

# “Raspberry Pi - Arquitectura”



Rogelio Ferreira Escutia

Tarjeta

# Raspberry Pi 3 Model B

element14

Dimensions  
85.6mm x 56mm x 21mm

4 x USB 2  
Ports

40 Pin  
Extended GPIO

10/100  
LAN Port

Broadcom  
BCM2837 64bit  
Quad Core CPU  
at 1.2GHz,  
1GB RAM

3.5mm 4-pole  
Composite Video  
and Audio  
Output Jack

On Board  
Bluetooth 4.1  
Wi-Fi

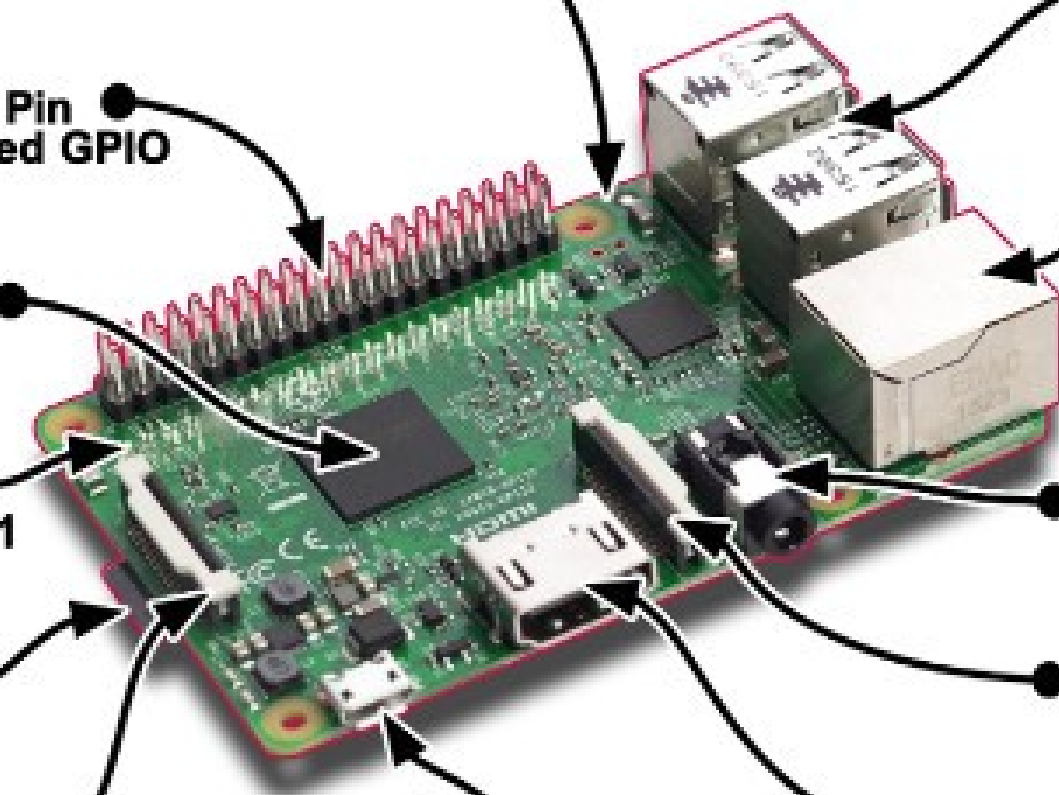
CSI Camera Port

MicroSD  
Card Slot

Full Size HDMI  
Video Output

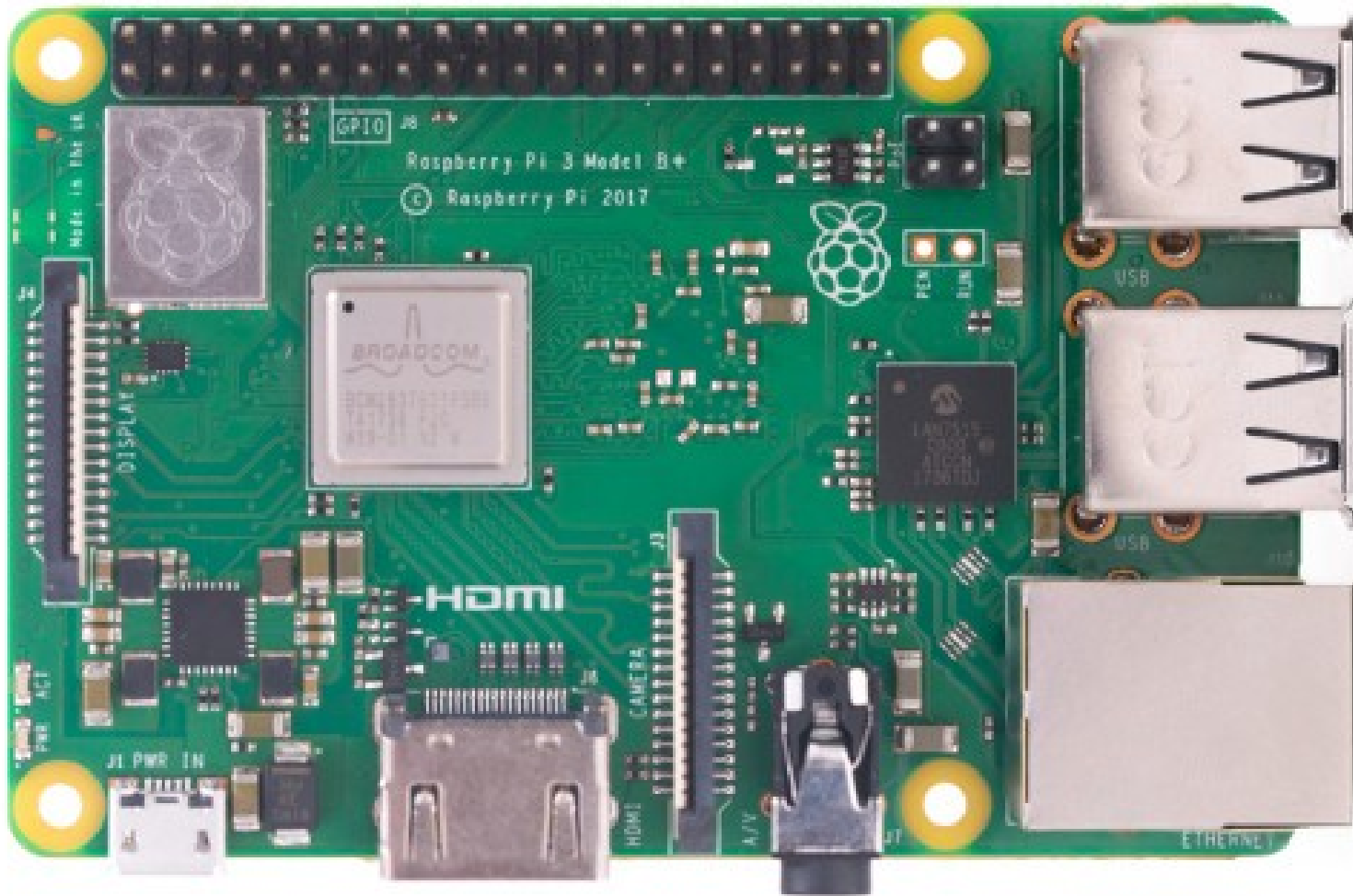
DSI Display Port

Micro USB Power Input.  
Upgraded switched  
power source that can  
handle up to 2.5 Amps



