

Installation Guide for Phononic IoT Board v1

Device Integration

1. Purpose

The purpose of this document is to provide information on how to use a Phononic IoT Boardv1 as a radio transmitted when integrating into an end product.

Incorrect integration or use may infringe compliance rules meaning recertification may be required.

2. Device Description

The Phononic IoT Boardv1 contains an IEEE 802.11 b/g/n WLAN and Bluetooth 5 (LE) module. The module contains the Espressif ESP32-S3 microcontroller. The board is designed to be mounted, with appropriate screws, into an end product. The device must be placed in a suitable location to ensure WLAN performance is not compromised. The device requires an external 2.4GHz antenna.

3. Integration into Products

Board & Antenna Placement

A separation distance greater than 20cm will always be maintained between the antennas and any other radio transmitter if installed in the same product.

The device is physically attached and held in place by screws.

In order to connect the device to another system a 20 pos FPC cable is connected to J1 on the board. The supply can be +3.4VDC or greater with a minimum of 6 Watts. Power can also be supplied on the 6-pin debug header (J2). Pin 1 connected to +5VDC and pin 6 connected to GND.

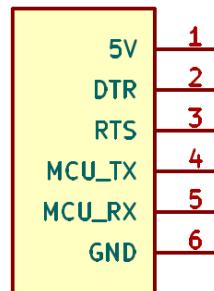


Figure 1: 6-Pin Debug Header (J2)

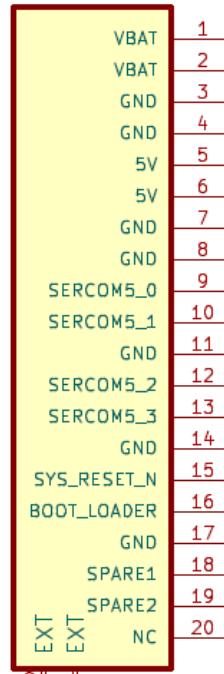


Figure 2: 20 pos FPC Cable (J1)

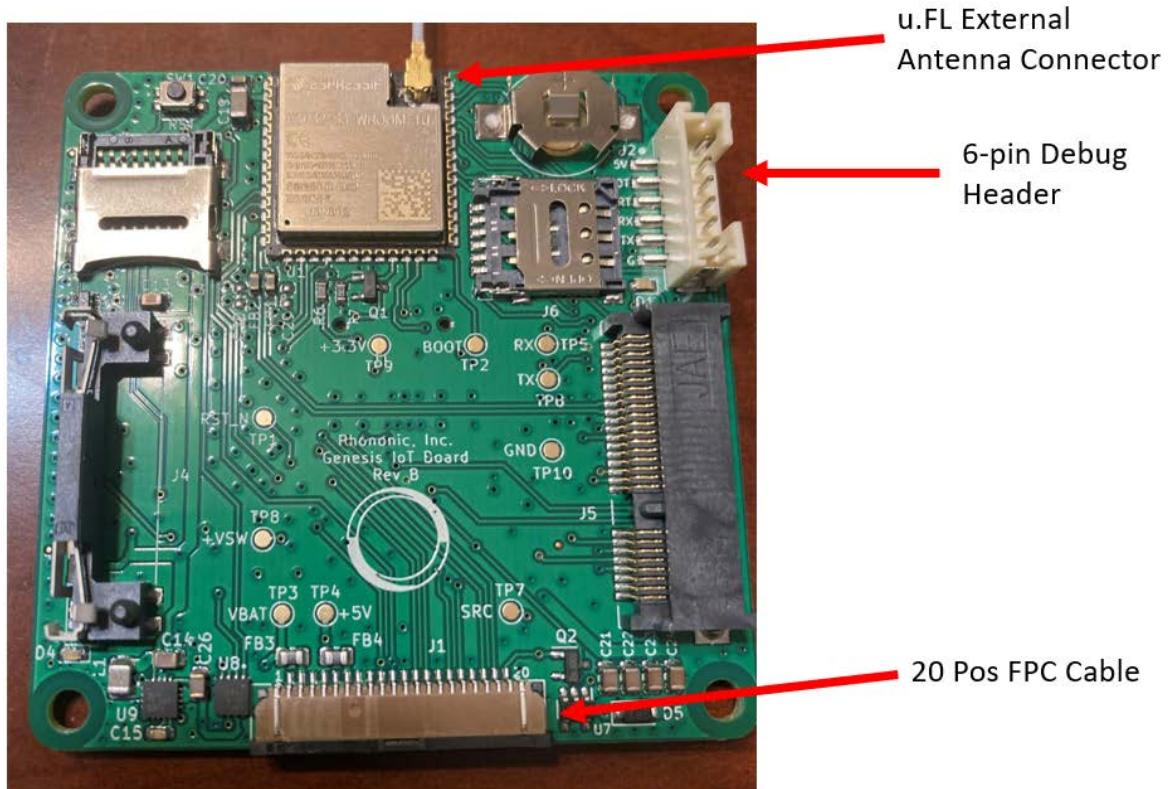


Figure 3: IoT Boardv1

An external power supply used with the IoT Board shall comply with relevant regulations and standards applicable in the country of intended use.

At no point should any part of the board be altered as this will invalidate any existing compliance work. Always consult professional compliance experts about integrating this board into a product to ensure that all certifications are retained.

4. Antenna Information

The board was certified with a 2.4GHz Inventek Systems W24P-U u.FL external antenna. The antenna is a dipole, printed circuit board antenna. It has a center frequency of 2442 MHz, a 50 Ohm impedance, and a WiFi peak gain of 3.55dBi; BLE peak gain of 3.58dbi. It is important that the PCB portion of the antenna is placed in a suitable place inside the product to ensure optimal operation. Do not place close to a metal casing or directly on metal brackets.

FCC Compliance Statement

This device complies with Part 15 of FCC Rules, Operation is Subject to the following two conditions:

- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

Caution: Any changes or modifications to the equipment not expressly approved by the party responsible for compliance could void user's authority to operate the equipment.

This equipment has been tested and found to comply within the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Re-orient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a different circuit from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help.

For products available on the USA/Canada market, only channels 1 to 11 are available for 2.4GHz WLAN

This device and its antenna(s) must not be operated in conjunction with any other antenna or transmitter except in accordance with FCC's multi-transmitter procedures.

IMPORTANT NOTE: FCC Radiation Exposure Statement; Co-location of this module with another transmitter that operates simultaneously is required to be evaluated using the FCC multi-transmitter procedures.

This device complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. The device contains an integral antenna hence, the device must be installed to so that a separation distance of at least 20cm from all persons.