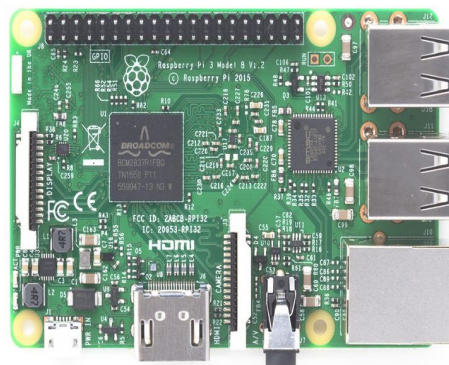


Raspberry Pi 3

The Raspberry Pi 3 is also getting a speed bump, with its processor jumping up to 64-bit, quad-core 1.2GHz ARM Cortex-A53, up from a 900MHz, 32-bit processor. Its RAM remains at 1GB. Still, it's supposed to make the Pi 3 around 50 percent faster than its predecessor. And Upton believes that jump is enough to make people begin seeing Pi as a full PC.

The Raspberry Pi 3 adds Wi-Fi, Bluetooth,

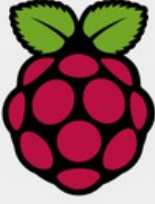
The Raspberry Pi 3 Model B features a quad-core 64-bit ARM Cortex A53 clocked at 1.2 GHz. This puts the Pi 3 roughly 50% faster than the Pi 2. Compared to the Pi 2, the RAM remains the same – 1GB of LPDDR2-900 SDRAM, and the graphics capabilities, provided by the Video Core IV GPU, are the same as they ever were. As the leaked FCC docs will tell you, the Pi 3 now includes on-board 802.11n WiFi and Bluetooth 4.0. WiFi, wireless keyboards, and wireless mice now work out of the box.



The headlining feature of the Pi 3 is the built-in WiFi and Bluetooth, but it doesn't stop there. Here's the complete spec for the Pi 3:

- SoC: Broadcom BCM2837 (roughly 50% faster than the Pi 2)

- CPU: 1.2 GHZ quad-core ARM Cortex A53 (ARMv8 Instruction Set)
- GPU: Broadcom VideoCore IV @ 400 MHz
- Memory: 1 GB LPDDR2-900 SDRAM
- USB ports: 4
- Network: 10/100 MBPS Ethernet, 802.11n Wireless LAN, Bluetooth 4.0

	Raspberry Pi 3 Model B	Raspberry Pi Zero	Raspberry Pi 2 Model B	Raspberry Pi Model B+
Introduction Date	2/29/2016	11/25/2015	2/2/2015	7/14/2014
SoC	BCM2837	BCM2835	BCM2836	BCM2835
CPU	Quad Cortex A53 @ 1.2GHz	ARM11 @ 1GHz	Quad Cortex A7 @ 900MHz	ARM11 @ 700MHz
Instruction set	ARMv8-A	ARMv6	ARMv7-A	ARMv6
GPU	400MHz VideoCore IV	250MHz VideoCore IV	250MHz VideoCore IV	250MHz VideoCore IV
RAM	1GB SDRAM	512 MB SDRAM	1GB SDRAM	512MB SDRAM
Storage	micro-SD	micro-SD	micro-SD	micro-SD
Ethernet	10/100	none	10/100	10/100
Wireless	802.11n / Bluetooth 4.0	none	none	none
Video Output	HDMI / Composite	HDMI / Composite	HDMI / Composite	HDMI / Composite
Audio Output	HDMI / Headphone	HDMI	HDMI / Headphone	HDMI / Headphone
GPIO	40	40	40	40
Price	\$35	\$5	\$35	\$35

The Pi 3 is exactly what you would expect from the latest Raspberry Pi. No, it doesn't have SATA or USB C or a PCIe connector. The goal of the Raspberry Pi Foundation has always been to produce an inexpensive computer for everyone, and adding these ports would only drive up the price. Instead of pleasing the power users, the Pi Foundation has done their best to please anyone. Like the Raspberry Pi 2 from late last year, the Raspberry Pi 3 features a new CPU, a Broadcom BCM2837 quad-core 64-bit ARM Cortex A53 running at 1.2 GHz.

