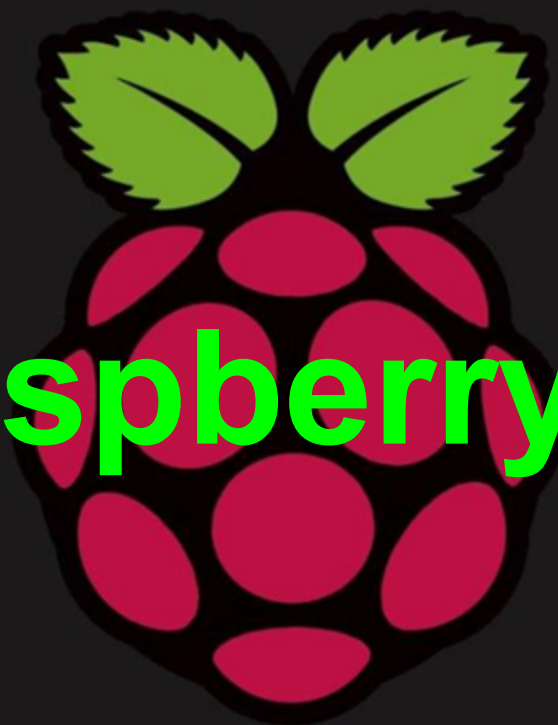


Raspberry Pi

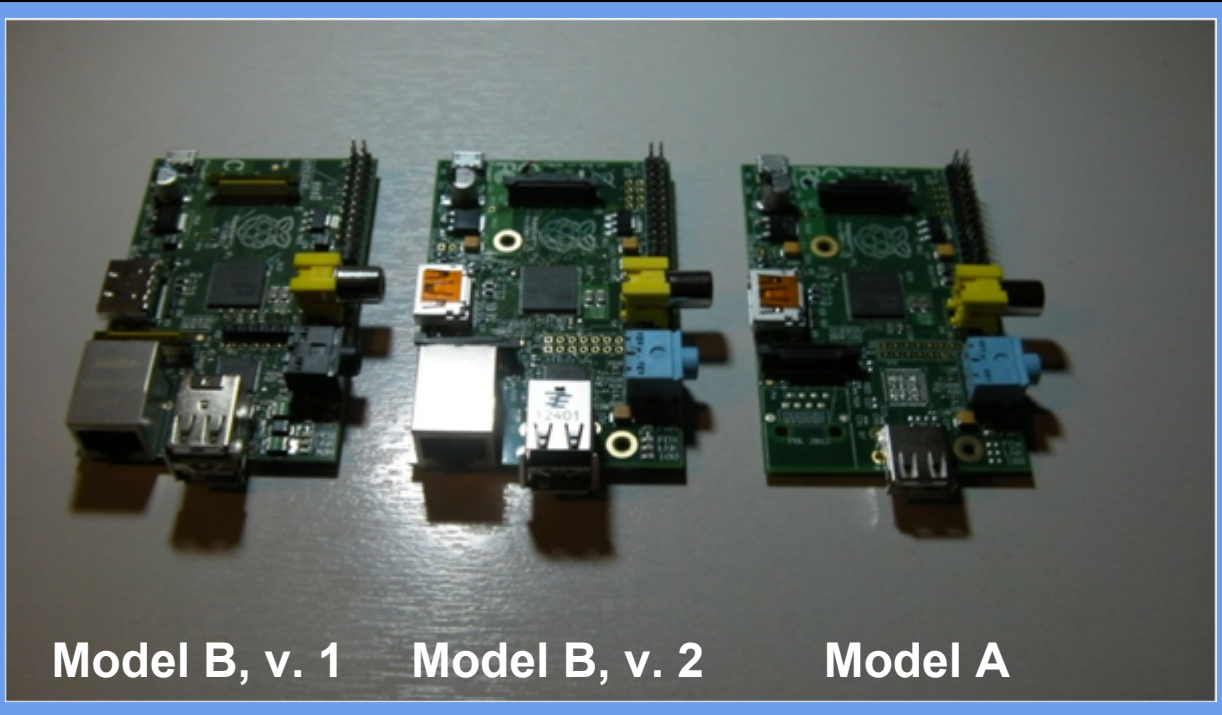


**This is not the Pi you're looking for.
Move along, move along...**



image source: wikipedia.org

The Raspberry Pi



What is it?

