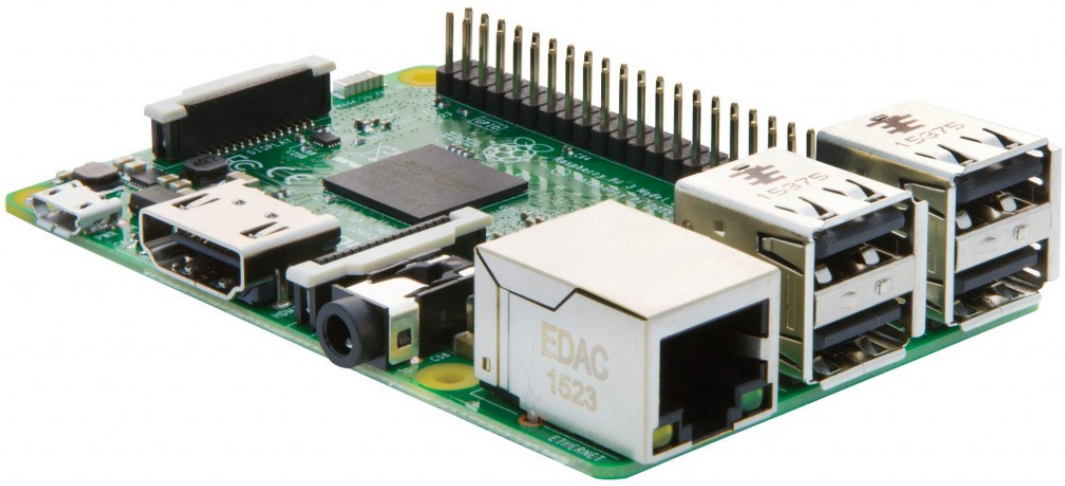
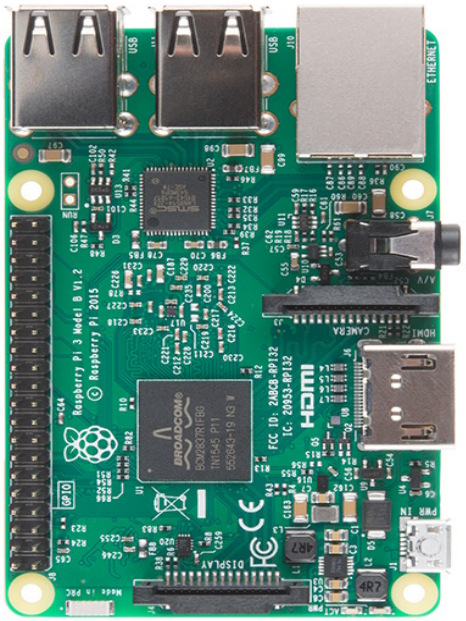
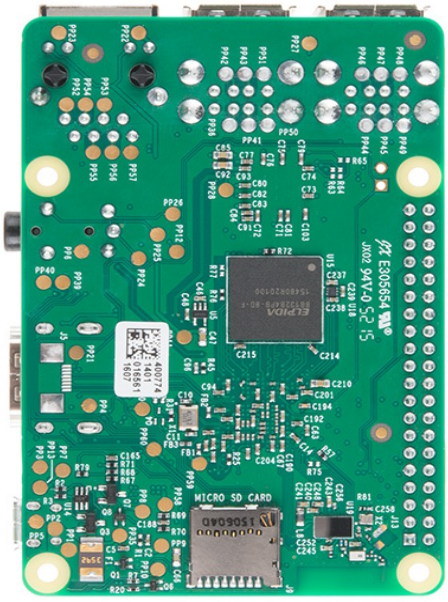
# RASPBERRY PI 3 MODEL B





Product Name: RASPBERRYPI3-MODB-1GB

# Technical Specification:

**Processor**

- Broadcom BCM2387 chipset.
- 1.2GHz Quad-Core ARM Cortex-A53 (64Bit)

**802.11 b/g/n Wireless LAN and Bluetooth 4.1 (Bluetooth Classic and LE)**

- IEEE 802.11 b / g / n Wi-Fi. Protocol: WEP, WPA WPA2, algorithms AES-CCMP (maximum key length of 256 bits), the maximum range of 100 meters.
- IEEE 802.15 Bluetooth, symmetric encryption algorithm Advanced Encryption Standard (AES) with 128-bit key, the maximum range of 50 meters.

