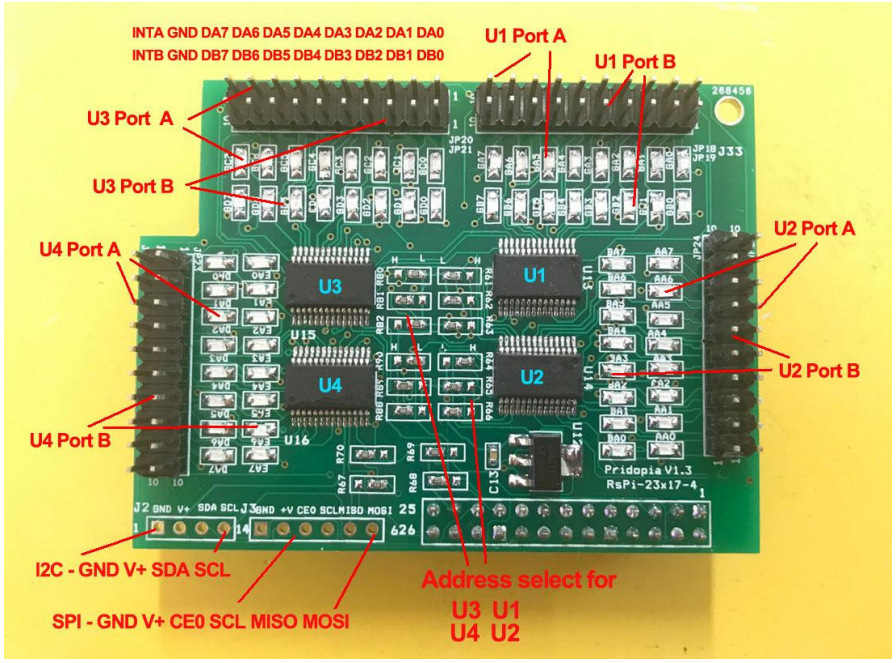
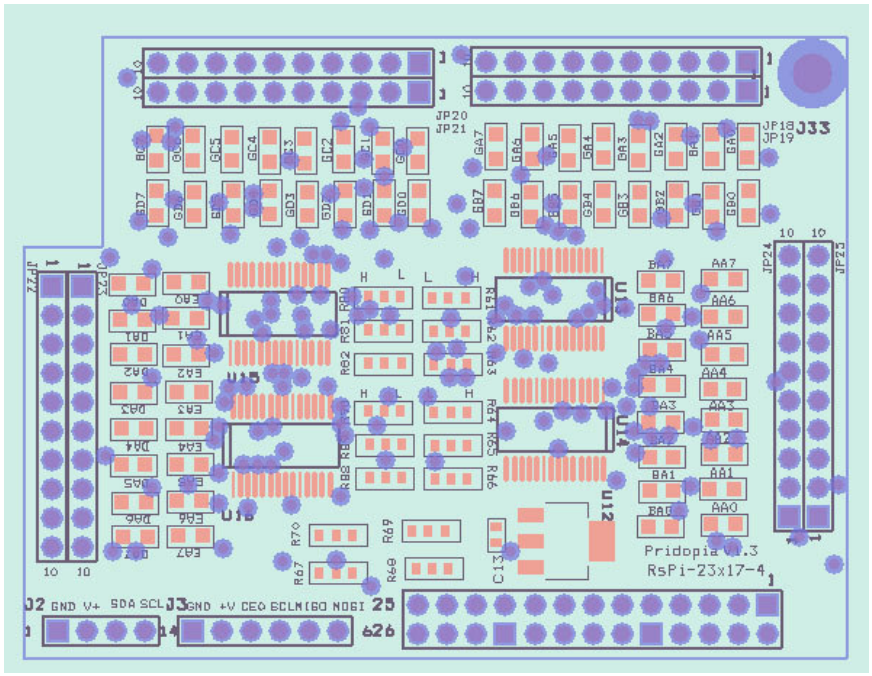
Rs-Pi-23017-4 i2c 64 GPIO User Manual