- Credit card size
- Developed in the UK
- System on a Chip (SOC)
- 512mb RAM
- 1080p Graphics with 5.1 surround audio
- VGA, 3.5mm stereo audio
- GPIO, Camera CSI adapter, ...

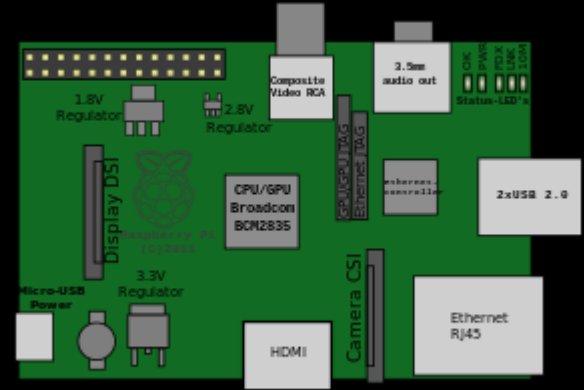


image source: wikipedia.org

Models

- Model B, ver 1
 - 256 mb, 2 USB, 1 NIC, HDMI, VGA, Audio
- Model B, ver 2
 - 512 mb, 2 USB, 1 NIC, HDMI, VGA, Audio
- Model A, ver 1
 - 512 mb, 1 USB, HDMI, VGA, Audio

Differences

- **Model B**

- Requires more power
- Three-port USB hub with a NIC using one port
- 700mA (3.5W), 5v DC

- **Model A**

- The USB port is connected directly to the SoC
- 300mA (1.5W), 5v DC

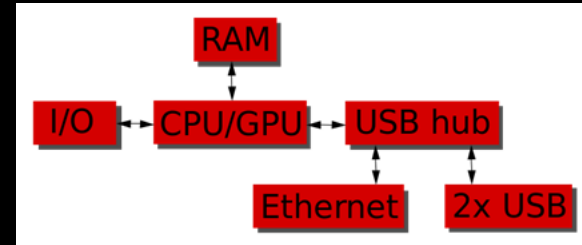


image source: wikipedia.org

source: wikipedia.org

Where can you get one?

- [Raspberrypi.org](https://www.raspberrypi.org)
 - \$35
 - Model B, version 2
 - [adafruit.com](https://www.adafruit.com), [mcmelectronics.com](https://www.mcmelectronics.com), [newark.com](https://www.newark.com)
 - And many other sites - cost may be higher

Popularity

- 10,000 units sold out in minutes on February 29, 2012
- 3,000,000 sold as of June 9, 2014

