

OPP Populate Gen2 Boards

Assembly Document

(Project: Populate Gen2 Boards)

Project # : Not applicable
P/N: Not applicable
Rev 0.2

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Revision History

Version	Primary Author(s)	Description of Version	Date Completed
0.1	Hugh Spahr	Initial version	03/08/16
0.2	Hugh Spahr	Fixed solenoid board pinout	03/29/16

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1 Purpose

The OPP Populate Gen2 Boards provides a description of how to populate Gen2 boards, and how to connect them to the PSoC 4200 microprocessor board. The populate document includes the following wing boards:

- Gen2 Solenoid Driver Wing (Product ID 1013)
- Gen2 Incandescent Wing (Product ID 1014 and 1017) (Future)
- Gen2 Input/Neo Wing for support of Neopixels (Product ID 1015) (Future)
- Gen2 Interface Wing (Product ID 1016)

2 Product Overview

Populate Gen2 Boards contains the assembly instructions for OPP boards. This document describes the assembling the wing cards, and connecting them to the microprocessor board.

3 Applicable Documents

None

4 Terms, Definitions & Acronyms

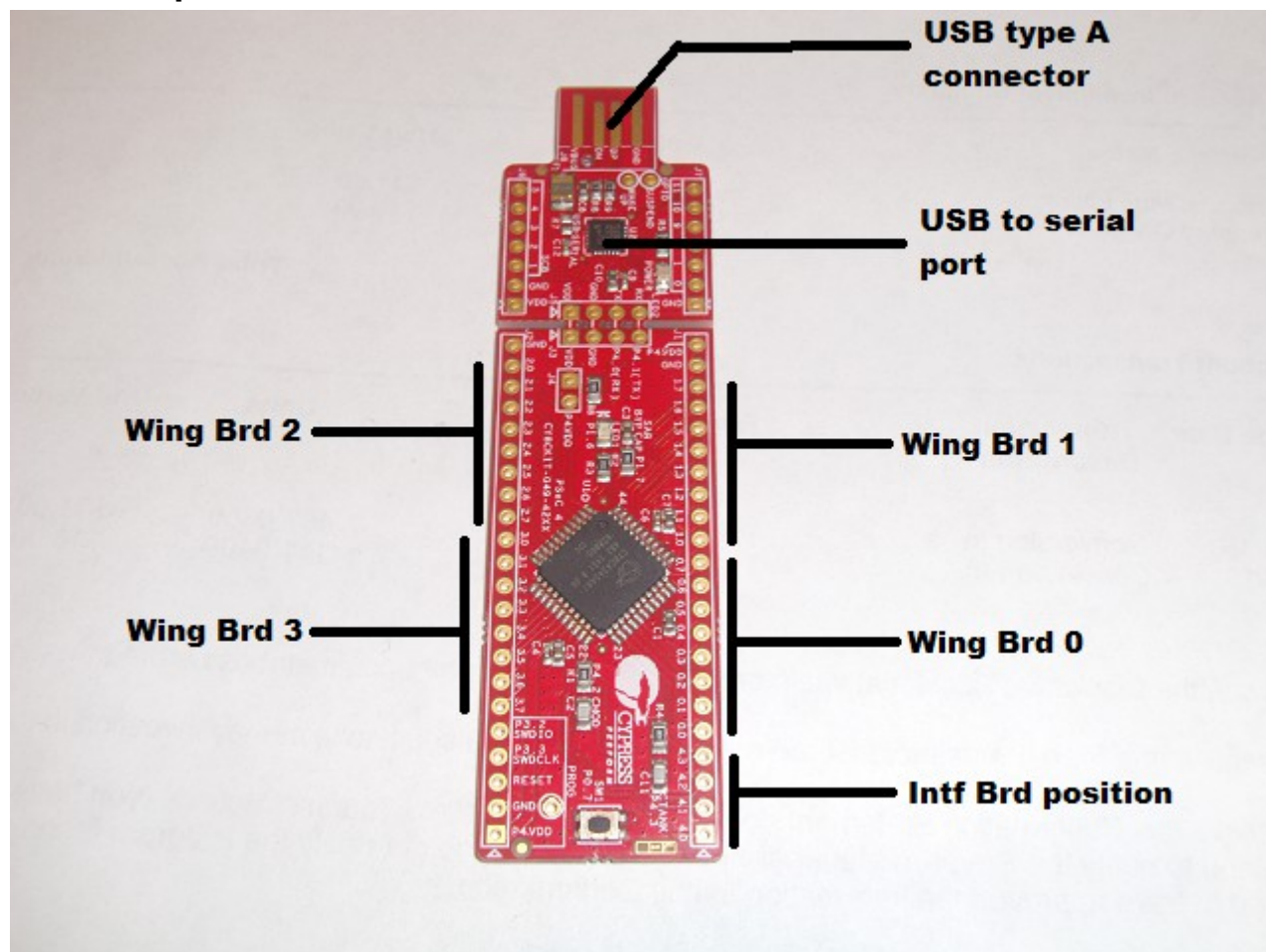
OPP Open Pinball Project

5 Assembly Overview

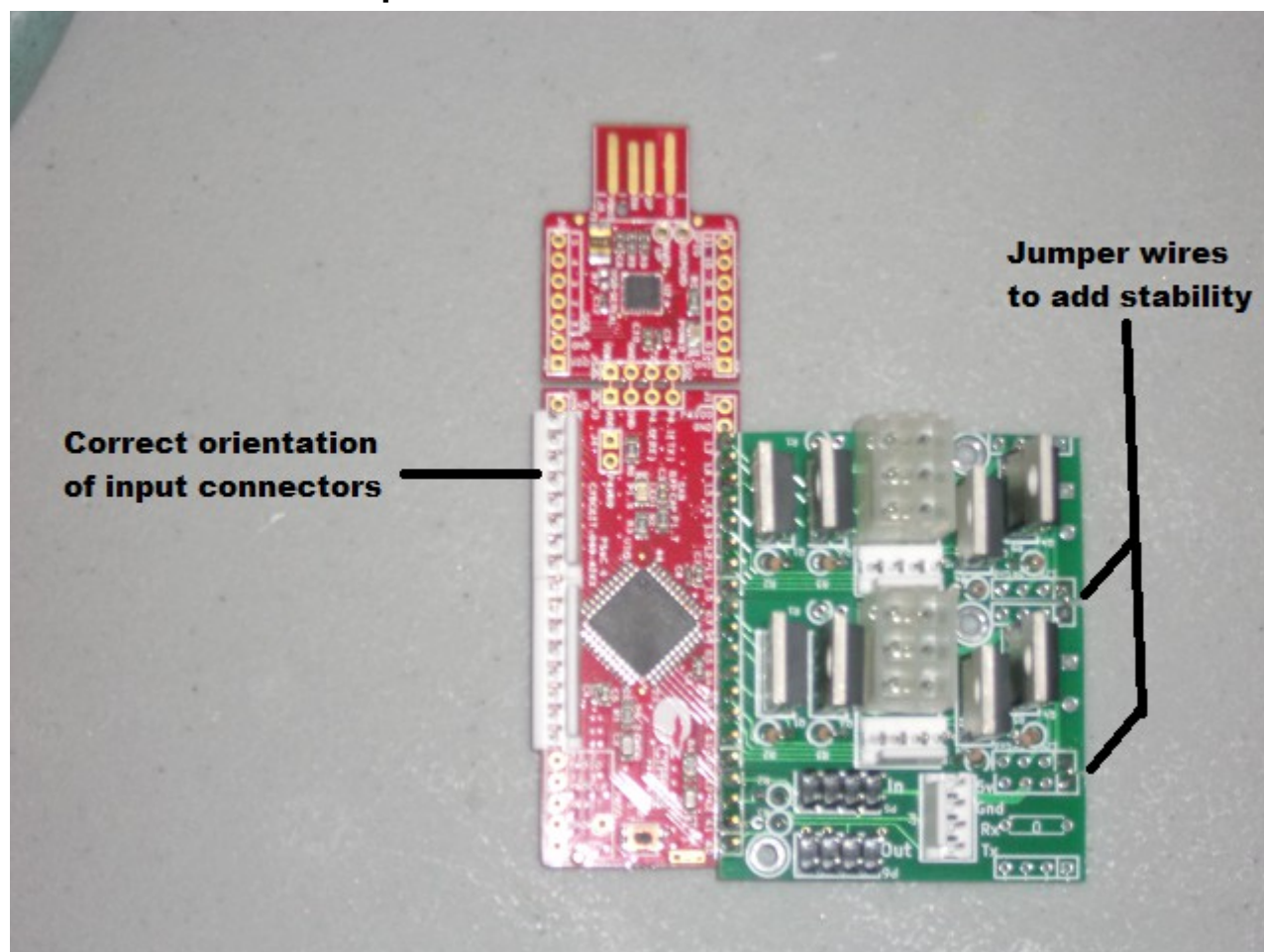
An OPP assembly contains a PSoC 4200 microprocessor board and up to four wing cards. Each wing board. This document will describe how to assemble the wing cards and then solder the wing cards to the processor board.