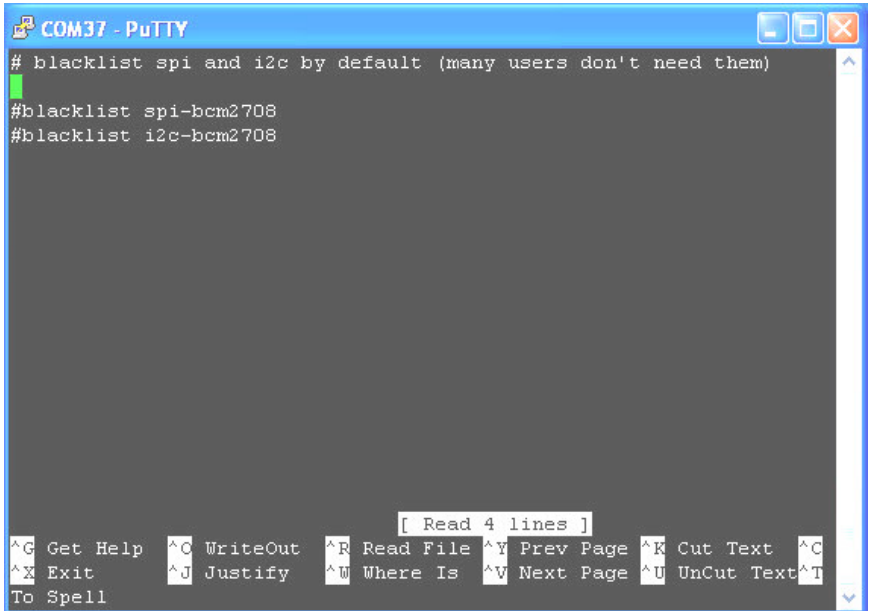


1. JP18 GA0 ~ GA7   U13 Port A   JP19 GB0 ~ GB7   U13 Port B
2. JP25 AA0 ~ AA7   U14 Port A   JP24 BA0 ~ BA7   U14 Port B
3. JP20 GC0 ~ GC7   U15 Port A   JP21 GD0 ~ GD7   U15 Port B
4. JP22 DA0 ~ DA7   U16 Port A   JP23 EA0 ~ EA7   U16 Port B
5 R61,R62,R63 (for U13 Address select A0,A1,A2)
6. R64,R65,R66 (for U14 Address select A0,A1,A2)
7 R80, R81,R82 (for U15 Address select A0,A1,A2)
8. R88,R89,R90 (for U16 Address select A0,A1,A2)
9. U13 (000) 23017 -1 Port A,B   U14 (001)   23017-2 Port A,B
10 . U15 (010) 23017 -3 Port A,B   U16 (011)   23017-4 Port A,B

1.Make sure you I2C driver are enable

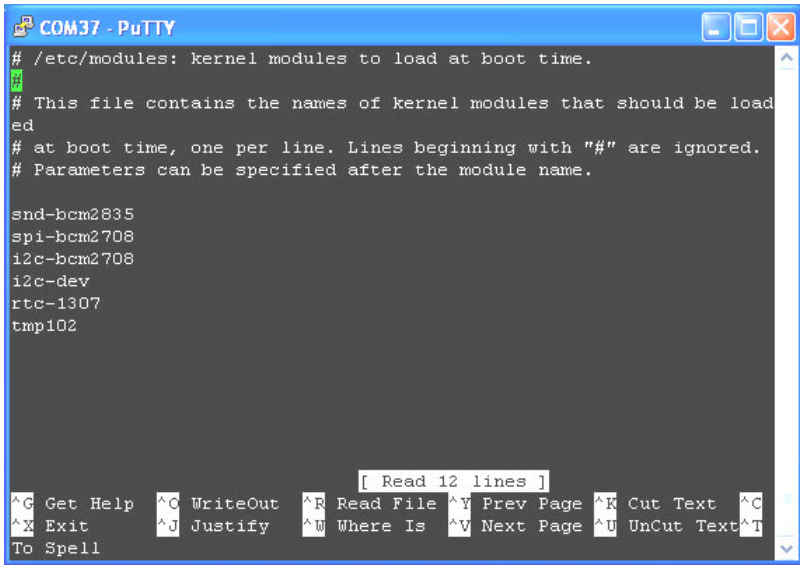
To enable it all you need to do is comment out a line by putting # in front

```
sudo nano /etc/modprobe.d/raspi-blacklist.conf
```



