

P2 WX Adapter Add-on Board (#64007)



This adapter provides a convenient way to add wireless programming and serial communication capabilities to the Parallax Propeller P2 microcontroller. The adapter connects a Parallax ESP8266 WX WiFi SIP module to any P2 development board with a standard 2x6 way accessory header.

The WX adapter can be connected to any P2 accessory header for serial-over-WiFi communications. For wireless programming, look for the P56–P63 header marked with the “RES” logo.

Serial-over-WiFi communications from any accessory header is available with any ESP8266 WiFi SIP module firmware version. To add the feature for programming the Propeller 2 wirelessly refer to the instructions for upgrading your ESP8266 WiFi SIP module firmware to the latest version. P2 WiFi firmware has a drag/drop P2 loader on its self-hosted web page, which will accept a P2 program binary file compiled in any language.

Features

- Connects a Parallax WX WiFi ESP8266 SIP module to the Propeller 2 Accessory Header
- Allows wireless programming when used with an accessory header with the “RES” logo
- Load a binary file created in any P2 programming software to the Propeller 2 over WiFi
- Connect to any 2x6 way accessory header for serial-over-WiFi communication
- Unpopulated pads allow access to all the WiFi module SIP control signals, handy for attaching logic probes.
- Golden Egg shaped Access Point (AP) enable pads.

Specifications

- 10-pin SIP socket with 0.1" spacing for the Parallax WX WiFi ESP8266 SIP Module (#32420S)
- Unpopulated 8-pin SIP through-hole pads with 0.1" spacing for access to the WiFi module PGM, DBG, ASC, CTS, RTS, DO, DI and RES control signals
- 2x6 female socket with 0.1" spacing compatible with the standard Parallax P2 Accessory sockets
- PCB Dimensions: 1.2 x 1.0 in (30.48 x 25.4 mm)
- Operating temperature: -40 to +185 °F (-40 to +85 °C)

Wireless Programming Quick-Start Guide

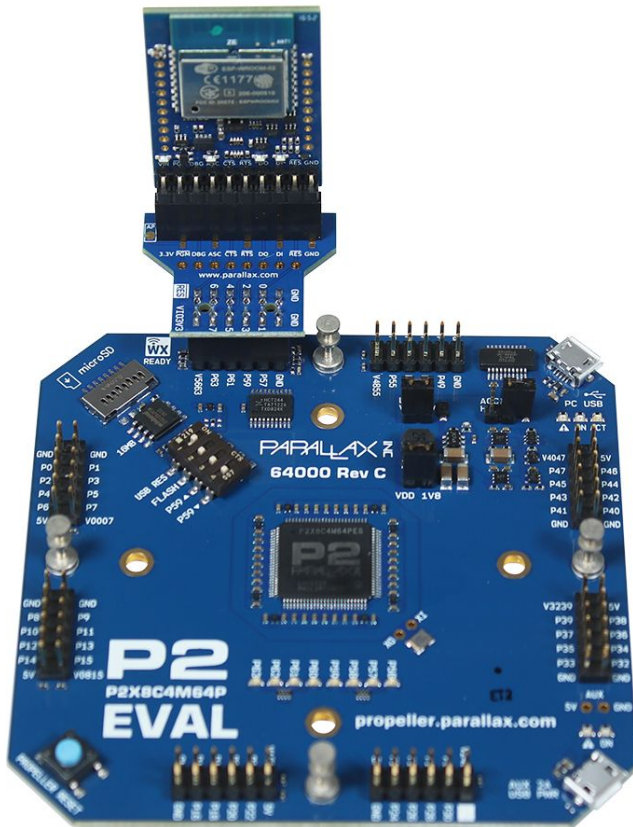
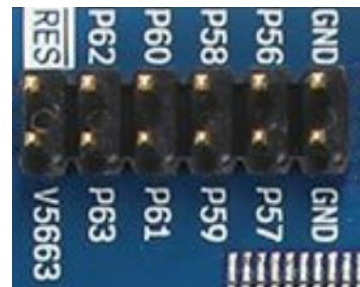
Items required

- Propeller 2 board with the 2x6 P56–P63 header showing the RES logo
- Parallax WX ESP8266 WiFi Module - SIP, #32420s
- Suitable power supply for your Propeller 2 board
- Computer with wireless network adapter
- Propeller 2 programming software that generates binary files, such as the Propeller Tool 2.3
- Latest P2 firmware and example binary, downloaded from the 64007 product page at www.parallax.com. The file "LED57.binary" will blink an LED connected to P2 I/O pin P57.

