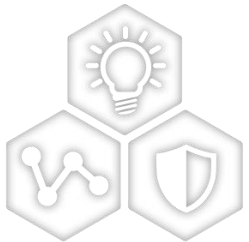


第19屆數位訊號處理創思設計競賽 說明



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



SMART | CONNECTED | SECURE

Calvin Ho
Oct,17,2023

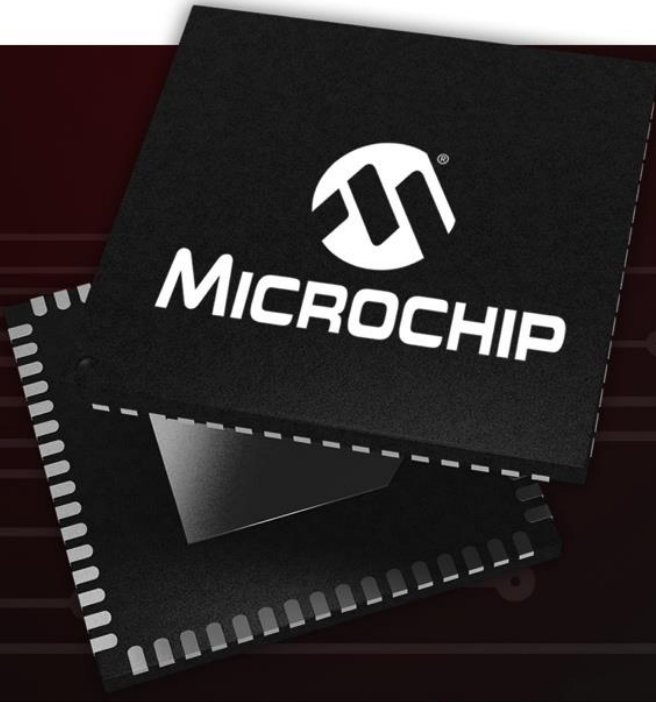
Microchip 組別說明

- 競賽組別：E 組
- **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



MICROCHIP

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



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



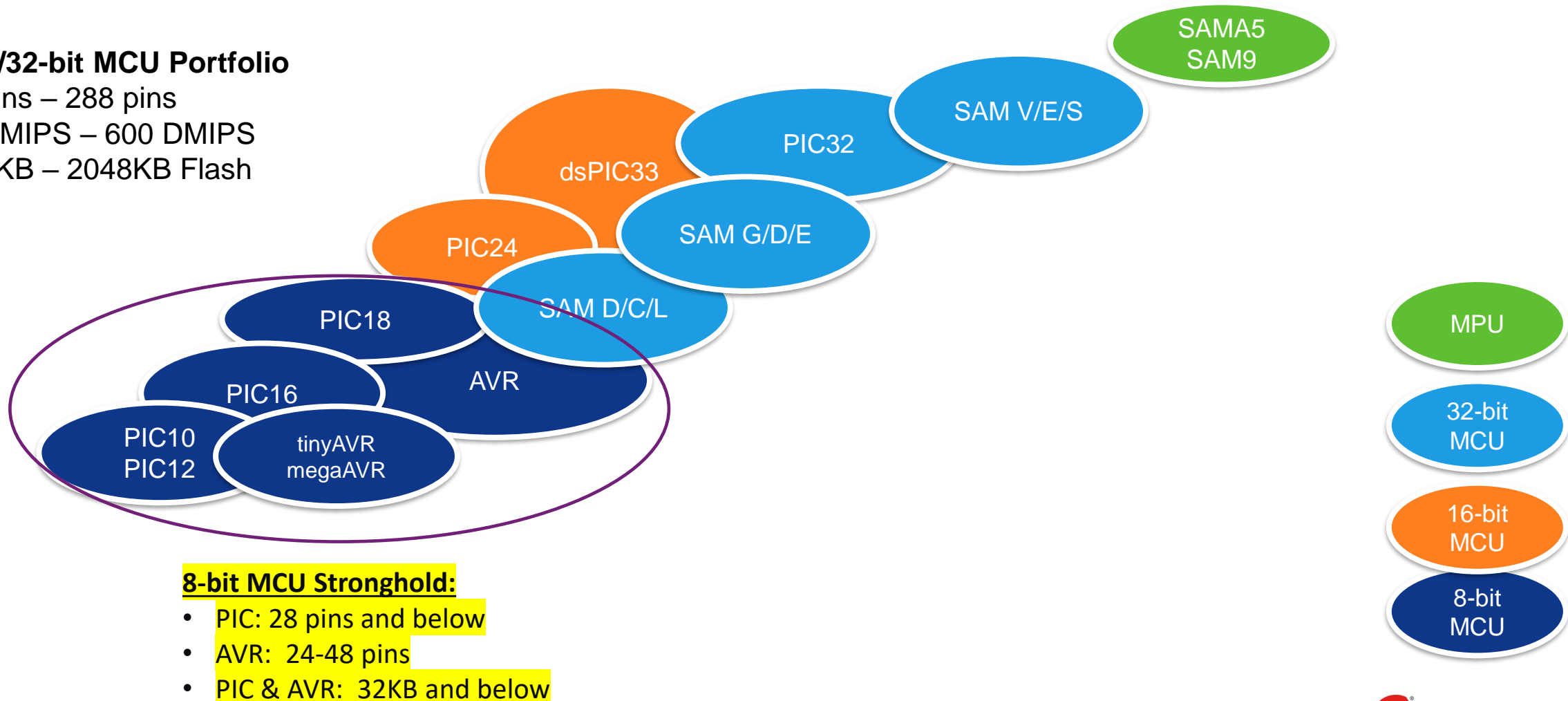
Headquartered near
Phoenix in Chandler, AZ

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



Our Vision

***Be The Very Best Embedded Control
Solutions Company Ever***



SMART | CONNECTED | SECURE

Microchip 針對設計競賽提供的程式開發及技術支援

Microchip 專案設計養成班計

招收對象

➤ 以競賽為目標的在學學生

- ✓ 計畫以 Microchip 各項 MCU or MPU 為控制核心，完成一個設計專案，並參加公開比賽的高中職或大專院校的學生。
- ✓ Microchip 認可的競賽：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：

- ✓ 計畫以 Microchip 各項 MCU or MPU 為控制核心，完成一個設計專案，公開發表的高中職或大專院校的學生。
- ✓ 可以是論文的形式、公開頻道發表的文章或是長度最少 15 分鐘的 Youtube Video

Microchip 專案設計養成班計

● Microchip 對專案養成班同學的 Support

➤ 暑期課程：

- ✓ Microchip MCU 通用實驗板 (APP-All MCU 2023) 以及一個 Debugger/Programmer

- ✓ 完成課程後，可以向 Microchip 申請參賽或是專案製作所需的 IC 或是開發工具

1. Microchip 會依照開發工具的性質，決定是以免費提供或是借用的方式

➤ 寒假課程：

- ✓ Microchip 專家以兩天時間協助參賽或是專案製作同學，加速或是解決專案製作問題

➤ 專案開發階段

- ✓ 以每年 8 月到次年 2 月，參加課程同學將被加入一個 Microsoft TEAMS 的 Group，每位都可以在群組內發表問題並得到 Microchip 技術專家的協助解答

- ✓ 群組內的同學，如果願意幫助他人的話也可以加入解決問題的行列喔

Microchip 專案設計養成班計 – 暑期課程

- ▶ 暑期課程：此階段主要讓同學建立基礎知識、有能力與 Microchip 的技術專家請益並討論。確立可以從事的專案設計方向維和，並建立提案的能力。
- ✓ 於每年的 8/1 ~ 8/15 期間於南、北各舉辦一個班次，每個班次為 3 天，課程的安排如下：
 1. Microchip MCU /MPU 的簡介以及基礎專案（2 days）。這個時間 Microchip 會提供 MCU8/MCU16/MCU32 的教具及教材，讓同學有一個通用的學習平台。並練習 2 種以上 MCU 的基礎開發。
 2. 由至少 3 位 Microchip 專家介紹不同專案的建構方式、經驗分享、問題解答。來幫助參賽同學決定專案的開發方向 (1 day)
- ✓ 參加課程的同學可以在完成 3 天的訓練後，獲得 Microchip 提供的 MCU 通用實驗板繼續練習。但我們的目標是讓同學在確立專案案的目標與方向後，自行設計硬體或是附加板 (mikroBUS 或是 Arduino) 來項參賽的目標前進

Microchip 專案設計養成班計 – 寒假課程

➤ 寒假課程 (2-Days)

- ✓ 上課資格：有參加暑期課程並繼續參加任何一項比賽或是公開發表專案的同學
- ✓ 課程內容及目標
 1. 寒假課程並不以授課為目標，而是在這 2 天期間來幫助同學完成專案
 2. Microchip 將以數位技術專家，以現場或是遠端的方式，與同學討論在開發過程中遭遇的問題以及如何解決問題。

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

- **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 **10** 月並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
- 凡獲選進入決賽，如果學校的地點在台中以北 (含台中)，每一組可以獲得 **NT\$2,500** 的車馬費補助

Microchip 針對設計競賽提供的開發工具

如何申請工具及零件

http://www.microchip.com.tw/modules/tad_link/index.php?link_sn=78

MICROCHIP 回首頁 主選單 **Webinar & 實驗板資料區** CAE專家教室 技術問與答

搜尋 請輸入關鍵字 進階搜尋

會員選單 管理區 檢視帳號 編輯帳號 通知 收件箱 1

Webinar 相關資料

- All
 - 網路研討會 (12)
 - 研討會影片回放 (23)
 - Microchip網站 (14)
 - eRTC
 - Webinar 相關資料 (13)**
 - MU 獎品 (1)
 - Microchip臉書粉絲專頁 (1)
 - 2023 Nov. Microchip 台灣

批次管理Webinar 相關資料

APP-LCD 1.8 Arduino 擴充板線路圖 刪除 編輯
Webinar 相關資料 | https://www.microchip.com.tw/modules/tad_uploader/index.php?op=dfile&cfsn=135&cat_sn=21&name=arduino_tft_lcd_2.pdf

2024 數位訊號處理創思設計競賽工具及零件申請表 刪除 編輯
Webinar 相關資料 | https://www.microchip.com.tw/modules/tad_uploader/index.php?op=dfile&cfsn=183&cat_sn=23&name=20231017%20dps%20tool%20apply.doc
2023 數位訊號處理創思設計競賽工具及零件申請表

