



Raspberry Pi Pico

Board Specifications

Raspberry Pi Pico is a low-cost, high-performance microcontroller board with flexible digital interfaces. Key features include:

- RP2040 microcontroller chip designed by Raspberry Pi in the United Kingdom
- Dual-core Arm Cortex M0+ processor, flexible clock running up to 133 MHz
- 264KB of SRAM, and 2MB of on-board Flash memory
- Castellated module allows soldering direct to carrier boards

- USB 1.1 with device and host support
- Low-power sleep and dormant modes

- Drag-and-drop programming using mass storage over USB
- 26 × multi-function GPIO pins
- 2 × SPI, 2 × I2C, 2 × UART, 3 × 12-bit ADC, 16 × controllable PWM channels
- Accurate clock and timer on-chip
- Temperature sensor
- Accelerated floating-point libraries on-chip
- 8 × Programmable I/O (PIO) state machines for custom peripheral support

Utilities:

What is on your Pico?

If you have forgotten what has been programmed into your Raspberry Pi Pico, and the program was built using our Pico C/C++ SDK, it will usually have a name and other useful information embedded into the binary. You can use the Picotool command line utility to find out these details. Full instructions on how to use Picotool to do this are available in our 'getting started' documentation.

Debugging using another Raspberry Pi Pico

It is possible to use one Raspberry Pi Pico to debug another Pico. This is possible via picoprobe, an application that allows a Pico to act as a USB → SWD and UART converter. This makes it easy to use a Pico on non-Raspberry Pi platforms such as Windows, Mac, and Linux computers where you don't have GPIOs to connect directly to your Pico. Full instructions on how to use Picoprobe to do this are available in our 'getting started' documentation.

Resetting Flash memory

Pico's BOOTSEL mode lives in read-only memory inside the RP2040 chip, and can't be overwritten accidentally. No matter what, if you hold down the BOOTSEL button when you plug in your Pico, it will appear as a drive onto which you can drag a new UF2 file. There is no way to brick the board through software. However, there are some circumstances where you might want to make sure your Flash memory is empty. You can do this by dragging and dropping a special UF2 binary onto your Pico when it is in mass storage mode.