2.Driving_the_LCD_screen

After CPU Info LCD screen is correctly inserted into the Raspberry Pi, you need to install the driver. The user can display information such as CPU occupancy, Memory occupancy, CPU temperature,etc.

1. Install the wringPi library

CPU Info LCD screen is used for data communication through the GPIO port of the Raspberry Pi, so we must install the wiringPi library file.

Enter the following command to install the wringPi library. Users who have already installed the wiringPi library can ignore this step.

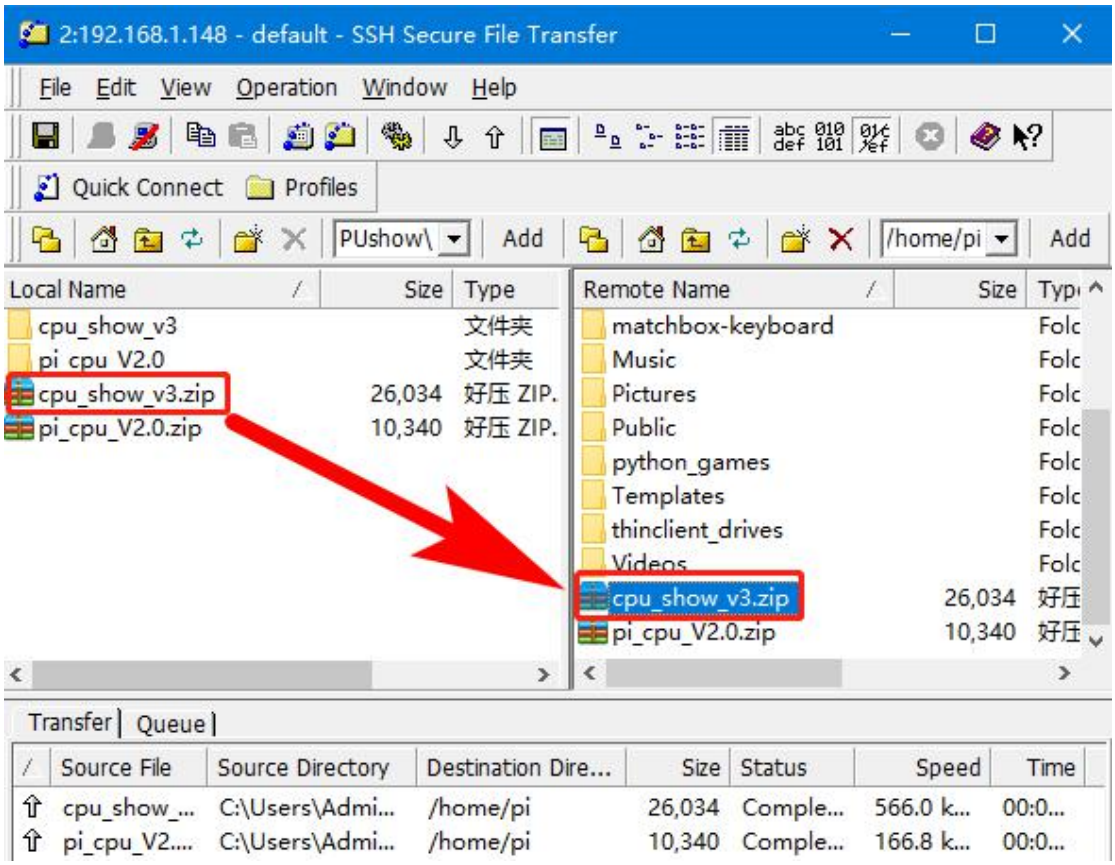
```
cd ~
git clone git://git.drogon.net/wiringPi
cd wiringPi
./build
```

2.Install Drive

2.1 Transfer the driver file to the Raspberry Pi

You need to install the SSH Secure Shell Client tool on your computer. After connecting to the Raspberry Pi, transfer the **cpu_show_v3.zip** package from this folder to the pi directory of the Raspberry Pi.

As shown blew, drag and drop **cpu_show_v3.zip** directly into the Raspberry Pi system.



2.2 Extract file

Open the Raspberry Pi terminal and find the **cpu_show_v3.zip** file.

Enter command:

ls

```
pi@raspberrypi:~ $ ls
cpu_show_v3.zip  LCD-show           pi_cpu_V2.0.zip  Templates
Desktop          MagPi              Pictures         thinclient_drives
Documents        matchbox-keyboard  Public           Videos
Downloads        Music              python_games     wiringPi
pi@raspberrypi:~ $
```

Enter command:

unzip cpu_show_v3.zip

```
pi@raspberrypi:~ $ unzip cpu_show_v3.zip
Archive:  cpu_show_v3.zip
   creating: cpu_show_v3/cpu_show/
   creating: cpu_show_v3/cpu_show/BL/
  inflating: cpu_show_v3/cpu_show/BL/bl
  inflating: cpu_show_v3/cpu_show/BL/test.c
  inflating: cpu_show_v3/cpu_show/cpushow
   creating: cpu_show_v3/cpu_show/cputemp/
  inflating: cpu_show_v3/cpu_show/cputemp/cputemp.c
  inflating: cpu_show_v3/cpu_show/cputemp/temp
  inflating: cpu_show_v3/cpu_show/PCD8544.c
  inflating: cpu_show_v3/cpu_show/PCD8544.h
  inflating: cpu_show_v3/cpu_show/pcd8544_rpi.c
  inflating: cpu_show_v3/cpu_show/README.txt
pi@raspberrypi:~ $
```

