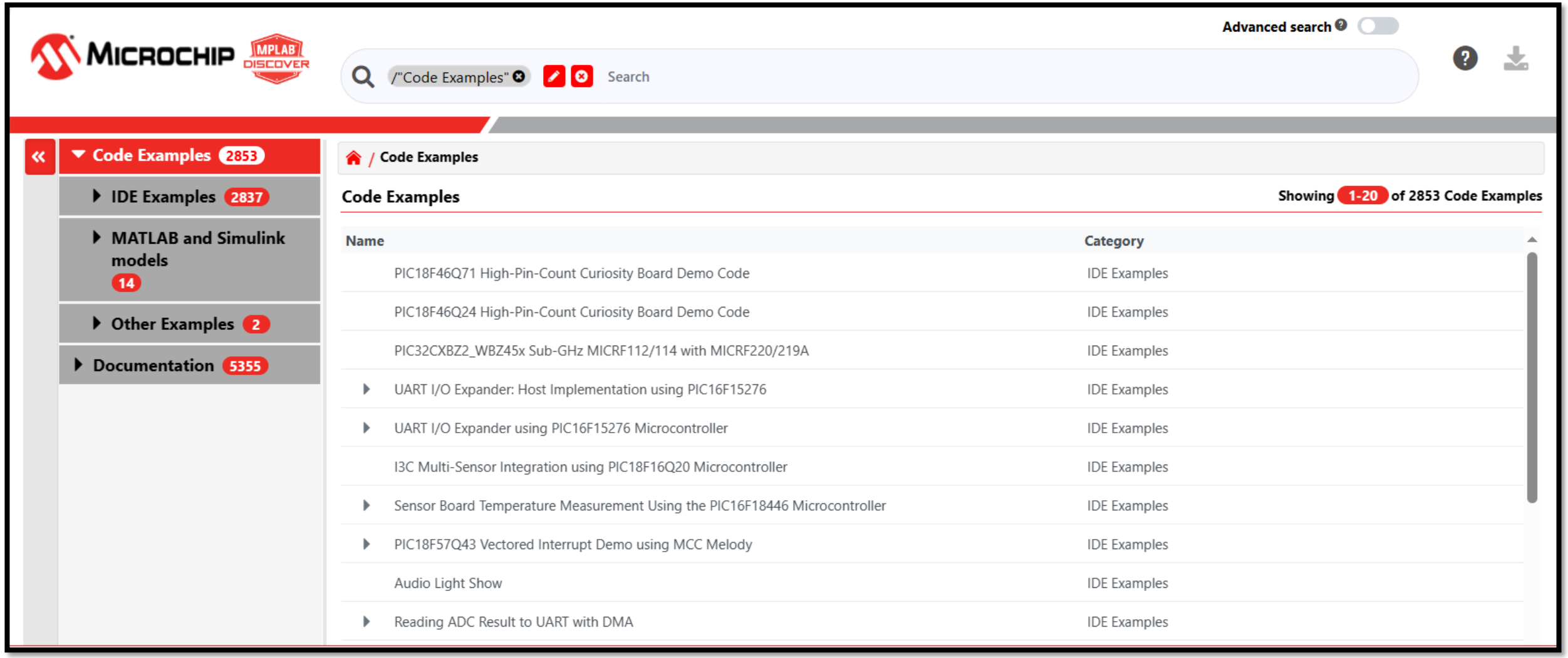
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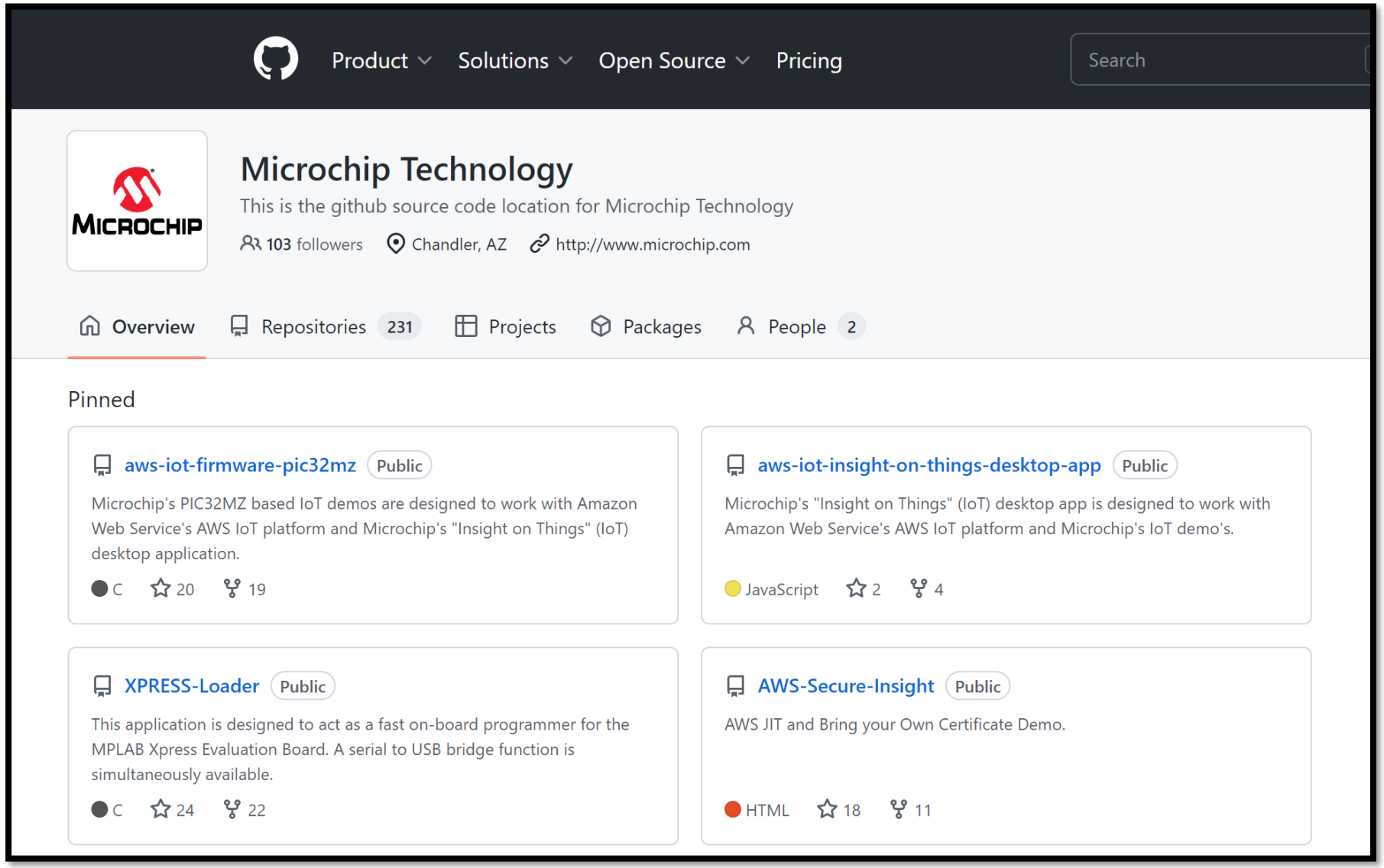
Microchip DISCOVER - 範例程式的寶藏庫