6 Board Assembly Pictures

6.1 Microprocessor Board



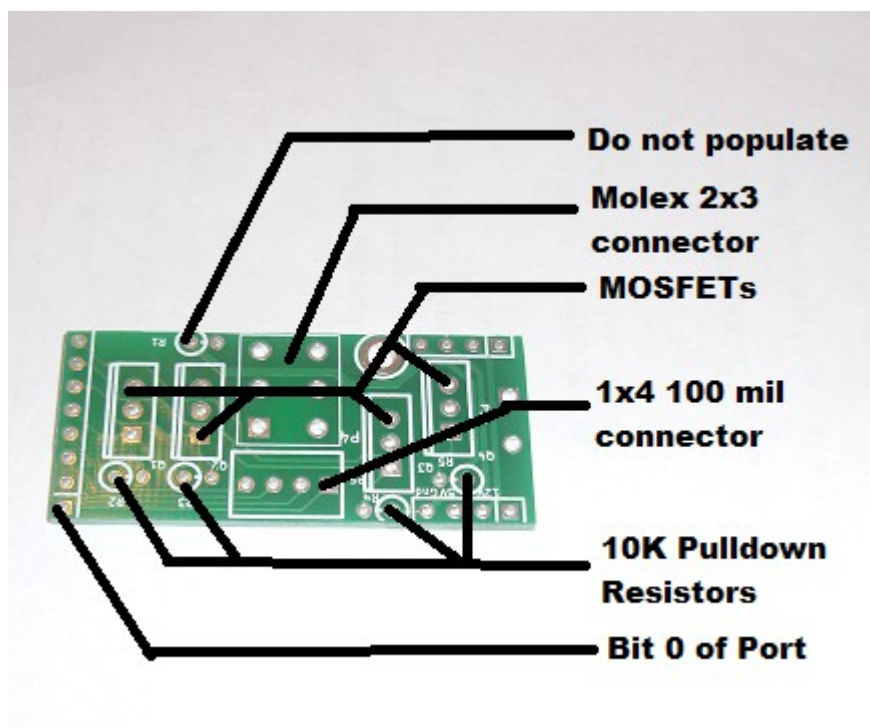
6.2 Assembled Example



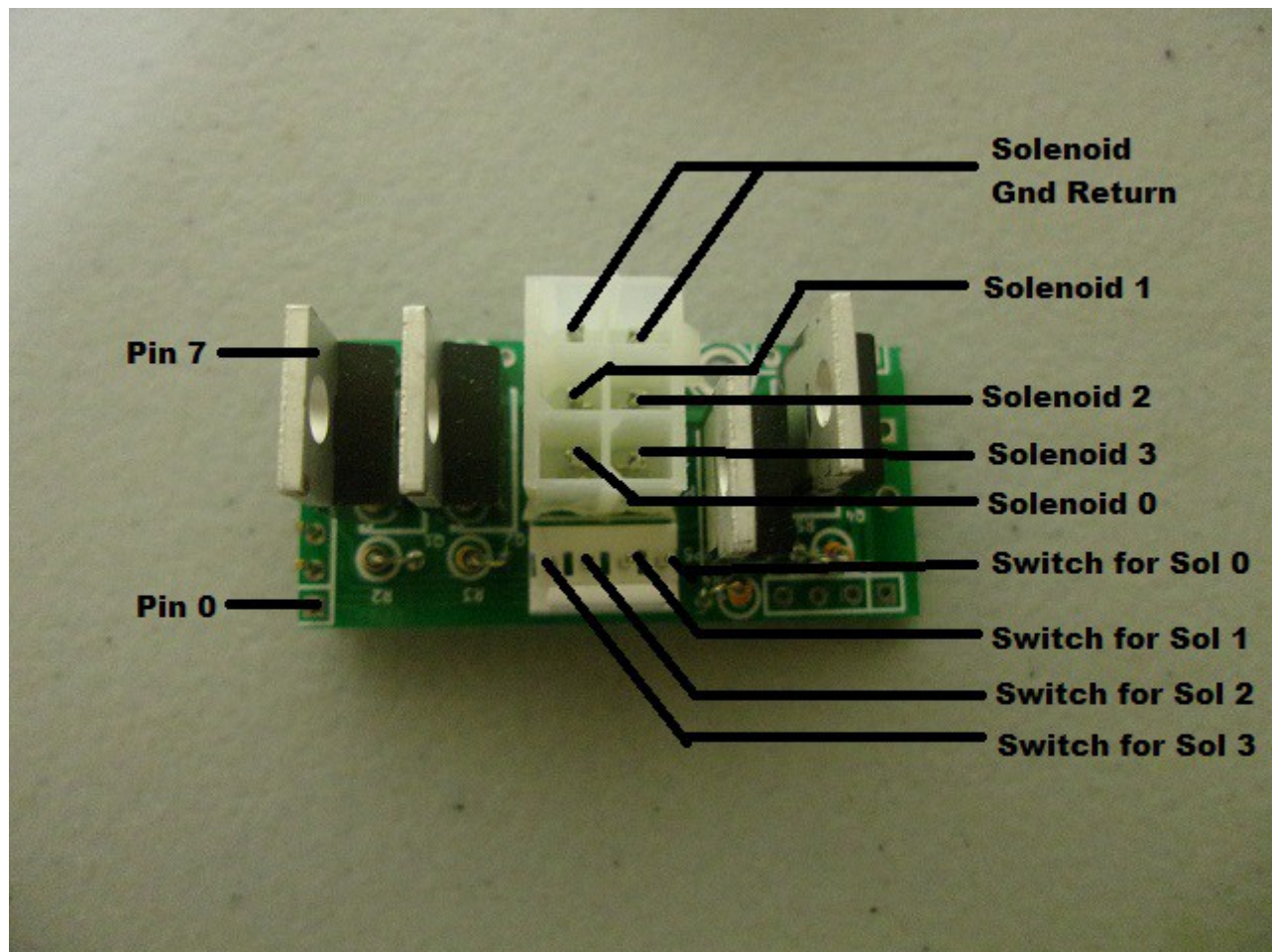
Note: The input connectors are always oriented so the plastic friction lock is closest to the microprocessor (the large square chip on the red PSoC 4200 development board).