**GPU**

- Dual Core Video Core IV® Multimedia Co-Processor. Provides Open GL ES 2.0, hardware-accelerated Open VG, and 1080p30 H.264 high-profile decode.
- Capable of 1Gpixel/s, 1.5Gtexel/s or 24GFLOPs with texture filtering and DMA infrastructure

**Memory**

- 1GB LPDDR2

**Operating System**

- Boots from Micro SD card, running a version of the Linux operating system or Windows 10 IoT

**Dimensions**

- 85 x 56 x 17mm

**Power**

- Micro USB socket 5V1, 2.5A

**Connectors:**

**Ethernet**

- 10/100 BaseT Ethernet socket

**Video Output**

- HDMI (rev 1.3 & 1.4)
- Composite RCA (PAL and NTSC)

**Audio Output**

- Audio Output 3.5mm jack
- HDMI
- USB 4 x USB 2.0 Connector

**GPIO Connector**

- 40-pin 2.54 mm (100 mil) expansion header: 2x20 strip
- Providing 27 GPIO pins as well as +3.3 V, +5 V and GND supply lines

**Camera Connector**

- 15-pin MIPI Camera Serial Interface (CSI-2)

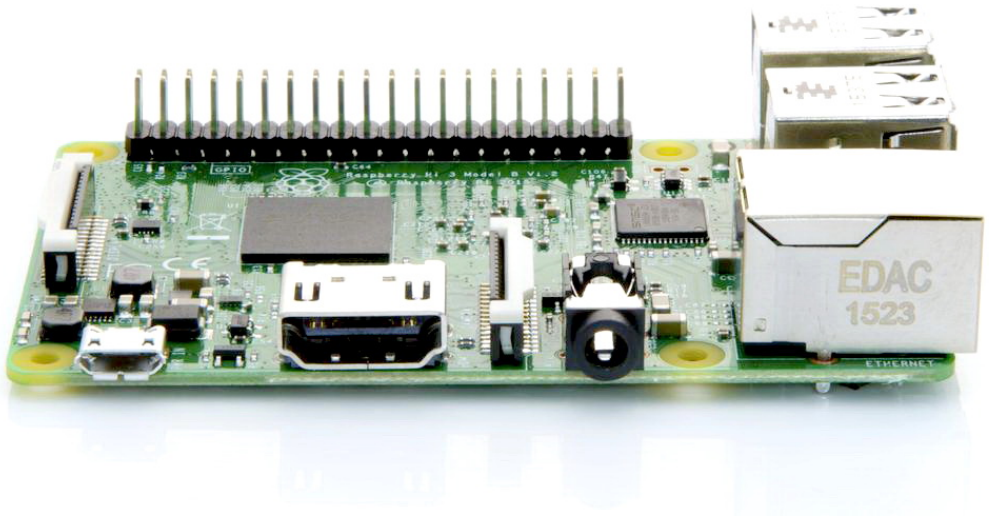
**Display Connector**

- Display Serial Interface (DSI) 15 way flat flex cable connector with two data lanes and a clock lane

