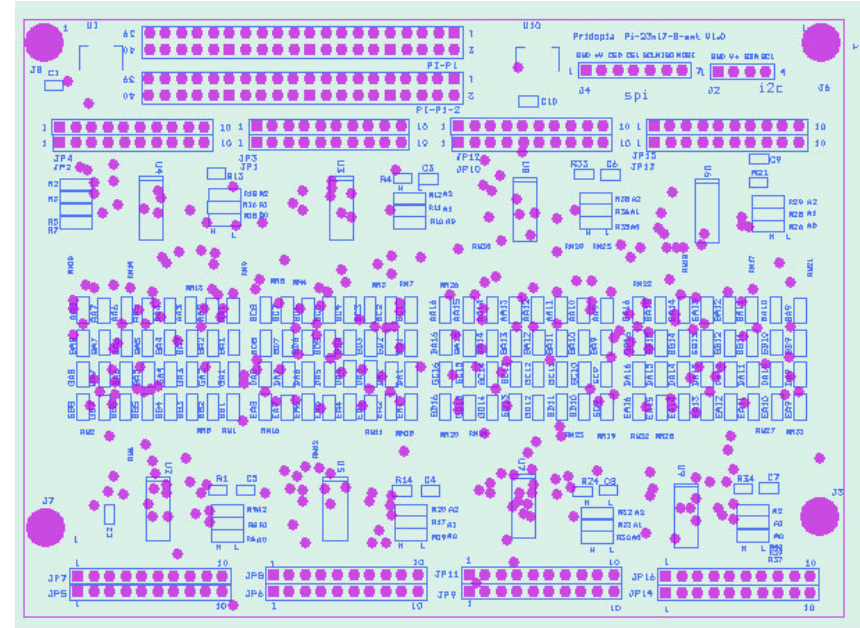
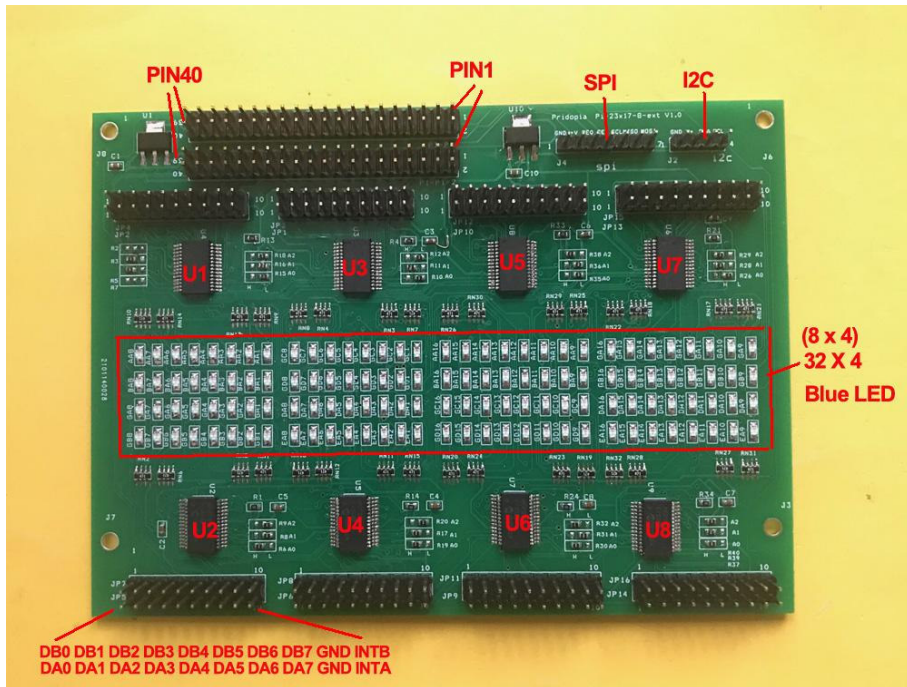