6.3 Solenoid Wing

6.3.1 Unpopulated Solenoid Board



6.3.2 Populated Solenoid Board

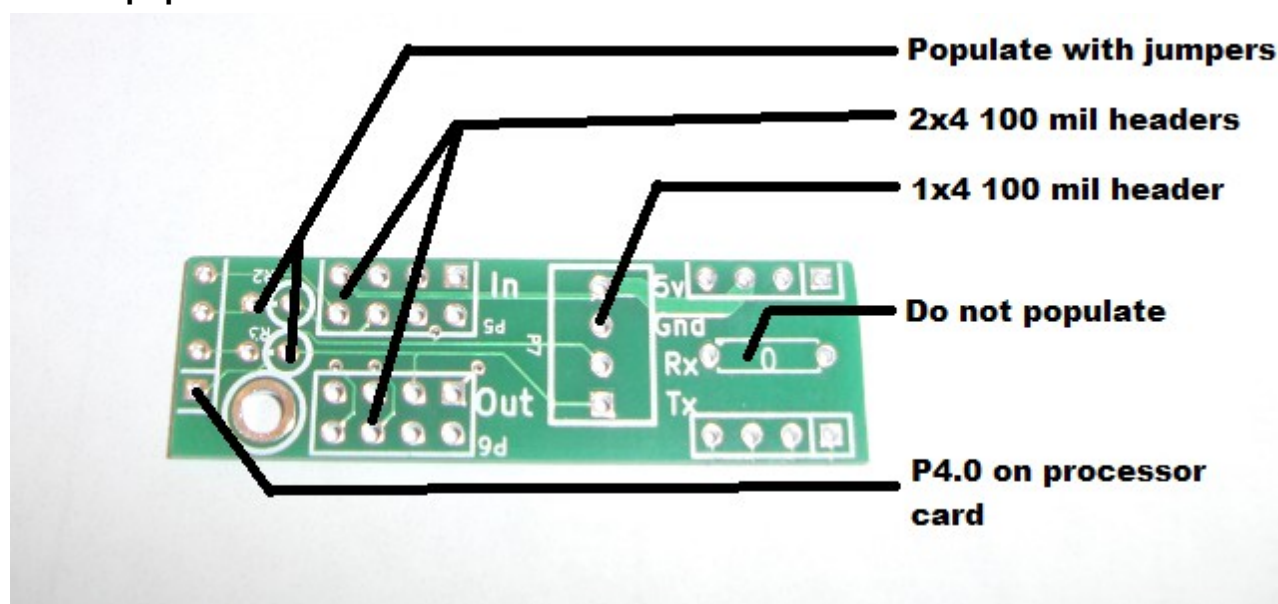


Note 1: Molex connectors have rectangular holes, and holes with the top corners of the rectangles filled in to insure connectors aren't plugged in incorrectly. The picture above shows the molex connector with the