How to Modify the Display Direction

1、GPIO port type LCD Rotation Methods：

Apply to GPIO port LCD(2.4 inch,2.8 inch,3.2 inch,3.5 inch).

Execute command at terminal：

```
sudo nano /boot/config.txt
```

If using 2.4 inch/2.8 inch/3.2 inch LCD, please find”dtoverlay=tft9341”,then add rotate parameter, and do as follows：

```
dtoverlay=tft9341:rotate=value
```

If using 3.5 inch LCD, please find”dtoverlay=tft35a”then add rotate parameter, and do as follows：

```
dtoverlay=tft35a:rotate=value
```

We take 3.5inch LCD for example:

For rotation of 0 degree(vertical screen), the corresponding value is:

```
dtoverlay=tft35a:rotate=0
```

For rotation of 90 degree(horizontal screen), the corresponding value is:

```
dtoverlay=tft35a:rotate=90
```

For rotation of 180 degree(vertical screen), the corresponding value is:

```
dtoverlay=tft35a:rotate=180
```

For rotation of 270 degree(horizontal screen), the corresponding value is:

```
dtoverlay=tft35a:rotate=270
```

Press Ctrl + X, select Y, save and exit.

2、HDMI port type LCD Rotation Methods：

This method just applies to the HDMI interface type LCD(such as 3.97inch, 4.3inch,5 inch,7 inch model B,7 inch model C,10.1 inch)
Execute command at terminal:

```
sudo nano /boot/config.txt
```

Find “display_rotate”, if there is not, please add it in

There are the meaning of parameter “display_rotate”

display_rotate	result
0	no rotation
1	rotate 90 degrees clockwise
2	rotate 180 degrees clockwise
3	rotate 270 degrees clockwise
0x10000	horizontal flip
0x20000	vertical flip

For rotation of 0 degree, the corresponding value is:

```
display_rotate=0
```

For rotation of 90degrees, the corresponding value is:

```
display_rotate=1
```

For rotation of 180 degrees, the corresponding value is:

```
display_rotate=2
```

For rotation of 270 degrees, the corresponding value is:

```
display_rotate=3
```

For horizontal flip display, the corresponding value is:

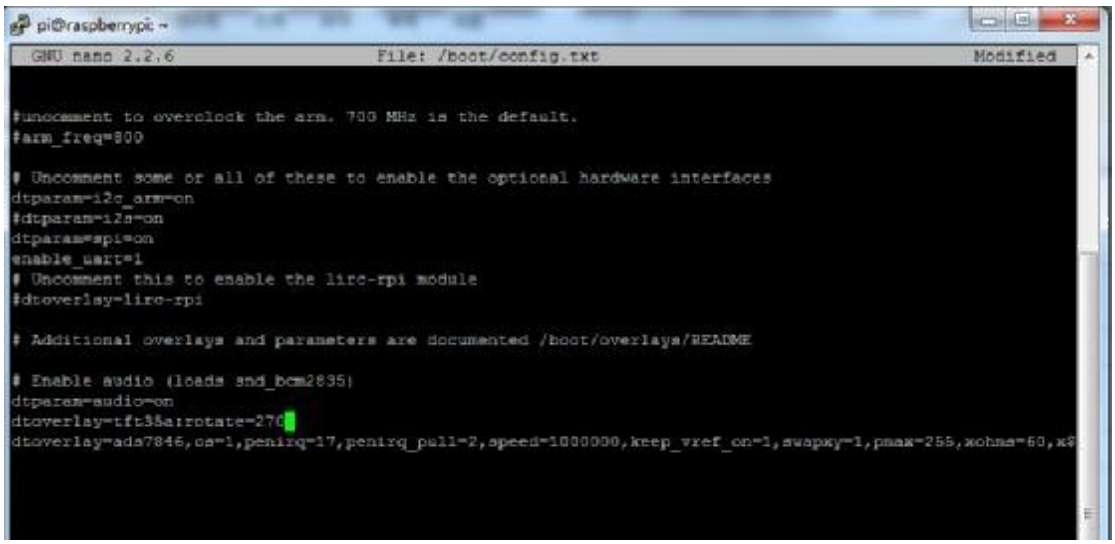
```
display_rotate=0x10000
```

For vertical flip display,the corresponding value is:

```
display_rotate=0x20000
```

Press Ctrl + X, select Y, save and exit.

As picture:



3、**Modify touch parameters**

When the display direction changes, we also need to modify “99-calibration.conf”file to set the touch.And then execute command

```
sudo nano       /etc/X11/xorg.conf.d/99-calibration.conf
```

Take 5 inch HDMI LCD for example:

The default parameter is 0 degree, that is, display_rotate=0, the corresponding touch calibration parameters are:

```
Section "InputClass"
        Identifier      "calibration"
        MatchProduct    "ADS7846 Touchscreen"
        Option  "Calibration"   "140 3951 261 3998 "
        Option  "SwapAxes"      "0"
EndSection
```

For rotating 90 degrees to display, that is, display_rotate=1, the corresponding touch parameters are modified as:

```
Section "InputClass"
        Identifier      "calibration"
        MatchProduct    "ADS7846 Touchscreen"
        Option  "Calibration"   "261 3998 3951 140"
        Option  "SwapAxes"      "1"
EndSection
```

For rotating 180 degrees to display, that is, display_rotate=2, the corresponding touch parameters are modified as:

```
Section "InputClass"
```

```
        Identifier          "calibration"
        MatchProduct        "ADS7846 Touchscreen"
        Option      "Calibration"       "3951 140 3998 261"
        Option      "SwapAxes"          "0"
EndSection
```

For rotating 270 degrees to display, that is, display_rotate=3, the corresponding touch parameters are modified as:

```
Section "InputClass"
        Identifier      "calibration"
        MatchProduct        "ADS7846 Touchscreen"
        Option      "Calibration"       "3998 261 140 3951"
        Option      "SwapAxes"      "1"
EndSection/
```

When modified, restart to see the effect.

```
sudo reboot
```