Microchip 贊助比賽隊伍的開發工具項目

https://www.microchip.com.tw/modules/tad_link/index.php?link_sn=78

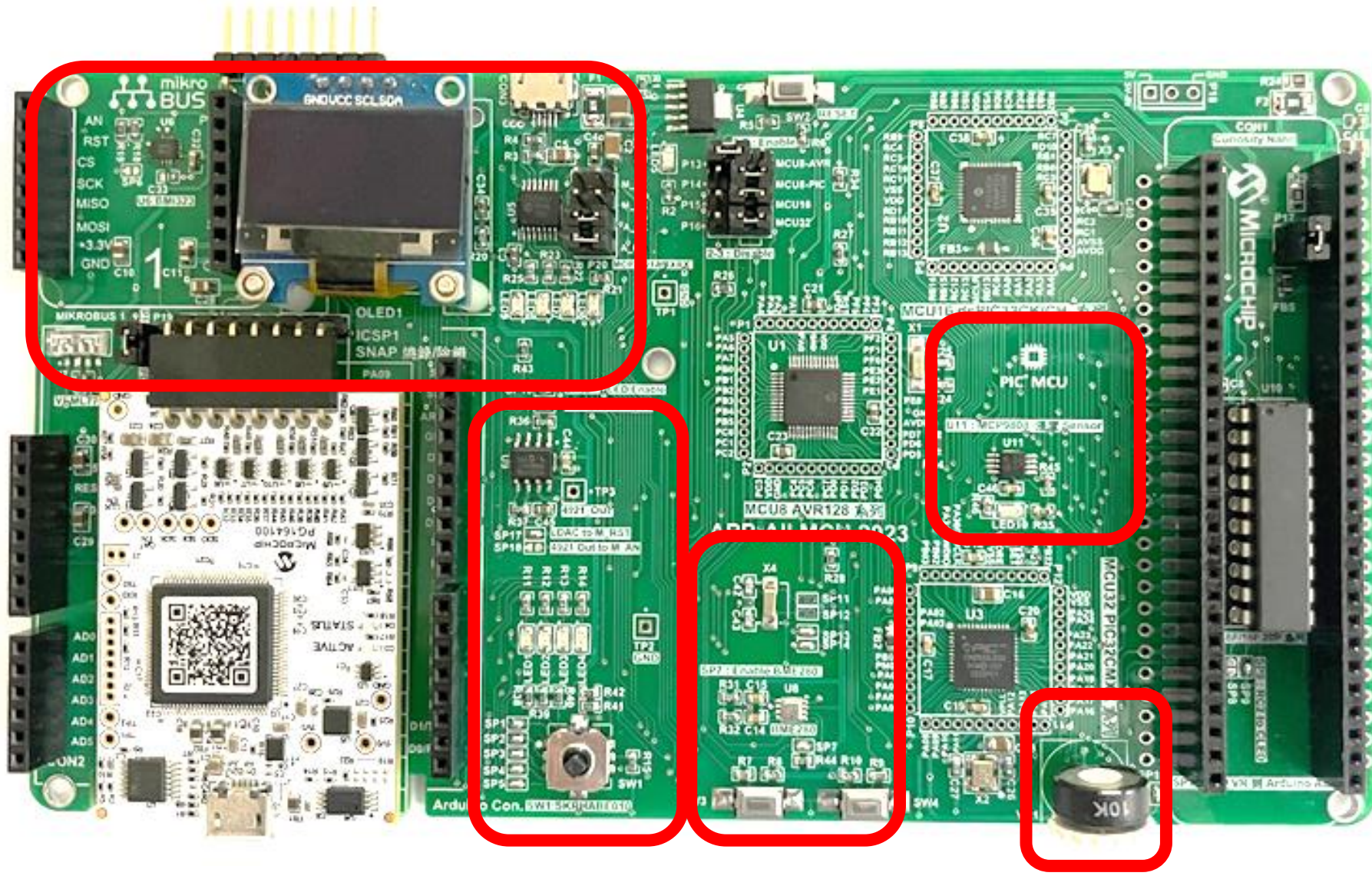
項次	料號 & 品名	主要 CPU	附註
1	APP-Nano-BASW-TW + EV76S68A	ATSAME51J20A	
2	EV14C17A - GRAPHICS AND TOUCH (IGAT)	ATSAME51J20A	
3	APP-Nano-BASE-TW + DM164150	PIC18F57Q43	
4	APP-Nano-BASE-TW + DM182030	PIC18F57Q84	
5	APP-Nano-BASE-TW + EV10K72A	PIC24FJ64GU205	
6	ATSAMW25-XPRO	ATSAMD21 + ATWINC1500	
7	APP-Nano-BASE-TW + DM320119	SAMD21G17D	
8	APP-Nano-BASE-TW + APP-Nano-C21-D21-TW + PG164100 SNAP	ATSAMC21G17A	
9	APP-All MCU 2023 + PG164100 SNAP	4 種 Microchip MCU , 包含 8、16、32 位元系列	
10	DM320013	PIC32MX470	
11	APP-SAM9X60 Hobby Kit (WiFi 版)	SAM9X60 MPU	
12	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	
13	Others	請 e-mail microchip.tw@outlook.com	



開發工具及零件申請準則

- Microchip 贊助比賽隊伍的開發工具之申請方式及注意事項 :
 - 開發工具申請分為借用與贈與兩個階段
 - 請於附件一填妥所需的資料與欲申請的工具項目
 - 申請的開發工具在 2024 年 3 月比賽結束前一律為借用性質。
 - 若創意發想書未獲評審評定進入 2024 年 3 月份的決賽者，必須於 2024 年 4 月底前歸還申請之工具至 Microchip。
 - 若創意發想書獲評審評定進入 2024 年 4 月份的決賽伍，但未能出賽者，也必須於 2024 年 4 月底前歸還申請之工具至 Microchip。
 - 進入決賽之隊伍，並於 2024 年 3 月舉行之決賽實際出賽支隊伍，不論名次為何，都將可以保留向 Microchip 申請之開發工具。Microchip 將於決賽後將工具轉為贈與。
- Microchip 贊助比賽隊伍的零件樣品及申請方式 :
 - 參賽隊伍可使用附件二，參考零件列表，直接向 Microchip 申請所需的零件
 - 建議盡量適用列表中的零件，以加速處理的速度
 - 如果所需零件不在列表上，請自行加在表單中的 A ~ H 的欄位中
 - 零件申請只要合理，項目及數量 Microchip 都不會多加限制。但請只申請要用於比賽專案的零件。一般所謂的合理數量大約是 3~5 pcs

APP-AI MCU 2023 通用實驗板



on 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

APP-AI 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

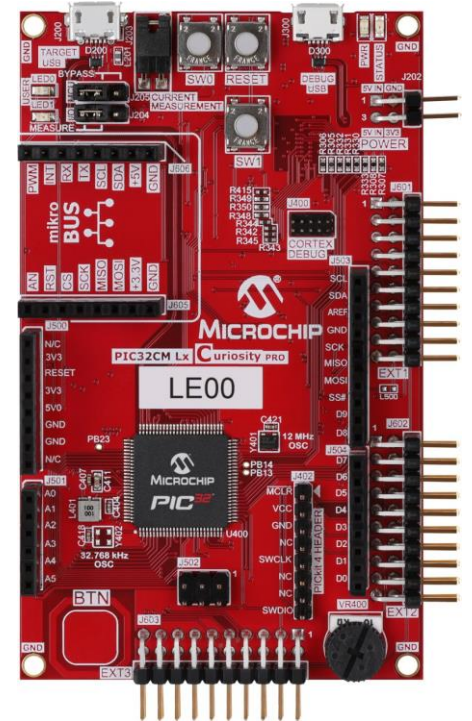
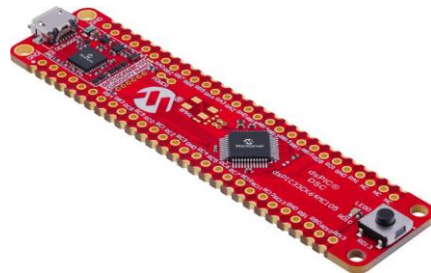
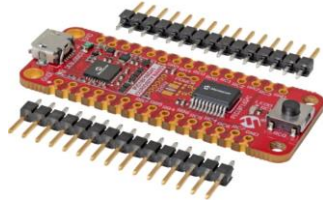
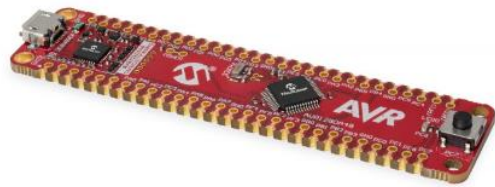
- **MCU16 : dsPIC33CH256MP505 :**

- **Main Core 90 MHz and Secondary Core 100 MHz Operation**
- Refer to dsPIC33CK64MC105 Curiosity Nano - EV88G73A

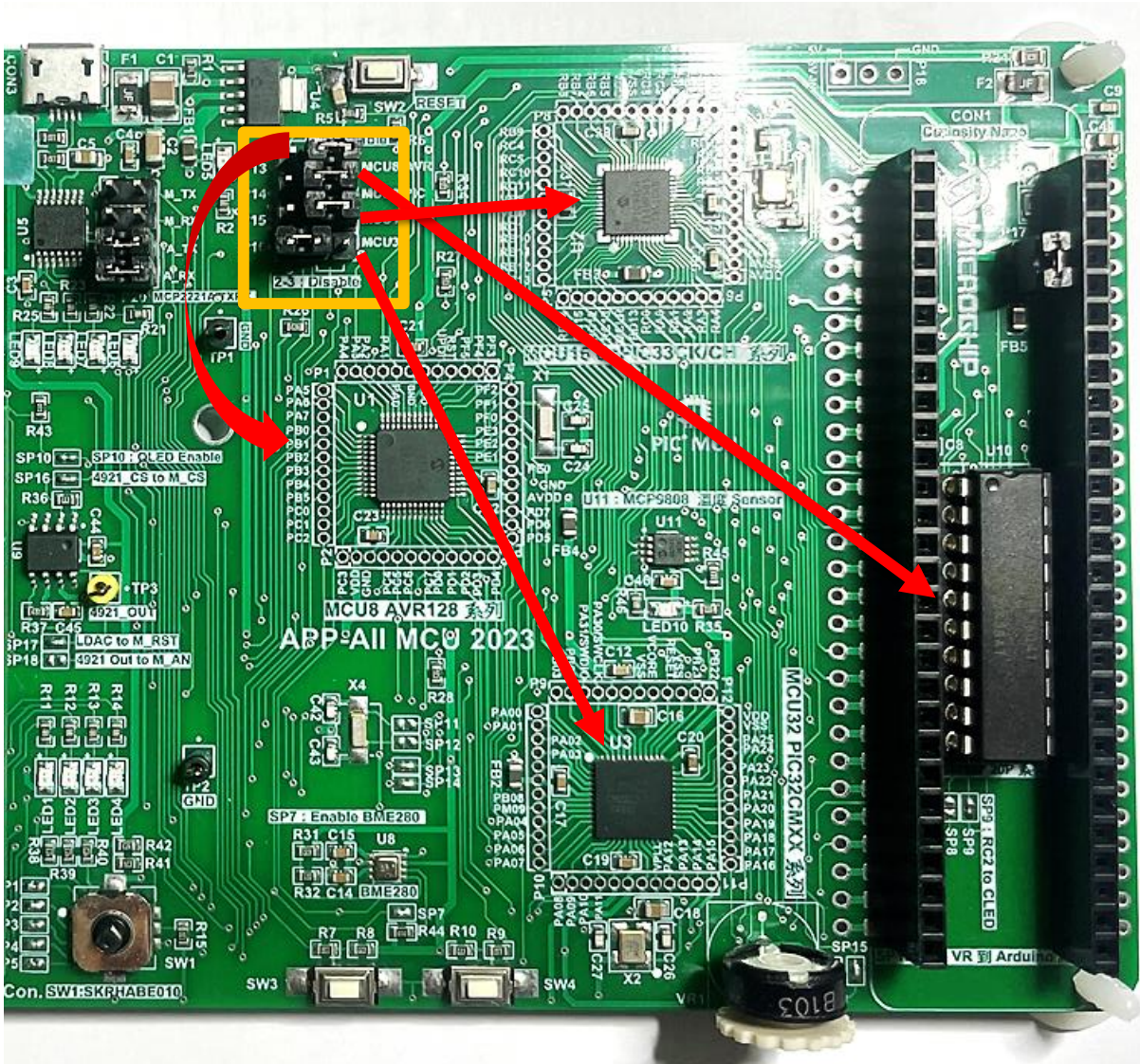
- **MCU32 : PIC32CM2532LE0048 : Arm[®] Cortex[®]-M23**

