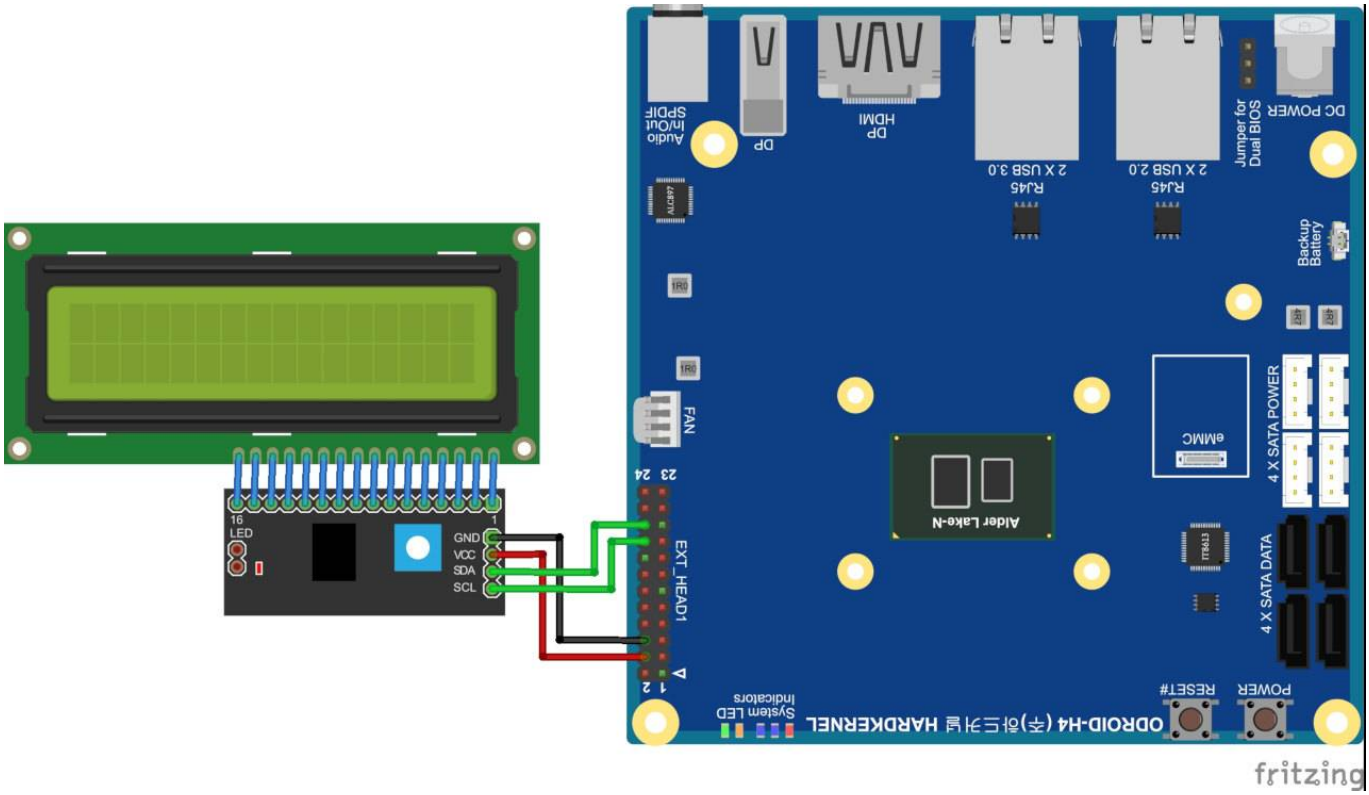
I2C 20x4 LCD

Hello world example

These examples were written and tested on Ubuntu 22.04 with the Linux kernel 6.5.0-14-generic

Wiring



Download fritzing
- fritzing parts ☞

h4_20x4lcd_i2c.fzz

- LCM1602 part ☞

lcm1602_iic.fzpz

- ODROID-H4 part ☞

odroid-h4.fzpz

Connection Check

If you have done the wiring well, you can see the device as the following commands.

