Raspberry Pi

MakerSpace Taster Session

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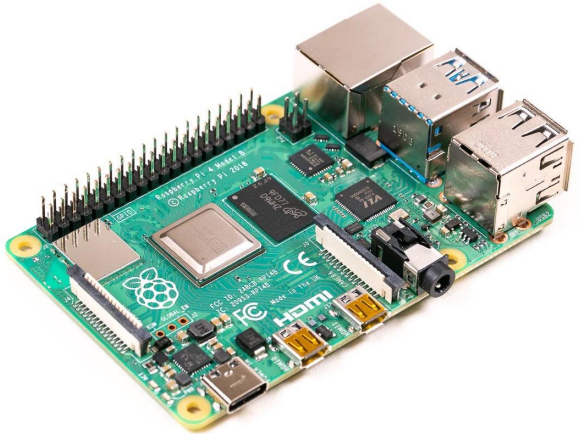
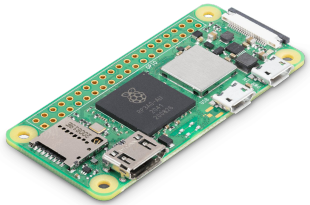
What is Raspberry Pi?

- A small single-board computer, a complete computer built on a single circuit board.
- Programmable hardware
- Affordable? (£45–70 for a board, £90–120 for a kit inc. board)
- Fun!

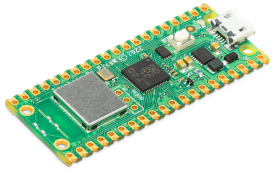
Flavours



Raspberry Pi 4B



Zero 2 / Zero 2W



Pico / Pico W

History

The idea of Raspberry Pi came in 2006 as Eben Upton was working on a single board computer project inspired by the BBC Micro.

Decline in the numbers and skills of students applying for computer science class, and attributing this to the high cost of and drift away from programmable computers, Upton and his colleagues at Cambridge decided to develop an affordable computer on which children could learn to program.

After 6 years of development, the first Raspberry Pi was released in February 2012 at c.£20 in the UK.

Demand for the basic computer was first driven by hobbyists and makers, but educational institutions and the industrial sector soon followed, and Raspberry Pi became the best-selling British computer of all time in 2015.

By its 10th anniversary in 2022, more than 40 million units had been sold world-wide.

Story of Raspberry Pi: https://www.youtube.com/watch?v=UCt6d0SCxO4

Uses

- Learning/teaching computing skills e.g. command line, Python, Regular Expressions, etc
- Building hardware projects e.g. robots, bird cam (catTV), games console, weather station, voice activated coffee maker/pet feeder, GPS tracker, etc
- Building software projects, e.g. web server and websites, media centre/server, home automation, etc
- Data collection and processing e.g. text, images, Tweets, etc
- LLMs for devices…?

Examples

- **Raspberry Pi (and other) projects with step-by-step tutorials**
  https://projects.raspberrypi.org/en/projects?hardware[]=raspberry-pi
- **Magpi Magazine**
  https://magpi.raspberrypi.com/articles/category/tutorials
- **Blog in a box**
  https://inabox.blog
- **Museum in a box**
  https://museuminabox.org
- **Glaciers by Zach Gage, 2015**
  http://stfj.net/art/2016/Glaciers

Getting started: What you will need

- Raspberry Pi computer
- Power supply
- Micro SD card (and SD card writer)
- Monitor with micro HDMI cable (or a HDMI to HDMI adaptor)
- USB keyboard and mouse
- Computer for installing Raspberry Pi OS on micro SD card

Optionally:

- Speaker or headphone
- Ethernet cable
- Heatsink and/or fan
- Case

Getting started: Installing Raspberry Pi OS

Raspberry Pi OS is **installed on a micro SD card**, and using a computer (**not Raspberry Pi**) with an SD card reader or using an SD card reader.

1. Download and install Raspberry Pi Imager on your computer. https://www.raspberrypi.com/software/
2. Put the micro SD card into the SD card reader and run Raspberry Pi Imager.
3. Eject the SD card and insert it into the SD card slot on Raspberry Pi.
4. Connect monitor, mouse and keyboard.
5. Plug the power supply into a socket and connect it to Raspberry Pi’s USB power port.