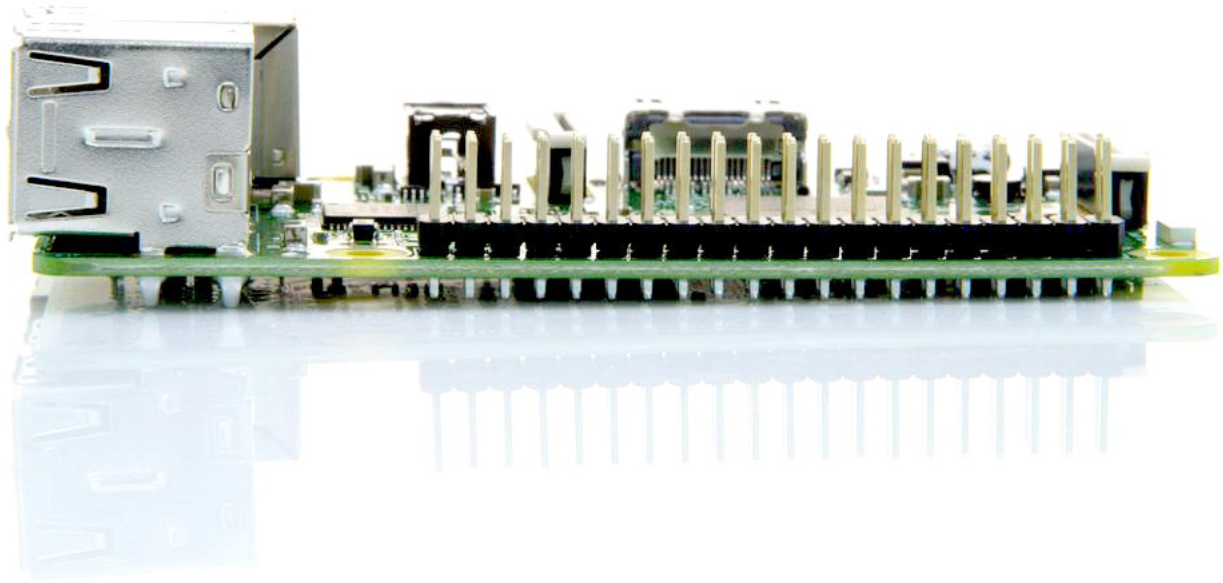
**Memory Card Slot**

- Push/pull Micro SDIO

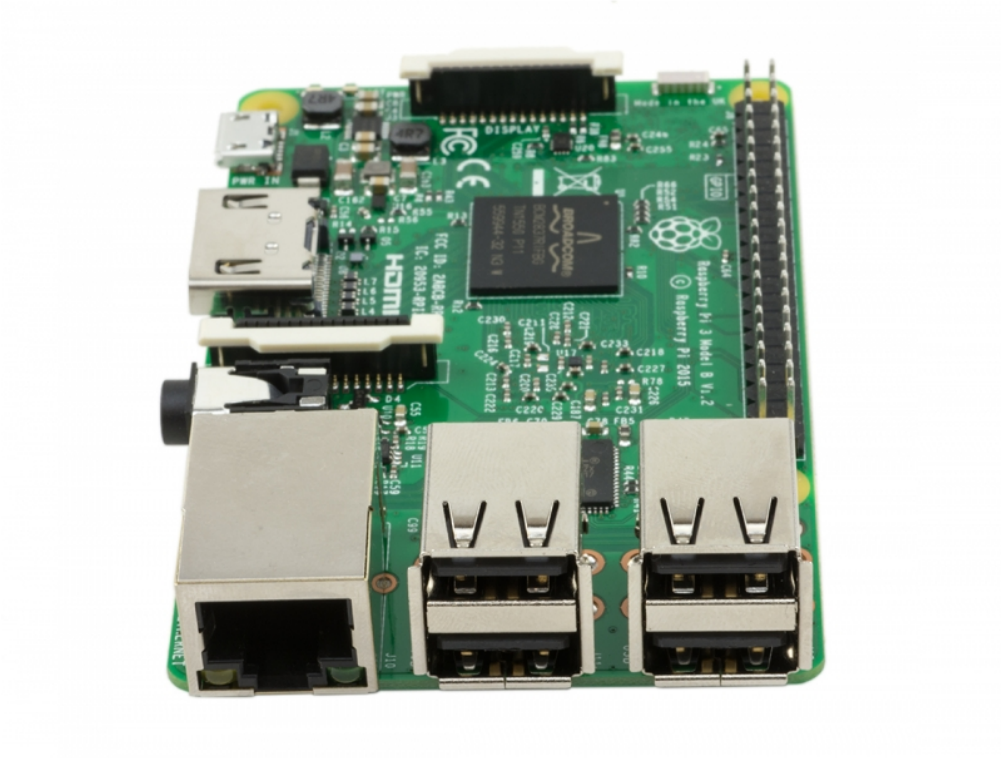
The GPU provides Open GL ES 2.0, hardware-accelerated Open VG, and 1080p30 H.264 high-profile decode and is capable of 1Gpixel/s, 1.5Gtexel/s or 24 GFLOPs of general purpose compute. What's that all mean? It means that if you plug the Raspberry Pi 3 into your HDTV, you could watch BluRay quality video, using H.264 at 40MBits/s




