

How to control Espressobin GPIOs under shell - Dec 01, 2020

A. Espressobin GPIO groups

There are two groups of GPIO in Espressobin V7 board, GPIO1, and GPIO2

GPIO1 has 36 GPIOs from GPIO1_0 to GPIO1_35

GPIO2 has 30 GPIOs from GPIO2_0 to GPIO2_29

B. Espressobin GPIO driver

The Espressobin GPIO driver is already stored in the directory `/sys/class/gpio`

You may find two `gpiochipxxx` controllers named `gpiochip446` and `gpiochip476`, go to the following directory then check

1. GPIO2

```
# cat /sys/class/gpio/gpiochip446/base
```

```
446
```

```
# cat /sys/class/gpio/gpiochip446/ngpio
```

```
30
```

This means the GPIO2 has 30 I/Os start from index 446 to 475

```
[ex]
```

```
gpio2_0 : 446
```

```
gpio2_1: 447
```

```
•
```

```
•
```

```
gpio2_20: 466
```

```
gpio2_21: 467
```

```
•
```

```
•
```

```
gpio2_29: 475
```

2. GPIO1

```
# cat /sys/class/gpio/gpiochip476/base
```

```
476
```

```
# cat /sys/class/gpio/gpiochip476/ngpio
```

```
36
```

This means GPIO1 has 36 I/Os from index 476 to 511

[ex]

```
Gpio1_0 : 476
```

```
Gpio1_1: 477
```

```
.
```

```
Gpio1_6: 482
```

```
Gpio1_7: 483
```

```
.
```