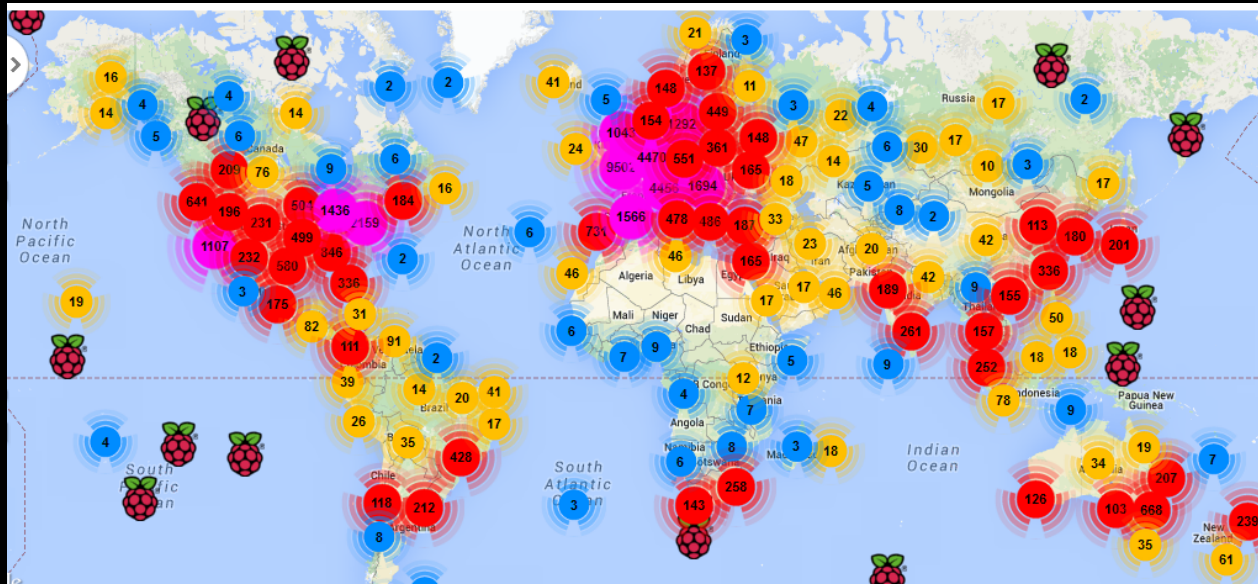


image source: rastrack.co.uk

Accessories

- Case
- Micro SD card and adapter
 - SDHC class 10 (fast is better)
- 5 volt 500mA - 1000mA power supply
 - Android-type phone charger
- Monitor and keyboard
- Wireless USB adapter
- Optional
 - Powered USB Hub, Raspberry Pi Camera, RCA Video cable, 3.5mm audio adapter, speakers

Cases

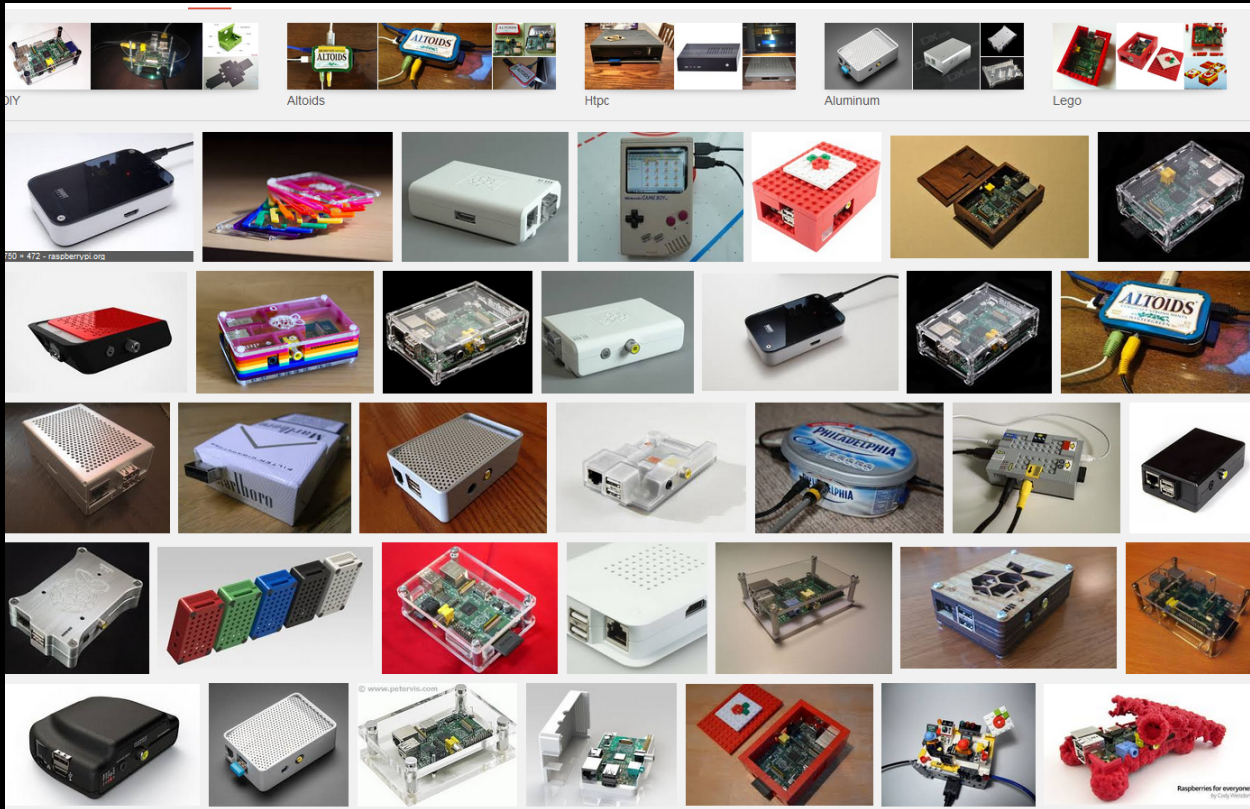


image source: google.com

Operating System

Linux



SD Card

- OS - Linux

NOOBS (New Out Of Box System)