The biggest change that has been enacted with the Raspberry Pi 3 is an upgrade to a next generation main processor and improved connectivity with Bluetooth Low Energy (BLE) and BCM43143 Wi-Fi on board. Additionally, the Raspberry Pi 3 has improved power management, with an upgraded switched power source up to 2.5 Amps, to support more powerful external USB devices.



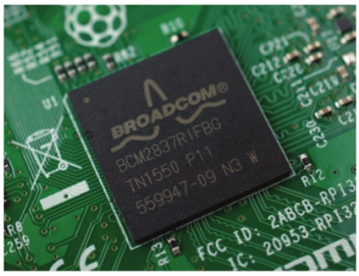
The Raspberry Pi 3's four built-in USB ports provide enough connectivity for a mouse, keyboard, or anything else that you feel the RPi needs, but if you want to add even more you can still use a USB hub. Keep in mind, it is recommended that you use a powered hub so as not to overtax the on-board voltage regulator. Powering the Raspberry Pi 3 is easy, just plug any USB power supply into the micro-USB port. There's no power button so the Pi will begin to boot as soon as power is applied, to turn it off simply remove power. The four built-in USB ports can even output up to 1.2A enabling you to connect more power hungry USB devices (This does require a 2Amp micro USB Power Supply)



On top of all that, the low-level peripherals on the Pi make it great for hardware hacking. The 0.1" spaced 40-pin GPIO header on the Pi gives you access to 27 GPIO, UART, $I^2C$, SPI as well as 3.3 and 5V sources. Each pin on the GPIO header is identical to its predecessor the Model B+.

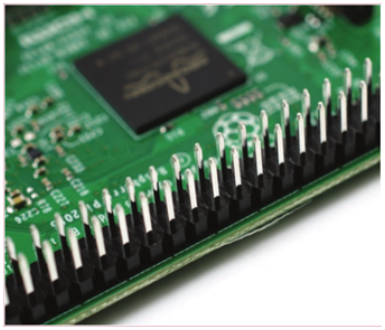
## SoC

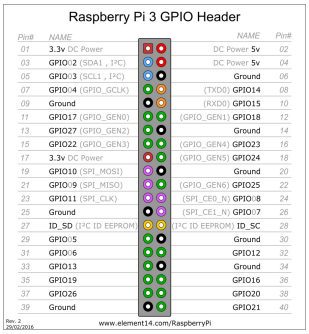
Built specifically for the new Pi 3, the Broadcom BCM2837 system-on-chip (SoC) includes four high-performance ARM Cortex-A53 processing cores running at 1.2GHz with 32kB Level 1 and 512kB Level 2 cache memory, a VideoCore IV graphics processor, and is linked to a 1GB LPDDR2 memory module on the rear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




## GPIO

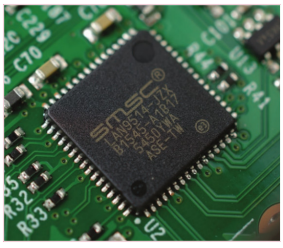
The Raspberry Pi 3 features the same 40-pin general-purpose input-output (GPIO) header as all the Pis going back to the Model B+ and Model A+. Any existing GPIO hardware will work without modification; the only change is a switch to which UART is exposed on the GPIO's pins, but that's handled internally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





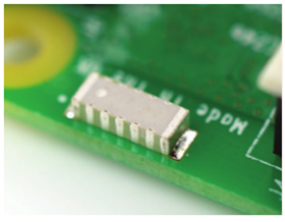

## USB chip

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.