- Refer to PIC32CM LE00 Curiosity Pro Evaluation Kit - EV80P12A

“ ” pin-assignment for mikro BUS 😊



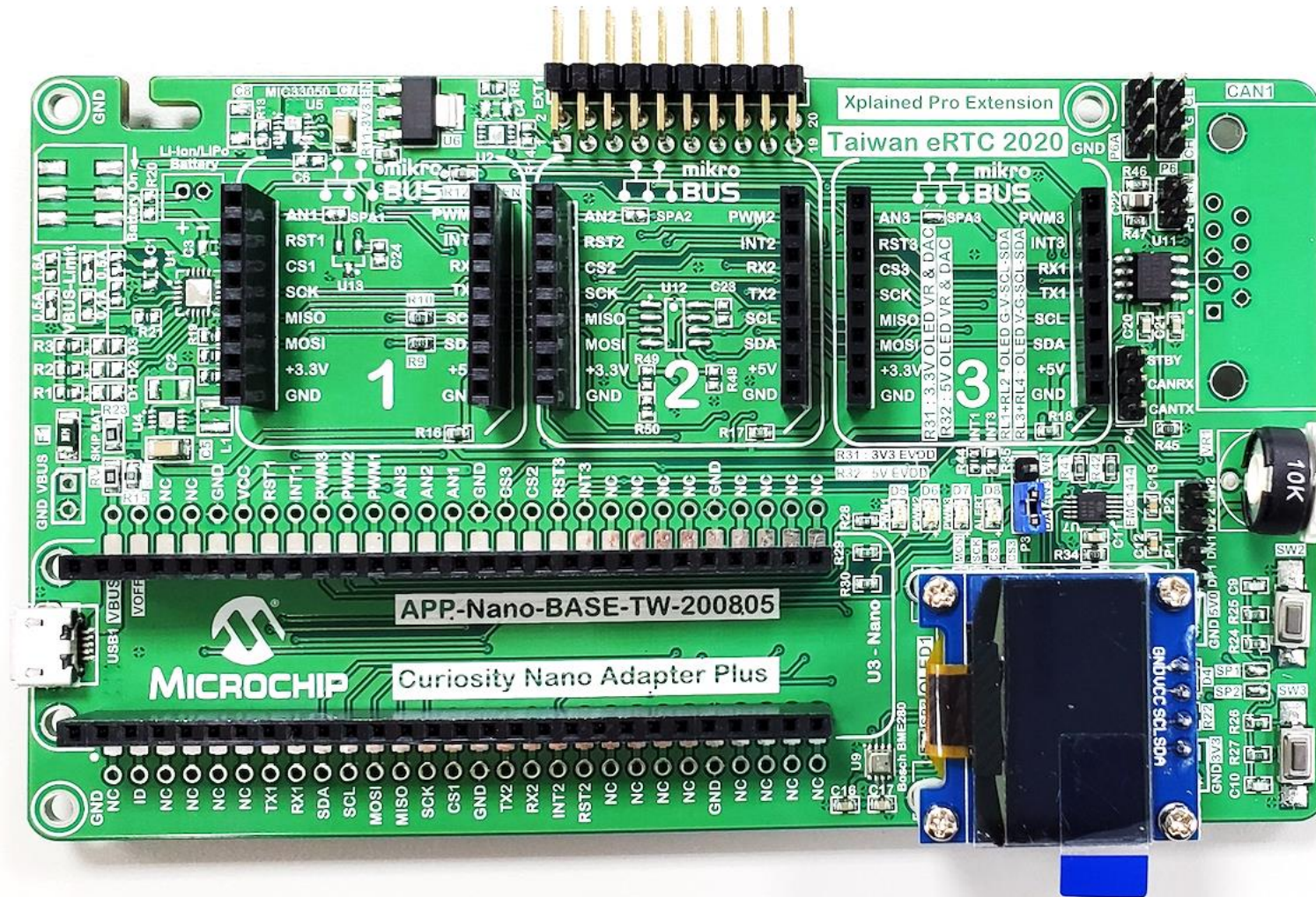
Use P13 ~ P16 to select the desired MCU



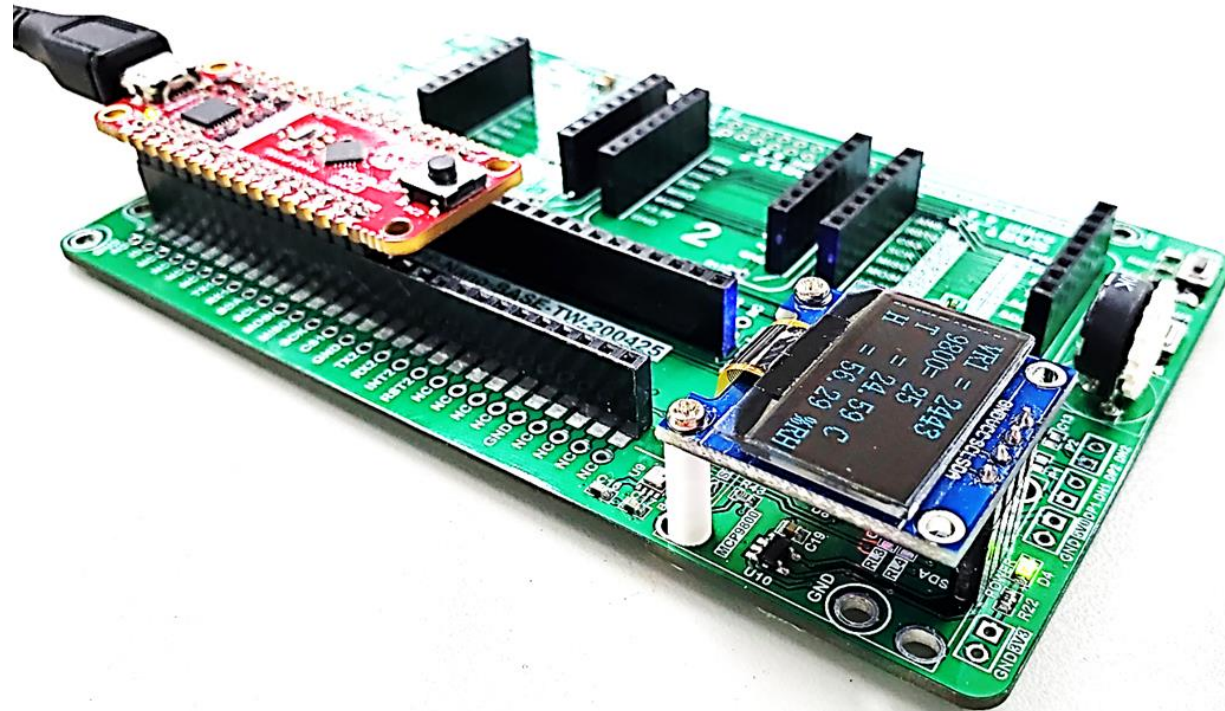
- **P13 :**
 - MCU8 – AVR128DA48
- **P14 :**
 - MCU8 – 20Pin PIC18/PIC16
- **P15 :**
 - MCU16 - dsPIC33CH256MP505
- **P16 :**
 - MCU32 – PIC32CM3532LE000048
- **Pin-1&2 : Reset Pin Release**
- **Pin-2&3 : Reset Pin HOLD**
- **Connect other Curiosity Nano EVB to CON1 for user defined MCU**
 - Must “HOLD”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

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

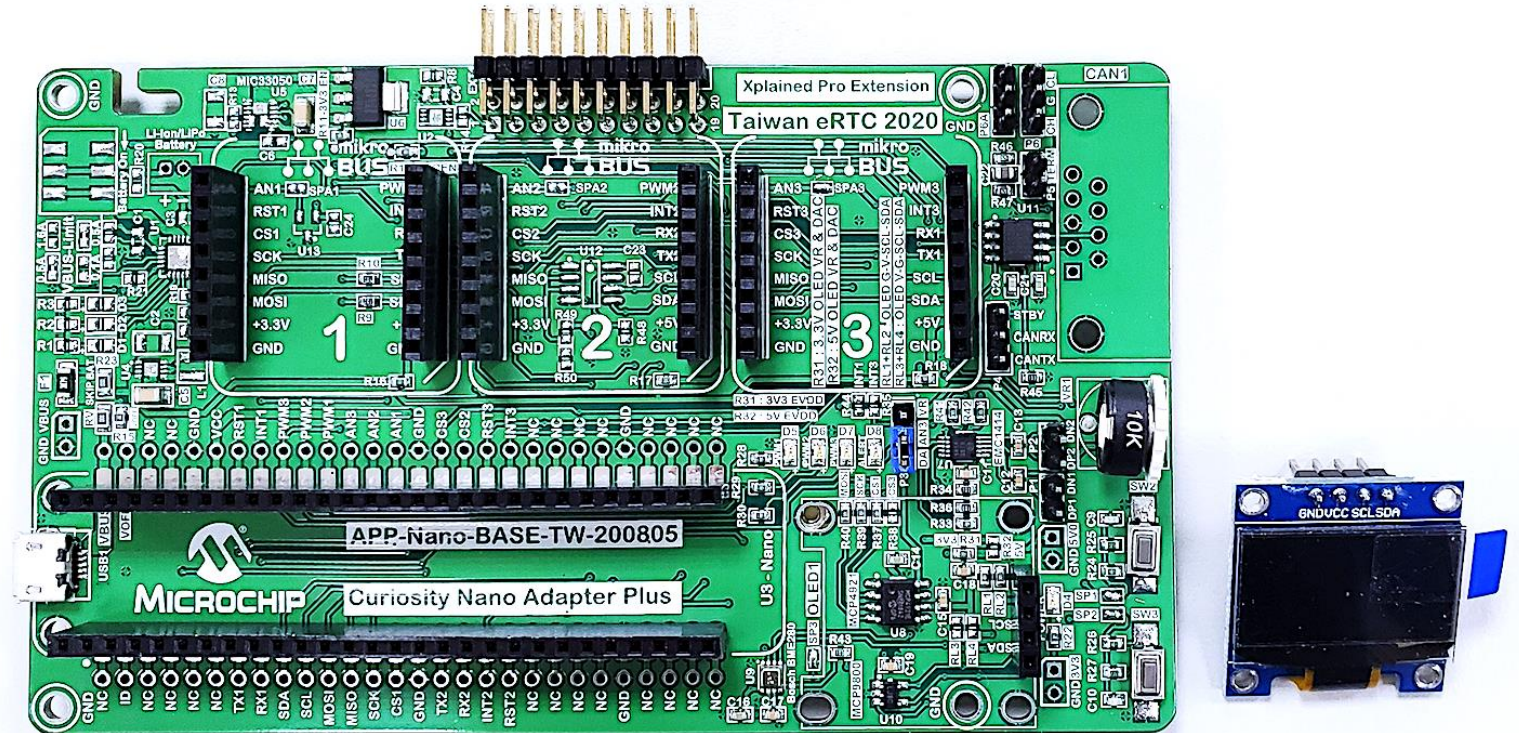


APP-Nano-BASE-TW Nano Board 使用範例 (實驗底板不含紅色的 Curiosity Nano Board)



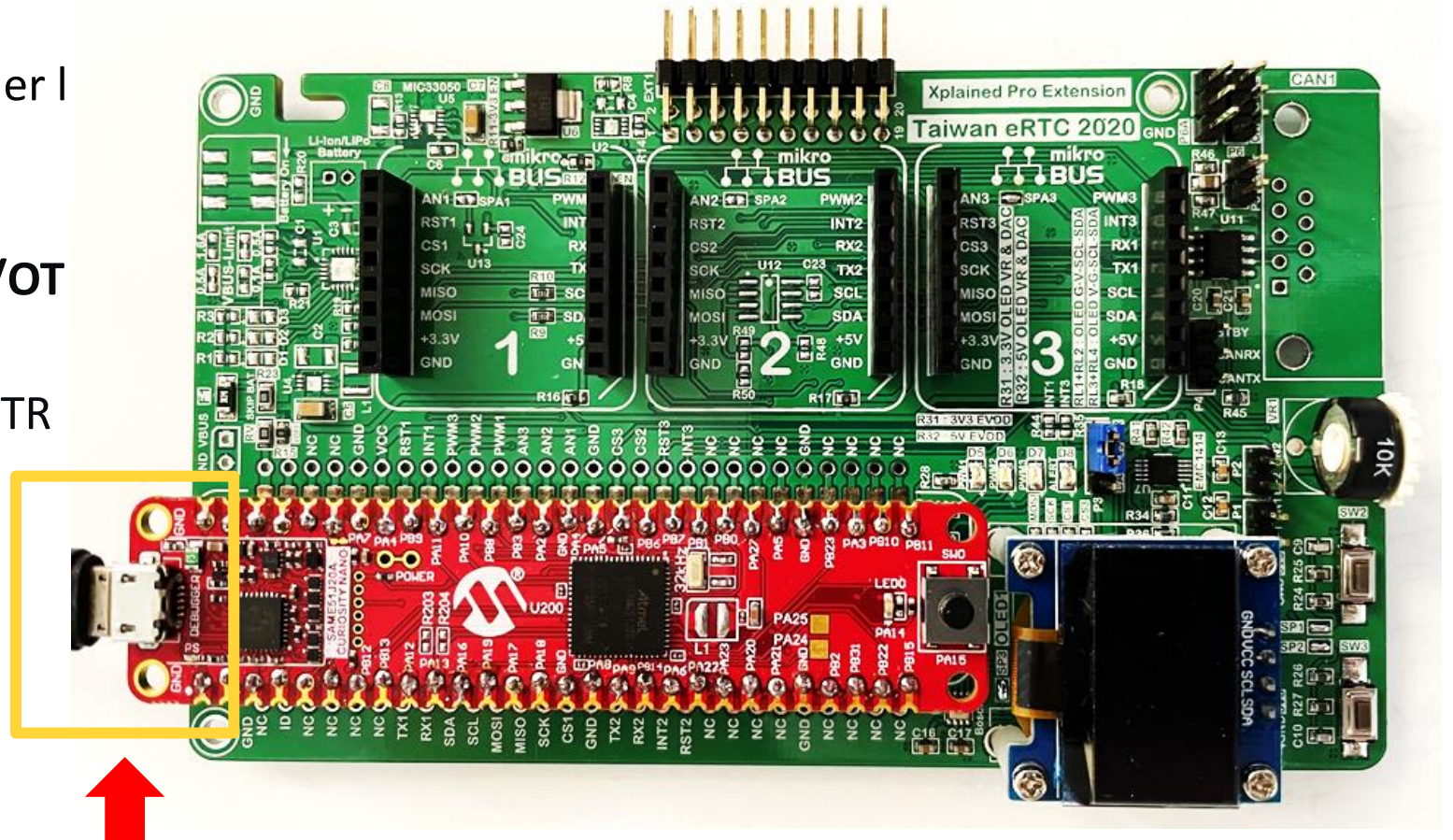
AC164162 可以搭載超過 10 種以上的 Microchip Curiosity Nano . 但是 APP-Nano-BASE-TW 加上更多的預置功能