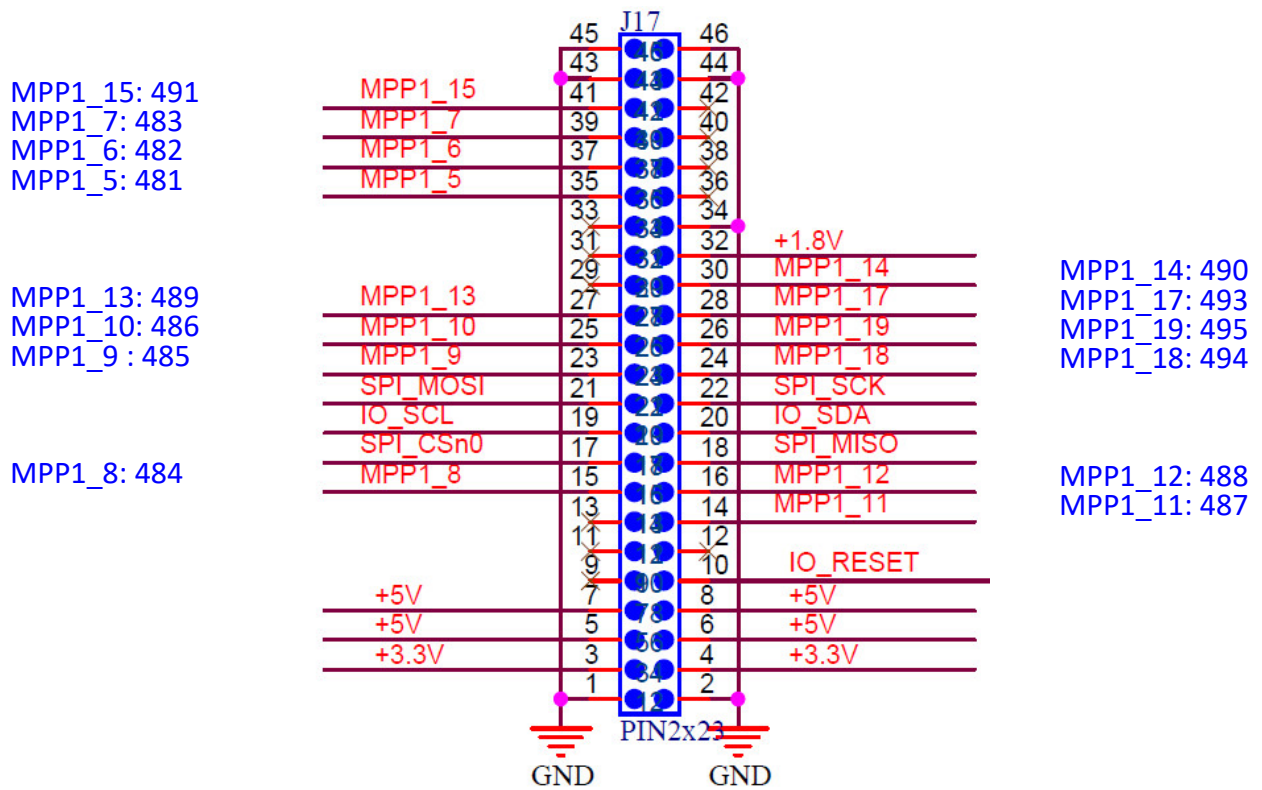
```
.
```

```
Gpio1_16: 492
```

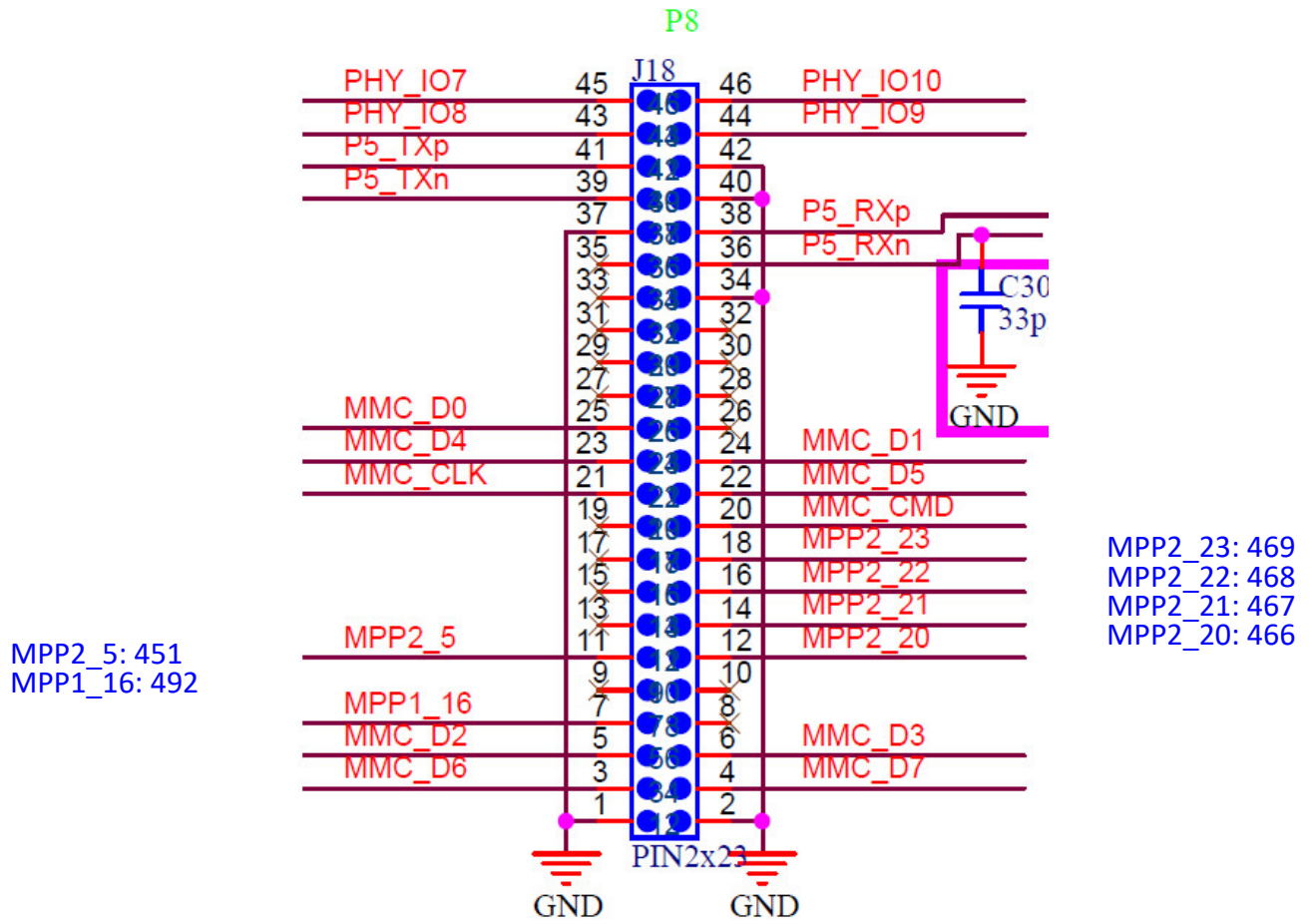
```
Gpio1_29: 511
```

C. Espressobin V7 -J17

Some of the GPIOs in Espressobin V7 board have been used by the system for dedicated I/O interfaces, only those labeled with MPPx_yy can be used by the user as shown below.



D. Espressobin V7 -J18



E. How to control the Espressobin V7 GPIOs under shell

If you want to use these GPIOs under the shell, you have to indicate them by the index number.
For example, the index number of MPP2_20 in J18 is 466

```
# cd/ sys/class/gpio  
# echo 466 > export
```

* note: if you get the error message "permission denied" please get the root privileges first or write the commands in /etc/rc.local as shown in section F

```
# echo out > gpio466/direction      * set gpio466 as output  
# echo 1 > gpio466/value            * gpio466 output high  
# echo 0 > gpio466/value            * gpio466 output low  
#  
# echo in > gpio488/direction        * gpio466 as input  
# echo 466 unexport                 * unexport gpio466
```

F. Write commands into /etc/rc.local

Please change the “username” in the below scripts to your user name.

```
# vi /etc/rc.local
```

```
# add the following lines before exit 0
# here we define 4 gpios, 466, 467, 482, 483
```

```
echo 466 > /sys/class/gpio/export
echo 467 > /sys/class/gpio/export
echo 482 > /sys/class/gpio/export
echo 483 > /sys/class/gpio/export
```

```
chown -R username /sys/class/gpio/gpio466
chown -R username /sys/class/gpio/gpio467
chown -R username /sys/class/gpio/gpio482
chown -R username /sys/class/gpio/gpio483
```

```
chown -R username /sys/class/gpio/gpio466/direction
chown -R username /sys/class/gpio/gpio467/direction
chown -R username /sys/class/gpio/gpio482/direction
chown -R username /sys/class/gpio/gpio483/direction
```

```
chown -R username /sys/class/gpio/gpio466/value
chown -R username /sys/class/gpio/gpio467/value
chown -R username /sys/class/gpio/gpio482/value
chown -R username /sys/class/gpio/gpio483/value
```

```
exit 0
```

be sure to save the changes then reboot Espressobin

```
# reboot
# cd /sys/class/gpio
# ls -l
```

There should be 4 more directories created by the system as gpio466, gpio467, gpio482, gpio483