## 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.



# Raspberry Pi 3 Model B

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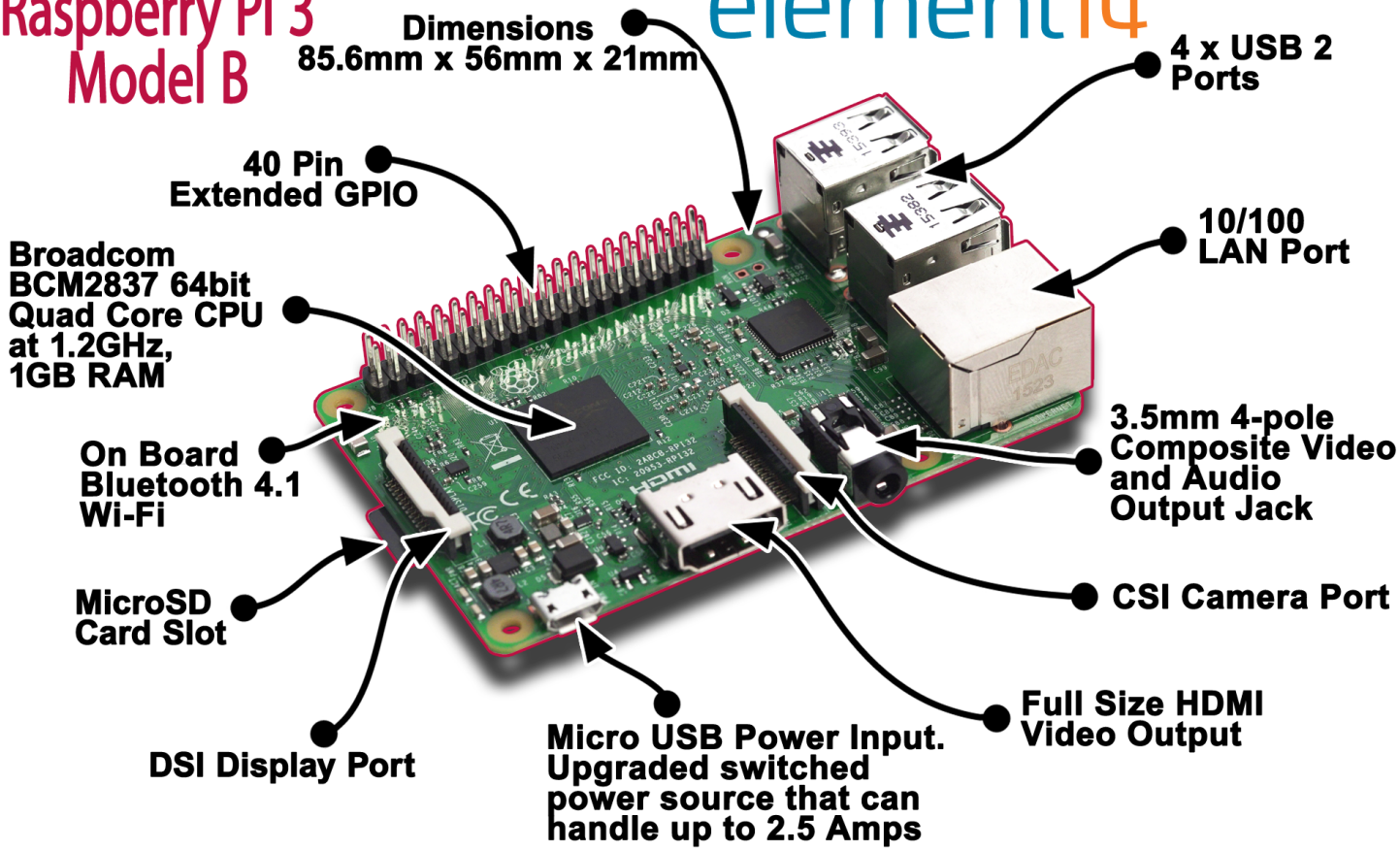


## Key Improvements from Pi 2 Model B to Pi 3 Model B:

- Next Generation QUAD Core Broadcom BCM2837 64bit ARMv7 processor
- Processor speed has increased from 900MHz on Pi 2 to 1.25Ghz on the RPi 3 Model B
- BCM43143 Wi-Fi on board
- Bluetooth Low Energy (BLE) on board
- Upgraded switched power source up to 2.5 Amps (can now power even more powerful devices over USB ports)