- Raspbian (Debian)
- Arch Linux (Arch)
- Pidora (Fedora)
- OpenElec (XBMC)
- XBIAN (XBMC)
- RISC OS (not Linux)



image source: wikipedia.org

Software

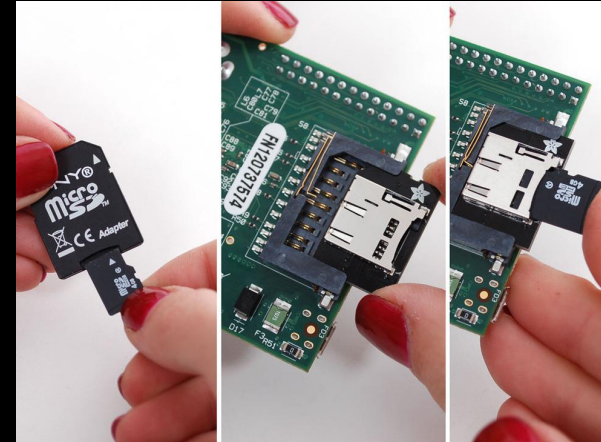
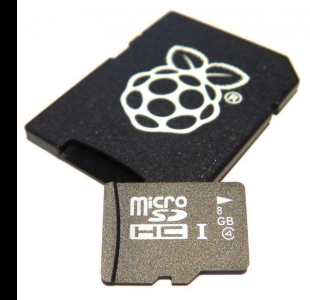
- Extensive repository of software
 - Rasbian
 - Arch Linux
 - Fedora
- Commercial software

These are free for the Raspberry Pi!!

- Wolfram Language & Mathematica
- Minecraft - game and development

Data Storage

- More space is better
- 4 GB, 8 GB, 16 GB, 32 GB, ...
- microSD recommended
 - Advantages
 - Half-size adapter



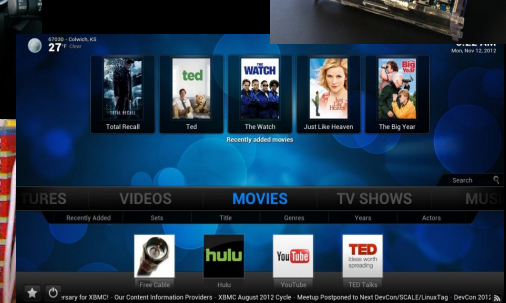
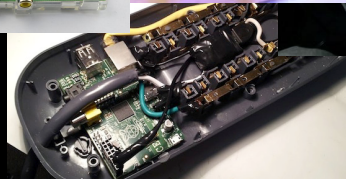
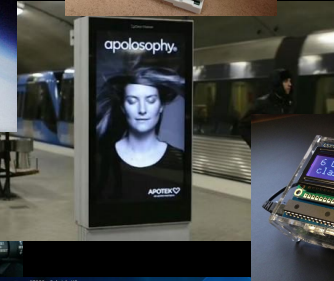
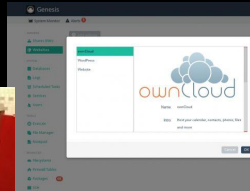
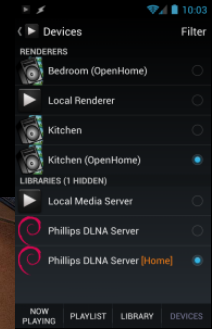
images source: adafruit.com

Wireless adapter (USB)

- Work out of the box?
 - Depends on use
 - Access point mode
 - Promiscuous mode
- Sources
 - adafruit.com, premierfarnell.com, mcmelectronics.com, newark.com

Some Uses...

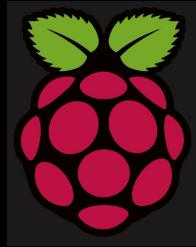
- ssh gateway, XBMC Media Center
- OwnCloud server, Music server and renderer
- Internet Radio streamer, Space Camera
- Security Camera, Home Automation
- Pet door with facial recognition
- Bullet Time Recorder
- Digital Signage
- Car Computer
- Car video server
- Network sniffer
- VoIP, VPN Gateway
- Robot, tablet
- Supercomputer
- Arcade emulator
- Tor node ...
- Console cable control



images source: google.com

Resources

- raspberrypi.org
- learn.adafruit.com/category/learn-raspberry-pi
- www.themagpi.com (a Free digital magazine)
- www.element14.com/community
- en.wikipedia.org/wiki/Raspberry_Pi



I use my 3 RPi's for ...