https://mplab-discover.microchip.com/v2/category/com.microchip.code.examples(microchip.com)



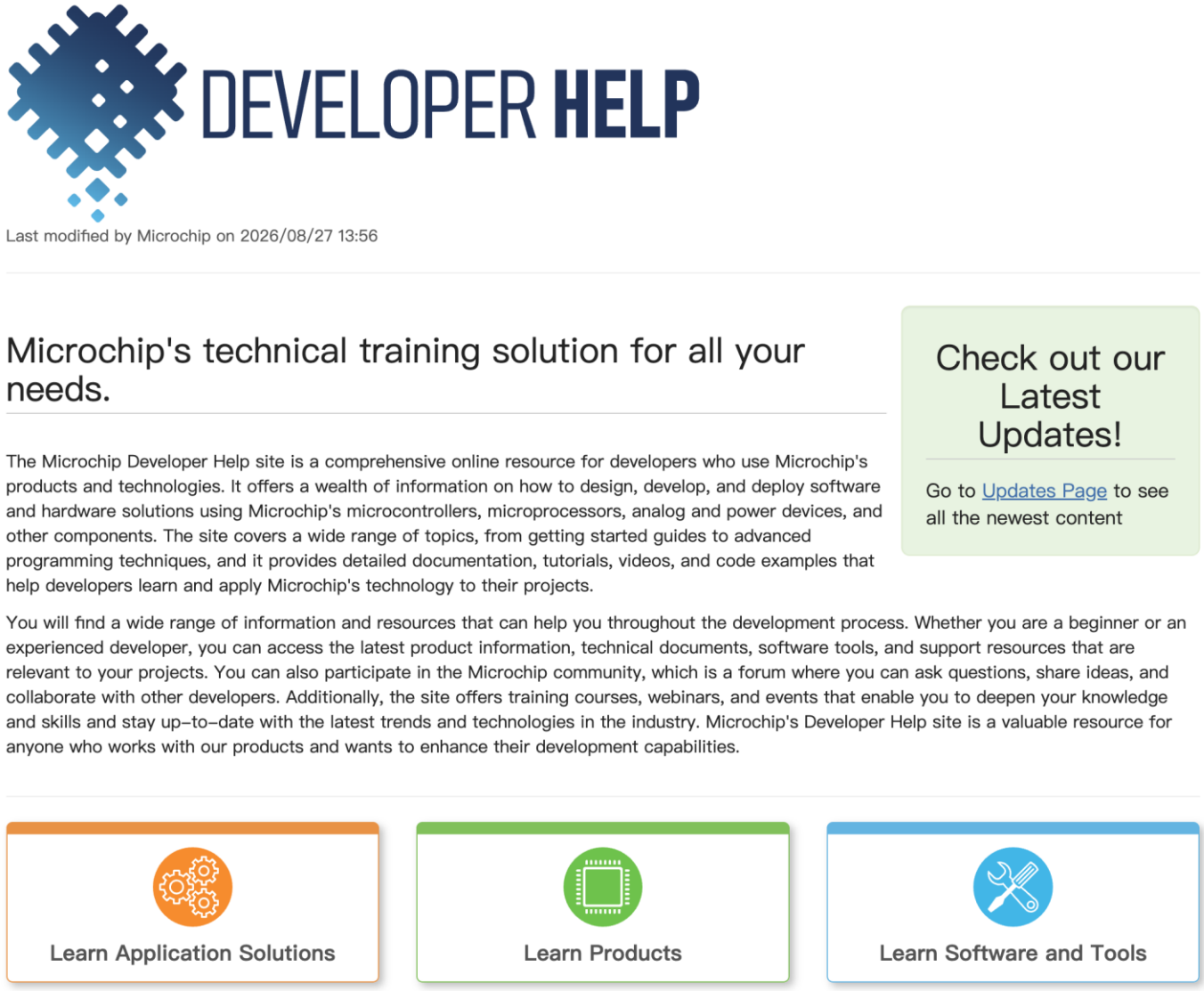
Microchip in Github開放社群

https://github.com/microchiptech



Microchip Developer Help

https://developerhelp.microchip.com/xwiki/bin/view/Main/



Microchip in Youtube

https://www.youtube.com/channel/UCtVXD_KbnLtfC1aTYY7ds2A/videos



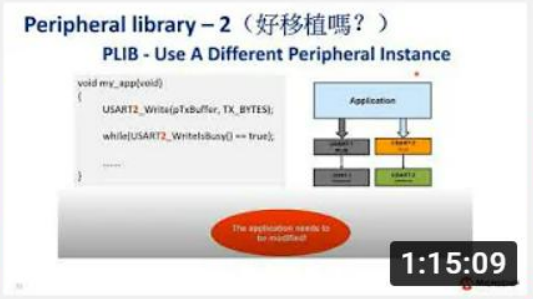
2022 MU 選粹-1：使用 MPLAB® Harmony v3 周邊...

