Instruçoes Gerais Luckfox 31/01/2026

Foi instalado dentro do Windows Notebook o ambiente **WSL** Ubuntu. Pode ser visto via menu Iniciar.
usuario Flavio senha aluminio

VSCode

No VSCode esta enta integrada a extensao WSL que permite editar o codigo C diretamente no diretorio /home/flavio/drivers do ubuntu que tambem pode ser acessado via Windows Explorer

Apos feita a edicao do codigo, entrar no ambiente Ubuntu WSL via console integrado do VSCode ou atraves do terminal WSL no windows. Estando no diretorio e compilar

Tambem foi instalada a DeviceTree Language Support for Visual Studio Code e Dts file formatter VS Code plugin

Dentro do diretorio no Windows

Visao do diretorio do Windows.

```
flavio@DESKTOP-DKUQFH3:~/drivers$ ls
 Documentation.url     'Instrucoes Projeto Luckfox.txt'   gpio_blink   hello_mod      teste.txt
 DriverAssitant_v5.13   SocToolKit_v1.98_20240705_01_win   gpio_mirror   lora_station
flavio@DESKTOP-DKUQFH3:~/drivers$ cd lora_station/
flavio@DESKTOP-DKUQFH3:~/drivers/lora_station$ ls
Makefile  station.c
flavio@DESKTOP-DKUQFH3:~/drivers/lora_station$ make
```

Basta fazer o make, ele vai usar o Makefile que esta no mesmo diretorio. Far-se-a a geracao do compilado arquivo.o

No WSL esta rodando um micro servidor https Phyton porta 8000

```
//servidor phyton
python3 -m http.server 8000
```

Hardware Luckfox modelo: Luckfox Pico RV1106

https://wiki.luckfox.com/Luckfox-Pico-RV1106
modelo exato: Luckfox Pico Pi A W

RV1106G3
256MB DDR3L
Storage eMMC(8GB)

Entao entrar diretamente no device Luckfox via console COM5 usando FTTDI ou via ssh pelo IP da rede wireless e fazer o download do arquivo.o que esta no windows para a placa.

Essa transferência pode ser via wget

Apos receber o arquivo, colocar o arquivo.o dentro do /root

```
[root@luckfox root]# ls
gpio_blink.ko          instrucoes            teste.txt
gpio_mirror.ko         luckfox_kernel.config
hello.ko               station.ko
[root@luckfox root]#
```

fazer entao

carregar o modulo:
 insmod /root/gpio_blink.ko out_gpio=32 interval_ms=10
remover modulo:
rmmod /root/gpio_blink

O modulo entao ficará carregado e será executado por exemplo a cada 10ms um blink da gpio32

Apos um reboot o modulo nao é carregado automaticamente, precisaria se necessario carregar automatico.

Observaçoes do Servidor WSL no Windows:

no servidor wsl fazer isso:
no arquivo
C:\Users\<SEU_USUARIO>\.wslconfig
[wsl2]
networkingMode=mirrored
dnsTunneling=true
firewall=true

Abrir a porta no firewall publico.

Para nova instalacao WSL - varias instrucoes:

Instalar o wsl no windows usando o power shell como administrador
wsl --install
Depois:
reinicia

escolhe Ubuntu
cria usuário/senha
usuario Flavio senha aluminio
Pronto. Você já tem Linux.

//servidor phyton
python3 -m http.server 8000

Servico de Httpd
root@DESKTOP-DKUQFH3:/home/flavio# nano /etc/systemd/system/pyhttp.service

Roda esse servico de httpd definido no diretorio home/flavio
/home/flavio/http_server.py

conectar rede wireless
editar /etc/wpa_supplicant.conf com usuario e a senha wifi
 wpa_supplicant -Dnl80211 -B -iwlan0 -c /etc/wpa_supplicant.conf

entrar em
C:\Users\rfidf\Documents\Projeto Linux Luckfox\SocToolKit_v1.98_20240705_01_win
ai tem o SOCToolKit que se usa para instalar diversos pacotes

no wls usuario Flavio senha aluminio

No servidor

cd ~/sdk

root@wordpress-s-1vcpu-1gb-lon1-01:~# cd ~/sdk
root@wordpress-s-1vcpu-1gb-lon1-01:~/sdk# ls
Luckfox-Pico
root@wordpress-s-1vcpu-1gb-lon1-01:~/sdk# pwd
/root/sdk
root@wordpress-s-1vcpu-1gb-lon1-01:~/sdk#