While the most newsworthy pre-launch leak surrounding the Raspberry Pi 3 is the added wireless functionality, the big news is the upgraded CPU. With the Cortex A53, the Pi 3 has passed through a threshold. The Raspberry Pi isn't just a board that is used to play retro video games in emulators anymore, and it's no longer confined to duty as a set-top box. The Pi 3 is a real computer.

Processing power from a 1.2 GHz 64-bit quad-core ARM Cortex-A53 CPU. This has approximately the power of 10 Raspberry Pi 1s.

- Bluetooth 4.1 and 802.11n wireless LAN, both of which are integrated.
- Total compatibility with Raspberry Pi 1 and 2.

As a reminder, the Raspberry 2 came with four USB ports, a full HDMI port, 40 GPIO pins, an Ethernet port, camera interface, display interface, microSD card slot, VideoCore IV 3D graphics core and a 3.5 mm audio jack with composite video.

CPU Comparison

The Raspberry Pi 3's new Broadcom SoC, dubbed BCM2837, has the identical basic architecture as its previous models, BCM2835 and BCM2836. This means that tutorials and projects that need the exact details of the Raspberry Pi hardware will keep working.

Raspberry Pi 2 Model B sported a 32-bit quad-core ARM Cortex-A7 CPU complex clocked at 900MHz. With its 33 percent upgrade in clock speed and architectural improvements, the Raspberry Pi 3 is 50 to 60 percent more powerful in 32-bit mode when compared to its predecessor.

Form Factor, Design And Connectivity

More than half a year was spent to help the new BCM2837 SoC play well with the BCM43438 wireless "combo" chip. The Raspberry 3 maintains almost the same form-factor as the Raspberry Pi 1 Model B+ and the Raspberry Pi 2 Model B. The single noticeable modification is the location of the LEDs, which were repositioned in the opposite side of the SD card socket so that the antenna could fit.

The built-in Bluetooth and wireless LAN will offer the customers of Raspberry Pi 3 with access to more USB ports.

Power

Every connector kept its place and functionality from the Raspberry Pi 2 Model B. What is more, the board still supports a 5V micro-USB power adapter. The company recommends using a 2.5A adapter, should you plan to connect your Raspberry Pi 3 to power-hungry USB gadgets.

Software

For Raspberry Pi 3 to work properly, a recent NOOBS or Raspbian image from its [download page](#) is required. An improved version of 32-bit Raspbian will be delivered soon, and the company says that it looks into delivering a 64-bit variant, as well.

History

The initial Raspberry Pi Model B was a 256 MB microcomputer, and it took the world by surprise with its features. Its configuration convinced more than 5 million customers to purchase it. When the company [launched](#) the Raspberry Pi 2, another 3 million units sold like hot cakes. This literally makes Raspberry Pi the most sold computer from the UK.

The [Raspberry Pi 3](#) is here! Hopefully some of you were still surprised by the announcement today. Over the past four years, the Raspberry Pi has sold eight million units – three million in the last year alone – and now on its fourth birthday a brand new upgraded Pi has been released. You can read absolutely everything you'd want to know about it in issue 43 of the magazine coming out on Thursday but for now we thought we'd give you the hard facts about this brand new Raspberry Pi.

And yes, it has wireless internet.

Specifications

SoC: Broadcom BCM2837

CPU: 4× ARM Cortex-A53, 1.2GHz

GPU: Broadcom VideoCore IV

RAM: 1GB LPDDR2 (900 MHz)

