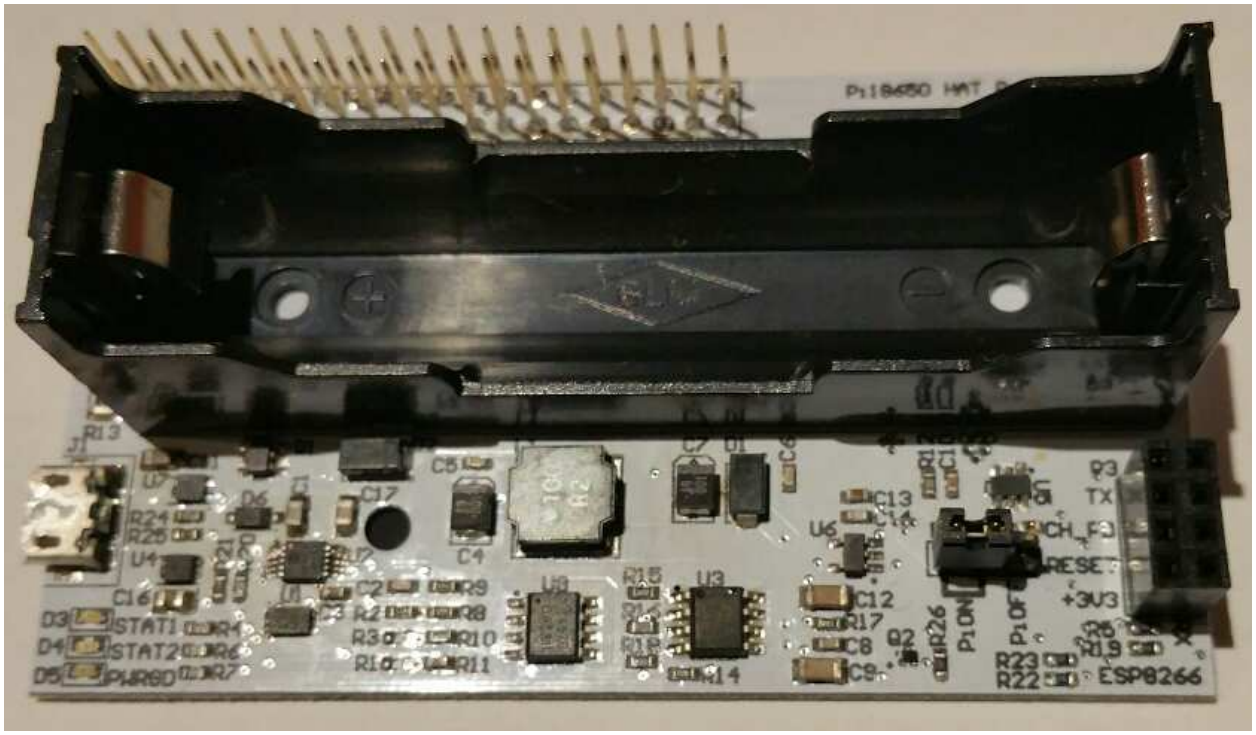
Pi18650 HAT



Disclaimer:

LITHIUM ION BATTERIES CAN BE DANGEROUS IF NOT HANDLED PROPERLY AND CONSULT YOUR BATTERY MANUFACTURER OR SUPPLIER FOR PROPER OPERATING, STORING, CHARGING AND HANDLING SAFETY PROCEDURES. ONLY PROTECTED BATTERIES MUST BE USED IN THIS PRODUCT TO ENSURE SAFETY.

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Description:

What is the Pi18650 HAT?

The Pi18650 is an add on HAT which plugs into the 40 pin connector on the Raspberry Pi. This HAT allows you to operate your Raspberry Pi without a power cable and can use various capacity 18650 Lithium Ion batteries. On board is a 1A battery charging circuit for charging the battery. The Pi18650 development board also includes a 4x2 100mil header for use with a ESP8266 (ESP-01) wifi module for remote monitoring and CLOUD integration. Included is one additional stacking header for extra clearance when stacking other HAT's on top of the Pi18650.

How Long Can The Pi Last?

As an example the Raspberry Pi Zero uses approximately 87mA without and 103mA with a USB dongle plugged in. With a fully charged 3000mAh battery, the Pi would last 34.5 Hrs with nothing attached.

How It Works?

The Pi18650 holds a single cell lithium Ion 18650 form factor battery which should have an integrated battery protection circuit. The boost circuit maintains the voltage to the Pi at 5.1V for battery voltages of 3.7V to 4.2V. The jumper allows you to disable power to the Pi and Isolate the battery circuit or start the Pi. It also includes a charging IC which can charge up to 1A from the USB Micro connector and has a battery monitoring IC which communicates to the Pi via I2C. We have

coded a Python script using I2C SMBUS for you to read the battery status. Charging LEDs show the status of the charging process. The Pi18650 can also be used with other development and SBC boards. Any DC power supply, adaptor or solar panel up to 18V max can be used with the charger. Use a good quality USB Micro cable as we found the flat style thinner cables did not work well with the charger and current was limited. The thicker round USB Micro cables work well.

STAT1 (ON) STAT2 (OFF) - Pre-Conditioning or Fast Charge Mode

STAT2 (ON) STAT1 (OFF) - Charge Complete

PWRGD (ON) - Power Is Good For Charge

Features:

1A Charge Current Max

Up to 3A for Raspberry Pi via Li-Ion Battery

Up to 18V DC Input for UPS and Charging

I2C Battery Monitoring (Python Script)

18650 Single Cell Lithium Ion Holder

40 Pin Connector for Raspberry Pi

USB Micro Connector for Charging

Jumper for Pi On/Off/Charge

Voltage Regulation 5.1V

Use as a UPS or with Solar Panel

Wifi Header for ESP8266 (8 Pin Board)

Compatible With Pi/Pi2/Zero

Power Robots, Motors and More

Technical Specifications:

Charge Current:	1A DC
Operating Temperature:	Per battery specifications (-20 to 40C)
Charge Time:	Varies with battery capacity
Backup/Operating Time:	Varies with battery capacity
ROHS Compliant:	Yes
Operating Input Voltage:	5V - 18V DC
UPS Mode:	Up to 3A for Raspberry Pi/Device
Battery Only Mode:	Up to 3A for Raspberry Pi/Device

Operating Instructions:

Install the Pi18650 Battery HAT onto your Pi/2/Zero. Insert the 18650 battery noting positive and negative polarities as shown in the image below and insert the battery with the positive side in first and then slide in the negative side. Some batteries have a plastic coating which can wear off after many insertions and removals and may short the positive end of the battery if inserted horizontally with positive and negative sides at the same time. Note 18650 batteries come in different lengths and the positive and negative clips in the battery holder may need to be pushed in or out depending on the battery size. This can be achieved using needle nose pliers to bend slightly inwards or outward so that the battery is not to tight and putting excessive force on the battery.

Plug in the USB micro 5V adapter without putting too much upwards pressure on the connector as it is a surface mount component and may pull up the traces and damage the board. The Pi

will continue to run even when power is removed for a specified time dependant on the load power consumption.