The main differences are the quad core 64-bit CPU and on-board Wi-Fi and Bluetooth. The RAM remains 1GB and there is no change to the USB or Ethernet ports. However, the upgraded power management should mean the Pi 3 can make use of more power hungry USB devices

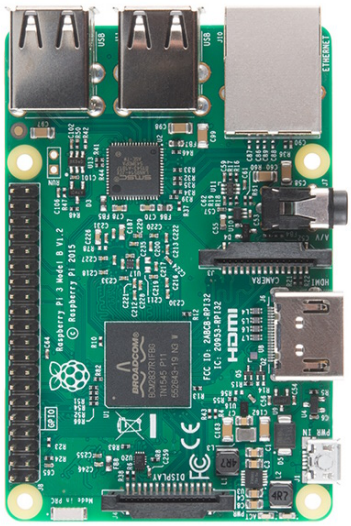
For Raspberry Pi 3, Broadcom have supported us with a new SoC, BCM2837. This retains the same basic architecture as its predecessors BCM2835 and BCM2836, so all those projects and tutorials which rely on the precise details of the Raspberry Pi hardware will continue to work. The 900MHz 32-bit quad-core ARM Cortex-A7 CPU complex has been replaced by a custom-hardened 1.2GHz 64-bit quad-core ARM Cortex-A53

In terms of size it is identical to the B+ and Pi 2. All the connectors and mounting holes are in the same place so all existing add-ons, HATs and cases should fit just fine although the power and activity LEDs have moved to make room for the WiFi antenna.

The performance of the Pi 3 is roughly 50-60% faster than the Pi 2 which means it is ten times faster than the original Pi.

All of the connectors are in the same place and have the same functionality, and the board can still be run from a 5V micro-USB power adapter. This time round, we're recommending a 2.5A adapter if you want to connect power-hungry USB devices to the Raspberry Pi.

Raspberry Pi 3 Model B



Raspberry Pi 2 Model B

| | **Raspberry Pi 3 Model B** | **Raspberry Pi 2 Model B** | **Model B+** | **Model A+** | **Model A** | **CMDK** |
|---|---|---|---|---|---|---|
| **Processor Chipset** | Broadcom BCM2837 64Bit ARMv7 Quad Core Processor powered Single Board Computer running at 1250MHz | Broadcom BCM2836 32bit ARMv7 Quad Core Processor powered Single Board Computer running at 900MHz | Broadcom BCM2835 32bit ARMv6 SoC full HD multimedia applications processor | Broadcom BCM2835 32bit ARMv6 SoC full HD multimedia applications processor | Broadcom BCM2835 32bit ARMv6 SoC full HD multimedia applications processor | Broadcom BCM2835 32bit ARMv6 SoC full HD multimedia applications processor |
| **GPU** | Videocore IV | Videocore IV | Videocore IV | Videocore IV | Videocore IV | Videocore IV |
| **Processor Speed** | QUAD Core @1250 MHz | QUAD Core @900 MHz | Single Core @700 MHz | Single Core @700 MHz | Single Core @700 MHz | Single Core @700 MHz |
| **RAM** | 1GB SDRAM @ 400 MHz | 1GB SDRAM @ 400 MHz | 512 MB SDRAM @ 400 MHz | 256 MB SDRAM @ 400 MHz | 256 MB SDRAM @ 400 MHz | 512 MB SDRAM @ 400 MHz |
| **Storage** | MicroSD | MicroSD | MicroSD | MicroSD | SDCard | 4GB eMMC |
| **USB 2.0** | 4x USB Ports | 4x USB Ports | 4x USB Ports | 1x USB Port | 1x USB Port | 1x USB Port |
| **Power Draw / voltage** | 2.5A @ 5V | 1.8A @ 5V | 1.8A @ 5V | 1.8A @ 5V | 1.2A @ 5V | 1.8A @ 5V |
| **GPIO** | 40 pin | 40 pin | 40 pin | 40 pin | 26 pin | 120 pin |
| **Ethernet Port** | Yes | Yes | Yes | No | No | No |
| **Wi-Fi** | Built in | No | No | No | No | No |
| **Bluetooth LE** | Built in | No | No | No | No | No |