Raspberry Pi Pico 2 series

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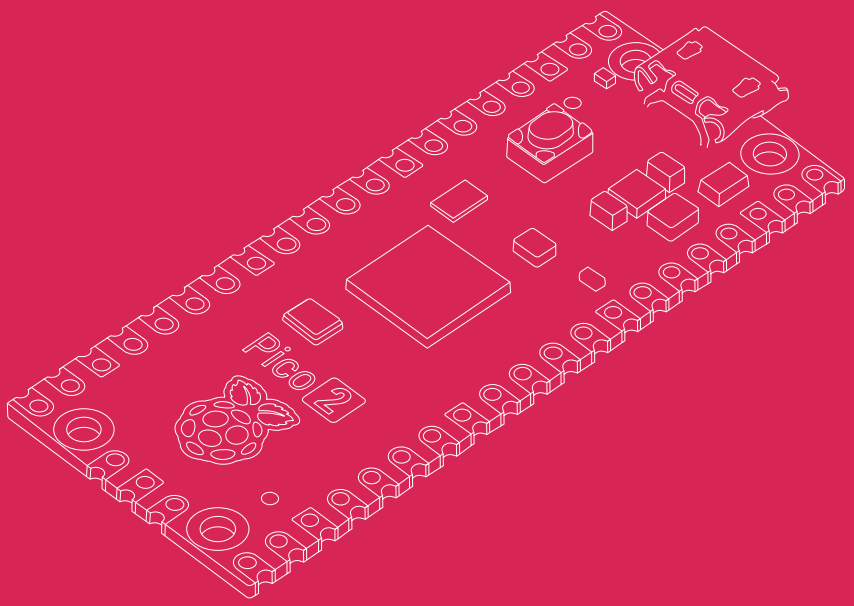
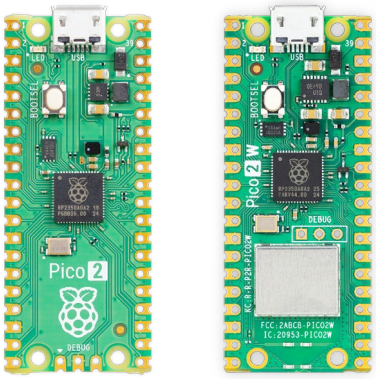


Raspberry Pi Ltd

Overview



The Raspberry Pi Pico 2 series of microcontroller boards starts at $5 and is built on RP2350: our new high-performance, secure microcontroller. With a higher core clock speed, double the on-chip SRAM, double the on-board flash memory, more powerful Arm cores, optional RISC-V cores, new security features, and upgraded interfacing capabilities, the Raspberry Pi Pico 2 series delivers a significant performance and feature boost, while retaining hardware and software compatibility with earlier members of the Raspberry Pi Pico family.

RP2350 provides a comprehensive security architecture, built around Arm TrustZone for Cortex-M, and incorporating signed boot, 8KB of antifuse OTP for key storage, SHA-256 acceleration, a hardware TRNG, and fast glitch detectors. These features, including the secure boot ROM, are extensively documented and available to all users without restriction: this transparent approach, which contrasts with the “security through obscurity” offered by legacy vendors, allows professional users to integrate RP2350, and Raspberry Pi Pico 2 series boards, into products with confidence.

The unique dual-core, dual-architecture capability of RP2350 allows users to choose between a pair of industry-standard Arm Cortex-M33 cores, and a pair of open-hardware Hazard3 RISC-V cores. Programmable in C / C++ and Python, and with detailed documentation, Raspberry Pi Pico 2 series boards are ideal for enthusiasts and professional developers alike.

Wireless variant Raspberry Pi Pico 2 W offers 2.4GHz 802.11n wireless LAN and Bluetooth 5.2, with an on-board antenna, and modular compliance certification.

Raspberry Pi Pico 2 series boards are available as individual units, or in 480-unit reels.

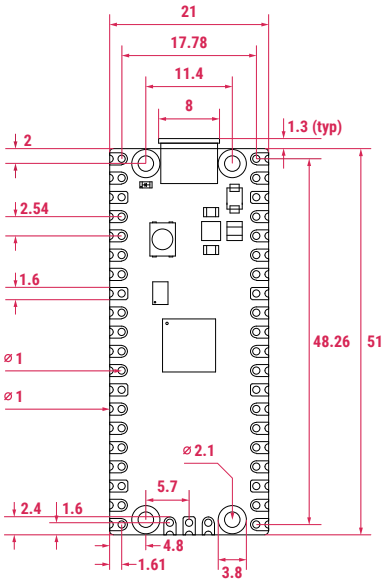
Specification

Form factor:	21 mm × 51 mm
CPU:	Dual Arm Cortex-M33 or dual RISC-V Hazard3 processors @ 150MHz
Memory:	520 KB on-chip SRAM; 4 MB on-board QSPI flash
Connectivity:	2.4GHz 802.11n wireless LAN and Bluetooth 5.2 (Raspberry Pi Pico 2 W only)
Interfacing:	26 multi-purpose GPIO pins, including 4 that can be used for ADC
Peripherals:	• 2 × UART • 2 × SPI controllers • 2 × I2C controllers • 24 × PWM channels • 1 × USB 1.1 controller and PHY, with host and device support • 12 × PIO state machines
Input power:	1.8–5.5V DC
Operating temperature:	-20°C to +85°C
MTBF[1] Ground Benign:	182 000 hours
Production lifetime:	Raspberry Pi Pico 2 will remain in production until at least January 2040