觀看次數：244次 • 6 個月前



2022 MU 選粹-1：使用 MPLAB® Harmony v3 周邊...

觀看次數：173次 • 6 個月前



2022 MU 選粹-2：使用 MPLAB® Harmony v3 軟體...

觀看次數：125次 • 6 個月前



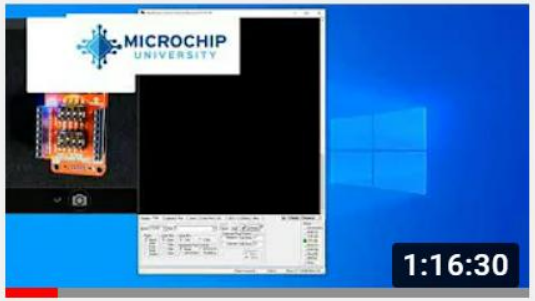
Microchip FPGA 的低功耗應用

觀看次數：113次 • 8 個月前



玩轉MPLAB® X IDE技巧與提示實戰

觀看次數：683次 • 10 個月前



密碼學入門及實作探討

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Wi-Fi® SOC模組WFI32 (II) –– 參考範例應用篇

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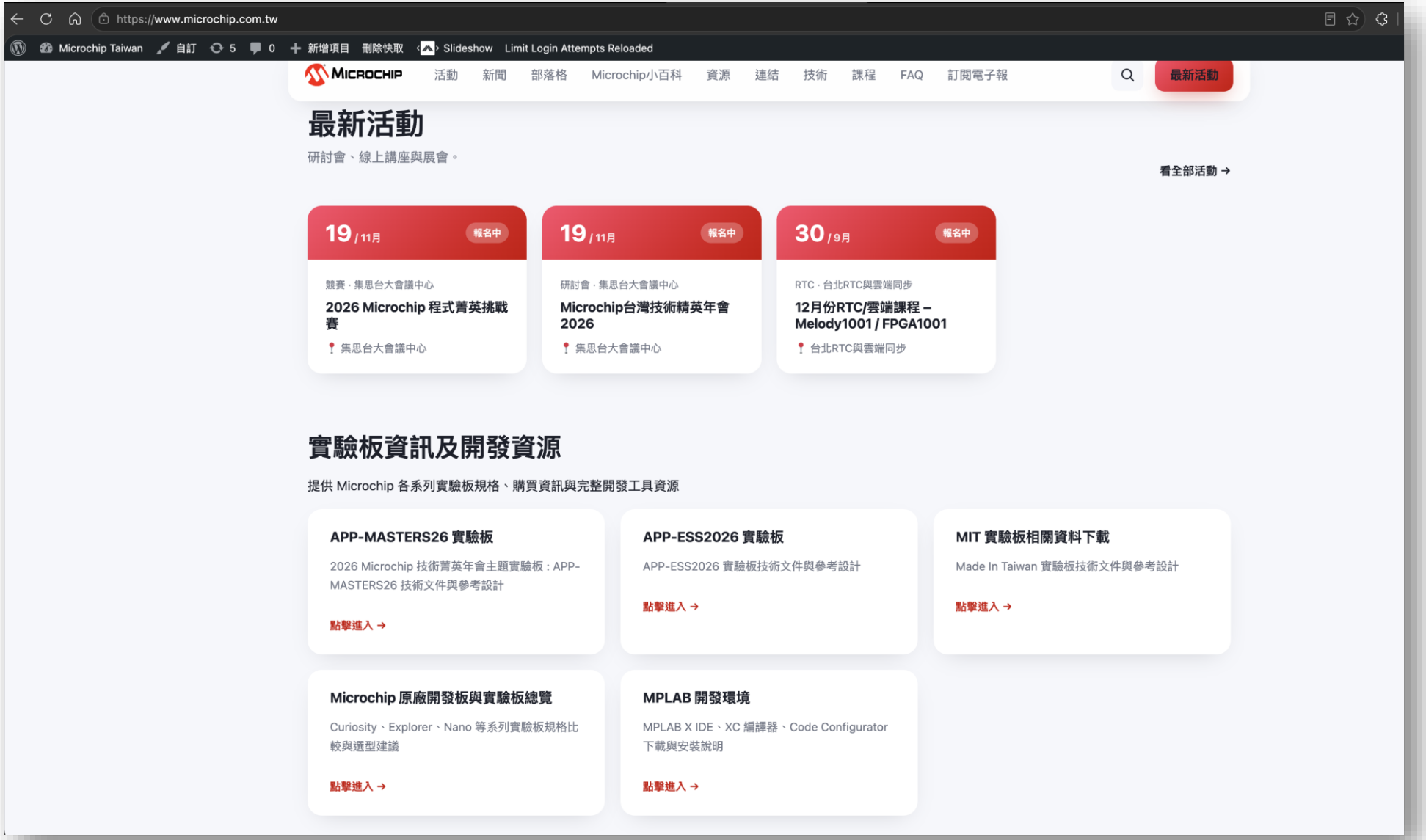
Wi-Fi® SOC模組WFI32 (I) –– 介紹及軟體應用篇

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Microchip 台灣網站及討論區

www.microchip.com.tw



https://mu.microchip.com

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https://mu.microchip.com

MICROCHIP UNIVERSITY

漢語 登入

MICROCHIP UNIVERSITY

Microchip has been delivering superior learning for our clients over the last 23 years at our annual users' conference. Our goal for the new online Microchip University Program is to provide you with all the same information you need to design robust embedded control systems with Microchip solutions. All Microchip University courses are being offered for free at this time.

New classes are being added all the time - check back often to see new additions!



English Catalog | 中文目录 | 中文目錄 | 한국어 카탈로그

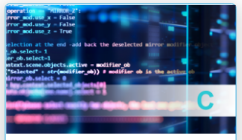
58

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MU 現有超過 120 個不同的課程並陸續增加中

All Courses

All courses currently offered are listed below. New classes will be added on a monthly basis.



Syntax And Structure of C (免費, 132 分)

Fundamentals of the C Programming Language



Advanced C Programming (免費, 206 分)

This course covers many advanced concepts of the C programming language for embedded applications.