- 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 Sensor
 - 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



ATSAME51J20A 使用於 APP-Nano-BASE-TW 的實際範例

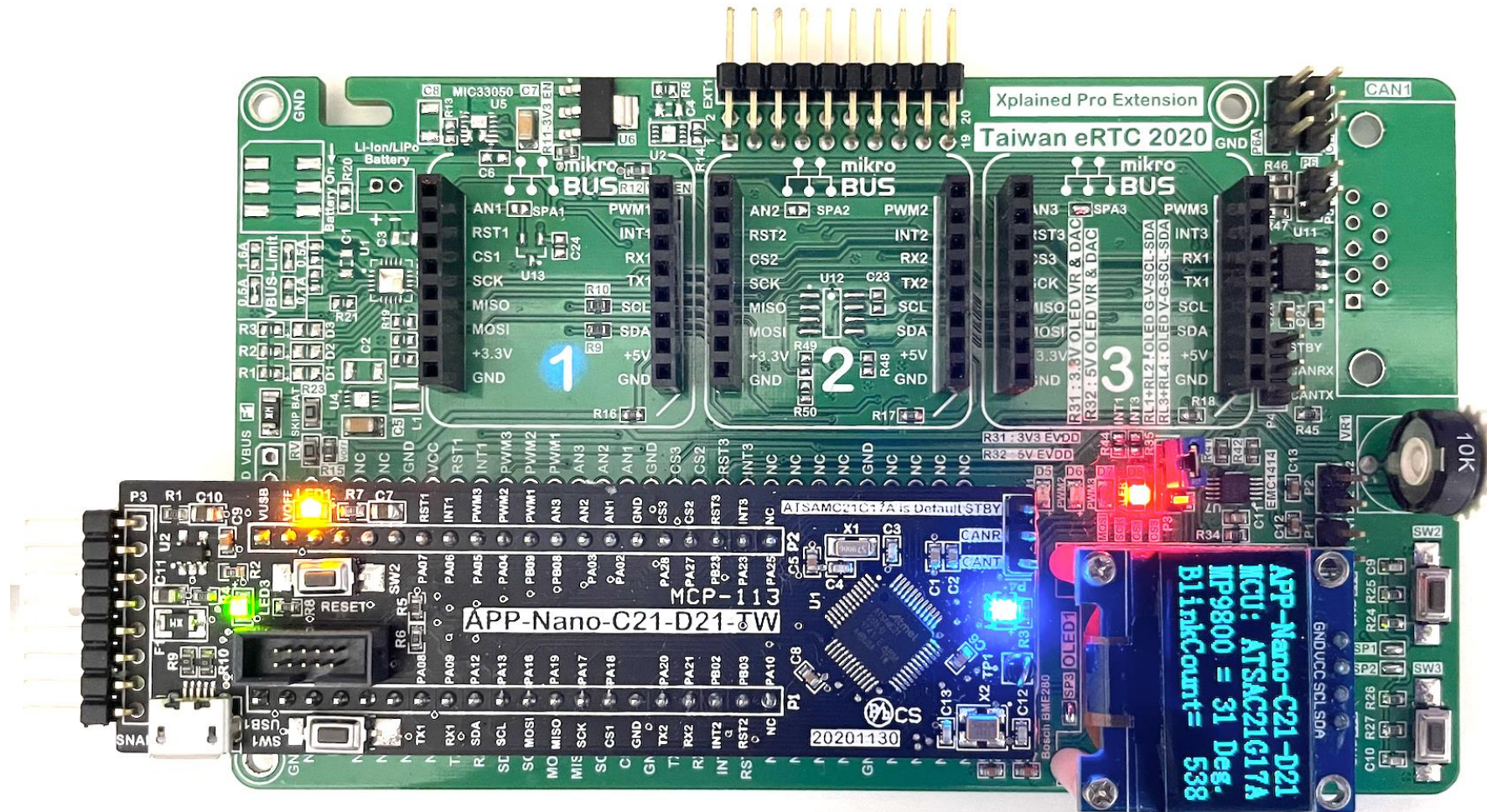
- I²C OLED Display
 - 128 * 64 Resolution
 - SH1306 controller organic / polymer I emitting diode
 - I²C Address : 0111100 = **0x3c**
- I²C Temp Censor – MCP9800A5T-M/OT
 - I²C Address : 1001101 = **0x4d**
- I²C Temp Censor – EMC1414-3-AIZL-TR
 - I²C Address : 0011000 = 0x18
- Bosch Sensor BME280
 - I²C Address : 1110110 = 0x76
 - Humidity sensor
 - Barometric pressure
 - Ambient Temperature



請由 Micro-USB 連接電腦並進行供電

APP-Nano-C21-D21-TW

搭配底板：APP-Nano-BASE-TW Nano Board 的實際狀況



EV14C17A - SAM E51 Integrated Graphics and Touch Curiosity

Features

The following are key features of the evaluation kit.

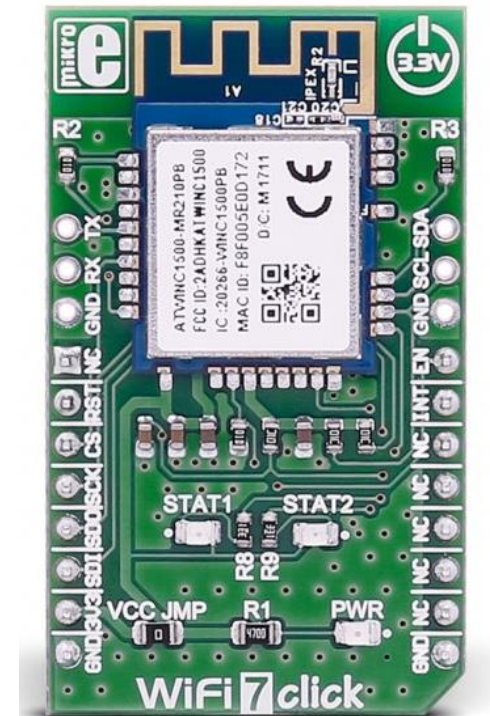
- ATSAME51J20A microcontroller
- One user LED
- On-board debugger
 - Board identification in MPLAB X IDE
 - One green power LED and status LED
 - Programming and debugging
 - Virtual COM port (CDC)
 - One Logic Analyzer (DGI GPIO)
- 8 MB QSPI Flash
- On-board CAN-FD transceiver
- USB powered
- Adjustable target voltage:
 - MIC5353 LDO regulator controlled by the on-board debugger
 - 1.7-3.6V output voltage
- 500 mA maximum output current (limited by ambient temperature and output voltage)
- 480 x 320 pixel TFT display with 16-bit color



WiFi 7 CLICK

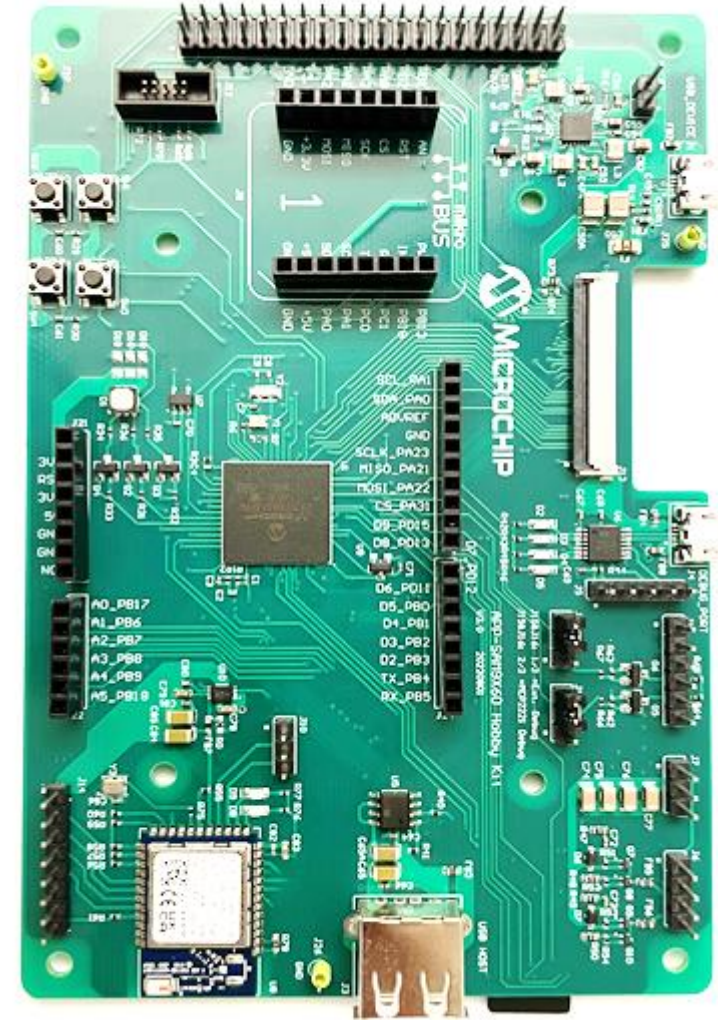
- 讓你的應用輕易的將 WiFi 的功能加入

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



APP-SAM9X60 Hobby Kit 重要諸元 (WiFi 版)