Step 1. Install i2c-tools package.

```
sudo apt install i2c-tools
```

Step 2. Check the I2C bus number on your H4. That could be variable depending on your system. The below ***i2cdetect -l*** output shows the system has assigned I2C bus numbers 1 and 2. The 20×4 LCD is using the **Synopsys DesignWare I2C adapter**.

target

```
odroid@odroid-h4p:~$ sudo i2cdetect -l
i2c-0   smbus           SMBus I801 adapter at efa0              SMBus
adapter
i2c-1   i2c             Synopsys DesignWare I2C adapter         I2C
adapter
i2c-2   i2c             Synopsys DesignWare I2C adapter         I2C
adapter
i2c-3   i2c             i915 gmbus dpa                          I2C
adapter
i2c-4   i2c             i915 gmbus dpb                          I2C
adapter
i2c-5   i2c             i915 gmbus dpc                          I2C
adapter
i2c-6   i2c             i915 gmbus tc1                          I2C
adapter
i2c-7   i2c             i915 gmbus tc2                          I2C
adapter
i2c-8   i2c             i915 gmbus tc3                          I2C
adapter
i2c-9   i2c             i915 gmbus tc4                          I2C
adapter
i2c-10  i2c             i915 gmbus tc5                          I2C
adapter
i2c-11  i2c             i915 gmbus tc6                          I2C
adapter
i2c-12  i2c             AUX B/DDI B/PHY B                       I2C
adapter
```

Step 3. Try the ***i2cdetect*** command with the I2C bus number which is appeared in **Step 2.**

```
sudo i2cdetect -y -r 1 # 1(one) is the I2C bus number it could be 2(two) in
this examples.
```

The I2C address appears 0x27 like below.

target

```
odroid@h4~$ sudo i2cdetect -y -r 1
     0  1  2  3  4  5  6  7  8  9  a  b  c  d  e  f
```

```
00:          -- -- -- -- -- -- -- -- -- -- -- -- --
10: -- -- -- -- -- -- -- -- -- -- -- -- -- -- -- --
20: -- -- -- -- -- -- -- 27 -- -- -- -- -- -- -- --
30: -- -- -- -- -- -- -- -- -- -- -- -- -- -- -- --
40: -- -- -- -- -- -- -- -- -- -- -- -- -- -- -- --
50: -- -- -- -- -- -- -- -- -- -- -- -- -- -- -- --
60: -- -- -- -- -- -- -- -- -- -- -- -- -- -- -- --
70: -- -- -- -- -- -- -- --
```

For this I2C 20×4 LCD module is possible to change an address from 0x20 until to 0x27 by wiring A0, A1, and A2 to the GND.
If you flip over the module, you can see the places with white silkscreen A0, A1, and A2 under the squared blue color variable resistor.

Install & build python packages

```
sudo apt install git python3-dev libi2c-dev python3-smbus
```

If you got this error on your Ubuntu.

```
E: Unable to locate package python3-smbus
```

Install smbus package using pip tool.

```
sudo apt install pip
sudo pip install smbus
```

Get source code

```
git clone https://github.com/hardkernel/i2c_20x4_lcd.git
```

Edit lcddriver.py if you need to change the host bus address and/or device address.

Run the example

python3

```
sudo python3 hello_world.py I2CBUS ADDRESS
```

```
sudo python3 hello_world.py 1 27
```

Or

```
sudo python3 hello_world.py 2 27
```

wiringPi

odroid-wiringpi version is 3.15.2 or later.

```
add-apt-repository ppa:hardkernel/ppa
apt update && apt install autoconf git libtool libwiringpi-dev
git clone https://github.com/hardkernel/wiringPi.git
cd wiringPi/examples
./autogen.sh
./configure
make
```