Connecting the Hardware

First, connect the Parallax WX ESP8266 WiFi Module - SIP (#32420s) to the P2 WX Adapter (#64007) as shown. The WX Adapter has a white silkscreen marking beside the WiFi module socket which indicates the orientation of the metal can when the WiFi module is inserted.

Then, plug the adapter into the 2x6 header marked RES on your P2 development board. The header must also connect to P2 I/O pins P56–P63, power, and ground as shown below.



Update the WX WiFi Module Firmware

A. Connect to the WiFi module

1. Connect the Parallax WX ESP8266 WiFi Module to any available accessory header on your Propeller 2 board using the P2 WX Adapter Add-on Board.
2. Power on your Propeller 2 board.
3. Make sure the WiFi module's blue ASC LED starts to blink or light up.
4. From your computer (could be a tablet, laptop or smartphone), search for available WiFi networks and connect to the Parallax WX ESP8266 WiFi module network. By default, the device name will be in this format: WX-123456.
5. If the module is not found when searching for wireless networks, grab a paperclip or similar small metal object and touch 4 times quickly the golden egg on the P2 WX Adapter PCB (labelled AP). You want to short out the 2 pads of the egg 4 times in quick succession. When you are successful you should notice the behaviour of the blue "ASC" LED changes, and from your computer you will be able to search again for new wireless networks until you find the WX-123456 network.

B. One time setup (Ignore this section if previously completed)

1. Once connected to the WiFi module, open your web-browser (Chrome or Edge recommended) and visit this address: <http://192.168.4.1>
2. You should see the Parallax Wireless Module webpage, with various menus on the left. If the menus are not visible and you are using a small-display device, then you might need to rotate the display to landscape view.
3. Click on the "Firmware" menu on the left-hand-side and upload the special P2 firmware file (P2_httpd_xxxx.ota) downloaded previously. Once completed the module will reboot; allow time for the module to reboot and re-connect your laptop WiFi connection if necessary.



- Again, visit the webpage at : <http://192.168.4.1> and click on the "Settings" menu on the left-hand-side.

Settings

Home Module name:

Networks Loader Baud Rate:

Files Reset Pin:

Settings Communications Baud Rate:

Firmware Communications Stop Bits:

Debug Log Debug Baud Rate:

P2 Drop Loader Debug Stop Bits:

Debug Output:

Serial Commands (aka CMD):

Command Start Character:

Command Pause Time in MS:

Command Pause After Characters:

Command Events:

Save Settings

PARALLAX

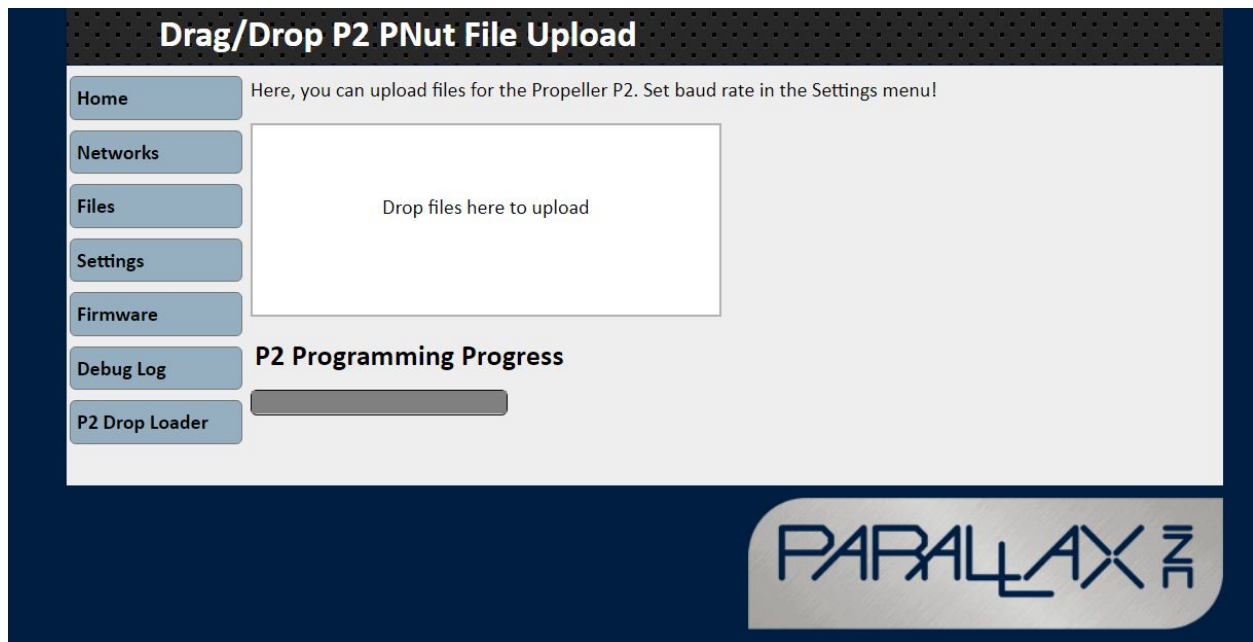
- The reset dropdown option should be set to "CTS". (It might be DTR by default). Once set to "CTS", then click the "SAVE" and "SAVE to FLASH" buttons at the bottom of the page.
- If your firmware update was successful, you will see a new menu on the left-hand-side "P2 Loader". If not, try holding SHIFT and pressing F5 to force your browser to clear its cache and refresh the page.