Networking: 10/100 Ethernet, 2.4GHz 802.11n wireless

Bluetooth: Bluetooth 4.1 Classic, Bluetooth Low Energy

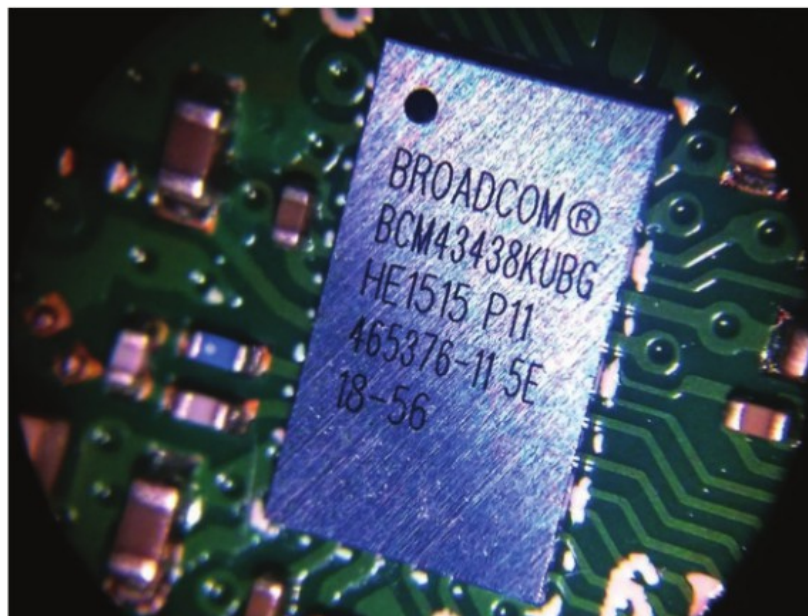
Storage: microSD

GPIO: 40-pin header, populated

Ports: HDMI, 3.5mm analogue audio-video jack, 4× USB 2.0, Ethernet, Camera Serial Interface (CSI), Display Serial Interface (DSI)

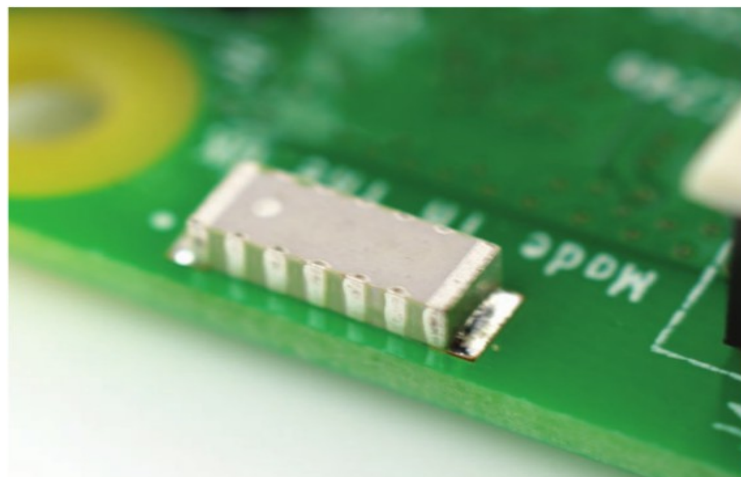
Wireless radio

So small, its markings can only be properly seen through a microscope or magnifying glass, the Broadcom BCM43438 chip provides 2.4GHz 802.11n wireless LAN, Bluetooth Low Energy, and Bluetooth 4.1 Classic radio support. Cleverly built directly onto the board to keep costs down, rather than the more common fully qualified module approach, its only unused feature is a disconnected FM radio receiver.



Antenna

There's no need to connect an external antenna to the Raspberry Pi 3. Its radios are connected to this chip antenna soldered directly to the board, in order to keep the size of the device to a minimum. Despite its diminutive stature, this antenna should be more than capable of picking up wireless LAN and Bluetooth signals – even through walls.



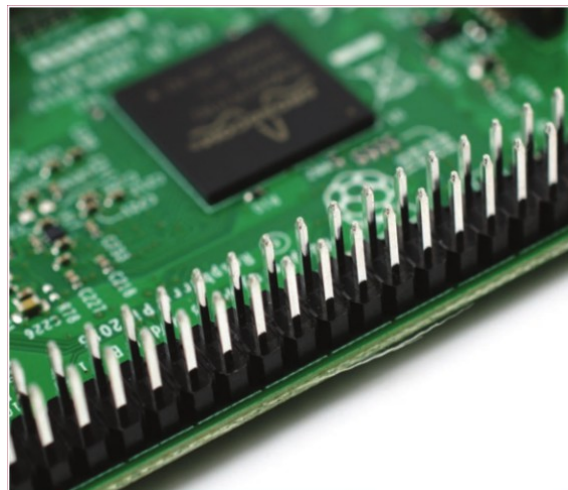
SoC

Built specifically for the new Pi 3, the Broadcom BCM2837 system-on-chip (SoC) includes four high-performance ARM Cortex-A53 processing cores running at 1.2GHz with 32kB Level 1 and 512kB Level 2 cache memory, a VideoCore IV graphics processor, and is linked to a 1GB LPDDR2 memory module on the rear of the board.