flat part (or bottom) of the connector to the right. (An example of a rectangle with the top corners can be seen on the bottom right pin.) Make sure the orientation is correct for the connector.

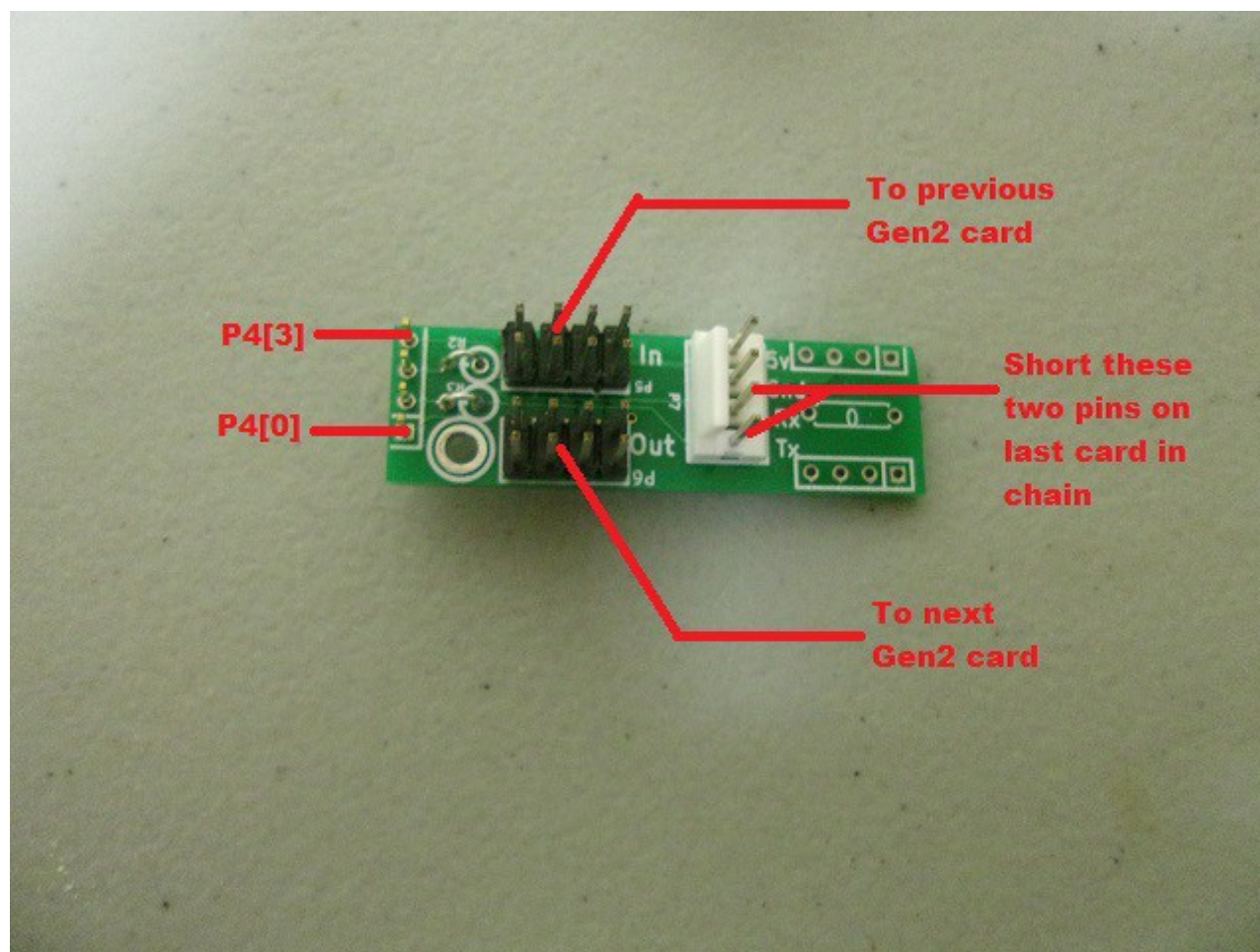
Note 2: The four pin connector, should be oriented with the friction lock towards the bottom of the card.

