



# Microprocessors & Microcontrollers

## : Arm Cortex M0+

(Using RP2040)

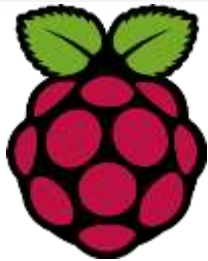
## ESM 9

### Introduction to Raspberry Pi Family

# Focus

- Introduction to Raspberry Pi Family
  - Introduction
  - Raspberry Pi Pico
  - Raspberry Pi Pico W

# Raspberry Pi Family (Introduction)



**Raspberry Pi Logo**

The **Raspberry Pi Foundation** is a **British charity and company** founded in **2009**, to promote the **study of basic computer science** in **schools**, and is responsible for developing the **Raspberry Pi single-board computers**.

**Raspberry Pi**

# A few Boards of Raspberry Pi family

Raspberry Pi Zero  
Released in Nov 2015



Raspberry Pi 3 Model B+  
Released in 2016



Raspberry Pi 4 B  
Released in Jun 2019



- **Raspberry Pi Pico** was released in **January 2021** with a retail price of **\$4**.
- It was Raspberry Pi's first board, based on a single **ARM microcontroller** chip designed in the UK.
- It is programmable in MicroPython, CircuitPython, and C/C++.
- It is designed for physical computing, similar in concept to an Arduino.

Raspberry Pi Pico (RP2040)