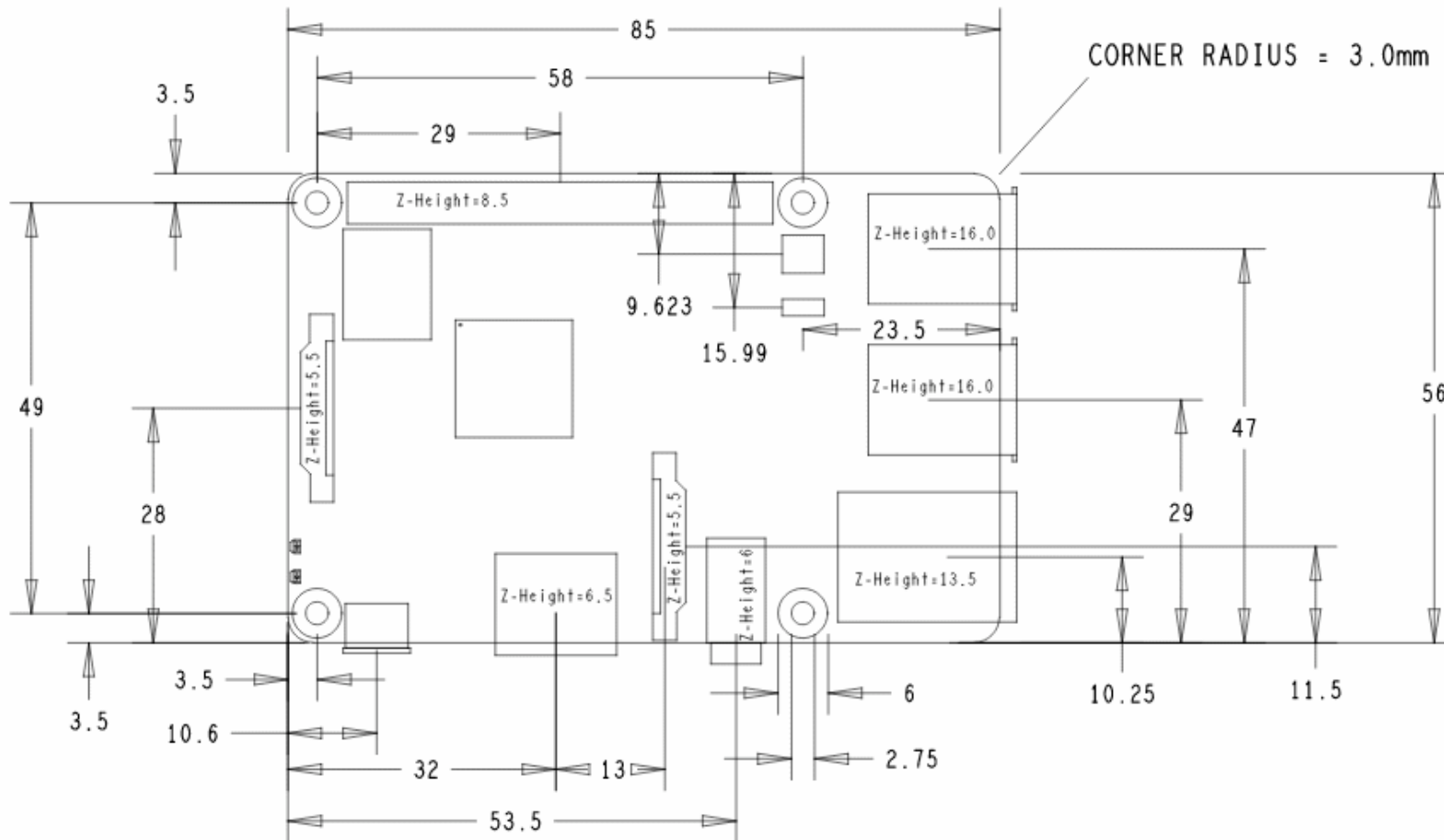
# Raspberry Pi 3B+

- Placa:



# Raspberry Pi 3B+

- Dimensiones:



# Procesador y Memoria

# Raspberry Pi 3B+

- **Procesador:**

**SoC (System on Chip): Broadcom BCM2837B0, Cortex-A53 64-bit SoC @ 1.4 GHz**



# Raspberry Pi 3B+

- **Memoria RAM:  
1GB LPDDR2 SDRAM**

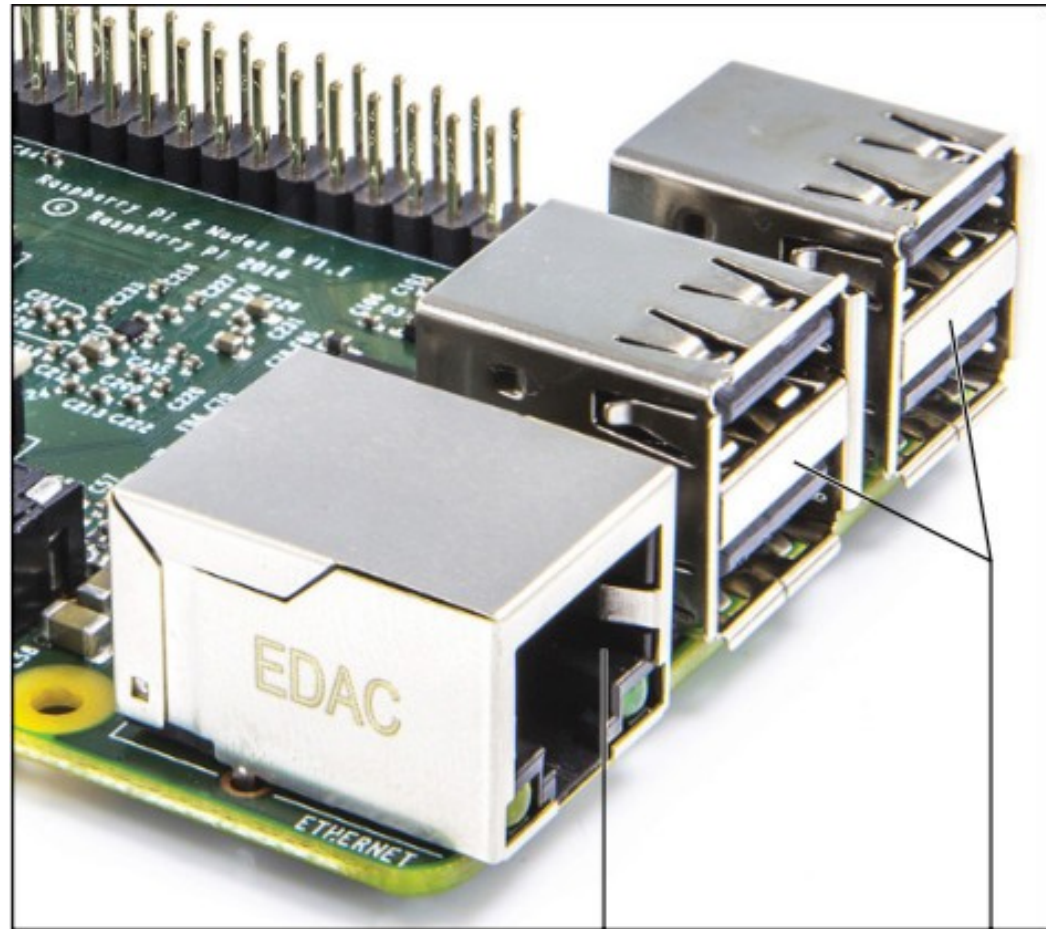




Conectividad

# Raspberry Pi 3B+

- Ethernet y USB:



Ethernet socket

USB receptacles

# Raspberry Pi 3B+

- **Ethernet:**

- **Gigabit Ethernet over USB 2.0 (maximum throughput 300 Mbps) .**

- **USB:**

- **4 × USB 2.0 ports.**

- **WiFi:**

**2.4 GHz y 5 GHz IEEE 802.11b/g/n/ac**



**Acceso I/O**









































# Raspberry Pi 3B+

- **GPIO:**



# Raspberry Pi 3B

- GPIO:

Raspberry Pi 3 Model B (J8 Header)						
GPIO#	NAME			NAME	GPIO#	
	3.3 VDC Power	1			2	5.0 VDC Power
<b>8</b>	GPIO 8 SDA1 (I2C)	3			4	5.0 VDC Power
<b>9</b>	GPIO 9 SCL1 (I2C)	5			6	Ground
<b>7</b>	GPIO 7 GPCLK0	7			8	GPIO 15 TxD (UART) <b>15</b>
	Ground	9			10	GPIO 16 RxD (UART) <b>16</b>
<b>0</b>	GPIO 0	11			12	GPIO 1 PCM_CLK/PWM0 <b>1</b>
<b>2</b>	GPIO 2	13			14	Ground
<b>3</b>	GPIO 3	15			16	GPIO 4 <b>4</b>
	3.3 VDC Power	17			18	GPIO 5 <b>5</b>
<b>12</b>	GPIO 12 MOSI (SPI)	19			20	Ground
<b>13</b>	GPIO 13 MISO (SPI)	21			22	GPIO 6 <b>6</b>
<b>14</b>	GPIO 14 SCLK (SPI)	23			24	GPIO 10 CE0 (SPI) <b>10</b>
	Ground	25			26	GPIO 11 CE1 (SPI) <b>11</b>
<b>30</b>	SDA0 (I2C ID EEPROM)	27			28	SCL0 (I2C ID EEPROM) <b>31</b>
<b>21</b>	GPIO 21 GPCLK1	29			30	Ground
<b>22</b>	GPIO 22 GPCLK2	31			32	GPIO 26 PWM0 <b>26</b>
<b>23</b>	GPIO 23 PWM1	33			34	Ground
<b>24</b>	GPIO 24 PCM_FS/PWM1	35			36	GPIO 27 <b>27</b>
<b>25</b>	GPIO 25	37			38	GPIO 28 PCM_DIN <b>28</b>
	Ground	39			40	GPIO 29 PCM_DOUT <b>29</b>