C Programming: Linked List Data Structures (免費, 59 分)

Learn how to use Linked List Data Structures to make your data access easier and more flexible



Intro to the MPLAB® X IDE (免費, 33 分)

This class covers the basics of the MPLAB X IDE. [English and Spanish subtitles available]



MPLAB® X Tips & Tricks (免費, 90 分)

This is a collection of extremely useful tips and tricks that will help you get the most out of MPLAB® X. New tips added on 8/13/2021!



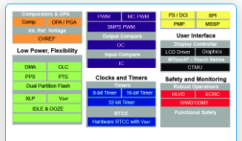
MPLAB® Code Configurator (免費, 74 分)

MPLAB® Code Configurator (MCC) for Simplified Embedded Software Development



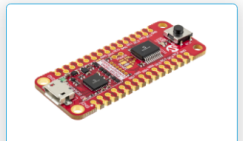
Visual Debugging with MPLAB® Data Visualizer (免費, 41 分)

In this class, we'll use MPLAB® Data Visualizer as a plugin to MPLAB X IDE to plot real-time data from PIC®, AVR® and SAM MCUs using the Curiosity Nano Platform, and Xplained Pro platforms.



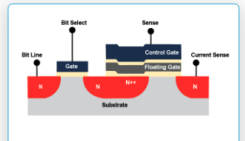
Creating Unique Digital and Analog Functionality by Interconnecting Core Independent Peripherals (CIPs) (免費, 90 分)

This class will cover in detail a number of applications that utilize multiple Core Independent Peripherals (CIPs) to simplify the design of different circuits.



Rapid Prototyping with the Curiosity Nano Platform (免費, 56 分)

This course will help you to get the most out of the Curiosity Nano development platform



NVRAM and EEPROM Selection and Design (免費, 52 分)

This class is an overview of external non-volatile memories

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MU 最方便的入口：www.microchip.com.tw



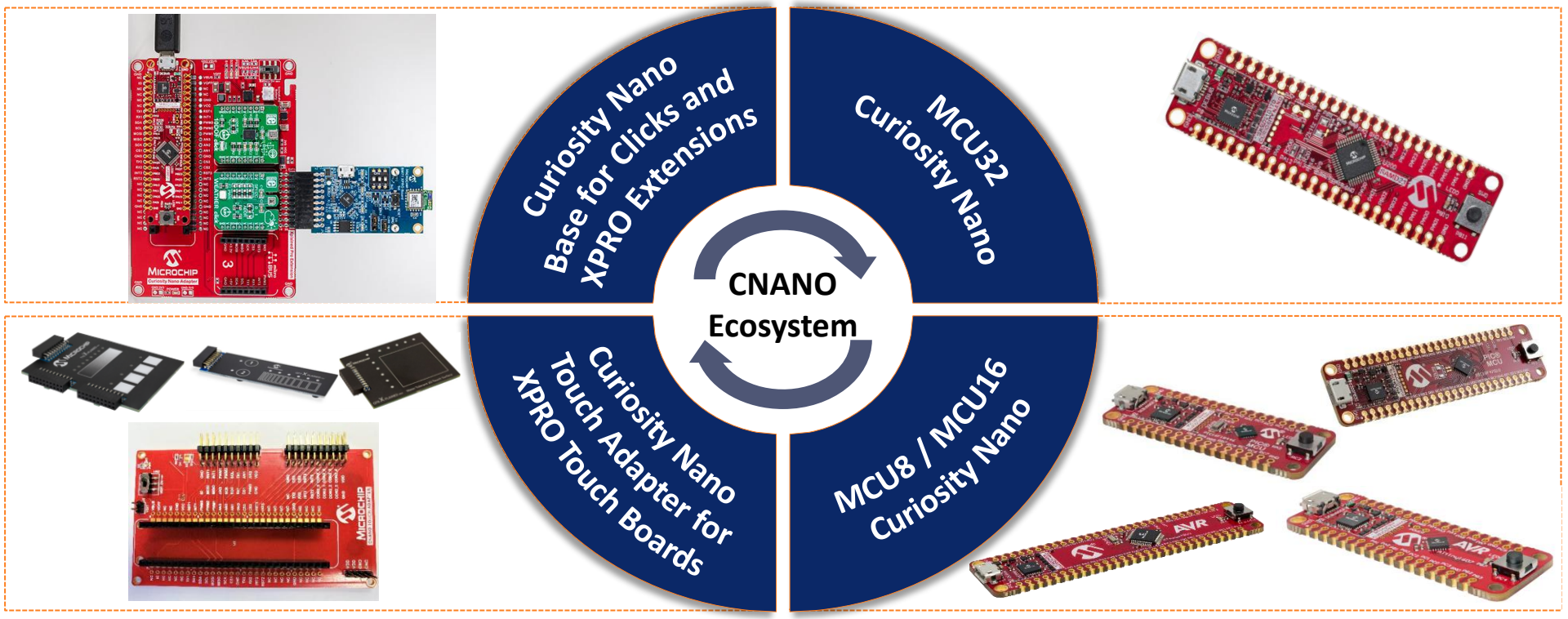
補充資料：
Microchip MCU 的入門開發平台
Curiosity Nano Platform

