What is a Raspberry Pi?

Created by the Raspberry Pi Foundation, the Raspberry Pi is an open-source, Linux based, credit card sized computer board. The Pi is an exciting and accessible means of improving computing and programming skills for people of all ages. By connecting to your TV or monitor and a keyboard, and with the right programming, the Pi can do many things that a desktop computer can do such as surf the internet and play video. The Pi is also great for those innovative projects that you want to try out - newer models are ideal for Internet of Things projects due to their processing power. With Pi 3, Wireless LAN and Bluetooth Low Energy are on-board too.

What are the differences between the models?

Current versions of the Raspberry Pi are the Pi A+, Pi B+, Pi 2 B, Pi 3 B and Compute Module.

<table>
<thead>
<tr>
<th></th>
<th>Pi A+</th>
<th>Pi B+</th>
<th>Pi 2 B</th>
<th>Pi 3 B</th>
<th>Compute Module</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions</td>
<td>66 x 56 x 14mm</td>
<td>85 x 56 x 17mm</td>
<td>85 x 56 x 17mm</td>
<td>85 x 56 x 17mm</td>
<td>675 x 30mm</td>
</tr>
<tr>
<td>SoC</td>
<td>BCM2835</td>
<td>BCM2835</td>
<td>BCM2836</td>
<td>BCM2837</td>
<td>BCM2835</td>
</tr>
<tr>
<td>Processor Core</td>
<td>ARM11</td>
<td>ARM11</td>
<td>ARM Cortex-A7</td>
<td>ARM Cortex-A53</td>
<td>ARM11</td>
</tr>
<tr>
<td>Processing Power</td>
<td>700 MHz</td>
<td>700 MHz</td>
<td>900 MHz</td>
<td>1.2 GHz</td>
<td>700 MHz</td>
</tr>
<tr>
<td>Memory</td>
<td>256 MB</td>
<td>512 MB</td>
<td>1 GB</td>
<td>1GB LPDDR2</td>
<td>512 MB</td>
</tr>
<tr>
<td>Ports</td>
<td>1x USB 2.0</td>
<td>4x USB 2.0</td>
<td>4x USB 2.0</td>
<td>4x USB 2.0</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>1x 10/100 Ethernet</td>
<td>1x 10/100 Ethernet</td>
<td>1x 10/100 Ethernet</td>
<td>1x 10/100 Ethernet</td>
<td>N/A</td>
</tr>
<tr>
<td>GPIO</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>N/A</td>
</tr>
</tbody>
</table>

What do I get with my Raspberry Pi?

A Raspberry Pi board only.

Each Raspberry Pi customer is unique. You may already have cables, power supplies, keyboards, SD memory cards or monitors. However, if you do require additional products to start with your Pi or to really get creative, we can help.

Our expanding range of accessories includes:
How do I get connected?

To get started with your Pi you will need:
- A monitor or TV screen to set-up your Pi
- A keyboard to interact with your Pi
- A mouse to navigate your Pi
- A power supply
- An SD card with the latest version of New Out Of Box Software (NOOBS), to install the operating system that you would like to use.

To get sound and video you will need cables to suit what your screen or monitor accepts. For those with monitors that accept VGA, a HDMI to VGA adaptor is needed in addition to a HDMI cable, unless you use the composite video output from the Pi.

For an internet connection, the Pi B+ and Pi 2 B have an ethernet port. You also have the option of adding a WiFi Adapter/Dongle which may mean that you need a USB Hub if you have run out of USB ports. The Pi 3 already has 802.11 b/g/n wireless LAN and Bluetooth 4.1 (Bluetooth Classic and Low Energy).

Powering my Pi

The Pi has a 5 V microUSB power socket, located on the bottom left hand corner of your Pi board.

<table>
<thead>
<tr>
<th>Version</th>
<th>Recommended Power Supply Current Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pi B</td>
<td>1.2 A</td>
</tr>
<tr>
<td>Pi A+</td>
<td>700 mA</td>
</tr>
<tr>
<td>Pi B+</td>
<td>1.8 A</td>
</tr>
<tr>
<td>Pi 2 B</td>
<td>1.8 A</td>
</tr>
<tr>
<td>Pi 3 B</td>
<td>2.5 A</td>
</tr>
</tbody>
</table>

Generally, the more USB ports and interfaces you use on your Pi, the more power you are going to need - be careful.

We advise to look at buying a powered USB hub - this means less pressure on your Pi whilst still being able to incorporate all the features and functionality that you want to. When connecting any devices to your Pi, it is advisable to always check the power rating.

Batteries are not a recommended power supply for your Pi.

Note: The Official Raspberry Power Supply Unit for Pi 3 is not a general purpose power supply and must only be used for the Pi 3.
What is the user name and password for the Raspberry Pi?

The user name for Raspbian is pi
The password for Raspbian is raspberry

Operating Systems, Programming Languages & SD Cards

You will need an operating system to start using your Pi. An operating system is vital software that acts as a computer manager.

To download an operating system you will need an SD card between 8-32 GB. We have SD cards with New Out Of Box Software (NOOBS) pre-installed, so you don’t have to do all of the work. NOOBS helps you to set up your Pi and has six operating systems that you can download;

- Raspbian (recommended)
- Pidora
- OpenElec
- Windows 10 IoT
- RaspBMC
- RISC OS
- Arch Linux

Of course, you don’t have to use NOOBS. The Raspberry Pi Foundation regularly updates other available ‘distros’ in the downloads section of their website.

Python is the recommended programming language — particularly if you are new to programming or want to refresh your programming knowledge.

Scratch is a great interactive programming language for children who want to learn to code through creating games, stories and animations.

Other programming languages you can get on your Pi include C, C++, Java and Ruby.
What educational material/resources can I use?

There is so much information out there to support you with Raspberry Pi due to it’s collaborative nature.

**DESIGNSPARK**

Here at RS, we recommend DesignSpark, our own support gateway filled with blogs, forums, useful tools, product reviews and much more. You can also let us know how you get on with your projects.

Visit DesignSpark

We have a range of Raspberry Pi support books, written by Pi experts such as it’s co-founder Eben Upton and Carrie Philbin.

See our Range of Books

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**Other great Pi resources**

- Raspberry Pi Foundation
- MagPi - The official Pi magazine
- Piweekly - Newsletter you can subscribe to
- The Raspberry Pi Guy
- geekgurdiaries

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**Not answered your query?**

DesignSpark or The Raspberry Pi Foundation website may be able to help you further.

Visit DesignSpark | Visit The Raspberry Pi Foundation website