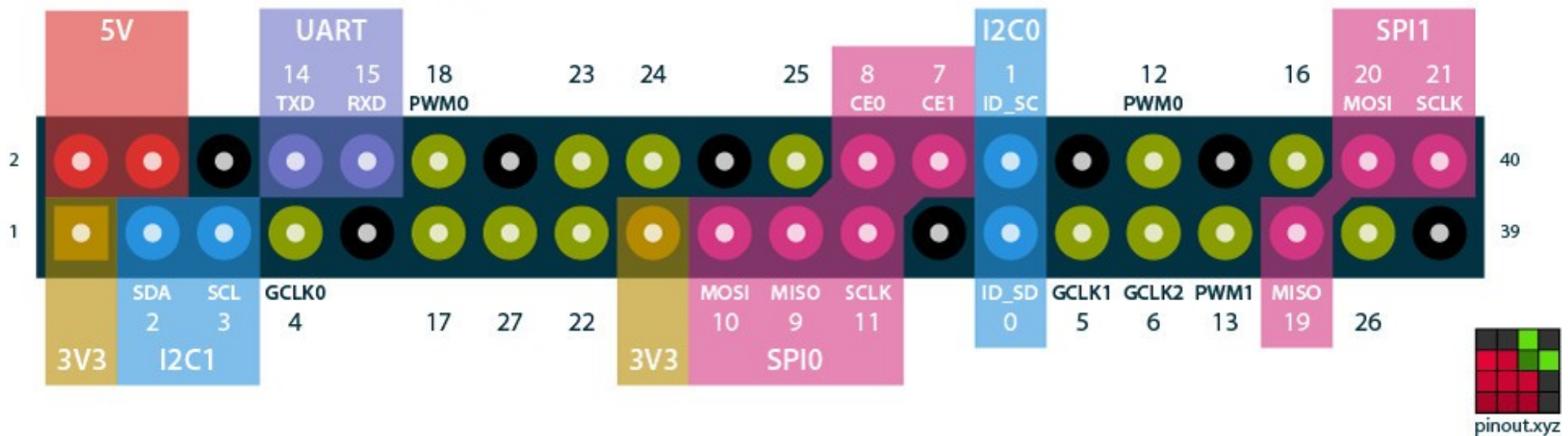
**Attention!** The GPIO pin numbering used in this diagram is intended for use with WiringPi / Pi4J. This pin numbering is not the raw Broadcom GPIO pin numbers.