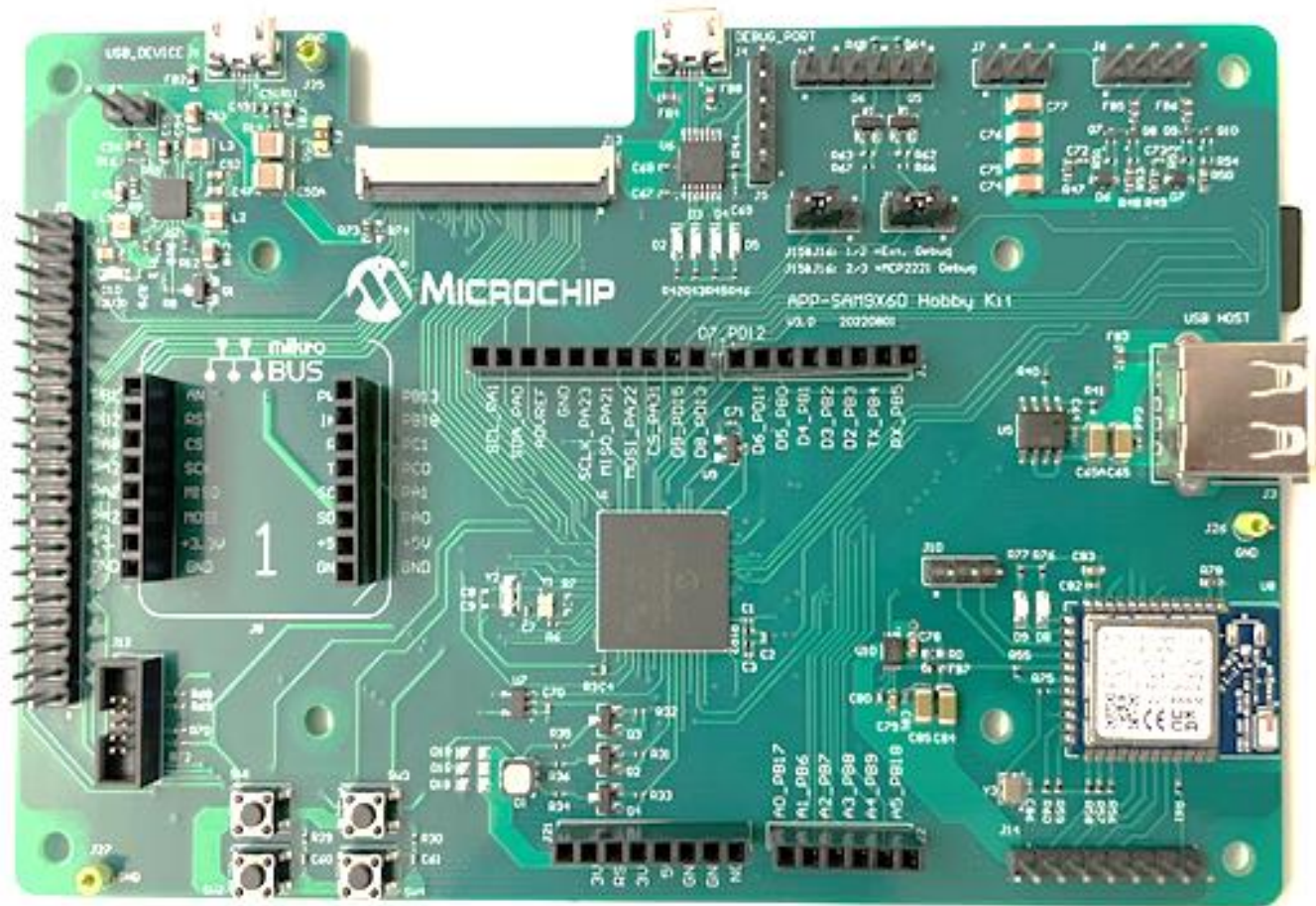
- 建立開發者信心的開發平台
 - 使用 SAM9X60D1G SiP，降低設計的難度
 - 低密度的設計，減低周邊之間的干擾
 - 高彈性的設計，讓開發者可以練習系統的建構
 - Microchip TW 陸續會把更多資源放在 GitHub 上喔
 - SAM9X60D1G 的重要功能
 - 1Gbit integrated DDR2
 - 64 kB internal SRAM
 - 24-bit LCD Controller with overlays up to 1024x768 resolution
 - 2D Graphics Engine, Camera Interface
 - Dual 10/100 Ethernet, Dual CAN, Dual SD Card/eMMC
 - Two High-speed USB Host + One High-speed Host or Device
 - Thirteen FLEXCOMs (USART, SPI and I²C)
 - 常用開發方式
 - Free mainline Linux[®] Distribution
 - MPLAB[®] X Integrated Development Environment and MPLAB[®] Harmony v3
 - Multiple Third-party Software and Hardware Solutions



APP-SAM9X60 Hobby Kit 的介面 & 周邊

- APP-SAM9X60 的外接介面
 - Type-A USB Host interface
 - mikroBUS™ 相容介面
 - Arduino 相容介面
 - Raspberry Pi 相容介面
 - ATWILC3000 WiFi/BLE
 - LCD : 50-Pin Connector，使用 RGB666 的信號安排，可以連接與 Microchip AC320005-5 相容的 LCD Display
 - Audio Class D Amplifier
- Boot Media
 - **SD-Card**
 - Serial Flash – Optional

APP-SAM9X60 Hobby Kit 可搭配的 MU 課程



Linux

建構你的Linux開發系統

如何創建為Microchip MPU構建Linux解決方案的開發系統

免費 70 分



Linux
Introduction

嵌入式Linux介紹

在ATSAMA5D27-SOM1-EK上探索嵌入式Linux

免費 97 分



Linux

探索Linux系統的建構

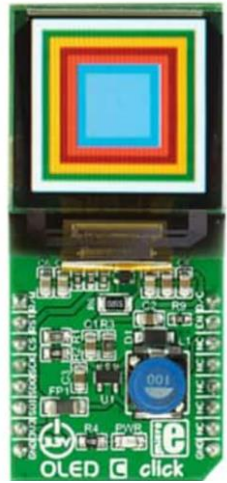
用Buildroot建構你的第一個嵌入式Linux系統

免費 40 分

APP-SAM9X60 Hobby Kit 與 LCD 連接的範例



APP-SAM9X60 Hobby Kit 多重的擴充選擇性



SpeakUp

RFID


Gyroscope

Bluetooth



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

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.

[Fork me on GitHub](#)


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!



使用 APP-Nano-BASE-TW 完成的 eRTC 線上學習影片

- **PIC16F18446-101**

- http://www.microchip.com.tw/Data_CD/eLearning/RAW_Video_PIC16F18446_V2.mp4

- **PIC16F18446-201**

- http://www.microchip.com.tw/Data_CD/eLearning/eRTC_PIC16F18446_201_All.mp4



PIC16F18446-101

PIC16F18446-101

eRTC線上課程錄影 |

http://www.microchip.com.tw/Data_CD/eLearning/RAW_Video_PIC16F18446_V2.mp4



PIC16F18446-201

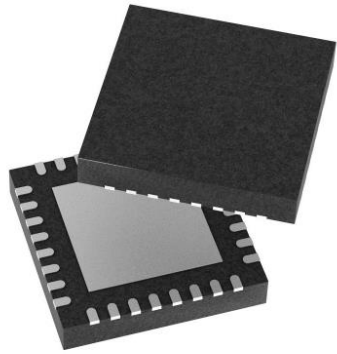
eRTC線上課程錄影 |

http://www.microchip.com.tw/Data_CD/eLearning/eRTC_PIC16F18446_201_All.mp4

Microchip 有關的開發資源

Microchip Developer Help

<https://www.microchip.com/en-us/education/developer-help>



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Learn what our products do, how their features work and how to configure them for your applications.

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Learn from application examples, code samples and how to configure our products to work in your application.

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Learn Tools and Software

Learn how to use our development tools, both hardware and software, how to install them and how to get the most out of them when developing your application.

[Learn More](#)

Microchip in Github開放社群

<https://github.com/microchiptech>

The screenshot shows the GitHub profile for Microchip Technology. At the top, there is a navigation bar with links for Product, Solutions, Open Source, and Pricing, along with a search bar. The profile header includes the Microchip logo, the name "Microchip Technology", and a bio: "This is the github source code location for Microchip Technology". It also shows 103 followers, a location in Chandler, AZ, and a website link to http://www.microchip.com. Below the header is a navigation menu with tabs for Overview, Repositories (231), Projects, Packages, and People (2). The "Pinned" section displays four repositories:

- aws-iot-firmware-pic32mz** (Public): Microchip's PIC32MZ based IoT demos are designed to work with Amazon Web Service's AWS IoT platform and Microchip's "Insight on Things" (IoT) desktop application. Language: C. 20 stars, 19 forks.
- aws-iot-insight-on-things-desktop-app** (Public): Microchip's "Insight on Things" (IoT) desktop app is designed to work with Amazon Web Service's AWS IoT platform and Microchip's IoT demo's. Language: JavaScript. 2 stars, 4 forks.
- XPRESS-Loader** (Public): This application is designed to act as a fast on-board programmer for the MPLAB Xpress Evaluation Board. A serial to USB bridge function is simultaneously available. Language: C. 24 stars, 22 forks.
- AWS-Secure-Insight** (Public): AWS JIT and Bring your Own Certificate Demo. Language: HTML. 18 stars, 11 forks.



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

觀看次數：352次 · 10 個月前



Wi-Fi® SOC模組WFI32 (II)
—— 參考範例應用篇

觀看次數：303次 · 11 個月前



Wi-Fi® SOC模組WFI32 (I) ——
介紹及軟體應用篇

觀看次數：248次 · 11 個月前

Microchip 台灣網站及討論區

www.microchip.com.tw

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最新討論話題

論壇	主題	回覆	觀看	最後發表
程式軟體與開發工具	MPLAB X IDE 有辦法像 MPLAB IPE 一樣有 advanced mode 設定power 嗎	2	64	昨天 15:35 deival
8-bit PIC® MCU	使用指標問題	4	147	10/13 14:01 Ryang
8-bit PIC® MCU	有沒有跟PIC16F785差不多的IC	2	171	10/12 14:58 qwe2673603
8/16 bit MCU (請註明使用元件編號)	PIC18F242 Boot block記憶體被清除	2	223	10/7 17:10 RobertWu
Microchip官方研討會, 課程活動相關	徵資深有經驗 FAE 一名, 工作地點:台北	0	207	10/7 15:58 Ryang
Microchip官方研討會, 課程活動相關	MU 選粹-4 :密碼學入門及實作探討 10/19 10:00 ~ 11:30 線上開講	0	144	10/7 13:25 Ryang
Microchip CAE空中教室	CryptoAuth 第二輪的課程, 將在 CAE 空中教室 10/20 星期三 的 3:00pm ~ 5:30pm 再次開課	1	151	10/7 13:20 Ryang
Microchip CAE空中教室	SAM2002 Lab driver 練習問題 (SAM21G17D)	7	470	10/7 8:49 cactus0912
Microchip CAE空中教室	請問CryptoAuthentication課程 第二輪, 如有上課意願, 請投票	4	374	10/5 13:31 Libra

