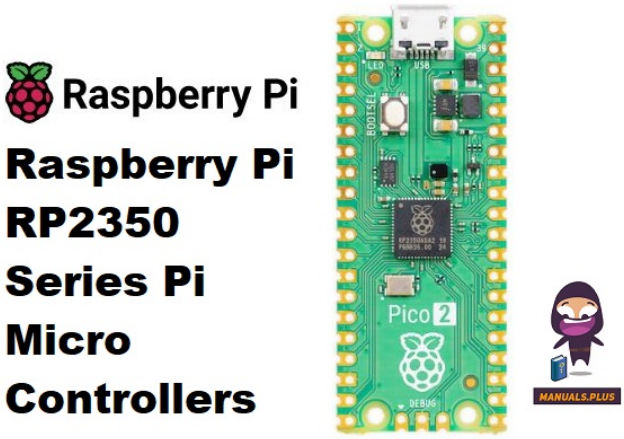

Raspberry Pi RP2350 Series Pi Micro Controllers Owner's Manual

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Raspberry Pi

Raspberry Pi RP2350 Series Pi Micro Controllers

Product Usage Instructions

Raspberry Pi Pico 2 Overview

Raspberry Pi Pico 2 is a next-generation microcontroller board that offers enhanced performance and features compared to previous models. It is programmable in C/C++ and Python, making it suitable for both enthusiasts and professional developers.

Programming the Raspberry Pi Pico 2

To program the Raspberry Pi Pico 2, you can use C/C++ or Python programming languages. Detailed documentation is available to guide you through the programming process. Make sure to connect the Pico 2 to your computer using a USB cable before programming.

Interfacing with External Devices

The flexible I/O of the RP2040 microcontroller allows you to easily connect the Raspberry Pi Pico 2 to external devices. Utilize the GPIO pins to establish communication with various sensors, displays, and other peripherals.

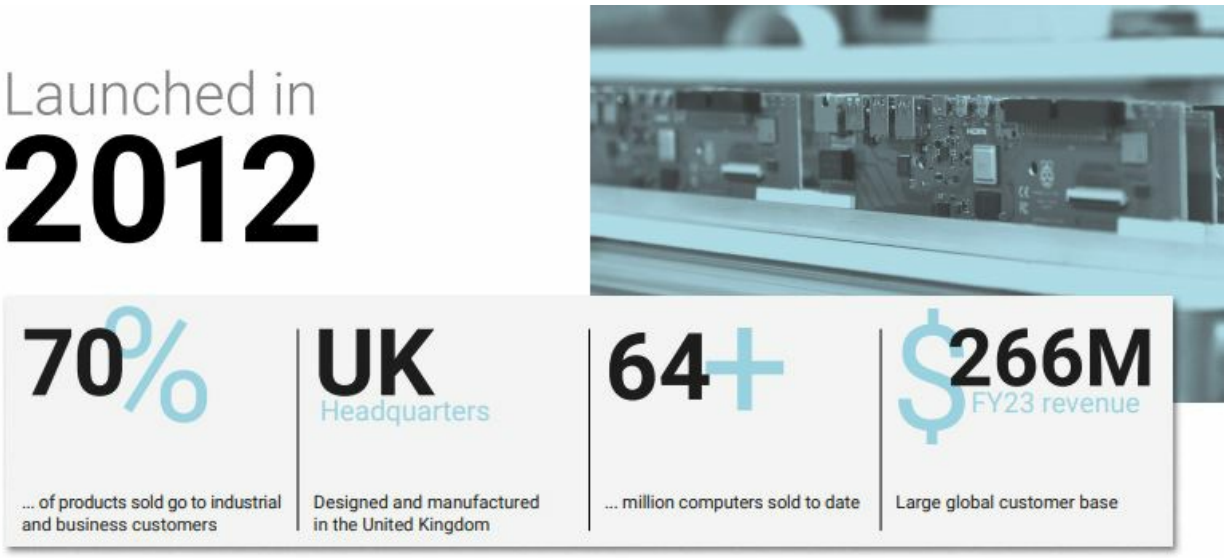
Security Features

Raspberry Pi Pico 2 comes with new security features, including a comprehensive security architecture built around Arm TrustZone for Cortex-M. Ensure to leverage these security measures to protect your applications and data.

Powering the Raspberry Pi Pico 2

Use the Pico carrier board to provide power to the Raspberry Pi Pico 2. Make sure to follow the recommended power specifications to ensure stable operation of the microcontroller board.

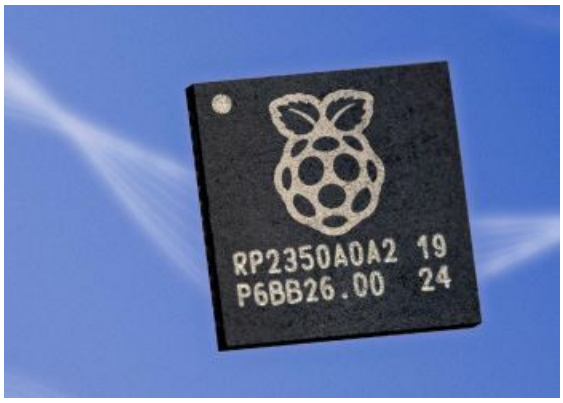
Raspberry Pi at a glance



RP2350 series

Our signature values of high-performance, low-cost, accessible computing, distilled into an extraordinary microcontroller.