C. Using the P2 Loader to wirelessly program your P2 microcontroller

- Ensure you have completed the steps in section **A. Connect to the WiFi module**, and then ensure the WX Adapter is plugged into the appropriate accessory header of your Propeller 2 development board for wireless programming. The appropriate accessory header to use for wireless programming is marked with a "RES" logo, as seen in the image in the above Items required section.
- Once connected to the WiFi module, open your web-browser (Chrome or Edge recommended) and visit this address: <http://192.168.4.1>
- Click on the "P2 Drop Loader" menu on the left-hand-side..

4. Once the web-page has loaded (which may take a few seconds the first time), you will see a drag/drop area. To wirelessly program the connected P2 microcontroller, drag/drop P2 binary files to this area from a folder on your computer.
5. The upload will happen very quickly, and when successful the webpage will report the status message "Done!".

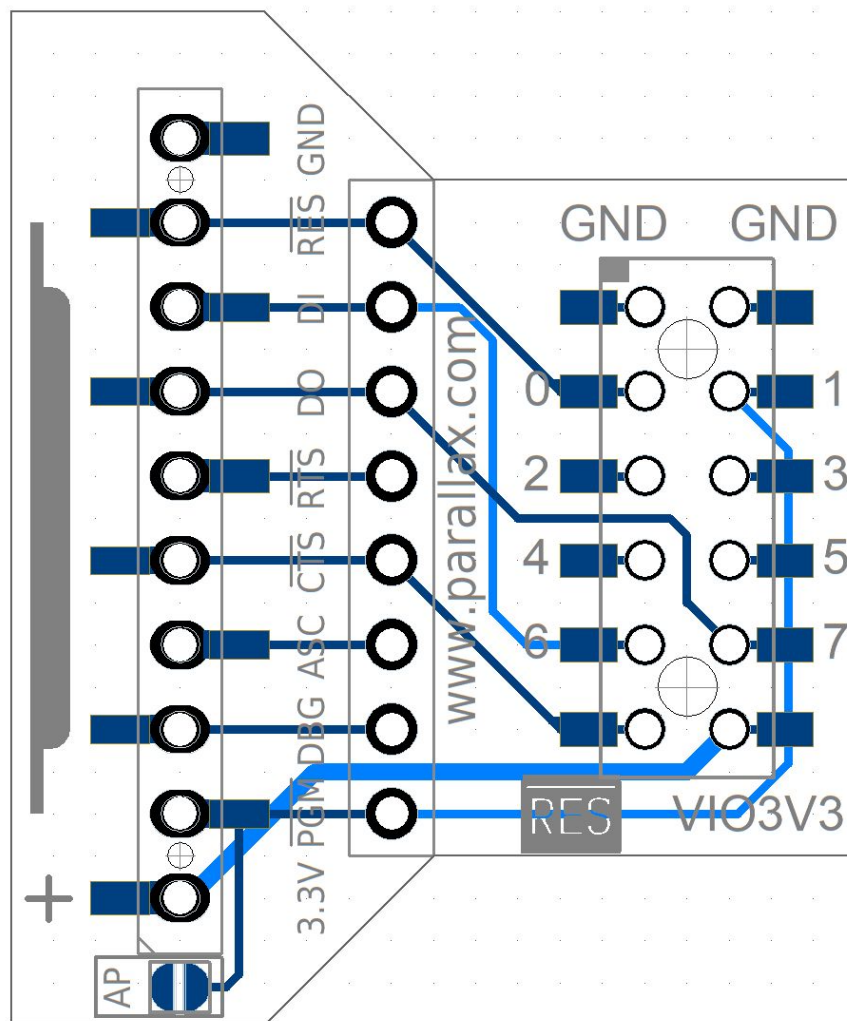
Tip! If uploading the LED blink demo, ensure you have the P2 Edge Module "LED" dip-switch turned on!