GPIO

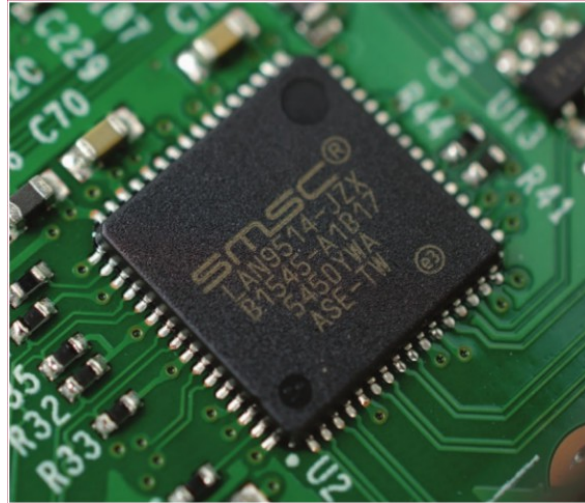
The Raspberry Pi 3 features the same 40-pin general-purpose input-output (GPIO) header as all the Pis going back to the Model B+ and Model A+. Any existing GPIO hardware will work without modification; the only change is a switch to which UART is exposed on the GPIO's pins, but that's handled internally by the operating system.



USB chip

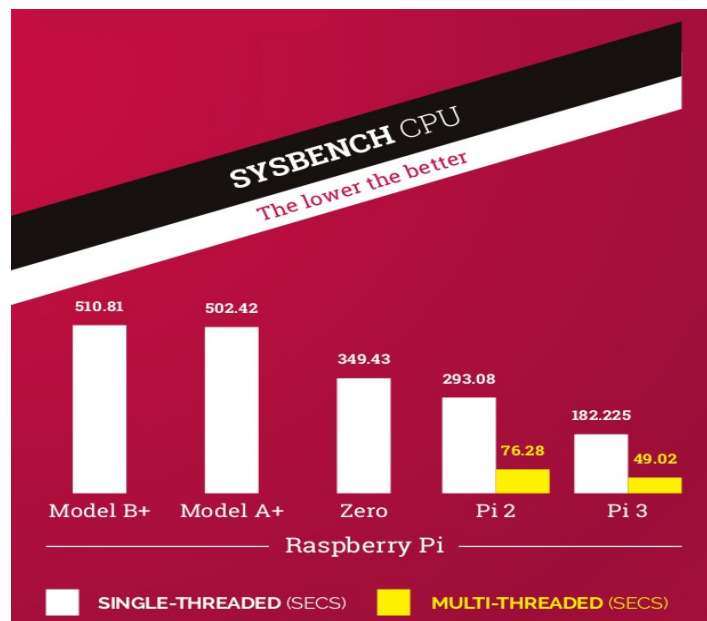
The Raspberry Pi 3 shares the same SMSC LAN9514 chip as its predecessor, the Raspberry Pi 2, adding 10/100 Ethernet connectivity and four USB channels to the board. As before, the

SMSC chip connects to the SoC via a single USB channel, acting as a USB-to-Ethernet adaptor and USB hub.

