

Raspberry Pi

The Raspberry Pi is single-board computer [http://en.wikipedia.org/wiki/single-board_computer] without an Ethernet Network Switch. There are many more Single-board computers [http://en.wikipedia.org/wiki/Template:Single-board_computer] without one.

OpenWrt for Raspberry Pi is compiled with the ARM soft-float kernel ABI. This means that non-integer math is done in software instead of in hardware. Soft float (armel) is slower than hard float (armhf).

Supported Versions

The Raspberry Pi is supported in the **brcm2708** target. Releases with support for this target are:

Release Date	Version	Download
2014-10-02	14.07 Barrier Breaker	http://downloads.openwrt.org/barrier_breaker/14.07/brcm2708/generic/ [http://downloads.openwrt.org/barrier_breaker/14.07/brcm2708/generic/]
2013-04-25	12.09 Attitude Adjustment	http://downloads.openwrt.org/attitude_adjustment/12.09/brcm2708/generic/ [http://downloads.openwrt.org/attitude_adjustment/12.09/brcm2708/generic/]
2012-07-24	Trunk r32825 - Add support for Raspberry Pi / brcm2708 / 2835	https://dev.openwrt.org/changeset/32825 [https://dev.openwrt.org/changeset/32825]

If you are not sure which file to get, download **openwrt-brcm2708-sdcard-vfat-ext4.img**

Hardware Specifications

All Versions

System-on-Chip	CPU	Serial	JTag	Power Connector
Broadcom BCM2835	700 MHz ARM11 ARM1176JZF-S	via GPIO	via GPIO	MicroUSB A

Model Specific Differences

RPi Model	RAM	Network	USB	Memory Card	Video	Audio	Power Requirements	GPIO Pins
A	256 MB	None	1 USB port	SD Card	HDMI and Composite RCA	3.5mm Stereo	5V 300mA (see below)	8

RPi Model	RAM	Network	USB	Memory Card	Video	Audio	Power Requirements	GPIO Pins
B	256 or 512 MB	10M/100M Ethernet RJ45	2 USB ports	SD Card	HDMI and Composite RCA	3.5mm Stereo	5V 700mA (see below)	8
B+	512 MB	10M/100M Ethernet RJ45	4 USB ports	MicroSD	HDMI and shared TRSS 3.5mm	Shared TRSS 3.5mm	5V 600mA (see below)	17

Power Notes

The power figures quoted are the bare minimum to run the SoC with no peripherals. Most people find at least a solid 1A is required, especially if adding USB peripherals like keyboard, mouse, or wifi.

A popular power supply is the Apple 12W iPad charger, supplying 5V 2.4A. Similar high-powered mobile phone and tablet chargers should suffice. Using cheap power supplies off eBay is not recommended, as they provide a very uneven and noisy current which can lead to unreliable operation.

It is possible to back-power some Raspberry Pi models from the USB ports, however this is not recommended, as the power in from the USB ports is not protected against surges whereas the main power supply is protected.

It is also possible to supply the required power via the GPIO pins.

Serial

Serial is available via GPIO.

Pin 6	Pin 8	Pin 10
Ground	TX	RX

Connect via RS232 at 3.3 Volts (not older 12V). 115200 bps 8N1.

How to flash OpenWrt to an SD card

On a Linux desktop, insert your SD card and run:

```
dmesg
```

to see the latest kernel messages.

The most recent message should give you the SD card's device name, such as **sdb** or **sdf** or similar.

Download the relevant **openwrt-brcm2708-sdcard-vfat-ext4.img** image.

As the root user, use **dd** to copy the image file to the device you identified previously, for example:

```
dd if=/home/username/Downloads/openwrt-brcm2708-sdcard-vfat-ext4.img of=/dev/sdX bs=2M conv=fsync
```

Replace the **sdX** with your device name, such as **sdb** or **sdf**.

On a Windows desktop, use [Win32DiskImager](http://sourceforge.net/projects/win32diskimager/) [http://sourceforge.net/projects/win32diskimager/] to copy the img file to your SD card's drive letter.

There are many more complex guides around the internet to flashing images to SD cards,

Resources

- [Raspberry_Pi \[http://en.wikipedia.org/wiki/Raspberry_Pi\]](http://en.wikipedia.org/wiki/Raspberry_Pi) - Wikipedia
- [Raspberry Pi hub on eLinux Wiki \[http://elinux.org/RPi_Hub\]](http://elinux.org/RPi_Hub) is an excellent place to get started for all things Raspberry Pi
- [Raspbian \[http://en.wikipedia.org/wiki/Raspbian\]](http://en.wikipedia.org/wiki/Raspbian) is a Debian port containing only the few modifications to the Debian source required to compile for the Pi's ARMv6 instruction set
- [Element 14 - Raspberry Pi Single Board Computer \[http://www.element14.com/community/docs/DOC-42993\]](http://www.element14.com/community/docs/DOC-42993)
- [Element 14 - Raspberry Pi Model B Revision 2.0 \(512MB\) Changes \[http://www.element14.com/community/docs/DOC-50776/1/raspberry-pi-model-b-revision-20-512mb-changes\]](http://www.element14.com/community/docs/DOC-50776/1/raspberry-pi-model-b-revision-20-512mb-changes)
- <https://sites.google.com/site/variousopenwrt/rpi-patch/> [https://sites.google.com/site/variousopenwrt/rpi-patch/] - no longer required
- [Gemscool \[http://goo.gl/nDjB3F\]](http://goo.gl/nDjB3F) - Forum Raspberry_Pi
- <http://thread.gmane.org/gmane.comp.embedded.openwrt.devel/14815> [http://thread.gmane.org/gmane.comp.embedded.openwrt.devel/14815] - openwrt-devel post adding RPi support
- [recent state of Raspberry PI support \[https://forum.openwrt.org/viewtopic.php?pid=173937\]](https://forum.openwrt.org/viewtopic.php?pid=173937) - OpenWrt Forum thread
- [Apple Ipad \[http://goo.gl/PCsLr2\]](http://goo.gl/PCsLr2) - required raspberry apple
- [Benjamin Henrion: Raspberry Pi with Openwrt \[http://www.zoobab.com/raspberry-pi-openwrt\]](http://www.zoobab.com/raspberry-pi-openwrt) - shows Pi running, plus serial and JTag

Tags

[devboard](#), [FastEthernet](#), [no switch](#), [arm](#), [arm11](#), [armv6](#), [256ram](#), [512ram](#)