<http://www.pi4j.com>

# Raspberry Pi 3B

- **GPIO:**

Raspberry Pi GPIO BCM numbering

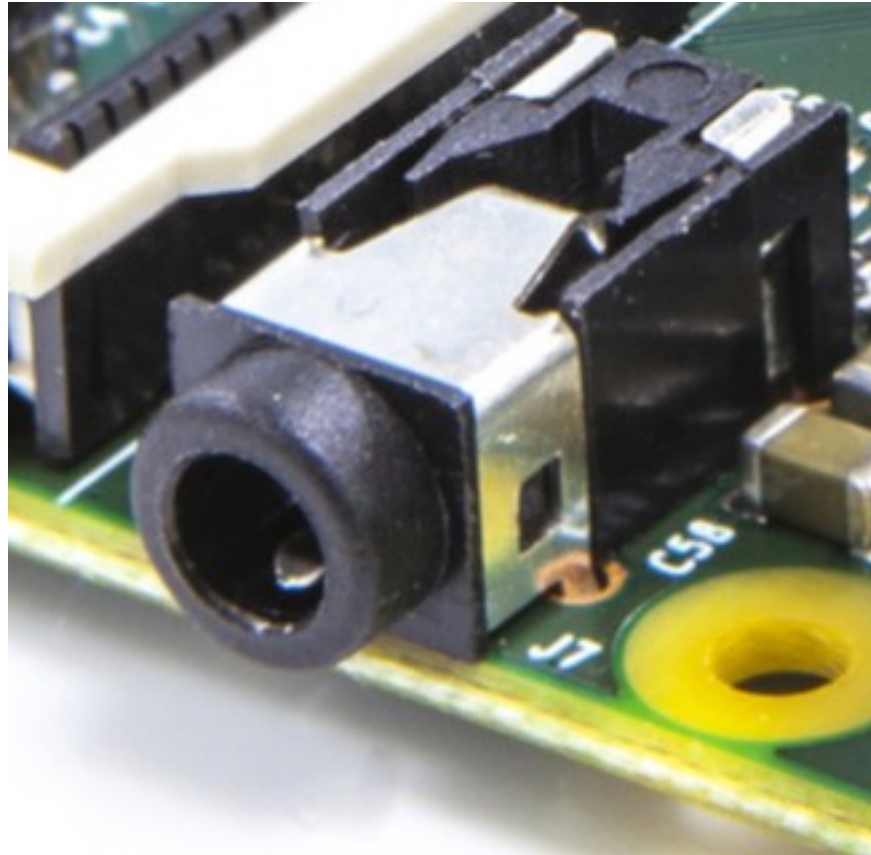


# Video y Sonido



# Raspberry Pi 3B+

- **Conector de Audio y Video:**
  - **Salida estéreo y video compuesto.**



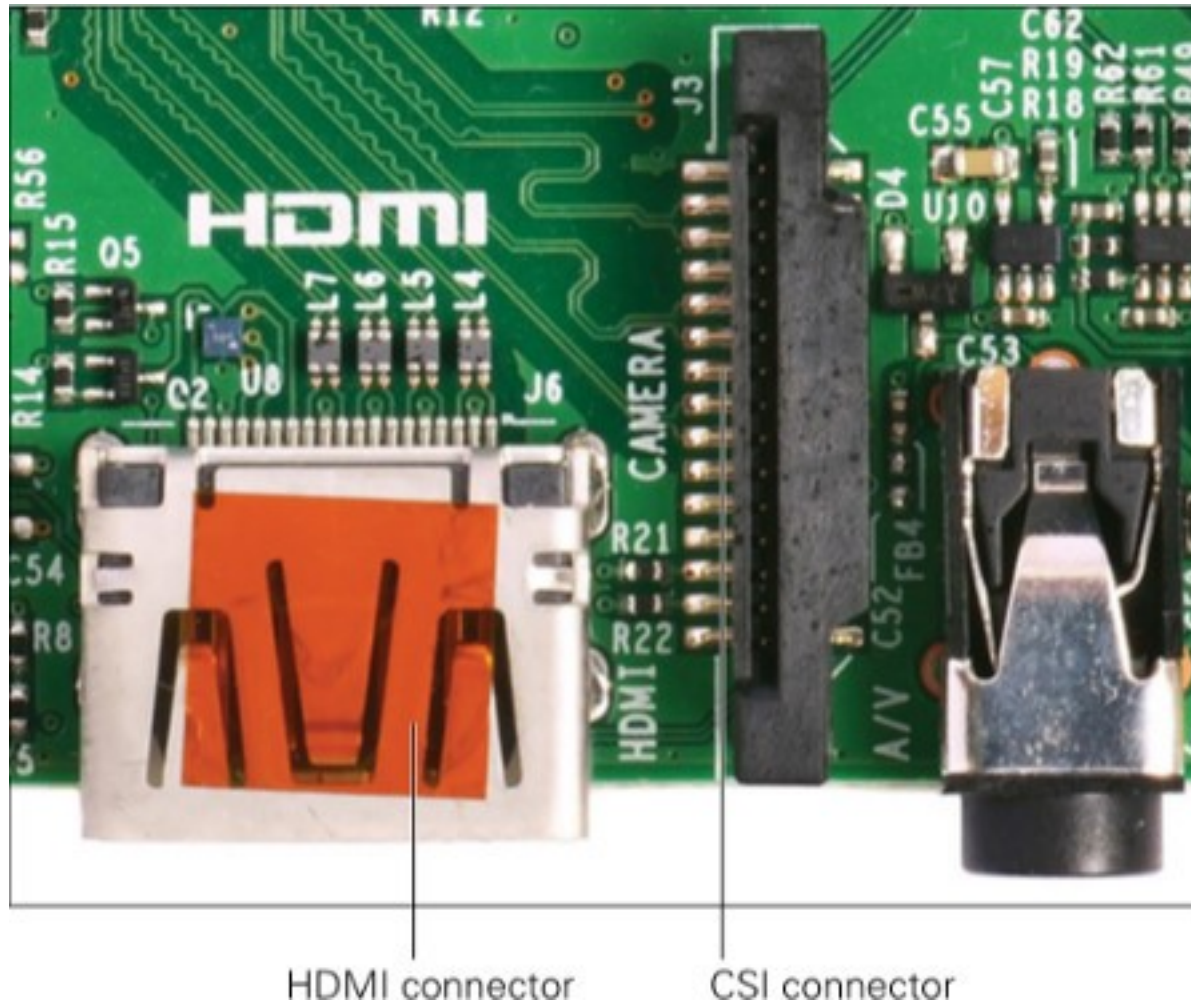
# Raspberry Pi 3B+

- **Conector de Audio y video:**



# Raspberry Pi 3B+

- Conexión para HDMI y cámara:



# Raspberry Pi 3B+

- **DSI (Display Serial Interface) para conectar pantallas:**