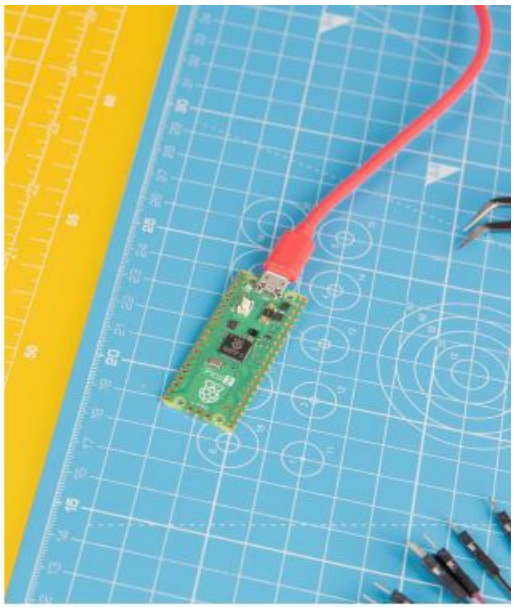
- Dual Arm Cortex-M33 cores with hardware single-precision floating point and DSP instructions @ 150MHz.
- Comprehensive security architecture, built around Arm TrustZone for Cortex-M.
- Second-generation PIO subsystem provides flexible interfacing with no CPU overhead.



Raspberry Pi Pico 2

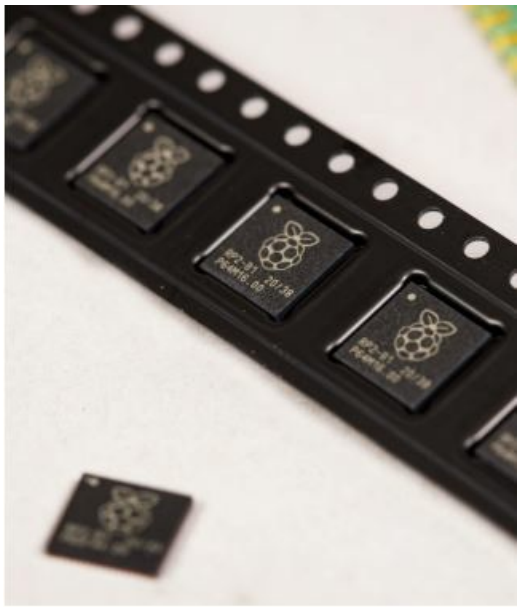
Our next-generation microcontroller board, built using RP2350.

- With a higher core clock speed, double the memory, more powerful Arm cores, optional RISC-V cores, new security features, and upgraded interfacing capabilities, Raspberry Pi Pico 2 delivers a significant performance boost, while retaining compatibility with earlier members of the Raspberry Pi Pico series.
- Programmable in C / C++ and Python, and with detailed documentation, Raspberry Pi Pico 2 is the ideal microcontroller board for enthusiasts and professional developers alike.

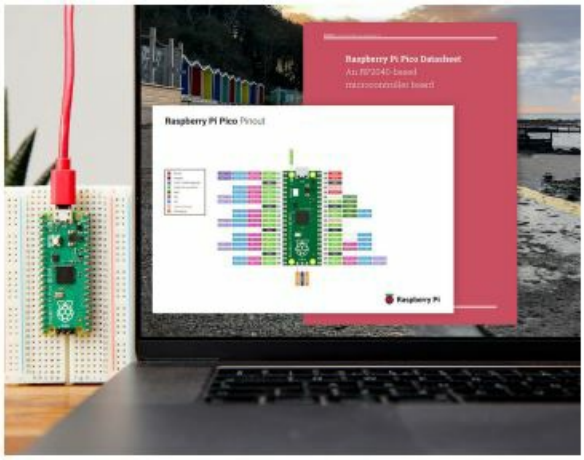


RP2040

- Flexible I/O connects RP2040 to the physical world by allowing it to speak to almost any external device.
- High performance breezes through integer workloads.
- Low cost helps ease the barrier to entry.
- This isn't just a powerful chip: it's designed to help you bring every last drop of that power to bear. With six independent banks of RAM, and a fully connected switch at the heart of its bus fabric, you can easily arrange for the cores and DMA engines to run in parallel without contention.
- RP2040 builds Raspberry Pi's commitment to inexpensive, efficient computing into a small and powerful 7 mm × 7 mm package, with just two square millimetres of 40 nm silicon.