6.4 Interface Board

6.4.1 Unpopulated board

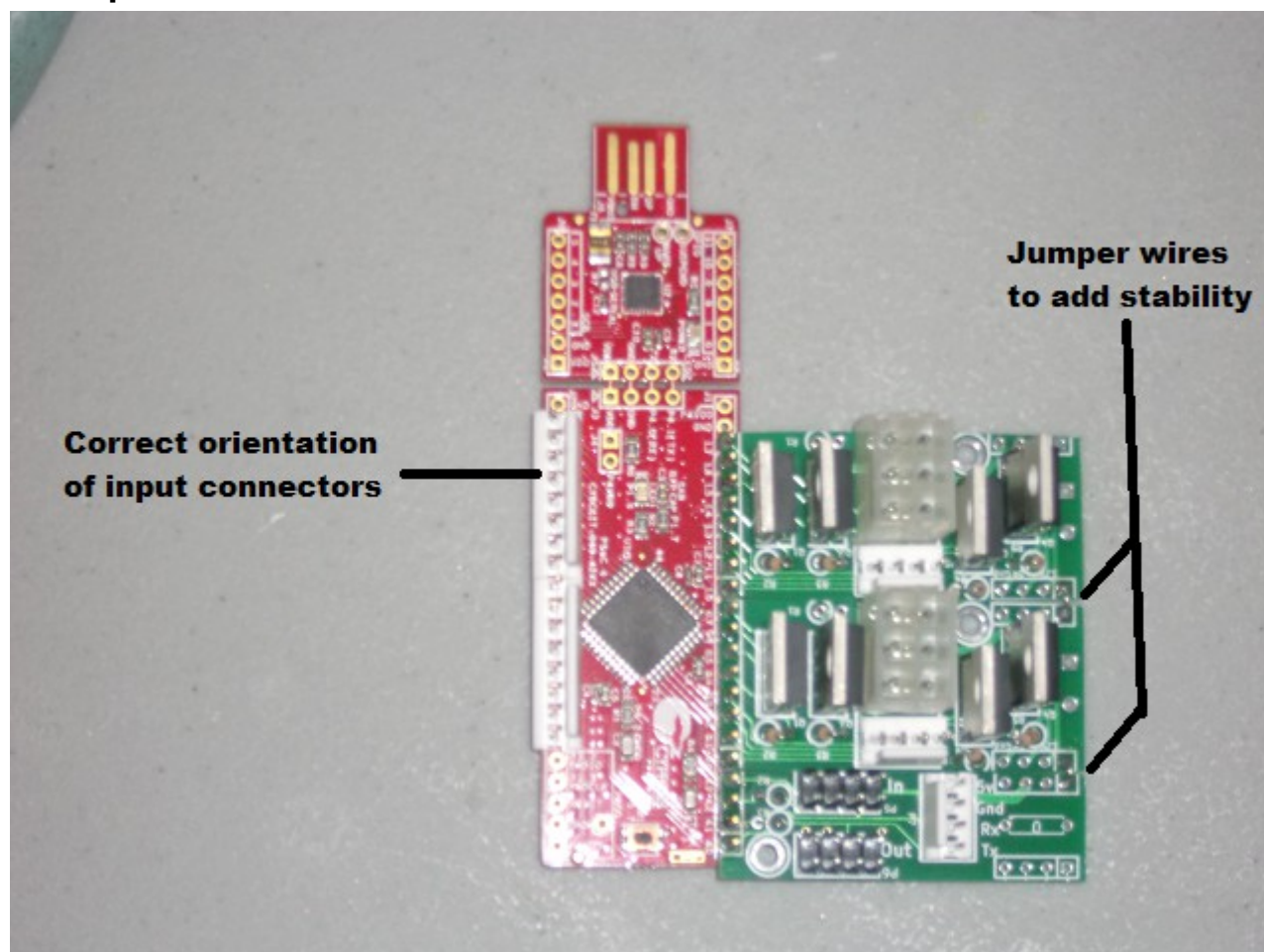


6.4.2 Populated board



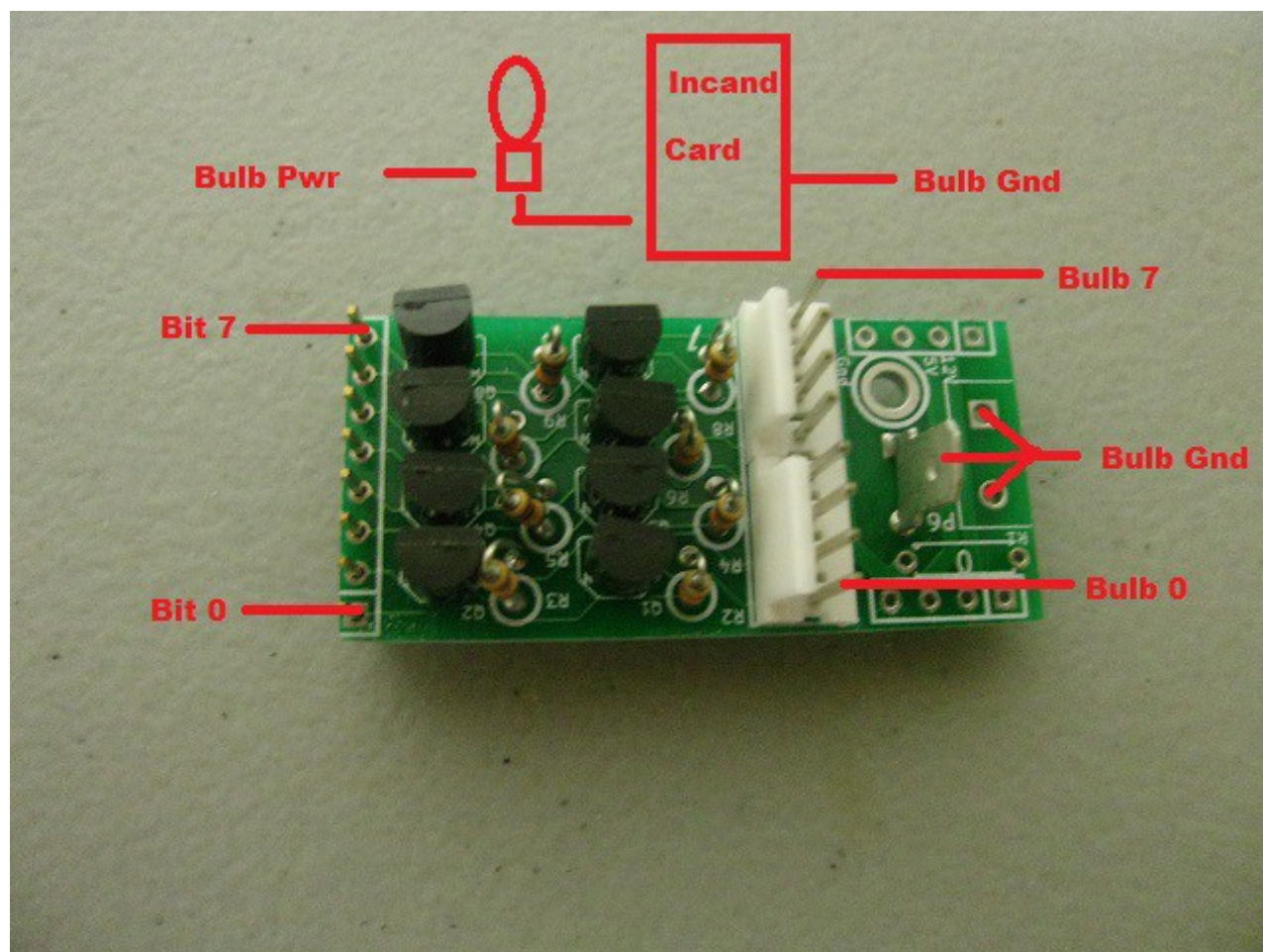
Note: The four pin connector, should be oriented with the friction lock towards the left side (processor side) of the card.