Rs-Pi – I2C 23017-8-EXT User Manual

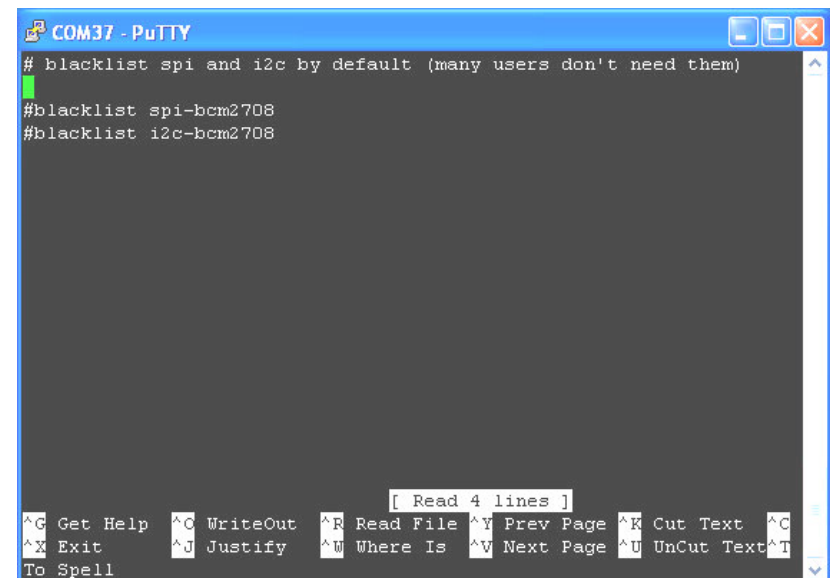


1. Make sure you I2C driver are enable

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
```

1. Provide 2x 20x2 40 pin same as Pi, one use 40pin GPIO cable connect to Pi, one 20x2 40pin for GPIO pin extra access.
2. Provide extra i2c pin and spi pin for easy connect device
3. Provide 128 GPIO status blue LED
4. Provide each 23017 Address select A0,A1,A2
can rearrange 23017 location by your order
5. U2 ,U3 ,U4, U5 ,U6 ,U7,U8 ,U9 23017 Port A,B
6. Each GPIO pin out 2X10 ,
Bank B(1-10) GPIO (0,1,2,3,4,5,6,7,GND, INTB)
Bank A(1-10) GPIO (0,1,2,3,4,5,6,7,GND, INTA)



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

```
COM37 - PuTTY
# /etc/modules: kernel modules to load at boot time.
#
# This file contains the names of kernel modules that should be loaded
# at boot time, one per line. Lines beginning with "#" are ignored.
# Parameters can be specified after the module name.

snd-bcm2835
spi-bcm2708
i2c-bcm2708
i2c-dev
rtc-1307
tmp102
```

If you already install I2c driver , then
 i2cdetect -y 1

```
COM34 - PuTTY
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.

Type 'startx' to launch a graphical session

root@raspberrypi:~# i2cdetect -y 0
   0  1  2  3  4  5  6  7  8  9  a  b  c  d  e  f
00:  --  --  --  --  --  --  --  --  --  --  --  --  --  --  --
10:  --  --  --  --  --  --  --  --  --  --  --  --  --  --  --
20: 20 21 22 23 24 25 26 27  --  --  --  --  --  --  --  --
30:  --  --  --  --  --  --  --  --  --  --  --  --  --  --  --
40:  --  --  --  --  --  --  --  --  --  --  --  --  --  --  --
50:  --  --  --  --  --  --  --  --  --  --  --  --  --  --  --
60:  --  --  --  --  --  --  --  --  --  --  --  --  --  --  --
70:  --  --  --  --  --  --  --  --  --  --  --  --  --  --  --
root@raspberrypi:~#
```

20, 21, 22 ,23,24,25,26 & 27 -> 23017 x8

Next install the python-smbus python module:

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

Download test program on our web site Python & C

<http://www.pridopia.co.uk/pi-23017-8-ext.html>

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

GPIO library - RPi.GPIO-0.5.4.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-0.5.4.tar.gz
# tar -xvf RPi.GPIO-0.5.4.tar
# cd RPi.GPIO-0.5.4
# sudo python setup.py install
# sudo python xxx.py      ( xxx is your python program name)
```

```
COM22 - PuTTY
Output test for MCP23017-8 128 GPIO
 8  7  6  5  4  3  2  1
A1 [0] [0] [0] [0] [0] [0] [0] [0]
A2 [1] [0] [0] [0] [0] [0] [0] [1]
B1 [0] [0] [0] [0] [0] [1] [1] [1]
B2 [1] [0] [0] [0] [0] [0] [0] [0]
C1 [0] [0] [0] [0] [0] [0] [0] [0]
C2 [1] [0] [0] [0] [0] [0] [0] [0]
D1 [0] [0] [0] [0] [0] [0] [0] [0]
D2 [1] [0] [0] [0] [0] [0] [0] [0]
E1 [0] [0] [0] [0] [0] [0] [0] [0]
E2 [0] [1] [0] [0] [0] [0] [0] [0]
F1 [1] [0] [0] [0] [0] [0] [0] [1]
F2 [0] [0] [0] [0] [0] [0] [0] [0]
G1 [0] [0] [0] [0] [0] [0] [0] [0]
G2 [0] [0] [0] [0] [0] [0] [0] [0]
H1 [0] [1] [0] [0] [0] [0] [0] [0]
H2 [0] [0] [0] [0] [0] [0] [0] [0]

Enter the Bank ( A-H ), Port ( 1-2 ) and LED number ( 1-8 ).
Type RES to Reset.
Example "A21" or "a21" will Toggle Bank A, Port 2, LED 1.
>
```

Our test program 23017-8port-s-v103.py

Enter “RES” can reset and quit

Enter “a21” u1, port b, bit 1 “ON”