- As an ssh gateway secured with keys, passwordless login via TCP port 22 which is open to the world.
- Music mpd (music player daemon), Gmediarender for output from my phone or other source (Internet, my XBMC system) to my Stereo Receiver
- Demos, fake hotspot for research, wireless scanner, media renderer and video sharing, OpenElec XBMC, camera experimentation, minecraft, etc.

Computing Power

- The LINPACK single node compute benchmark results in a mean single precision performance of 0.065 GFLOPS and a mean double precision performance of 0.041 GFLOPS for one Raspberry Pi Ver. B board.
- A cluster of 64 Raspberry Pi Ver. B computers, labeled "Iridis-pi", achieved a LINPACK HPL suite result of 1.14 GFLOPS (n=10240) at 216 watts for c. US\$4,000.

source: wikipedia.org

Using the Raspberry Pi

Forum	Topics	Posts	Last post	When
Beginners	9473	56163	by rdarwish	Tue Jul 08, 2014 7:21 pm
Troubleshooting	9767	61109	by hidekiai	Tue Jul 08, 2014 7:18 pm
Advanced users	1572	11731	by itimpi	Tue Jul 08, 2014 5:57 pm

Education

Forum	Topics	Posts	Last post	When
The Staffroom Drop in for a chat and a cup of tea	518	6052	by Mach_5	Tue Jul 01, 2014 7:34 pm
Teaching and learning resources Share and discuss resources for use in the classroom	193	757	by NBizzell	Tue Jul 08, 2014 2:45 pm
Using Raspberry Pi in the classroom Classroom setup, good teaching practice and practical advice	21	123	by NBizzell	Tue Jul 08, 2014 2:52 pm
Picademy The Raspberry Pi Foundation's professional development course for teachers	32	172	by piglet	Tue Jul 08, 2014 4:50 pm
Mathematica Wolfram's computation application	32	180	by ejolson	Wed Jun 11, 2014 5:47 pm

Programming

Forum	Topics	Posts	Last post	When
Bare metal	587	5500	by srujan	Tue Jul 08, 2014 1:42 am
C/C++	1075	6512	by rastkob0x	Tue Jul 08, 2014 7:06 pm
Graphics programming	575	3705	by jhludwig	Tue Jul 08, 2014 4:40 pm
Java	332	1716	by ylindsay	Tue Jul 08, 2014 7:13 pm
Python	2706	16470	by AndrewS	Tue Jul 08, 2014 6:12 pm
Scratch	141	1423	by timrowledge	Fri Jun 27, 2014 8:59 pm
Wolfram Language	16	47	by ben_nuttall	Tue Jun 10, 2014 6:02 pm
Other languages	608	4398	by bt3rob	Tue Jul 08, 2014 7:18 pm
General programming discussion General programming chat and advice for beginners	1051	6150	by mikronauts	Tue Jul 08, 2014 4:49 pm

Projects

Forum	Topics	Posts	Last post	When
Automation, sensing and robotics	2708	21024	by BearBear	Tue Jul 08, 2014 7:10 pm
Cases	977	7590	by MyMiniFactory	Tue Jul 08, 2014 11:14 am
Gaming	1339	14726	by ric_rpi	Tue Jul 08, 2014 6:13 pm
Graphics, sound and multimedia	1532	9073	by Ruuzis	Tue Jul 08, 2014 6:37 pm
Magazines and books	77	892	by williamhbell	Mon Jun 09, 2014 11:54 pm
Media centres	1732	16305	by ame	Tue Jul 08, 2014 11:13 am
Networking and servers	2394	14525	by Gergmchainy	Tue Jul 08, 2014 6:28 pm
Other projects	3256	27648	by paulcaseyjr	Tue Jul 08, 2014 6:17 pm

Hardware and peripherals

Forum	Topics	Posts	Last post	When
Camera board	1394	15275	by gagle	Tue Jul 08, 2014 7:05 pm
Compute Module	68	722	by rotwang	Tue Jul 08, 2014 5:36 pm
Interfacing (DSI, CSI, I2C, etc.)	1801	14523	by Burngate	Tue Jul 08, 2014 5:50 pm
Gertboard classic	305	3219	by panik	Sat Jul 05, 2014 3:00 am
GertDuino	49	439	by MDDude	Fri May 30, 2014 7:51 pm
Add-ons	728	4848	by RaTTuS	Tue Jul 08, 2014 2:32 pm
Recommended peripherals	876	4467	by rotwang	Tue Jul 08, 2014 6:06 pm