搜尋

請輸入關鍵字

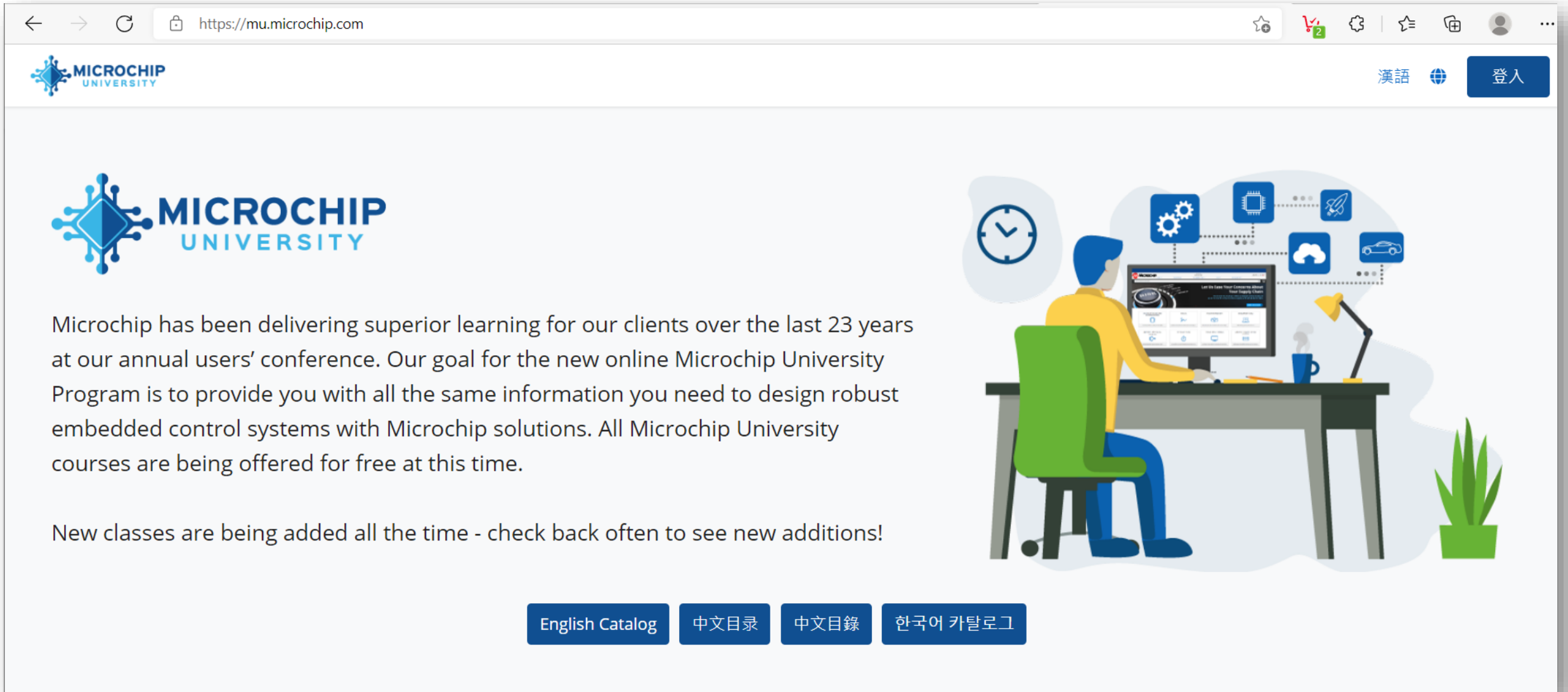
進階搜尋

Microchip連結



<https://mu.microchip.com>

可以選擇中文目錄來指定有中文字幕的課程或直接選擇 **English Catalog**

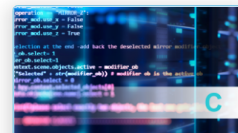


The screenshot shows the Microchip University website interface. At the top left is the Microchip University logo. The main content area features a large Microchip University logo on the left and an illustration of a person working at a computer on the right. The person is sitting at a desk with a monitor, a lamp, and a potted plant. The monitor displays a website with various icons. Above the person, there are several icons representing different technologies: a clock, gears, a microchip, a rocket, a cloud, and a car. Below the main content, there is a navigation bar with four buttons: "English Catalog", "中文目錄", "中文目錄", and "한국어 카탈로그".

MU 現有超過 120 個不同的課程並陸續增加中



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]



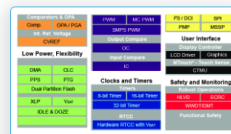
MPLAB® X Tips & Tricks (免費, 90 分)
This is a collection of extremely useful tips and tricks that will help you get the most out of MPLAB® X. New tips added on 8/13/2021!



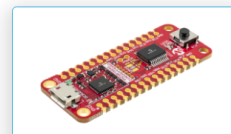
MPLAB® Code Configurator (免費, 74 分)
MPLAB® Code Configurator (MCC) for Simplified Embedded Software Development



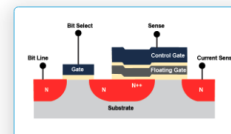
Visual Debugging with MPLAB® Data Visualizer (免費, 41 分)
In this class, we'll use MPLAB® Data Visualizer as a plugin to MPLAB X IDE to plot real-time data from PIC®, AVR® and SAM MCUs using the Curiosity Nano Platform, and Xplained Pro platforms.



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

MU 最方便的入口 : www.microchip.com.tw



Microchip University 嵌入式控制工程師線上教育課程已開放註冊!

Microchip University開課了!
豐富的嵌入式控制主題
由工程師授課，全天候開放

Microchip University

Microchip CAE空中教室 本周課程

2021/09/30(四) 3:00pm PIC1001系列-06
ADC
4:00pm SAM2002系列-01
MPLAB® Harmony and TIME System Service

MICROCHIP CAE的空中教室 Classroom Studio

Microchip新網路學園

教育訓練光碟

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[more...]

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教育訓練中心介紹
購買 - 實驗工具
臺灣實驗板介紹與資源

軟體開發平台 - Free



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Tools and Software / MPLAB® XC Compilers

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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

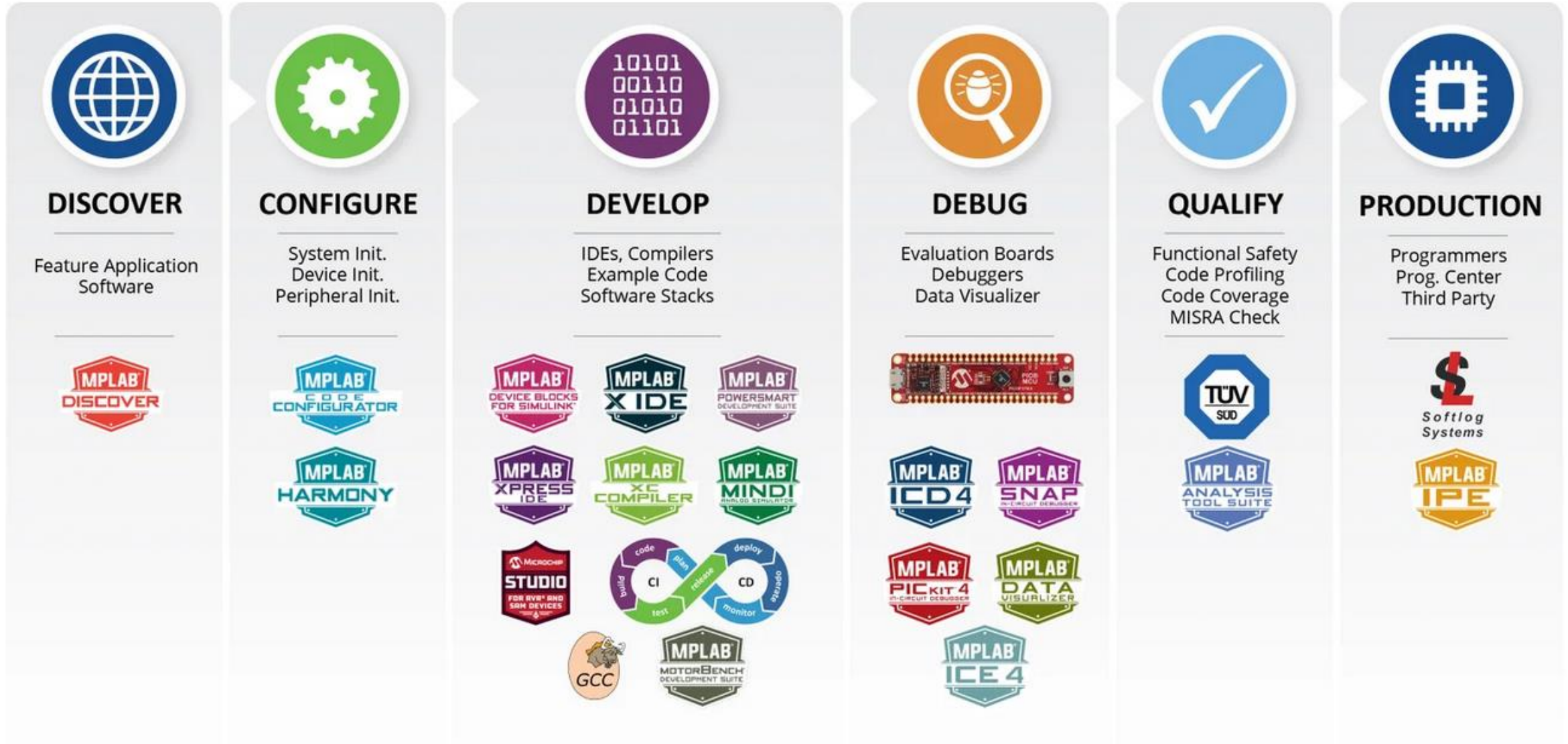
The first versions of the MPLAB XC compilers that supported Catalina were:

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

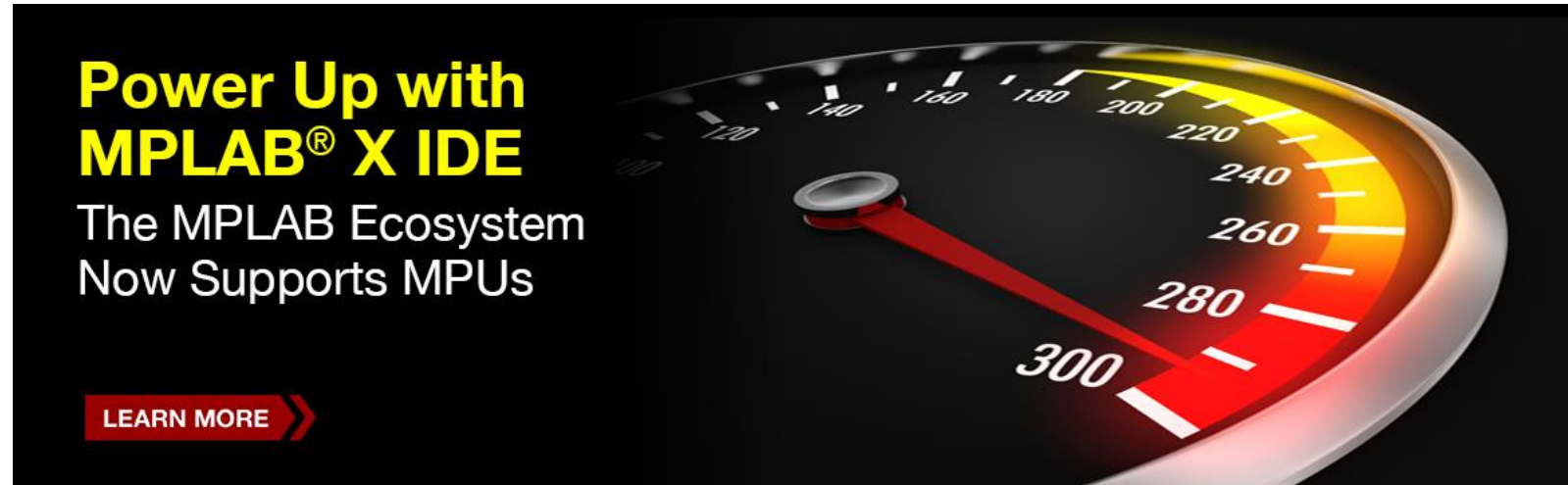


Microchip MCU 開發工具概要

Development Tool Ecosystem



開始專案的開發 MPLAB X IDE



- 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!



MPLAB Code Configure



MPLAB® X IDE/MPLAB Xpress*

MPLAB Code Configurator (MCC)

Content Manager Tool (CMT)

MCC Melody

MCC Melody supports PIC® and AVR® MCUs and dsPIC® DSCs. We recommend using MCC Melody for new designs.

Evolved from MCC Classic, MCC Melody offers an improved and flexible architecture with several new advanced capabilities. The offline MPLAB X IDE and the online MPLAB Xpress IDE both support MCC Melody.

MCC Classic

MCC Classic supports PIC and AVR MCUs and dsPIC DSCs. We recommend using MCC Classic for existing designs and for designs that use devices and libraries that are not supported in MCC Melody.

MCC Classic is the traditional content type of MCC that you are probably familiar with.

MPLAB Harmony

MPLAB Harmony supports all Microchip's 32-bit MIPS® and Arm® Cortex® based MCU and MPU device families.