# Multimedia

# Raspberry Pi 3B+

- **Soporte para Multimedia:**
  - **H.264.**
  - **MPEG-4 decode (1080p30).**
  - **H.264 encode (1080p30).**
  - **OpenGL ES 1.1, 2.0 graphics**



**Almacenamiento**

# Raspberry Pi 3B+

- Slot Micro SD para almacenamiento:

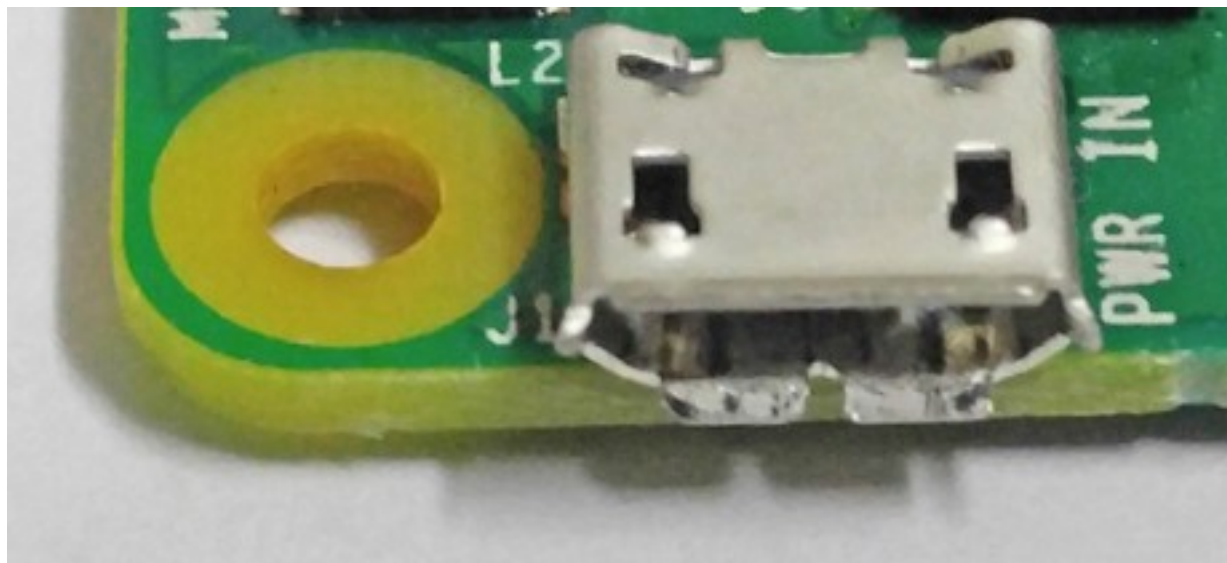




Energía

# Raspberry Pi 3B+

- **Conector Micro USB para energía:**
  - **5 V/2.5 A DC via micro USB connector.**
  - **5 V DC via GPIO header.**
  - **Power over Ethernet (PoE)–enabled (requires separate PoE HAT).**