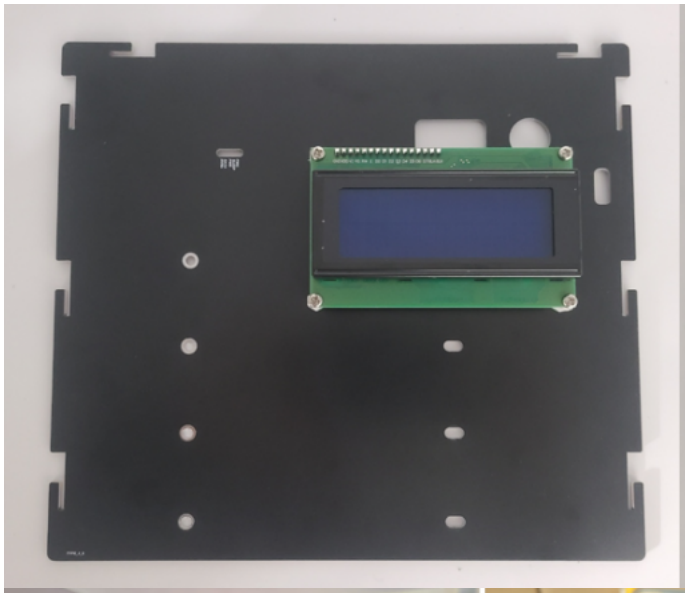
```
sudo i2c-lcd I2C-BUS ADDRESS
```

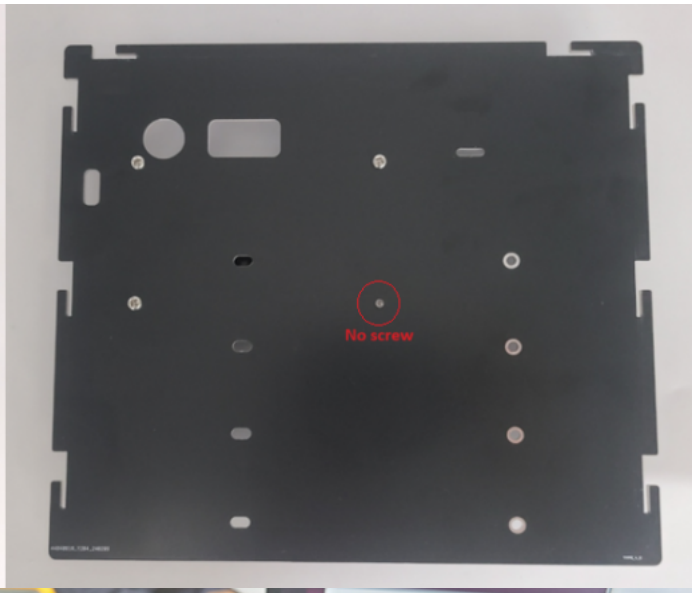
```
sudo i2c-lcd 1 27
```

Or

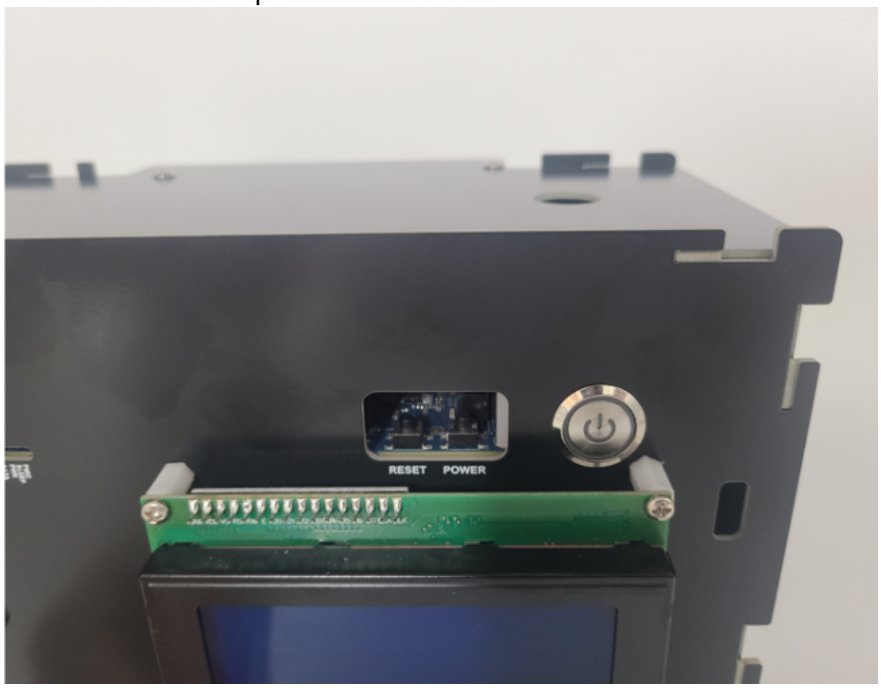
```
sudo i2c-lcd 2 27
```

Assembly into the ODROID-H4 CaseType 4





The LED power button can be installed on the side or top.



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