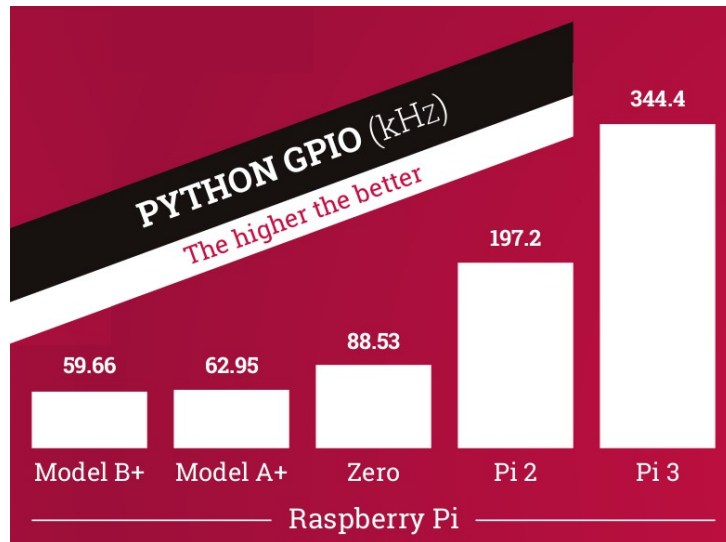


Benchmarks

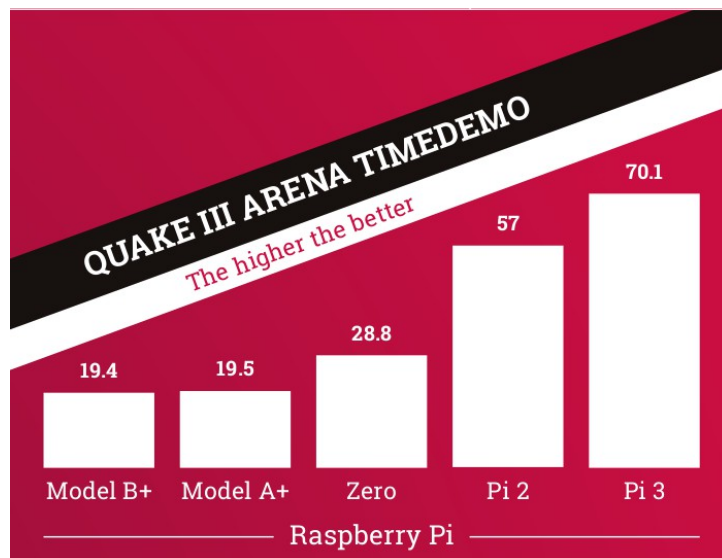
Want to know just how much faster the new Raspberry Pi 3 is? See it pitted against its siblings in our benchmark series.



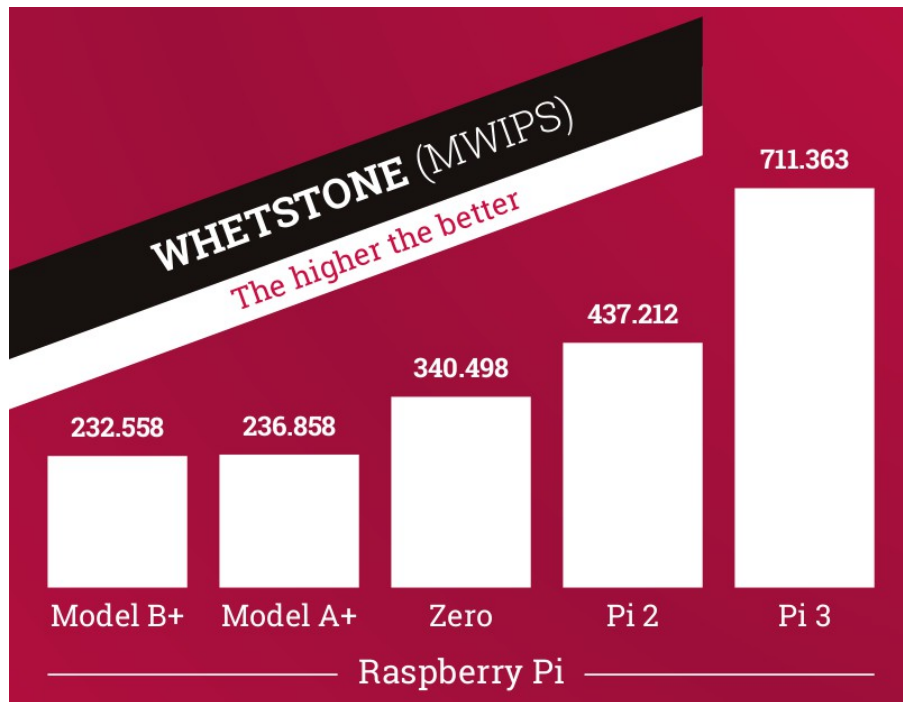
Offering support for multi-threaded operation – taking advantage of the four processing cores on the Pi 2 and Pi 3 – SysBench reveals just how far we've come since the original Raspberry Pi design. While single-threaded performance has improved greatly, the biggest gains go to multi-threaded programs.