MICROCHIP

Curiosity Nano Development Ecosystem

Fully Integrated platform for 8-, 16- and 32-bit MCUs

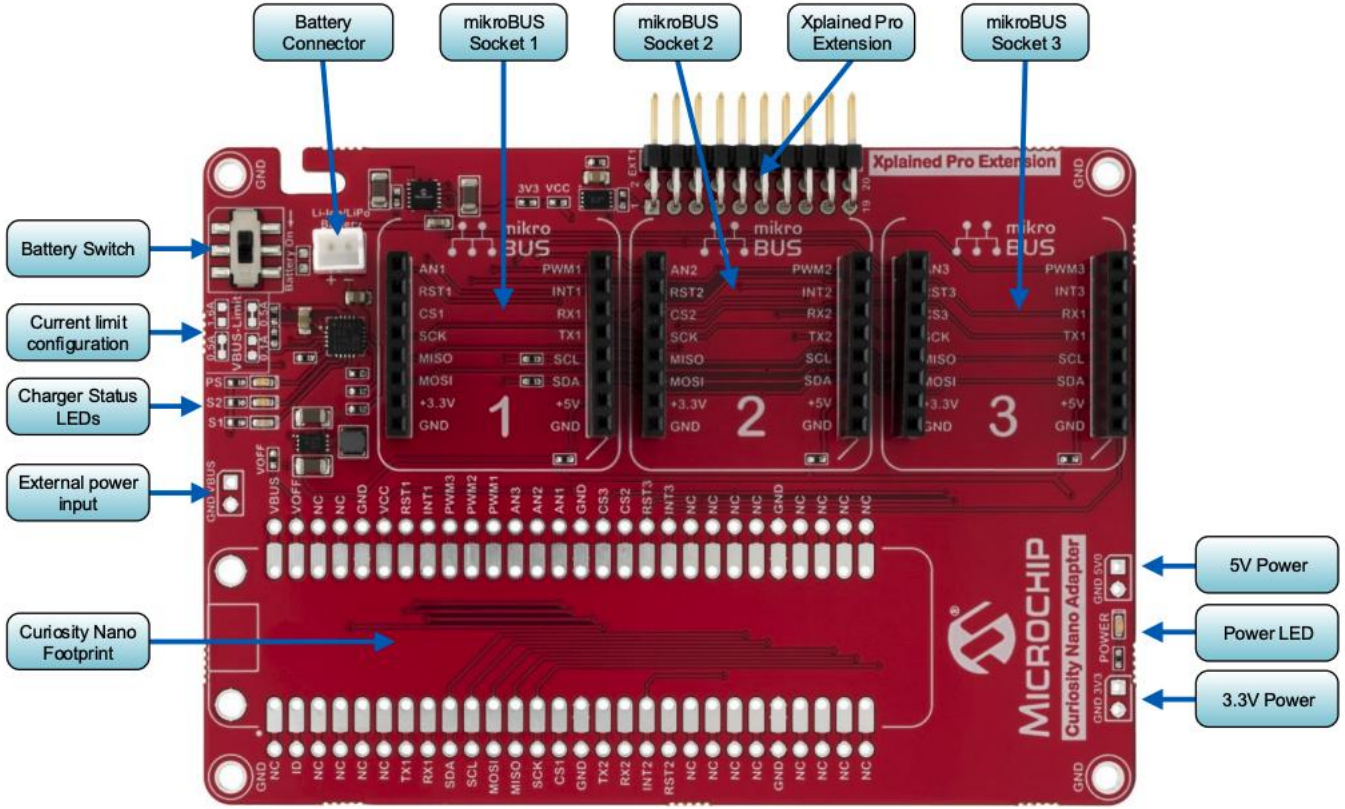
- **Standardized features, interfaces and design methodology, scalable from 8-/16-bit MCU for higher performance, to easily evaluate different architectures**
- **Lower cost entry point for device evaluation**
- **Full on-board programming and debug support**



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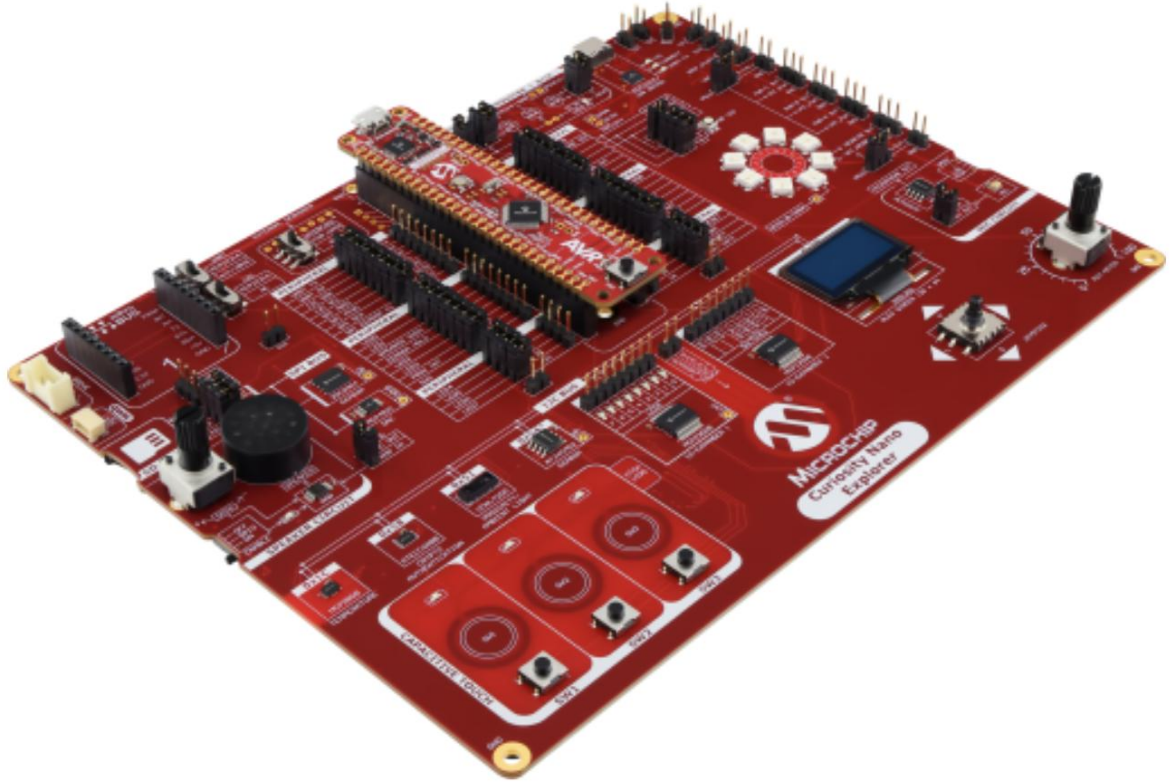
Microchip Curiosity Development Platform - AC164162