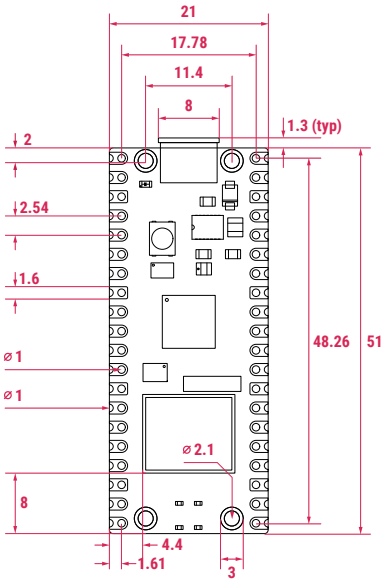
[1] Mean Time Between Failure

Physical specification

Pico 2



Pico 2 W



Note:

All dimensions in mm

All dimensions are approximate and for reference purposes only. The dimensions shown should not be used for producing production data

The dimensions are subject to part and manufacturing tolerances

Dimensions may be subject to change

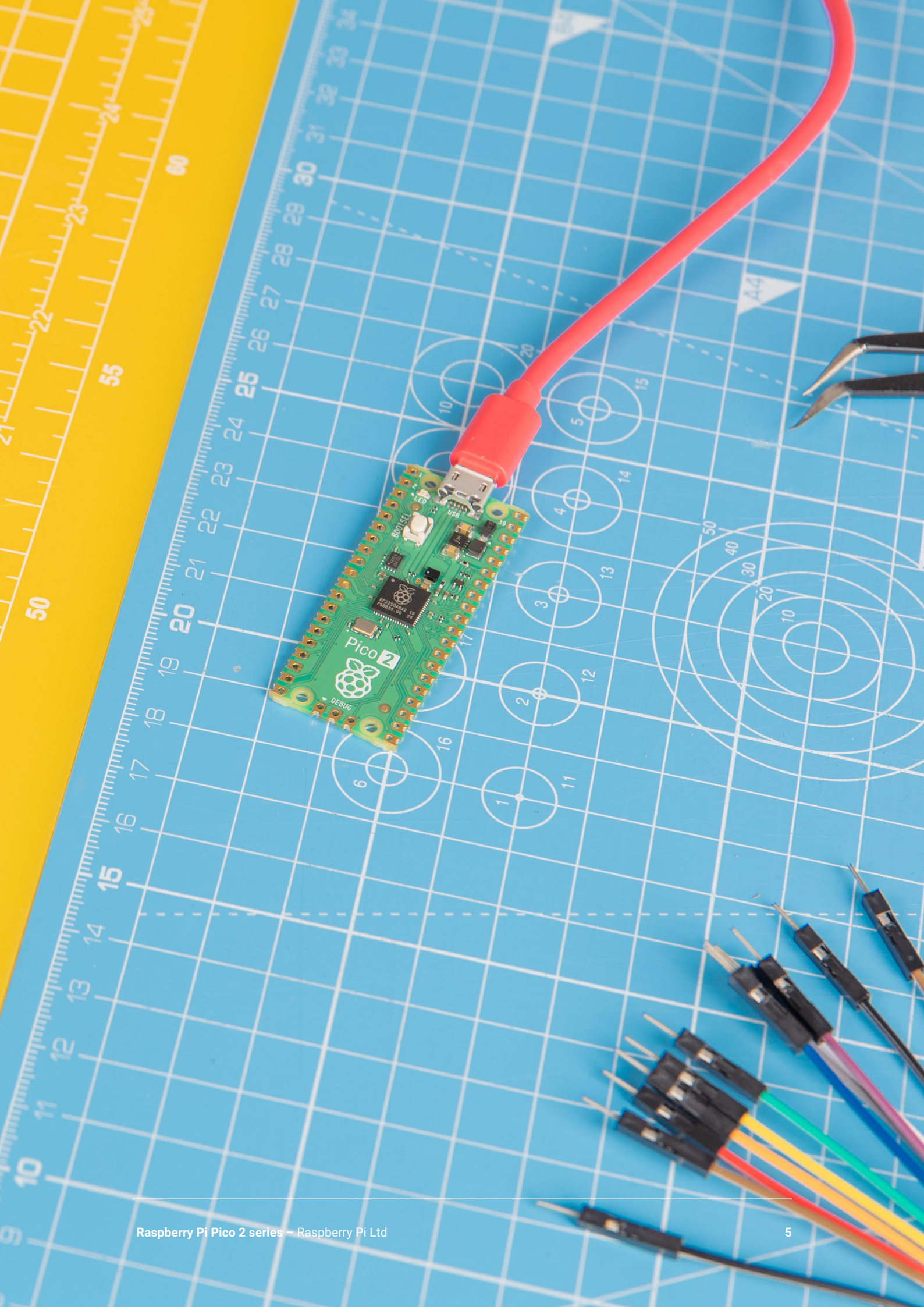
WARNINGS

- Any external power supply used with Raspberry Pi Pico devices shall comply with relevant regulations and standards applicable in the country of intended use and be a limited power source or PS2 power source per IEC 62368-1.
- The connection of incompatible devices to Raspberry Pi Pico devices may affect compliance, result in damage to the unit, and invalidate the warranty.
- All accessories used with this product should comply with relevant standards for the country of use and be marked accordingly to ensure that safety and performance requirements are met.
- The cables and connectors of all peripherals used with this product must have adequate insulation so that relevant safety requirements are met.

SAFETY INSTRUCTIONS

To avoid malfunction or damage to this product, please observe the following:

- Do not expose to water or moisture, or place on a conductive surface whilst in operation.
- Take care whilst handling to avoid mechanical or electrical damage to the printed circuit board and connectors.
- Whilst it is powered, avoid handling the printed circuit board, or only handle it by the corners to minimise the risk of electrostatic discharge damage.


Pico 2
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