Front side

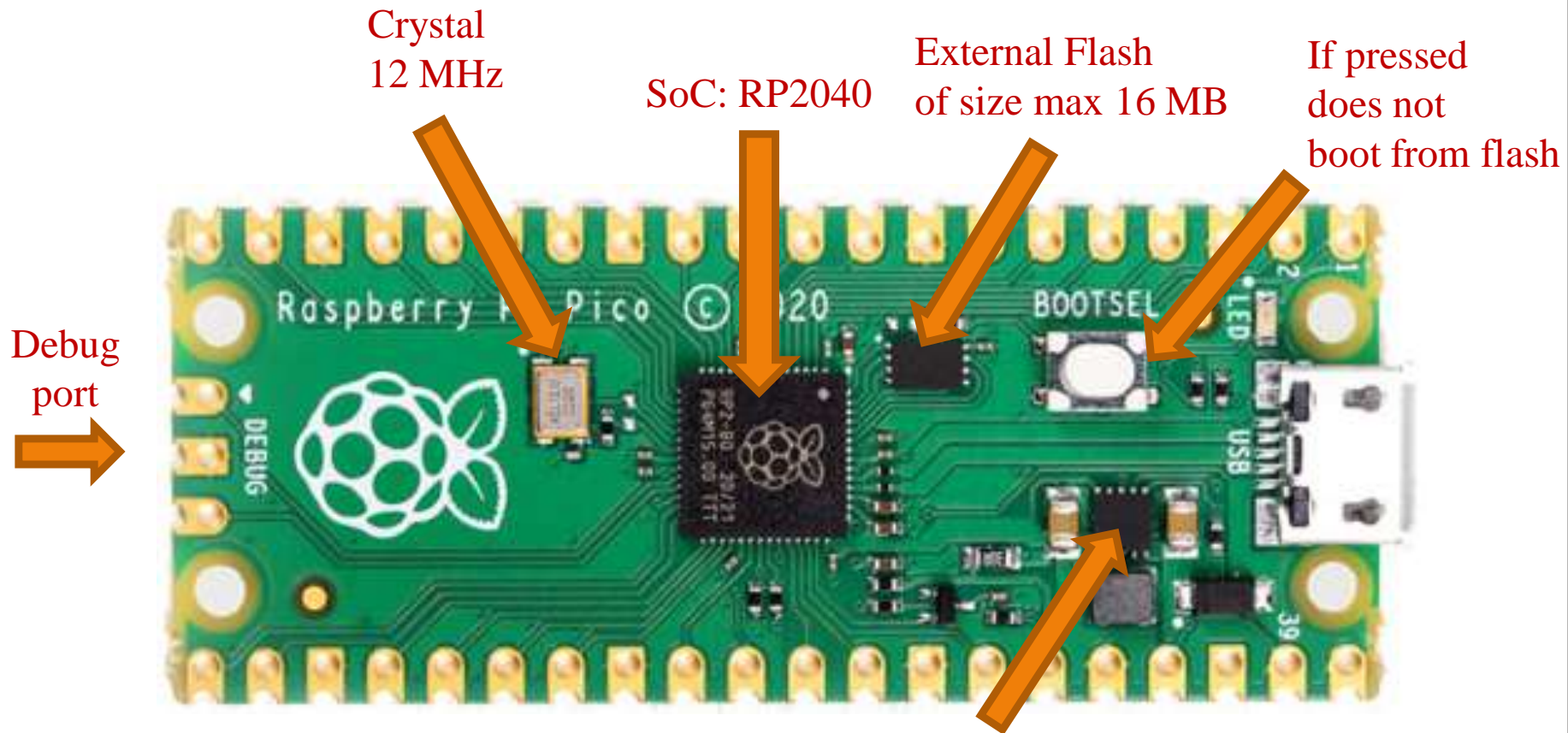


Back side





# Raspberry Pi Pico (based on RP2040): Layout



**SoC:** System on a Chip

**SMPS:** Switched Mode Power Supply

**3.3 V Buck Boost  
SMPS**

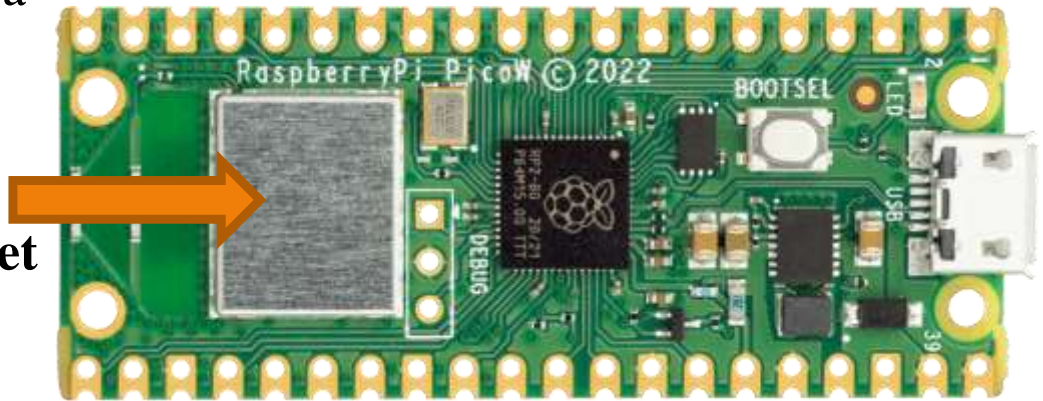
**Major Limitation:**  
No built-in WiFi module  
in the Raspberry Pi Pico.

# Raspberry Pi Pico W (based on RP2040)

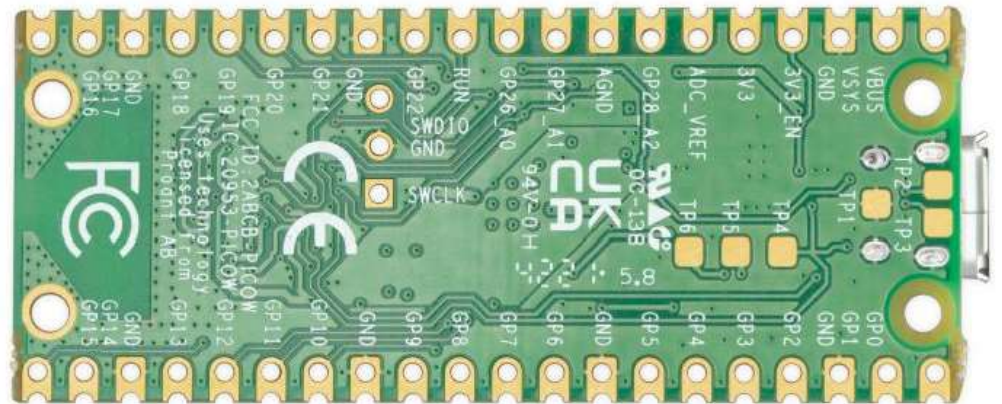
- **Raspberry Pi Pico W** was released in **January 2022** with a retail price of **\$6**.
- A big change in the **Raspberry Pi Pico W** is the adding a **2.4 GHz 802.11b/g/n Wi-Fi chipset** and an on-board **antenna**.
- This is done without changing the **device's form factor (dimensions and pin layout)**, so we can swap a **Pico W** in for a **standard Pico** in any of your existing projects!!!
- The rest of the features and software support are almost unchanged.