適用於多種開發平台的實驗平台





Curiosity Nano Explorer – Curiosity Nano 探索板



- A wide selection of input and output options
  - Touch (and mechanical) buttons,
  - Potentiometer, Joystick, Temperature sensor
  - Proximity sensor, Ambient light sensor, and a microphone
- Solid support for serial communication
  - SPI, I2C, UART
- Microchip's complementary technologies
  - Touch controller
  - Crypto – ATECC608
  - Power Monitoring by the PAC1944

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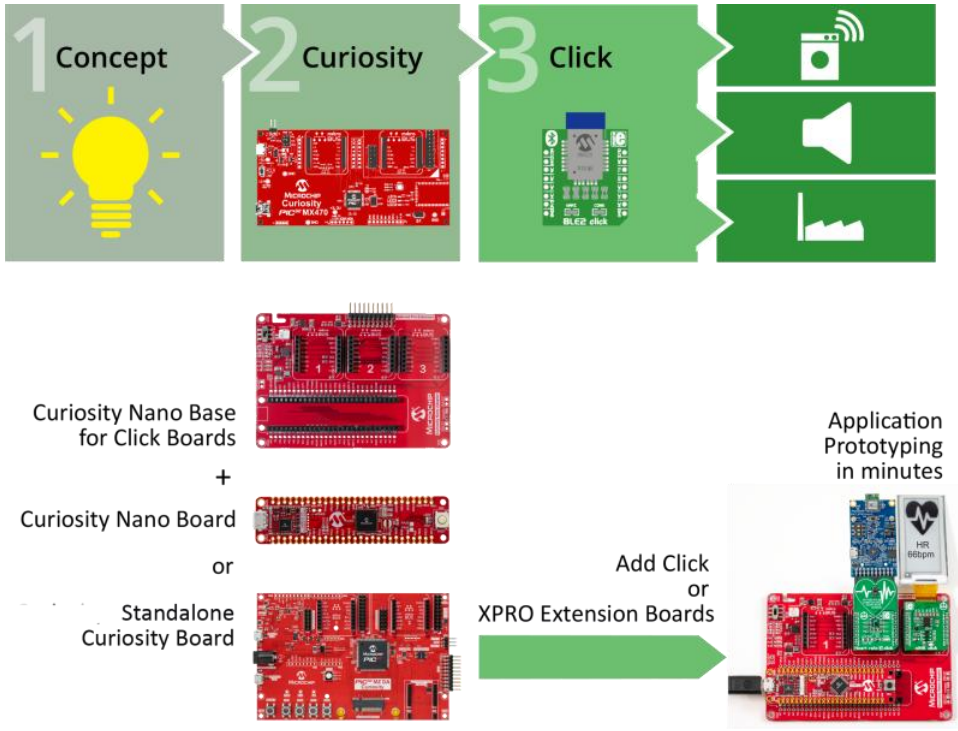
Rapid Prototyping with Curiosity Platform

New Web Landing Page to be launched

- **Expand your design:**
  - Add functionality quickly and effortlessly to your project using the vast selection of XPRO and Click extension boards
  - Save your tools investment through tool re-use.

- **Save your development time**
  - Complete supporting development ecosystem: free MPLAB® IDE, functional safety qualified complier and MPLAB Harmony software development framework

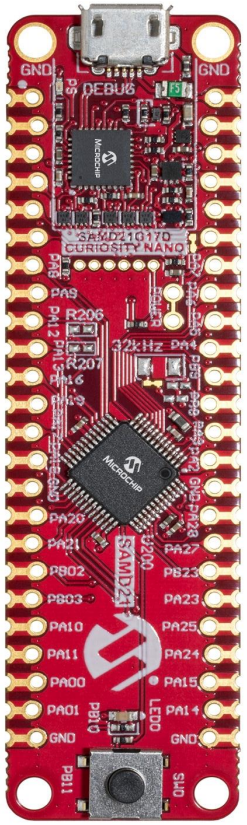
- **We have you back up with everything you need for a rapid prototyping:**
  - Hardware boards & expansion boards to support system design
  - Software tools and free software libraries such as USB, TCP/IP, motor control and graphics
  - Ready to use standalone application demo examples