MPLAB Harmony is a fully integrated embedded software development framework that provides flexible and interoperable software modules to simplify the development of value-added features to reduce your product's

MPLAB Harmony Configure

MPLAB® Tools Ecosystem
Supports PIC32 MCUs,
SAM MCUs and SAM MPUs

SAM
MPLAB
HARMONY
PIC32

START DEVELOPING >>

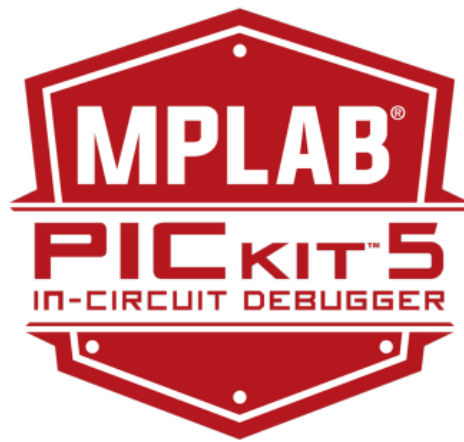
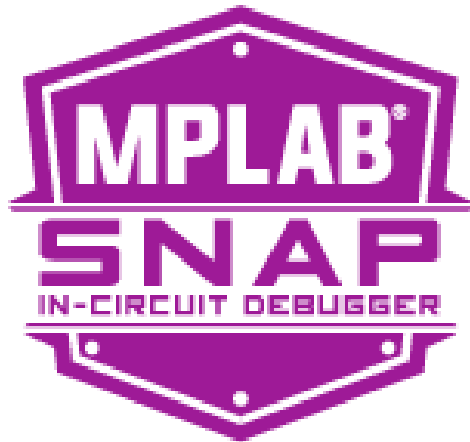


- Free development environment
- Easy-to-use graphical configuration features
- Point-and-click options selections
- Optimized peripheral libraries to simplify device setup
- Modular downloads and updates through GitHub
- Easy integration with FreeRTOS

開發用的 Debug 工具



Your price
Your Features
Your Choice



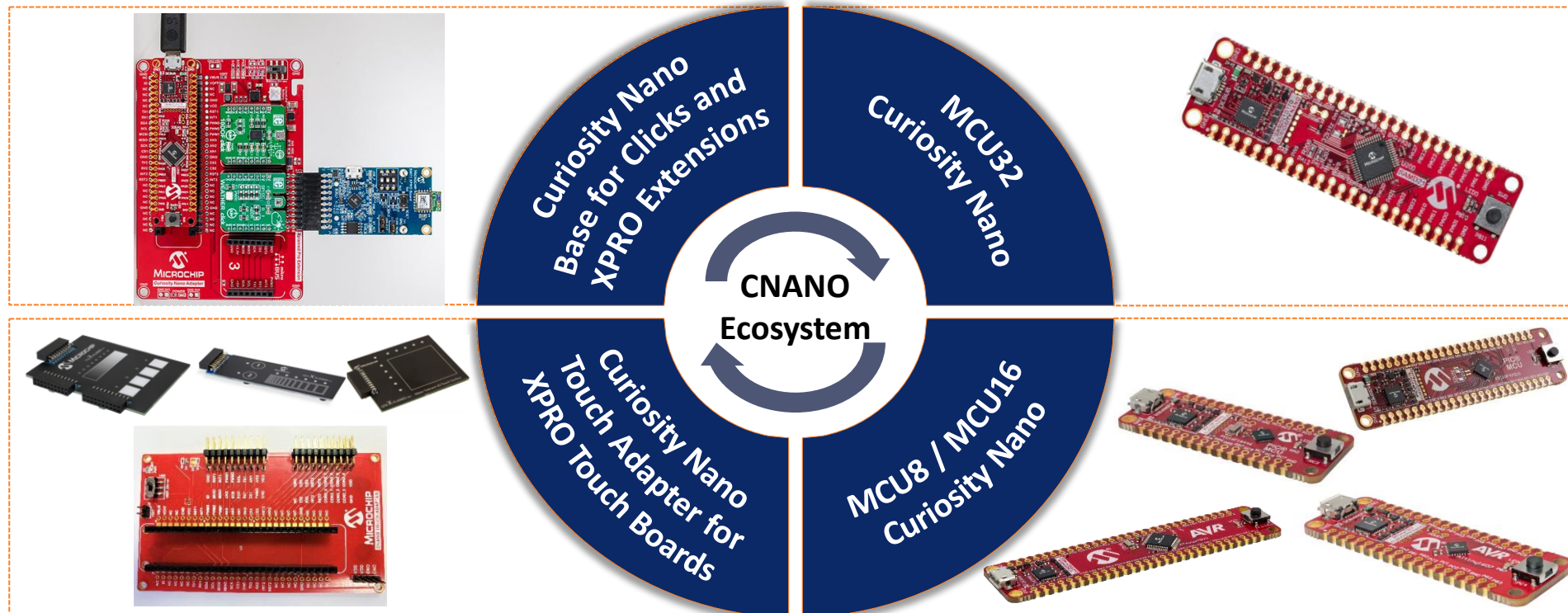
Microchip MCU 的入門開發平台

Curiosity Nano Platform

Curiosity Nano Development Ecosystem

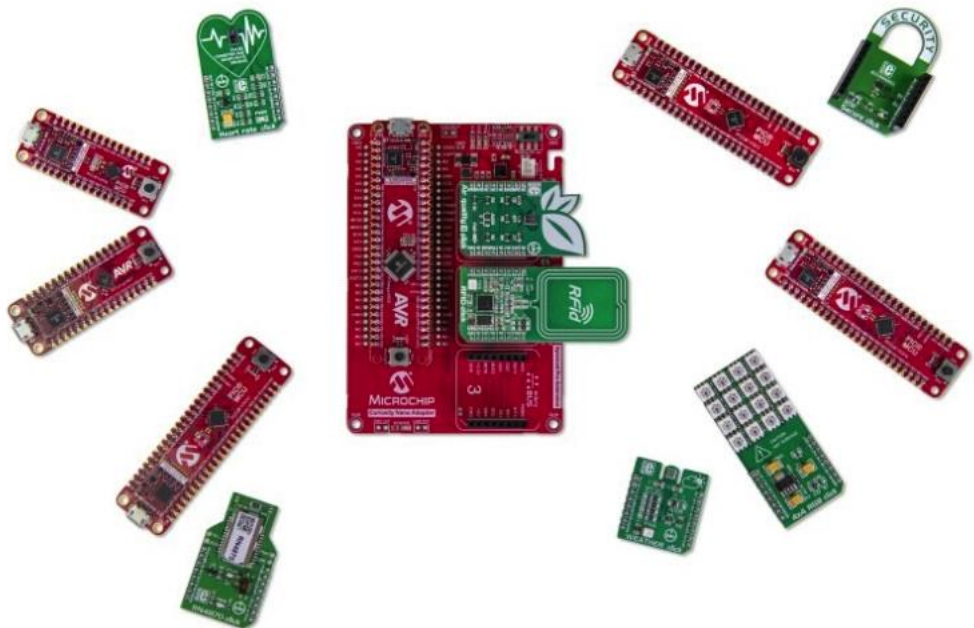
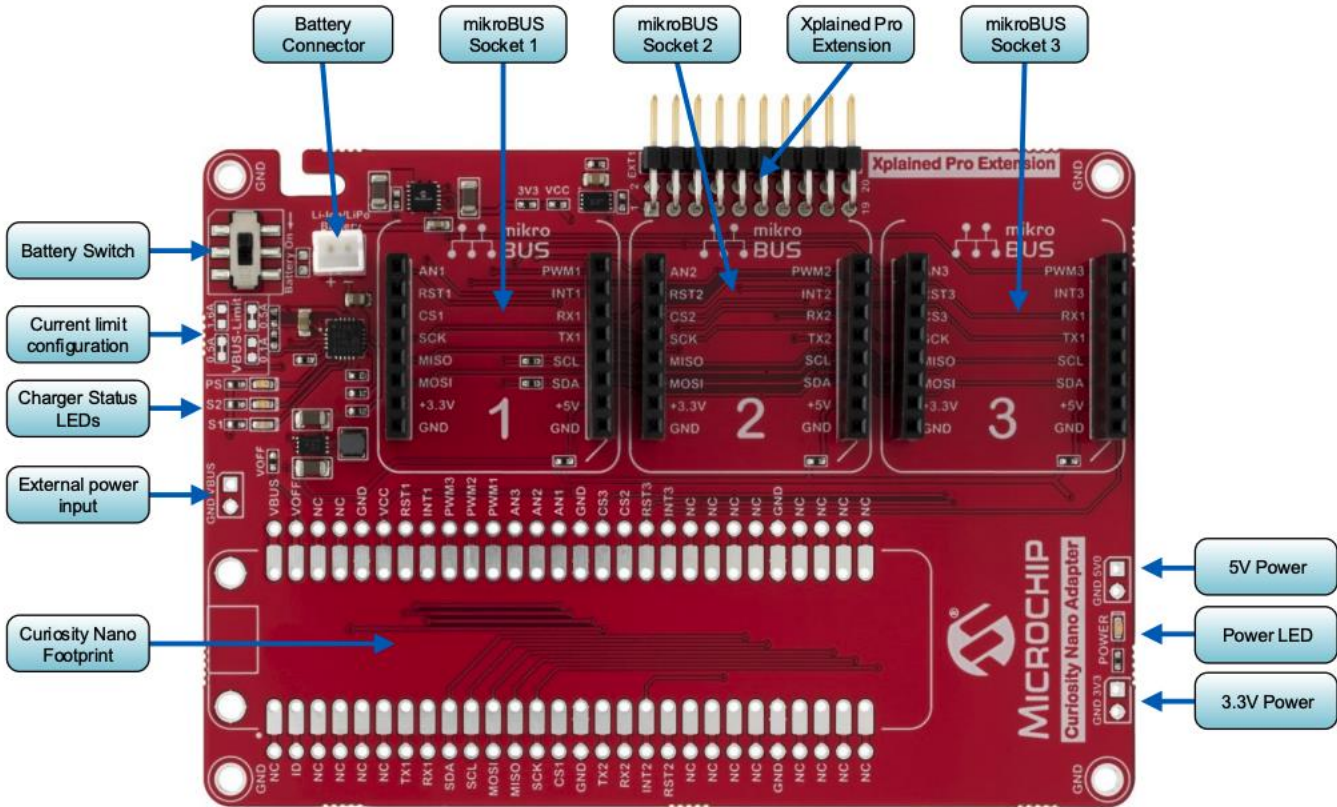
Fully Integrated platform for 8-, 16- and 32-bit MCUs

- 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



Microchip Curiosity Development Platform - AC164162

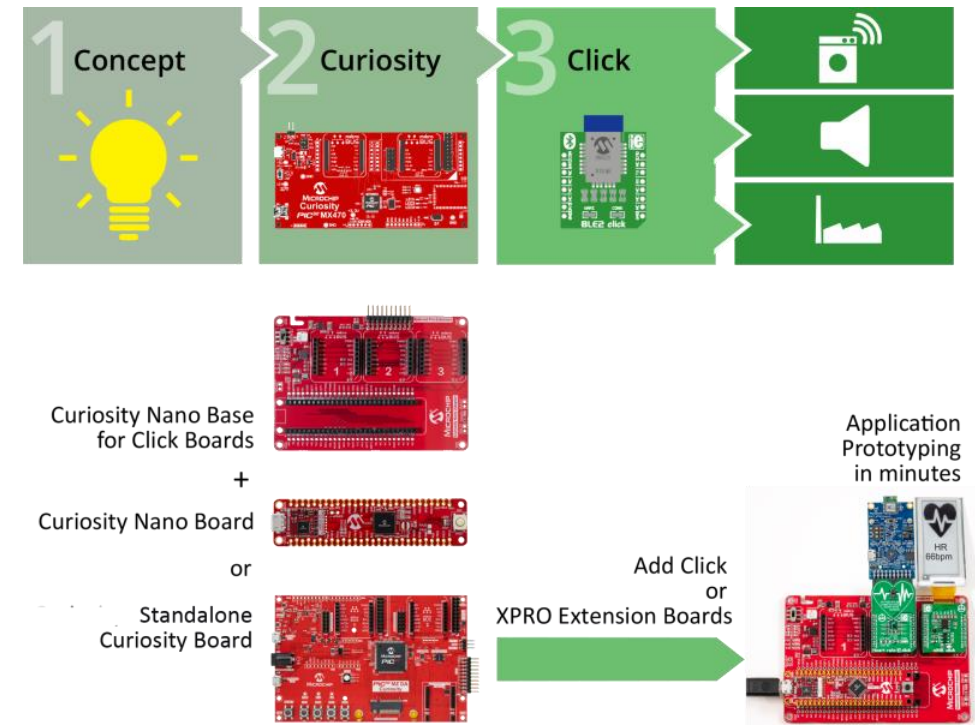
適用於多種開發平台的實驗平台



Rapid Prototyping with Curiosity Platform

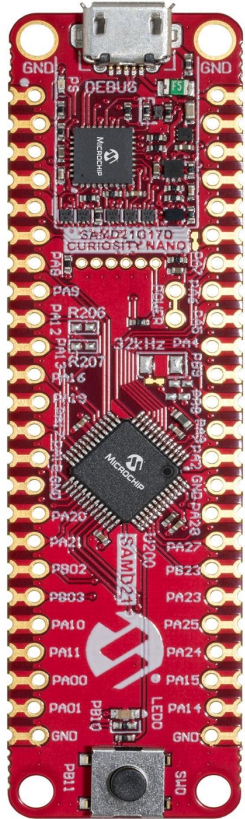
New Web Landing Page to be launched

- **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 compiler 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](#)