2.3 Enter the program folder

Enter command:

cd ~/cpu_show_v3/cpu_show

ls

```
pi@raspberrypi:~ $ cd ~/cpu_show_v3/cpu_show
pi@raspberrypi:~/cpu_show_v3/cpu_show $ ls
BL  cpushow  cputemp  PCD8544.c  PCD8544.h  pcd8544_rpi.c  README.txt
pi@raspberrypi:~/cpu_show_v3/cpu_show $
```

2.4 Compiler file

Enter command:

cc -o cpushow pcd8544_rpi.c PCD8544.c -L/usr/local/lib -lwiringPi

```
pi@raspberrypi:~/cpu_show_v3/cpu_show $ cc -o cpushow pcd8544_rpi.c PCD8544.c -
L/usr/local/lib -lwiringPi
pcd8544_rpi.c: In function 'main':
pcd8544_rpi.c:176:6: warning: implicit declaration of function 'read' [-Wimplici
t-function-declaration]
  if (read(fd, buf, MAX_SIZE) < 0)
      ^~~~
pcd8544_rpi.c:190:2: warning: implicit declaration of function 'close' [-Wimplic
it-function-declaration]
  close(fd);
  ^~~~~
pi@raspberrypi:~/cpu_show_v3/cpu_show $ ls
BL  cpushow  cputemp  PCD8544.c  PCD8544.h  pcd8544_rpi.c  README.txt
```

Check again with the **ls** command, cpushow has become an executable file. cc is the compile command, -o is the compile parameter, cpushow is the generated program name, pcd8544_rpi.c and PCD8544.c are the source files in the current directory, -L/usr/local/lib and -lwiringPi are referenced libraries file.

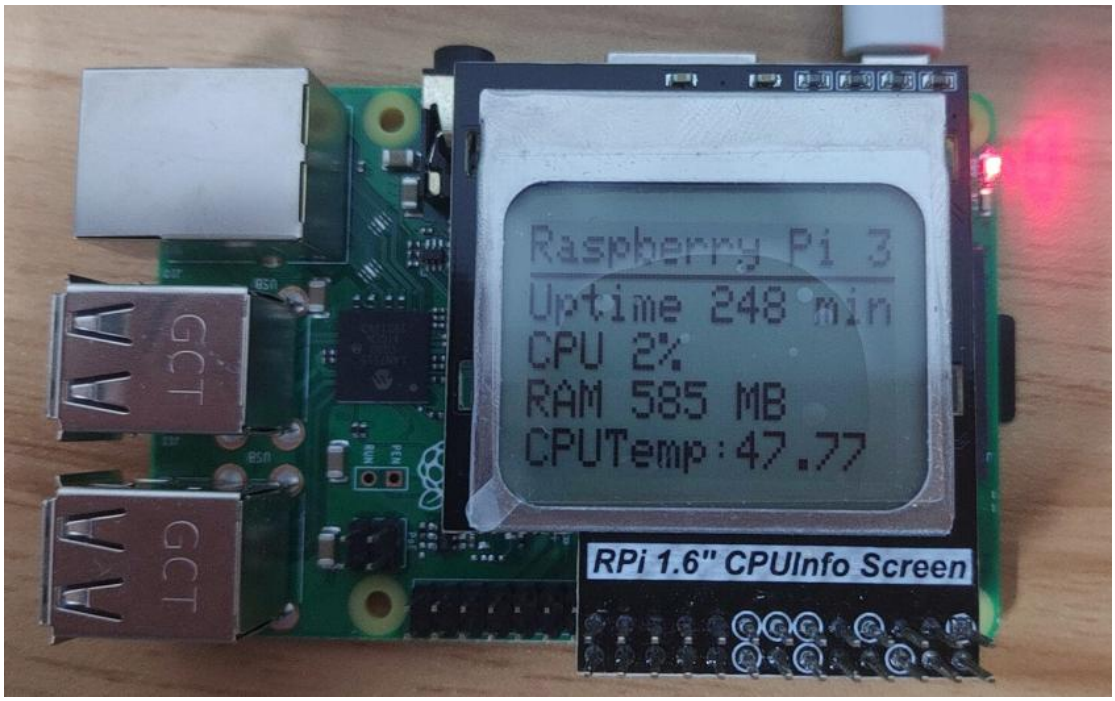
2.5 Running procedure

Enter command:

sudo ./cpushow

```
pi@raspberrypi:~/cpu_show_v3/cpu_show $ sudo ./cpushow
Raspberry Pi PCD8544 sysinfo display
========================================
temp: 48.85
temp: 48.31
temp: 48.31
temp: 48.31
temp: 48.31
temp: 48.31
temp: 47.77
```

The system will jump out of the current CPU temperature value and display the following on the CPU Info screen.



3. Set the system to automatically start the program when booting

Enter command:

sudo nano /etc/rc.local

Add the following command before the exit 0 command:

sudo /home/pi/cpu_show_v3/ cpu_show /cpushow

```
#
# By default this script does nothing.

# Print the IP address
_IP=$(hostname -I) || true
if [ "$_IP" ]; then
  printf "My IP address is %s\n" "$_IP"
fi

sudo /home/pi/cpu_show_v3/cpu_show/cpushow

exit 0
```

After change is complete, we need to press **ctrl+O** on the keyboard, and press **Enter** to save, press **ctrl+X** to quit.

4.Restart Raspberry Pi

Enter command:

sudo reboot

After restarting, the CPU Info LCD will display the Raspberry Pi usage time, CPU usage, Memory occupancy, and CPU temperature. As shown in the figure blew.