MICROCHIP

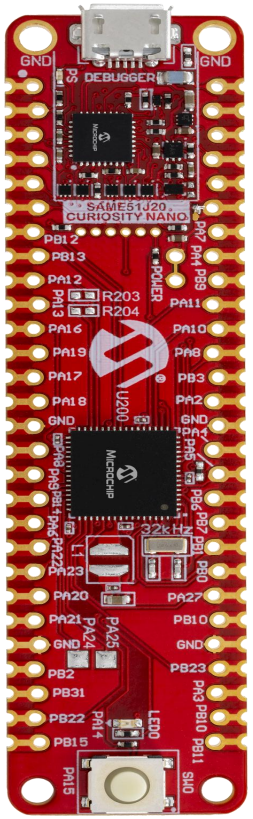
Curiosity Nano Board Roadmap

Released



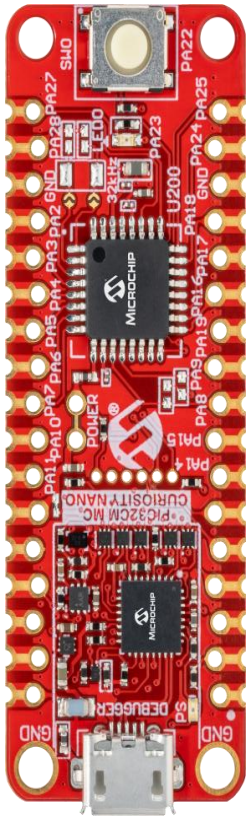
SAM D21

Released



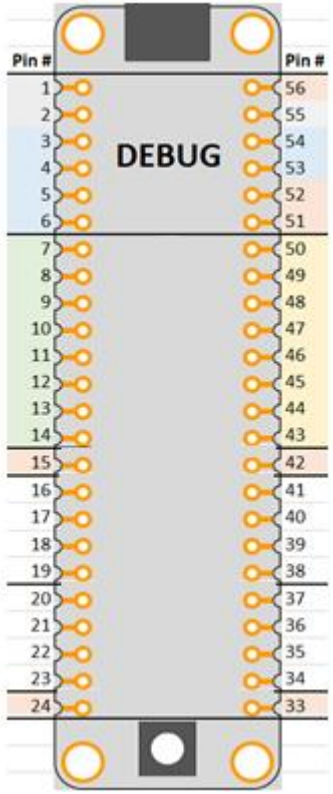
SAM E51

Released



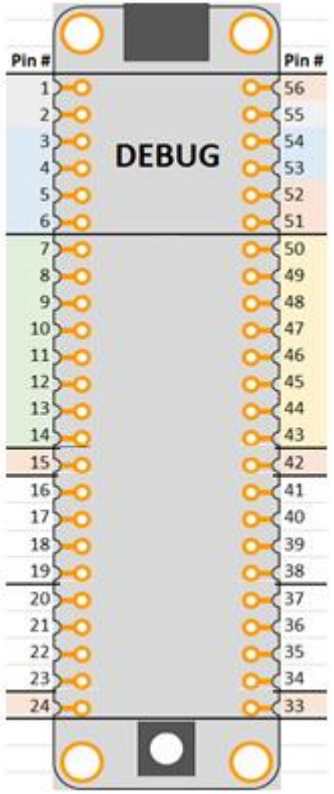
PIC32CM MC

Proposed



PIC32CM LS

Proposed



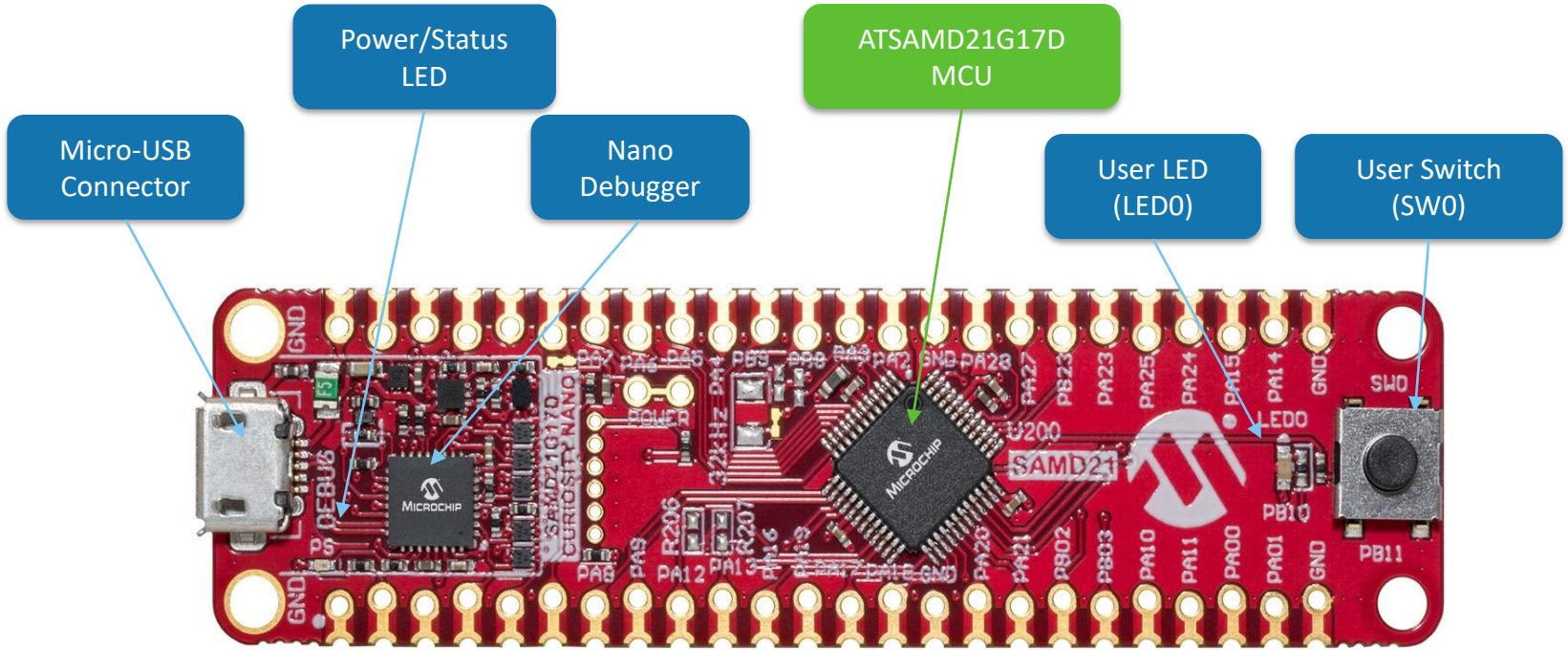
PIC32CM JH
(On hold)

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SAMD21 Curiosity Nano

- SAM D21 Curiosity Nano (DM320119)
  - Available NOW; Resale Price: ~$15
  - SAMD21G17D (128Kb Flash/16Kb RAM)