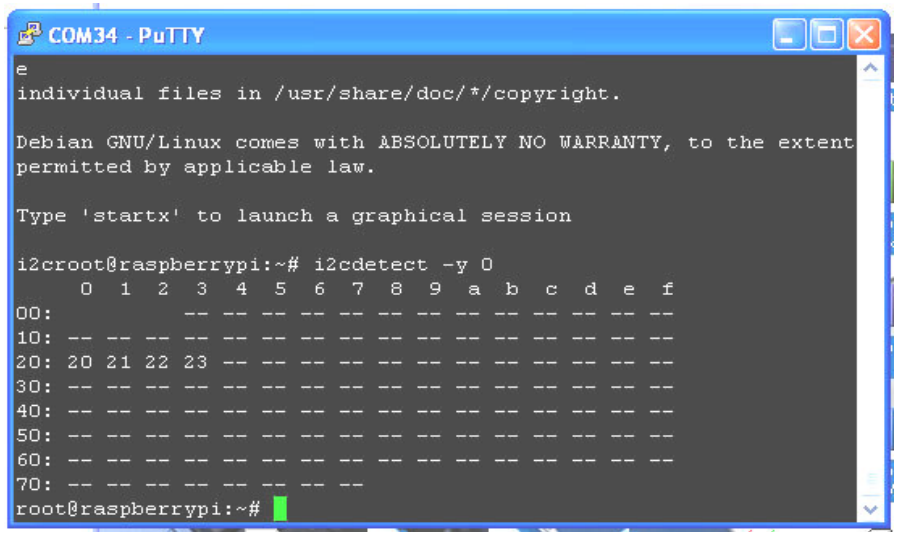
2. Add i2c-dev in /etc/modules by use

```
sudo nano /etc/modules
```



If you already install I2c driver , then

```
i2cdetect -y 0        i2cdetect -y 1
if Rs-Pi-v2 you need change 0 to 1
```



20, 21, 22 & 23 -> 23017 x4 you can change this address

Next install the python-smbus python module:

```
sudo apt-get install python-smbus
sudo apt-get install i2c-tools
```

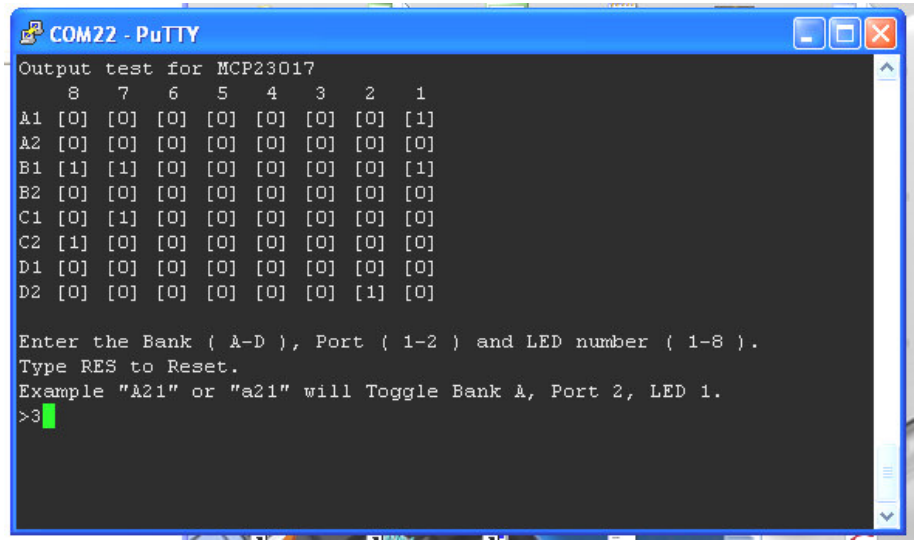
Now you are ready to use the i2c with python.

Some 23017 program information

http://nathan.chantrell.net/20120524/python-tools-for-the-mcp23017-io-expander/

http://nathan.chantrell.net/20120602/raspberry-pi-io-expander-board

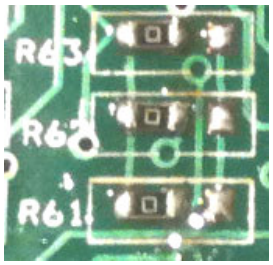
http://learn.adafruit.com/mcp230xx-gpio-expander-on-the-raspberry-pi/hooking-it-all-up



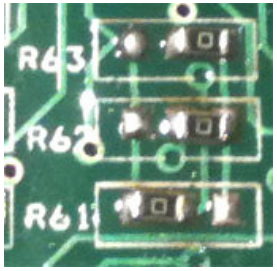
23017-4port-s-v103.py test program
Input “a21” will toggle Bank A, Port2, bit1 LED “ON”