Microcontroller software and documentation



- All chips share a common C / C++ SDK
- Supports both Arm and RISC-V CPUs in RP2350
- OpenOCD for debug
- PICOTOOL for production line programming
- VS Code plugin to aid development
- Pico 2 and Pico 2 W reference designs
- Huge amount of first- and third-party example code
- MicroPython and Rust language support from third parties

SPECIFICATION

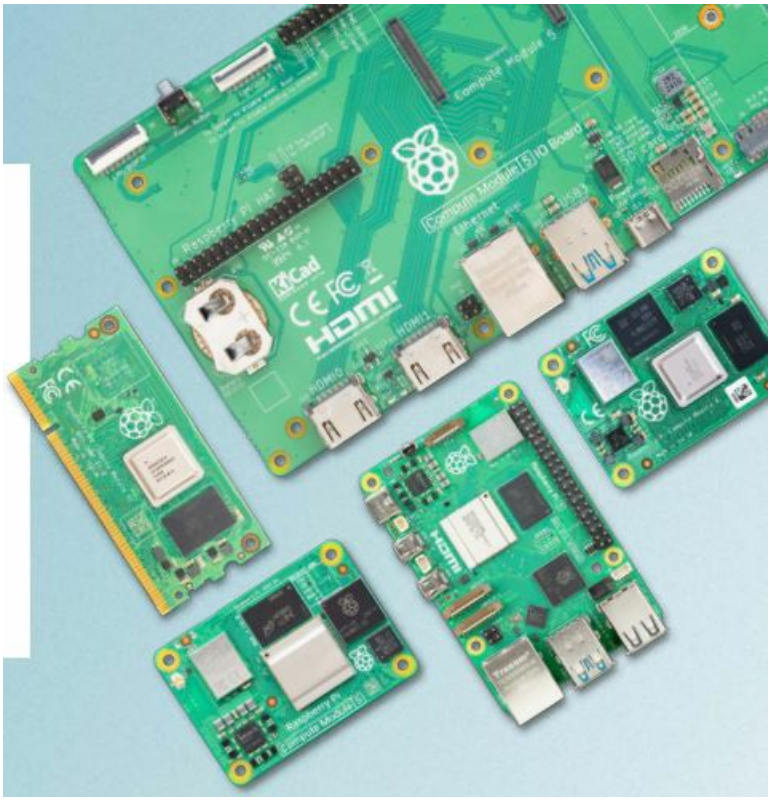



	Raspberry Pi Pico 2 / Pico 2 W	Raspberry Pi Pico, Pico H, Pico W, Pico WH	RP235x	RP2040
Wireless connectivity	Yes for W versions	Yes for W versions	-	-
Processor	Dual Arm Cortex-M33 or dual Hazard3 RISC-V processors @ 200MHz	Dual-core Arm Cortex-M0+ @ 200MHz	Dual Arm Cortex-M33 or dual Hazard3 RISC-V processors @ 200MHz	Dual-core Arm Cortex-M0+ @ 200MHz
Memory	520KB on-chip SRAM; 4MB on-board QSPI flash	264KB on-chip SRAM; 2MB on-board QSPI flash	520KB on-chip SRAM	264KB on-chip SRAM
Bluetooth connectivity	Yes	Yes	-	-
USB	1 × USB 1.1	1 × USB 1.1	1 × USB 1.1 PHY	1 × USB 1.1 PHY
GPIO pins	Yes	Yes	-	-
Power	1.8–5.5V DC	1.8–5.5V DC	-	-
Pico carrier board	-	-	Pico 2, Pico 2 W	Pico 1, Pico 1 W
Price	Pico 2: $5; Pico 2 W: $7	Pico: $4; Pico H: $5; Pico W: $6; Pico WH: $7	From $1.10	$1
Production lifetime	January 2040	Pico 1, January 2028; Pico 1 W, January 2036	January 2045	January 2041
More information	Product brief	Pico 1 product brief; Pico 1 W product brief	Product brief	Product brief

Why Raspberry Pi

- 10+ year guaranteed production lifetime
- Secure and reliable platform
- Reduces engineering costs and time to market
- Ease of use with vast, mature ecosystem
- Cost-effective and affordable
- Designed and manufactured in the UK
- Low power consumption

- Extensive high-quality documentation



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Frequently Asked Questions

Q: Can I use Raspberry Pi Pico 2 with previous Pico models?

A: Yes, Raspberry Pi Pico 2 is designed to be compatible with earlier members of the Raspberry Pi Pico series, allowing seamless integration with existing projects.

Q: What programming languages are supported by Raspberry Pi Pico 2?

A: Raspberry Pi Pico 2 supports programming in C/C++ and Python, offering flexibility for developers with different coding preferences.

Q: How can I access detailed documentation for Raspberry Pi Pico 2?

A: Detailed documentation for Raspberry Pi Pico 2 can be found on the official Raspberry Pi website, providing comprehensive guidance on programming, interfacing, and utilizing the microcontroller board's features.

Documents / Resources

	Raspberry Pi RP2350 Series Pi Micro Controllers [pdf] Owner's Manual RP2350 Series, RP2350 Series Pi Micro Controllers, Pi Micro Controllers, Micro Controllers, Controllers

References

- User Manual