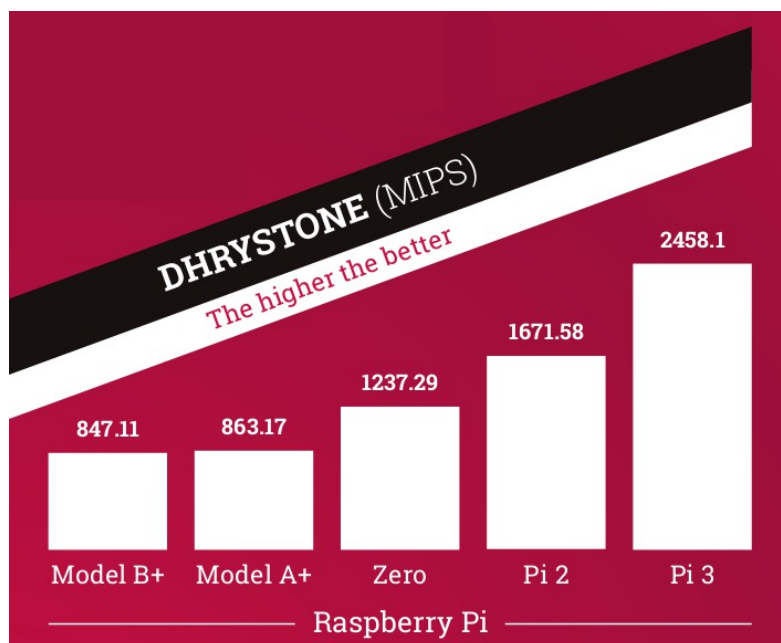
The Raspberry Pi's GPIO pins are most commonly used with Python, but this leads to a CPU bottleneck. In this test, a simple RPi.GPIO program toggles a pin as rapidly as possible while a frequency counter measures how quickly it actually switches.



The classic twitch shooter from industry pioneer id Software, Quake III Arena is heavily tied to the CPU performance of the Pi. The standard 'timedemo' was run at 1280×1024, high geometric, maximum texture detail, 32-bit texture quality, and trilinear filtering to obtain these results.

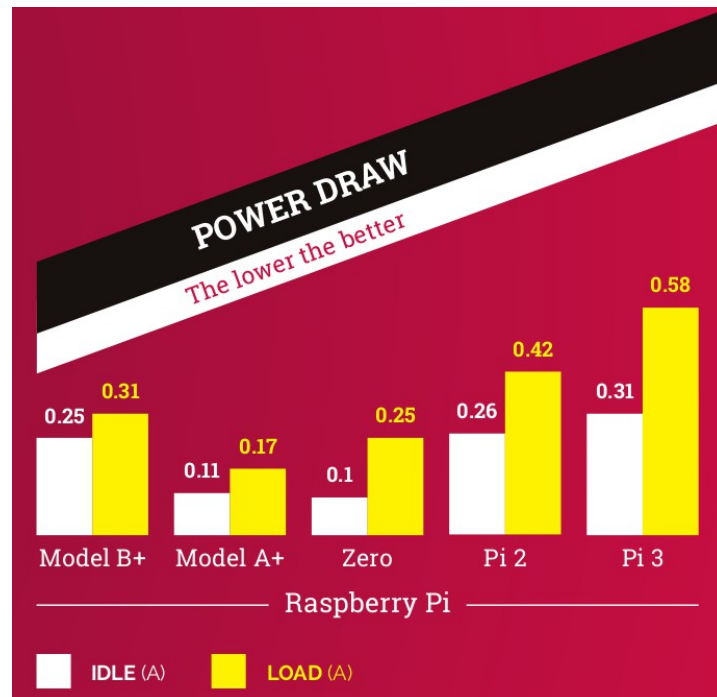


Developed by B.A. Wichman in the 1970s as a means of measuring a computer's speed, the Whetstone benchmark concentrates on floating-point performance. Despite its age, the benchmark offers a good insight into the peak floating-point performance of a processor.



