

## Digilent I<sup>2</sup>C Pin Configurations

There are three different pin assignment conventions for I<sup>2</sup>C connectors on Digilent peripheral modules (Pmods) and microcontroller boards. They are known as configurations A, B, and C and are described below, along with a list of products according to I<sup>2</sup>C configuration.

### Which I<sup>2</sup>C Configuration Type Do I Have?

#### Configuration Type A:

*Microcontroller boards:*

- Cerebot
- Cerebot II
- Cerebot Plus
- Cerebot Nano
- MiniCon
- NanoCon
- ServoCon
- ServoMini

*Pmods:*

- PmodCLS

#### Configuration Type B:

*Microcontroller boards:*

- IO Explorer
- Cerebot32MX4

#### Configuration Type C:

This is the configuration used on all Digilent microcontroller boards and Pmods not listed above and will continue to be on future products.

I<sup>2</sup>C pin placement on Configuration Type A boards is not uniform; however, every board has the signals SCL (serial clock) and SDA (serial data). Some boards do not have GND and VCC pins located with the SCL and SDA signals. In these cases, VCC and GND must be connected elsewhere on the board.

**Type A**

Pin	Signal
varies	SCL
varies	SDA
varies	GND
varies	VCC

Configuration Type B was the first standard for I<sup>2</sup>C pin placement on Digilent microcontroller boards. Under Configuration Type B, all microcontroller boards have two sets of I<sup>2</sup>C headers with SCL, SDA, VCC and GND pins located on vertical 2x4 pin headers. This allows devices to be daisy chained.

**Type B**

Pin	Signal
1 or 2	SCL
3 or 4	SDA
5 or 6	VCC
7 or 8	GND

Configuration Type C is different from Configuration Type B only in that VCC and GND are swapped. This is the configuration currently used on all Digilent microcontroller boards and Pmods not listed above and will continue to be on future products.

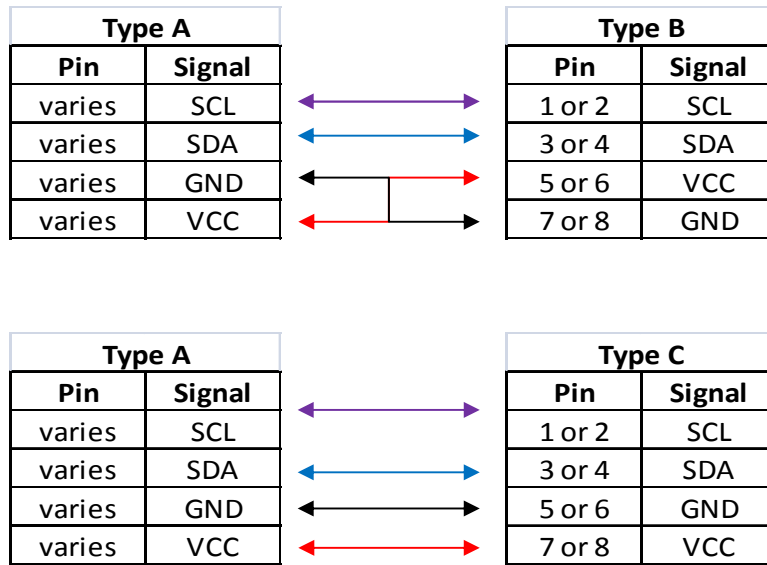
**Type C**

Pin	Signal
1 or 2	SCL
3 or 4	SDA
5 or 6	GND
7 or 8	VCC

Connecting a Pmod or microcontroller board of one configuration type with a Pmod or microcontroller of another type requires slightly different wire connections. The configurations needed for each pairing are detailed below.

### Connecting Configuration Type A:

To connect a type A device to another Type A device, or a Type B or Type C device, two [2 Pin MTE Cables](#), a 4 Pin MTE Cable, or [6 Pin MTE Cable](#) must be used. It is very important to ensure that GND and VCC are connected to GND and VCC on both devices. Switching these wires may cause damage to one or both devices. It may also be necessary to connect VCC and GND from another part of the board, since not all Type A boards have VCC and GND pins located with the SCL and SDA pins.

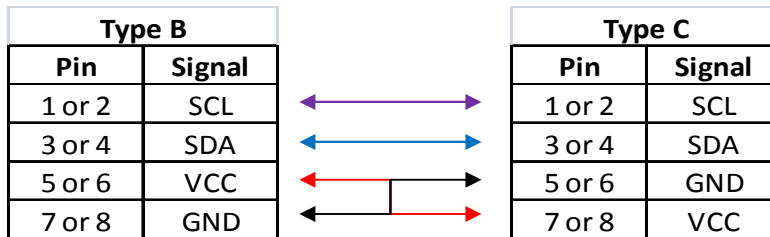
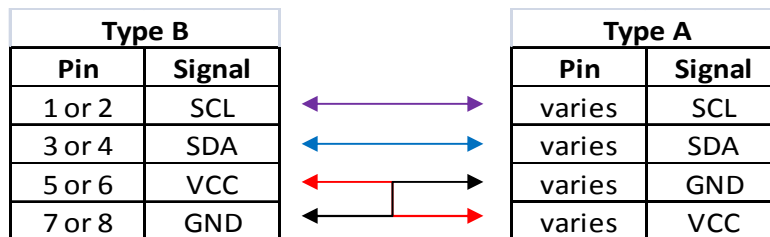


### Connecting Configuration Type B:

Used for I<sup>2</sup>C connections over 2x4 pin headers.

Connection with another type B device requires only two [2 Pin MTE Cables](#) or a 4 Pin MTE Cable, taking care to match the colors of the wires to the same signal on both devices.

To connect a type B device to a type A device or type C device, two [2 Pin MTE Cables](#), a 4 Pin MTE Cable, or [6 Pin MTE Cable](#) must be used. It is very important to ensure that GND and VCC are connected to GND and VCC on both devices. Switching these wires may cause damage to one or both devices. It may also be the case that a Type A device does not have GND and VCC pins located with the SCL and SDA pins. In these cases, it may be necessary to connect VCC and GND from another part of the board.



### Connecting Configuration Type C:

Used for I<sup>2</sup>C connections over 2x4 pin headers.

Connection with another type C device requires only two [2 Pin MTE Cables](#) or a 4 Pin MTE Cable, taking care to match the colors of the wires to the same signal on both devices.

To connect a type C device to a type A device or type B device, two [2 Pin MTE Cables](#), a 4 Pin MTE Cable, or [6 Pin MTE Cable](#) must be used. It is very important to ensure that GND and VCC are connected to GND and VCC on both devices. Switching these wires may cause damage to one or both devices. It may also be the case that a Type A device does not have GND and VCC pins located with the SCL and SDA pins. In these cases, it may be necessary to connect VCC and GND from another part of the board.