A0, A1, A2 address
* right side GND low - 0 * left side Vcc High - 1

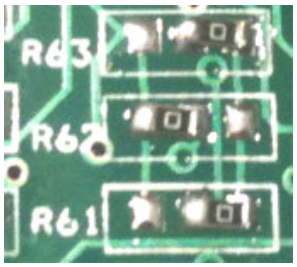
000 - 20



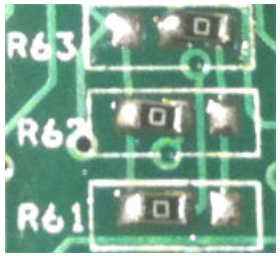
001 - 21



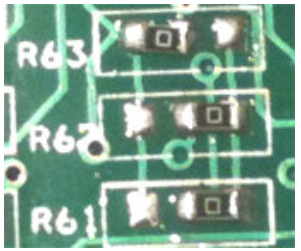
010 - 22



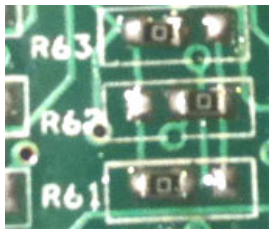
011 - 23



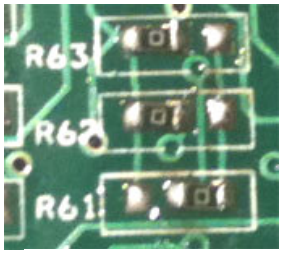
100 - 24



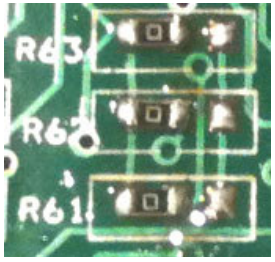
101 - 25



110 - 26



111 - 27



https://pypi.python.org/pypi/RPi.GPIO GPIO library

GPIO library - RPi.GPIO-0.5.3a.tar.gz

Install python , library and run the test program

sudo apt-get install python-dev

wget http://www.pridopia.co.uk/pi-pgm/RPi.GPIO-0.5.3a.tar.gz
gunzip RPi.GPIO-0.5.3a.tar.gz
tar –xvf RPi.GPIO-0.5.3a.tar
cd RPi.GPIO-0.5.3a

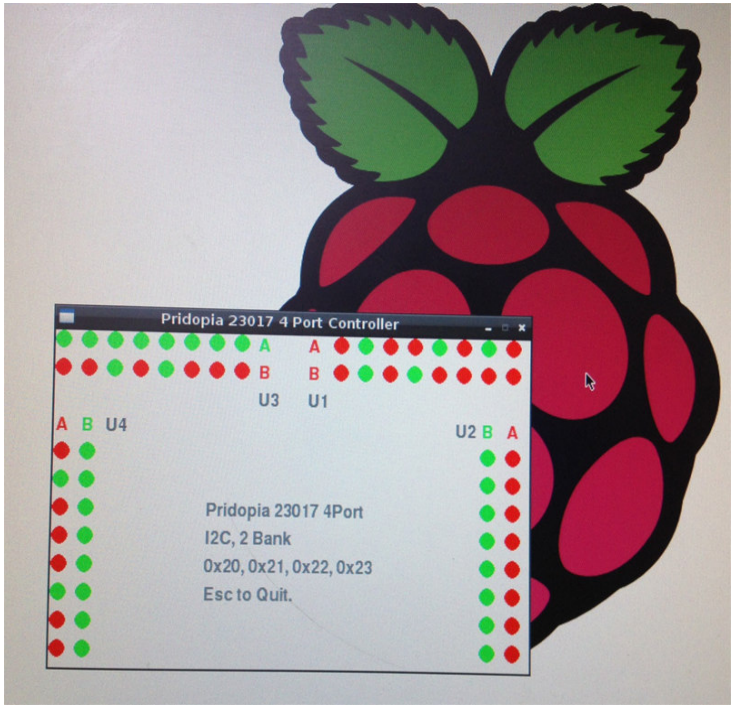
sudo python setup.py install

sudo python xxx.py (xxx.py is test program)