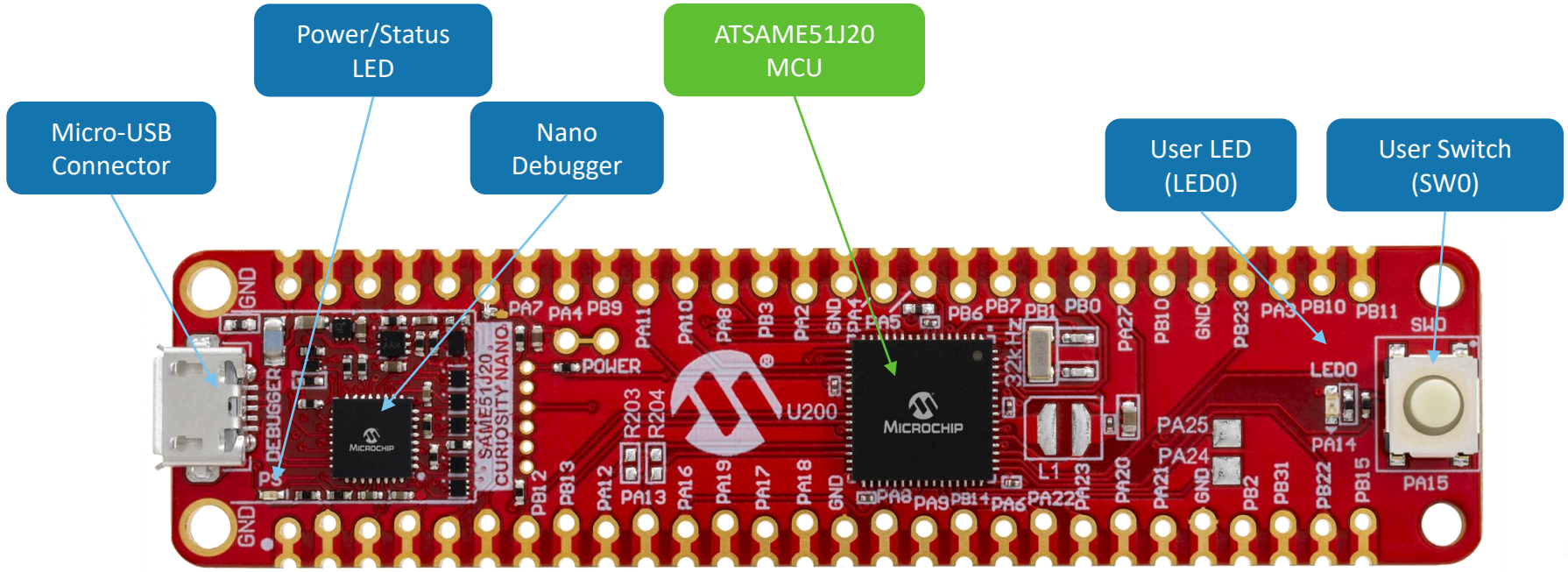
- **Application Demos**
  - Location Tagged SOS Application Demo
  - Fitness Tracker Application Demo
  - BLE based Weather Station and Motion Sensor Application Demo and more



MICROCHIP

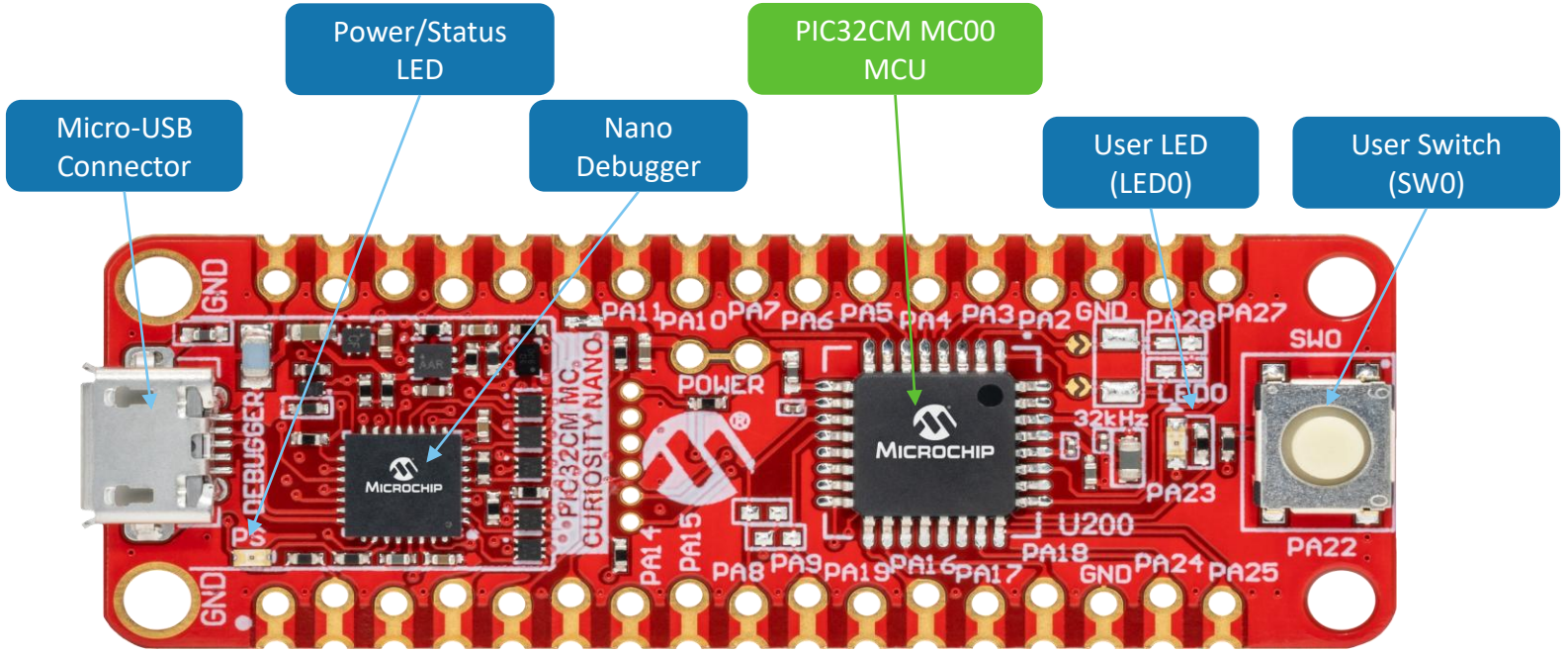
SAME51 Curiosity Nano

- SAM E51 Curiosity Nano (EV76S68A)
  - Available NOW; Resale Price: ~$15
  - SAME51J20 (1MB Flash/256KB RAM)
  - Supports CAN FD interface
- **Application Demo**
  - BLE Fitness Tracker Application Demo and more



PIC32CM MC00 Curiosity Nano

- PIC32CM MC00 Curiosity Nano (EV10N93A)
  - Resale Price: ~$15
  - SAME51J20 (1MB Flash/256KB RAM)
  - Supports CAN FD interface
- **Application Demo**
  - PIC32CM MC00 Getting Started Guide
  - Smart Appliance Control
  - Smart Tag Google Cloud IoT Core Application



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Thank You

Any Question : Calvin Ho – calvin.ho@microchip.com , 0932765473

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