Curiosity Nano Board Roadmap

Released



SAM D21

Released



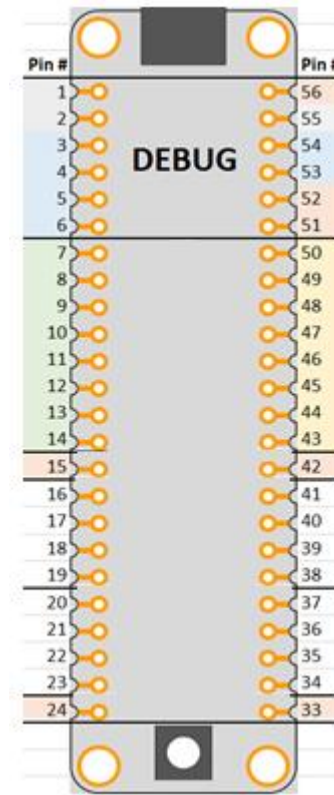
SAM E51

Released



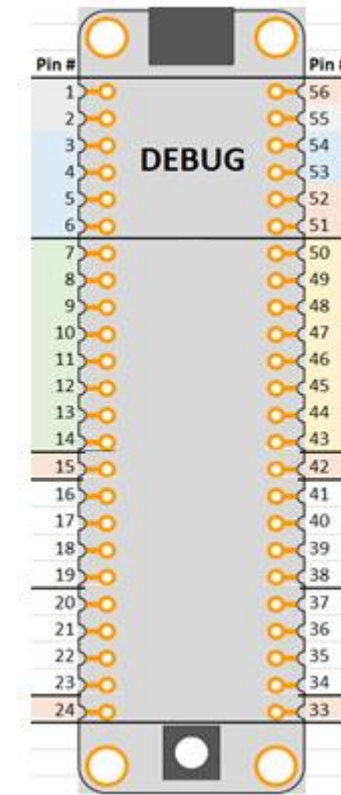
PIC32CM MC

Proposed



PIC32CM LS

Proposed



PIC32CM JH
(On hold)

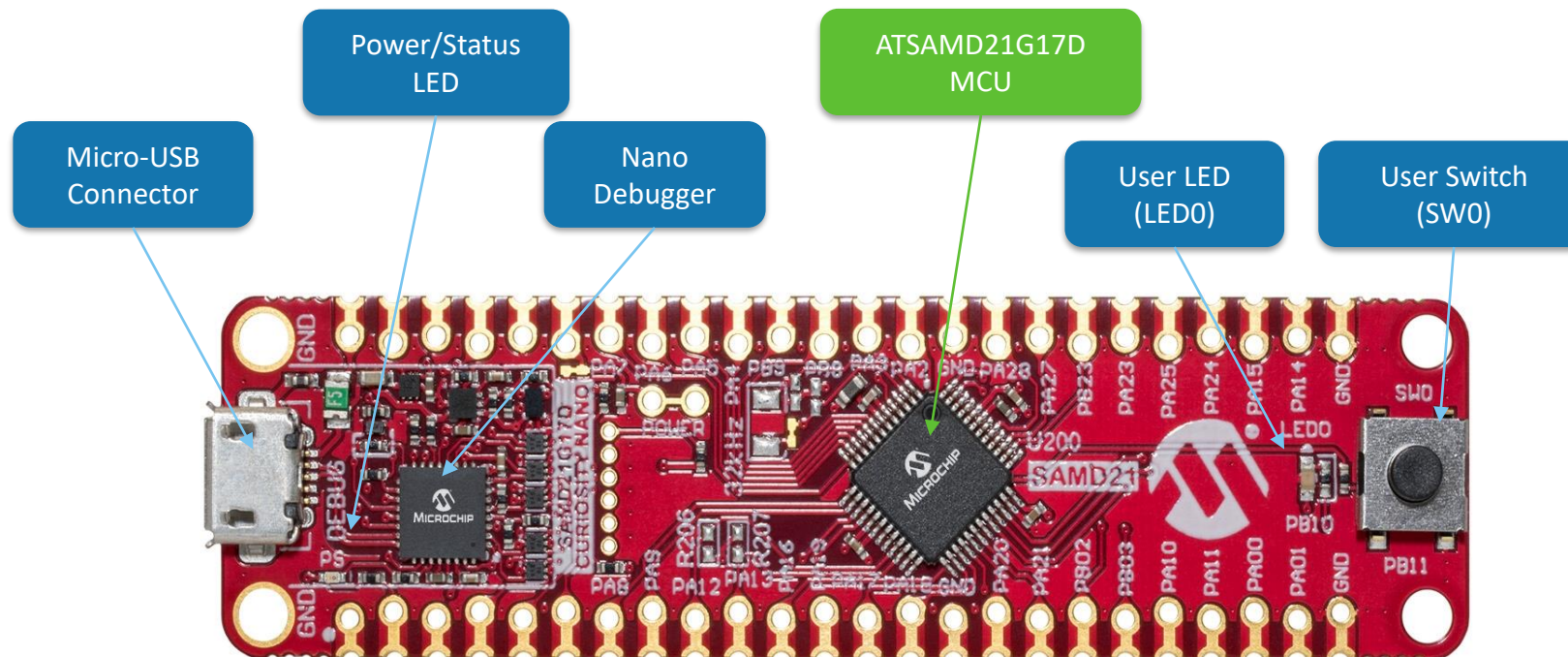
SAMD21 Curiosity Nano

- [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



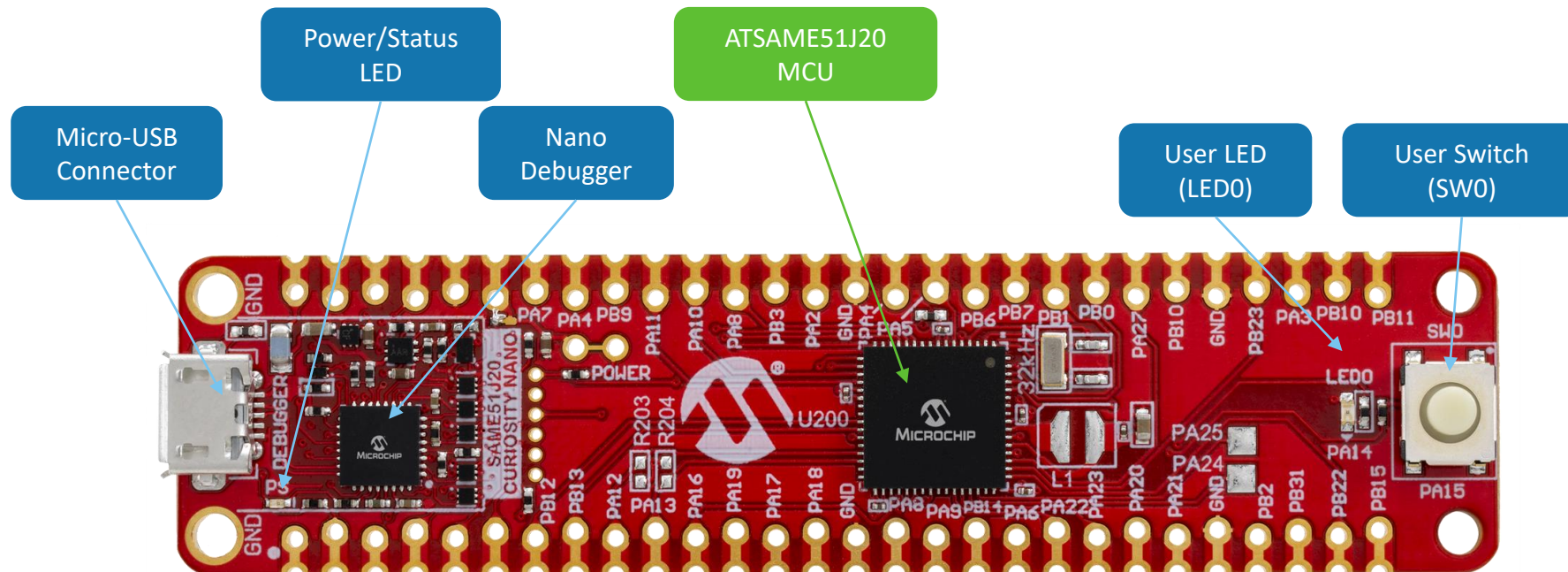
SAME51 Curiosity Nano

- [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



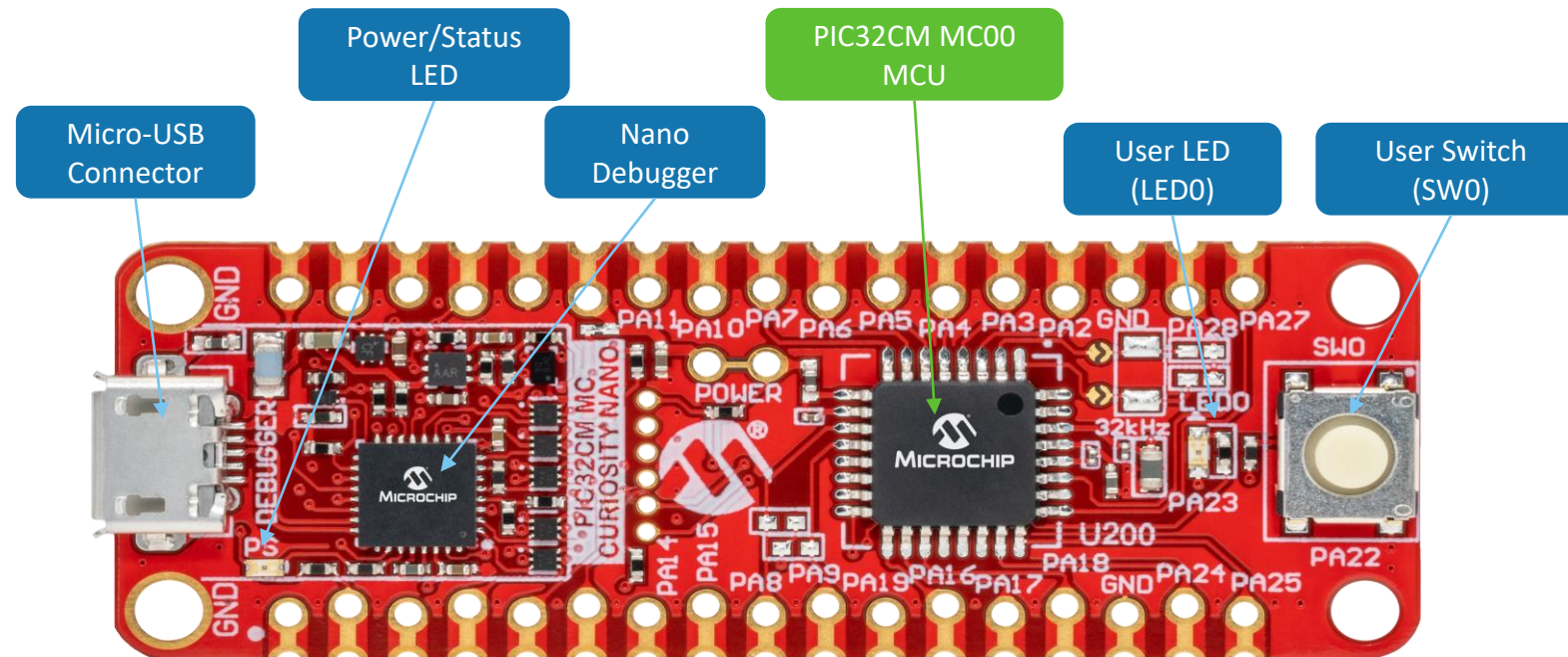
PIC32CM MC00 Curiosity Nano

- [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](#)



Thank You
