



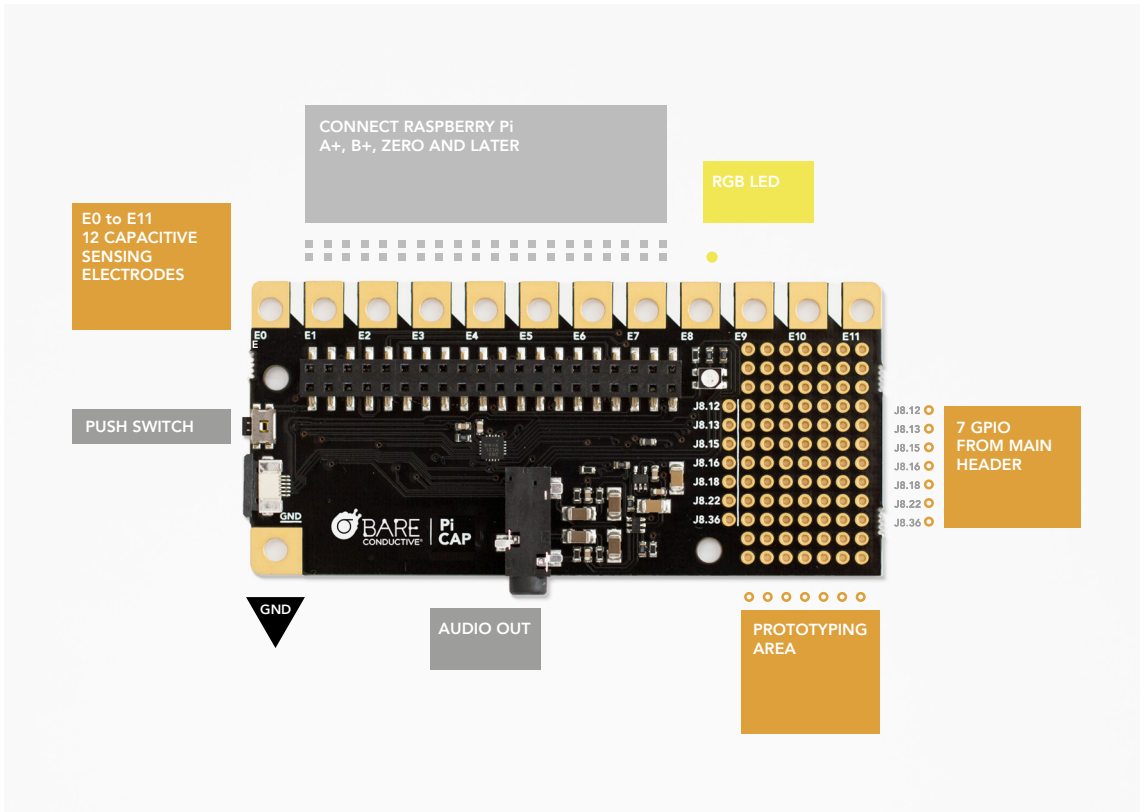
PRODUCT DESCRIPTION

The **Pi Cap** is an add-on board for the Raspberry Pi A+, B+, 2 B, 3 B and Zero. It features a dedicated capacitive sensing IC, 3.5mm stereo audio output, push switch, RGB LED and prototyping area.

SUMMARY

- Touch IC – Resurgent Semiconductor MPR121
- Audio output – 15mW into 32Ω via 3.5mm stereo socket
- Input voltage – 3.3V (via 40-way Raspberry Pi GPIO connector)
- Input current – 17mA idle, 36mA with all features in concurrent use.
- Capacitive touch electrodes – 12 (of which 8 can be configured as 3.3V digital I/O)
- Digital I/O Pins – 7, brought out from 40-way Raspberry Pi GPIO connector – pins 12, 13, 15, 16, 18, 22, 36
- Push switch – active low momentary push switch connected to pin 7 on the 40-way Raspberry Pi GPIO connector (requires the Pi's onboard pullup resistor to be enabled in software)
- Active low, red connected to J8.31 (5mA when on), green to J8.29 (1mA when on), blue to J8.37 (4mA when on)
- Prototyping area – 84 pads (7 x 12) with 1mm diameter drills spaced 2.54mm apart.
- Dimensions – 85mm x 40mm x 7mm





ELECTRODES

These twelve capacitive sensing electrodes can detect touch and proximity. With gold edge plating and 3.2mm holes they are easy to clip to, paint onto with Electric Paint or solder to.

CONNECTOR HEADER

This connects to any Raspberry Pi with a 40-pin GPIO connector (all of the modern models).

RGB LED

Active low, red connected to J8.31, green to J8.29, blue to J8.37. Beautifully colour balanced and shines through a mounting hole on the Pi for screenless status updates.

GPIO

Seven of the pins that we don't use are taken from the GPIO header and broken out for you to connect to.

PROTOTYPING AREA

84 pads (7 x 12) with 1mm diameter drills spaced 2.54mm apart for you to use as you wish.