Where Whetstone measures floating-point performance, Dhrystone was developed in the 1980s by Reinhold P Weicker to measure integer – or whole-number – performance. As with

its floating-point equivalent, Dhrystone is still a useful synthetic benchmark for comparing different chips.



You can't get extra performance without a few sacrifices. The Pi 3 draws the most power of the test group, but its extra performance means it spends more time at idle. Those looking for maximum battery life should look at the Model A+ or the Pi Zero as an alternative.



Excited by all this and the possibilities of the Raspberry Pi 3? Want to get one right now? Subscribers to the print version of The MagPi can jump the queue at The Pi Hut to get priority handling on your orders. The good news is, if you're already a print subscriber, you should be getting an email about it right now. The better news is, if you [subscribe to The MagPi](#) before Sunday 13 March 2016 you too can get a code to jump the queue. [Subscribe today](#), jump the queue and never miss another issue.

Find out more about the Raspberry Pi 3 on the [Raspberry Pi website](#), including other places you can try to buy it from.

About Raspberry Pi 3:

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- * Memory: 1 GB LPDDR2-900 SDRAM
- * USB ports: 4
- * Network: 10/100 MBPS Ethernet, 802.11n Wireless LAN, Bluetooth 4.0

Topics Covered

- * Introduction to OS installation on RPi and Updating RPi.
- * Introduction Open Source Physical Computing.
- * Introduction to SSH, Remote Control with VNC.
- * Introduction to Python Programming.
- * Programming Pi with Python.
- * I/O, LCD, and Relay Programming.
- * Camera Interface, Capturing Images through Pi camera.
- * Interfacing UART, RFID, GPS, GSM
- * Mini Project.

Resource Persons:

Mr. Vishwanath T
CEO, V V Technologies, Tumkur
Mr. Kumarswamy
Manager, V V Technologies, Tumkur
Mr. Chetan K Jadhav
Senior Engineer, V V Technologies, Tumkur

Important Dates:

Last Date for Registration July 15th 2016

Registration Fees:

- * Faculties from academics institution -2500/-
- * PG Students -1500/-
- * Participants from industry-3000/-

Registration Procedure:

Registration fee payment should be done through online, in favour of

A/C Name: Principal DBIT Seminar Account

A/C No: 263701000121

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After making the payment, save the transaction details. Download the registration form and schedule details from

www.donboscobangalore.education

The filled registration form should be mailed back to teleconnect.2013@gmail.com with appropriate details.

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Note:

- Registration fee includes breakfast and lunch on FDP conduction dates.
- Limited Entry, Entries are limited to 50 seats on the first come first serve basis.
- Participants can also purchase Raspberry Pi 3 Kits on the additional payment of Rs. 3000/-

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About DBIT:

Don Bosco Institute of Technology was established in the year 2001. The Campus is situated in a sprawling 36 Acres of land adjacent to Bengaluru - Mysuru state Highway and is 18 km from the heart of Bengaluru city. The Institution offers State of the art Technical and Management Education.

The UG programmes offered:

1. Computer Science & Engineering
2. Information Science & Engineering
3. Mechanical Engineering
4. Electronics & Communication Engineering
5. Electrical & Electronics Engineering
6. Telecommunication Engineering
7. Civil Engineering.

The PG programmes offered:

1. VLSI Design & Embedded Systems
2. Digital Electronics
3. Computer Science & Engineering
4. Computer Network Engineering
5. Power Systems Engineering
6. Design Engineering
7. Masters in Business Administration.

About Department of TCE:

Department of Telecommunication Engineering was started in the year 2009 with an intake of 60. Presently UG program is being run with well experienced dedicated faculty drawn from Academics and Industry.

About Department of EEE:

Department of Electrical & Electronics Engineering was started in the year 2003 with an intake of 60. Presently UG & PG programs are being run by well experienced faculties. Department has a PG program in Power System Engineering. The department is accredited by NBA in the year 2015.

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IN ASSOCIATION WITH V V TECHNOLOGIES

DATE: 18TH TO 22ND, JULY 2016
VENUE: ISE LAB1, DBIT, BENGALURU -74.



DON BOSCO
INSTITUTE OF TECHNOLOGY

Faculty Development Programme
on
Raspberry Pi 3

18th to 22nd July, 2016



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AND
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