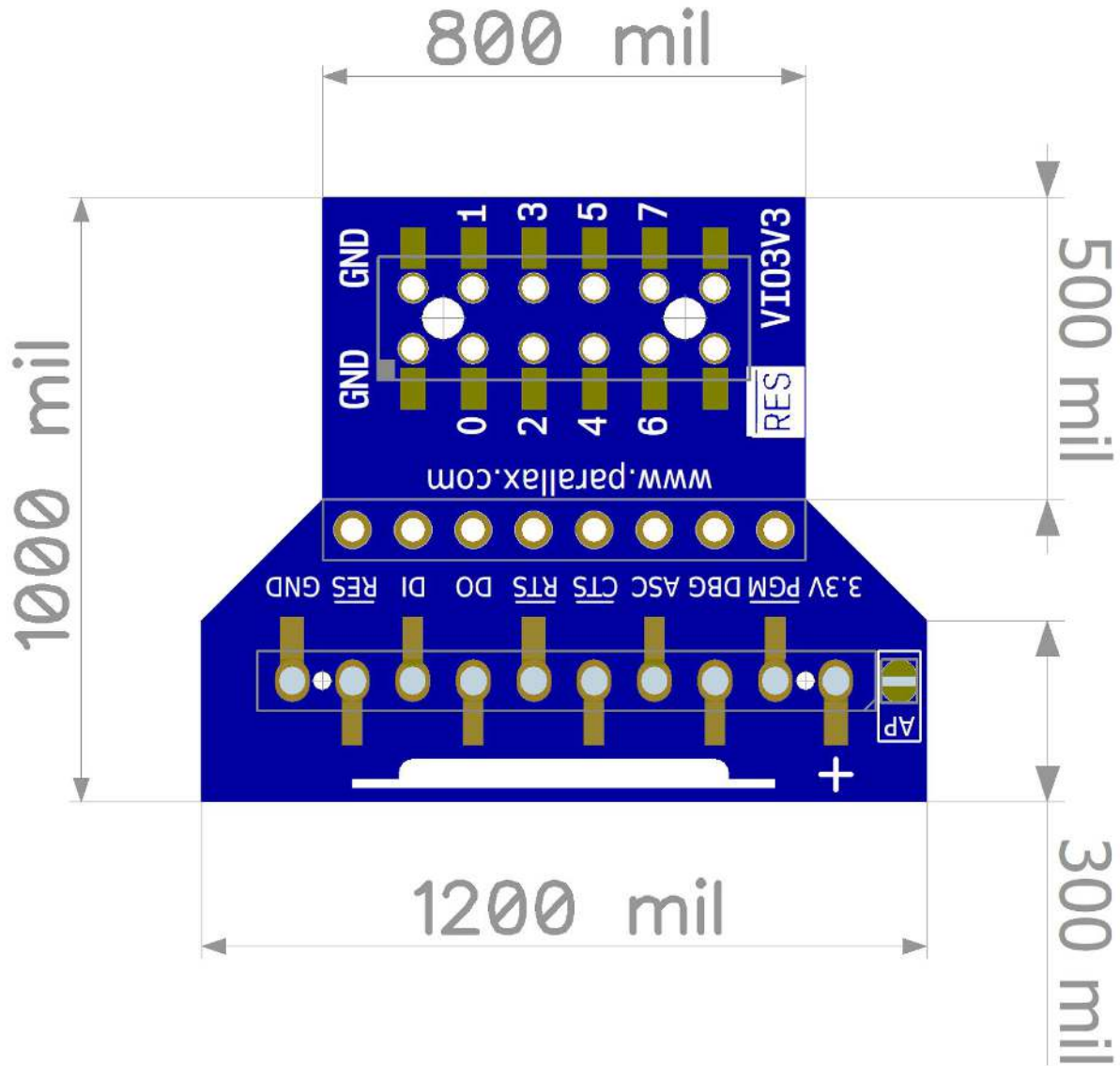
Pin Connections

Accessory header pin	WiFi module pin	Function
GND	GND	Common ground
0	RES	WiFi module reset signal
1	PGM	WiFi module configure (ESP IO0)
2 - 5	-	Not Connected
6	DI	WiFi module RXD
7	DO	WiFi module TXD
RES	CTS	Target board reset signal for Propeller microprocessor (ESP IO13)
VIO3V3	3.3V	Supply voltage to WiFi module

Pin connection diagram: Dark blue traces on top of PCB, light blue on bottom of PCB



Dimensions



Resources and Downloads

Check for the latest version of this document and the schematic diagram from the P2 WX Adapter product page. Go to www.parallax.com and search 64007.

Revision History

Version 1.0: Original release.