AUDIO OUT

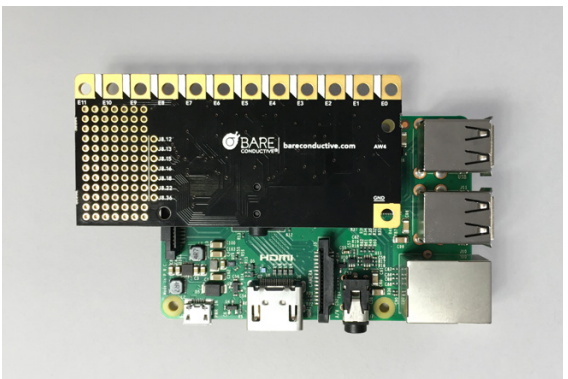
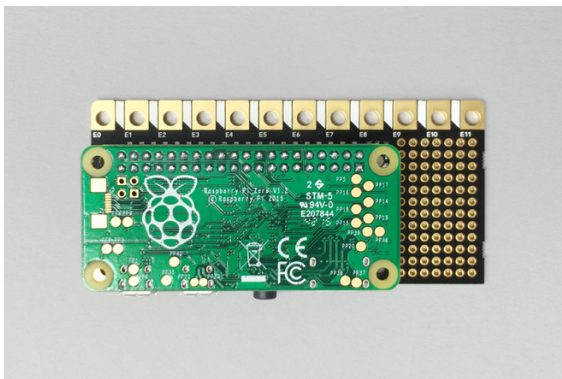
15.5-bit stereo line out on a 3.5mm socket with a dedicated low-noise power supply. Will drive most headphones too.

GROUND

Great for grounding shielded cable and for clipping oscilloscope probes or multimeter leads to when debugging your project.

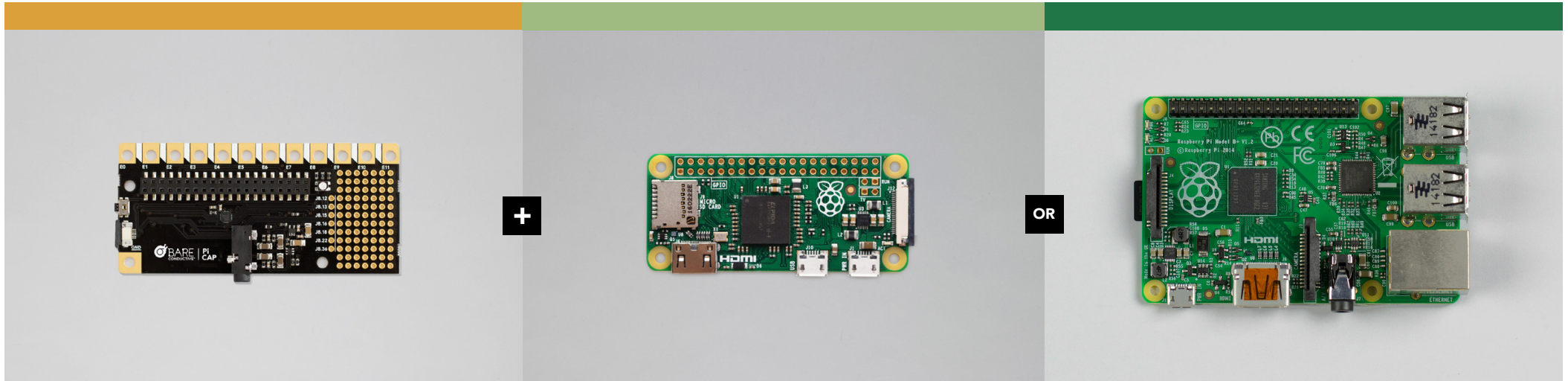
PUSH SWITCH

Active low, connected to J8.7. Requires the Pi's onboard pullup resistor to be enabled in software. Useful for shutting down or restarting the Pi properly.



The Pi Cap works with Raspberry Pi A+, B+, Zero and later.

Pi Cap + Raspberry Pi



	Pi Zero	Pi 3 B	Pi 2 B	Pi A+	Pi B+
Performance (Whetstone MWIPS, higher is better)	340	711	437	237	233
Idle power consumption (W)	0.50	1.55	1.30	0.55	1.25
Under load power consumption (W)	1.25	2.90	2.10	0.85	1.55
Connectivity	GPIO, HDMI mini, composite video, USB OTG, CSI (camera)	GPIO, HDMI, 3.5mm audio socket, composite video, DSI (display), CSI (camera), ethernet, 4 x USB, WiFi, Bluetooth	GPIO, HDMI, 3.5mm audio socket, composite video, DSI (display), CSI (camera), ethernet, 4 x USB	GPIO, HDMI, 3.5mm audio socket, composite video, DSI (display), CSI (camera), 1 x USB	GPIO, HDMI, 3.5mm audio socket, composite video, DSI (display), CSI (camera), ethernet, 4 x USB
Dimensions	65mm x 30mm x 5mm	85mm x 56mm x 17mm	85mm x 56mm x 17mm	65mm x 56mm x 12mm	85mm x 56mm x 17mm
RAM	512 MB	1 GB	1 GB	256 MB	512 MB
CPU speed	1.0 GHz	1.2 GHz	900 MHz	700 MHz	700 MHz
Best for?	Small projects without a need for video, internet or lots of USB accessories. Great for battery powered projects — if you can get your hands on one!	Sophisticated projects needing lots of processing power, Bluetooth or WiFi. Not the best choice for battery-powered projects.	A good alternative to the Raspberry Pi 3 if you don't need the extra processing power, want slightly lower power consumption, or don't need the wireless connectivity.	An excellent small form factor Pi with low power consumption — a good alternative to the less available Pi Zero for projects not needing lots of processing power and with limited space.	A great lower cost option for projects needing lots of USB connectivity but not requiring the extra power and features of a Pi 2 or 3.