## Release news of Raspberry Pi Pico W

## Raspberry Pi Pico W (RP2040)

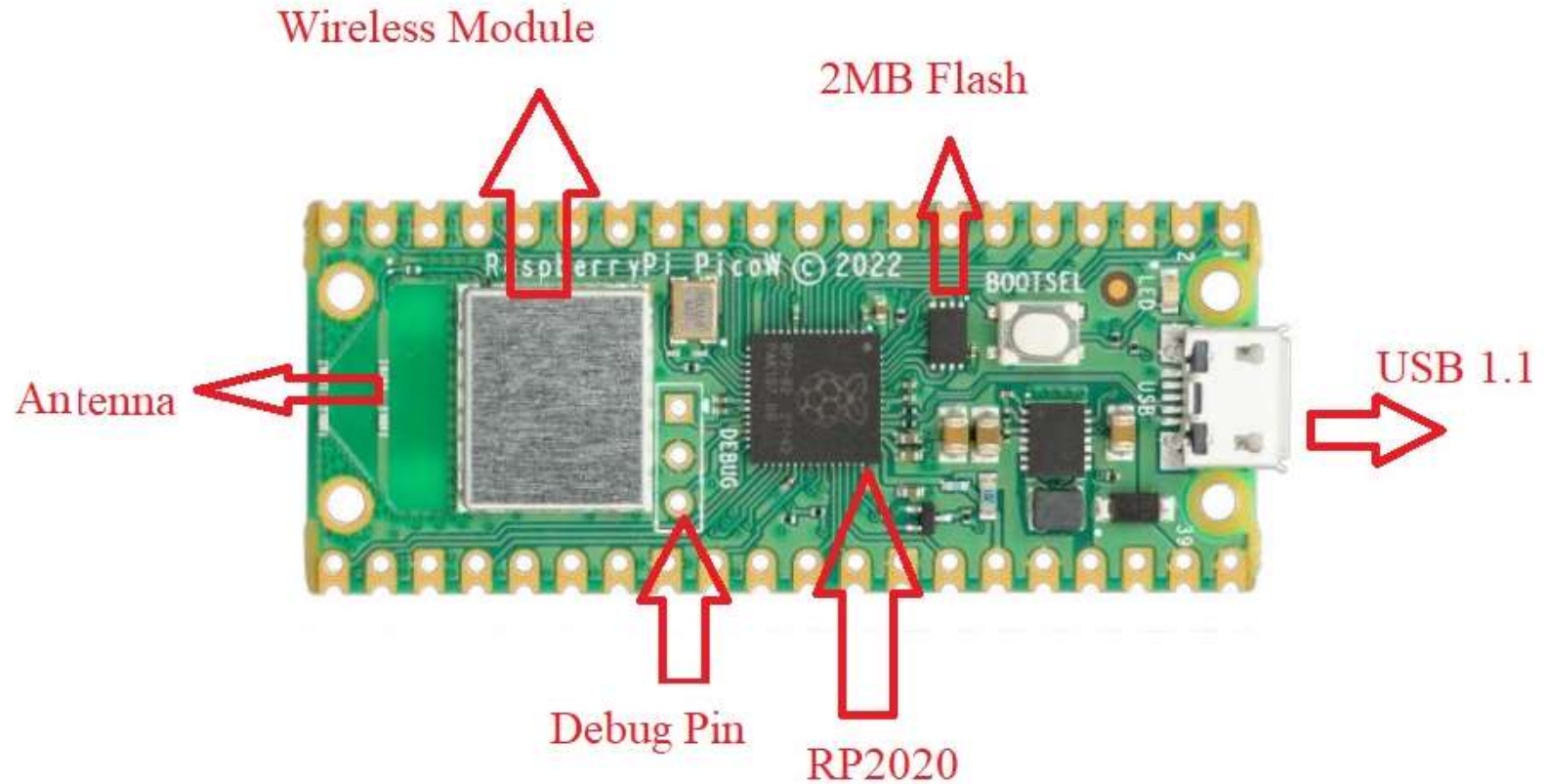


## Back side



## Pin compatible with Raspberry Pi Pico

# Raspberry Pi Pico W: Layout



# Summary

- Introduction to Raspberry Pi Family
  - Introduction
  - Raspberry Pi Pico
  - Raspberry Pi Pico W