# Temperatura de Operación

# Raspberry Pi 3B+

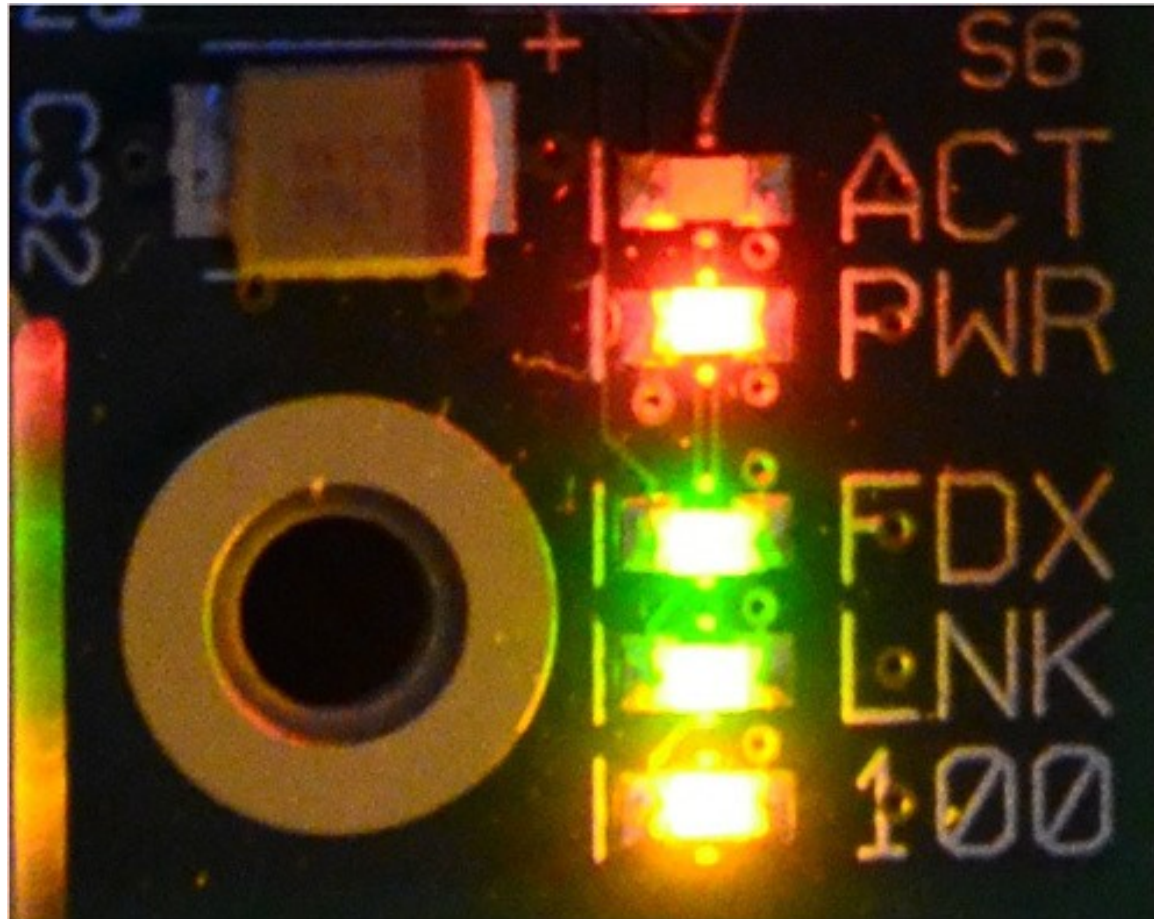
- **Temperatura de operación:  
0 – 50 grados centígrados.**



# Monitoreo del funcionamiento

# Raspberry Pi 3B+

- **Status Leds:**



# Raspberry Pi 3B+

- **Status Led:**
  - **ACT (actividad - verde):** Indica que se está accedendo a la tarjeta SD.
  - **PWR (power - rojo):** Indica que el sistema está energizado.
  - **FDX (full duplex - verde):** Indica conexión a una red LAN en modo full duplex
  - **LNK (link - verde parpadeando):** Indica actividad en la red LAN.
  - **100 (amarillo):** Indica conexión a una red LAN a 100-Mbit/s:



# ***Rogelio Ferreira Escutia***

***Instituto Tecnológico de Morelia  
Departamento de Sistemas y Computación***

***Correo:           rogelio@itmorelia.edu.mx  
                      rogeplus@gmail.com***

***Página Web:   http://sagitario.itmorelia.edu.mx/~rogelio/  
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