Download test program from our web site Python & C

Python
http://www.pridopia.co.uk/pi-23017-4-lp.html

C code for 2port
http://www.pridopia.co.uk/pi-i2c-23017x2-2803x2.html



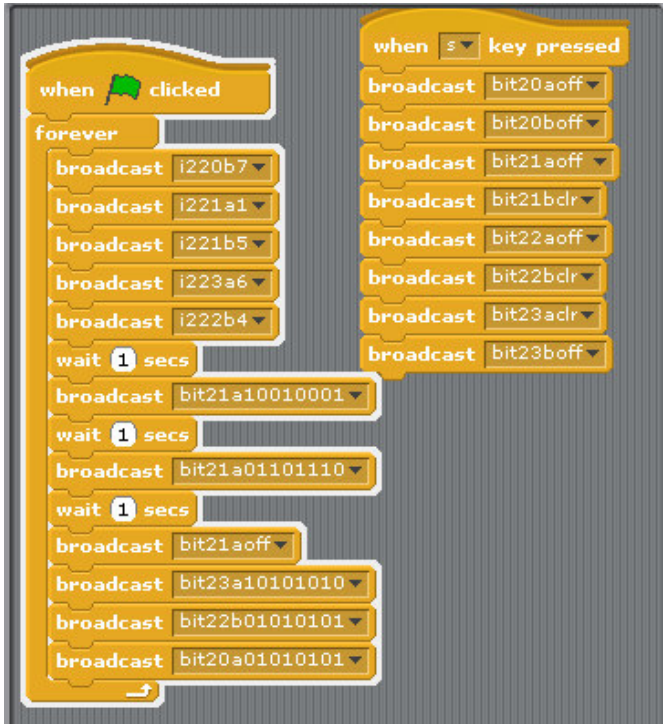
new GUI interface output software 23017-4port-GUI.py demo

23017-4port-GUI.py red.png green.png download these three files

New Pridopia scratch interface software you can download from our web site http://www.pridopia.co.uk/rs-pi-set-scratch.html

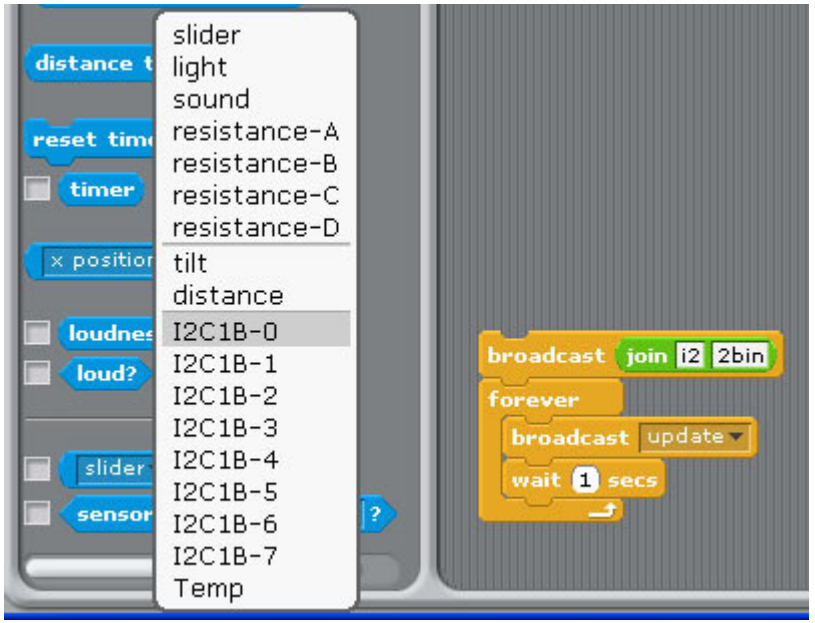
```
Command "i2"+ "address(20-27)" + "a" +"bit(1 to 8)" for Port A
Command "i2"+ "address(20-27)" + "b" +"bit(1 to 8)" for Port B
Command "bit"+ "address(20-27)" + "a" +"bit(8 to 1)" for Port A
Command "bit"+ "address(20-27)" + "b" +"bit(8 to 1)" for Port B

 i221a1 -->  i2c address 21 Port A bit 1 ON/OFF
 i222b4 -->  i2c address 22 Port B bit 4 ON/OFF
 bit22b01010101 -->  address 22 port B from bit 8 to 1
     output  --> 01010101
 bit21a01010101 -->  address 21 port A from bit 8 to 1
     output  --> 01010101
 bit21aoff  --> address 21 Port A all OFF/clear
 bit21boff  --> address 21 Port B all OFF/clear
 bit22aoff  --> address 22 Port A all OFF/clear
```



U1 to U4 i2c 23017 address 20,21,22,23

Setting GPIO as input




```
Command "i2"+ "address(1-8)" + "a" +"in" for Port A
Command "i2"+ "address(1-8)" + "b" +"in" for Port B
 Address 20 --> 1 21 --> 2 22-->3 23 -->4
 Address 24 --> 5 25 --> 6 26-->7 27 -->8


 command "i22bin" initial address 21, Port B as input

(1)"i22bin" initial address 21, Port B as input
```

(2) broadcast "Update"

(3) in Sensing --> Slider , you will see the " I2C1B-0 ~ I2C1B-7" in the list