6.5 Input connectors



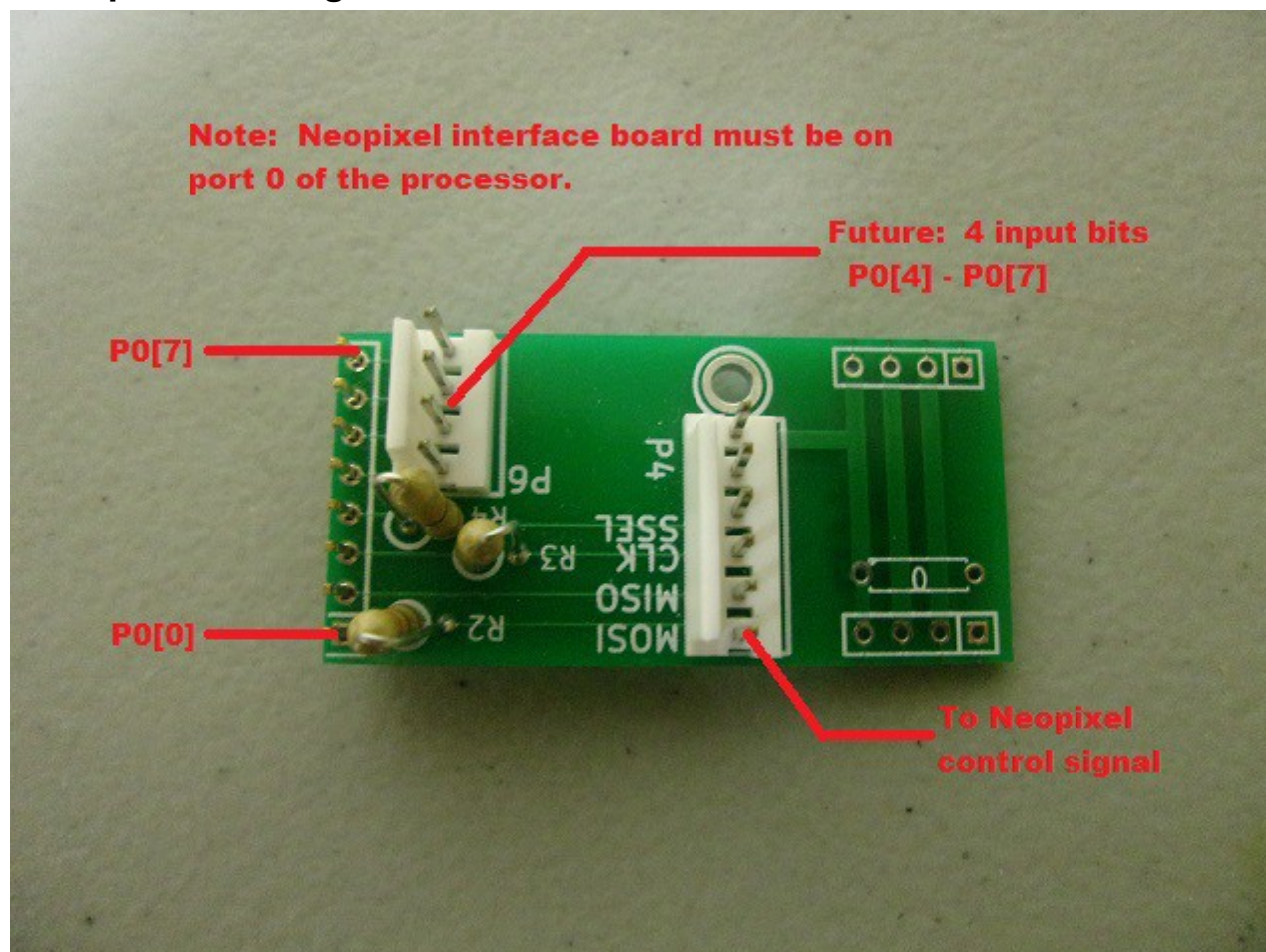
Note: The input connectors are always oriented so the plastic friction lock is closest to the microprocessor (the large square chip on the red PSoC 4200 development board).

6.6 Incandescent Wing (Through-hole)



Note: This version of the incandescent card can only be used as a low side switch. (Low side switch means that the MOSFET connecting one side of the bulb to ground so that current can flow). Many pinball machines have a common ground braid. In that case, a high side switch must be used.

6.7 Input/Neo Wing



6.8 RS232 Interface