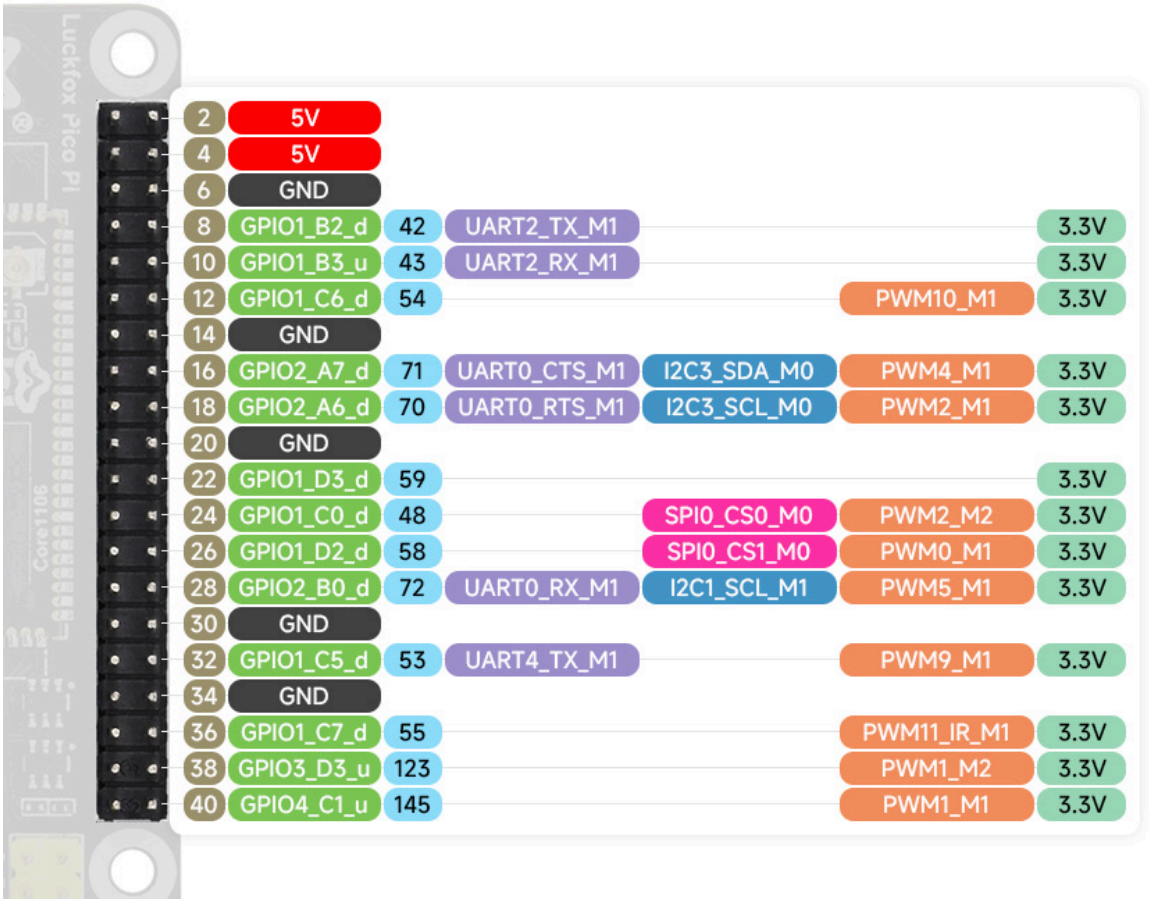
root@wordpress-s-1vcpu-1gb-lon1-01:~/sdk/Luckfox-Pico# cd ~/sdk/Luckfox-Pico
root@wordpress-s-1vcpu-1gb-lon1-01:~/sdk/Luckfox-Pico# ls
README.md README_CN.md UPDATE_LOG.md UPDATE_LOG_CN.md build.sh
media project rkflash.sh sysdrv tools
root@wordpress-s-1vcpu-1gb-lon1-01:~/sdk/Luckfox-Pico#

compilar o kernel
cd ~/sdk/Luckfox-Pico/sysdrv
make kernel

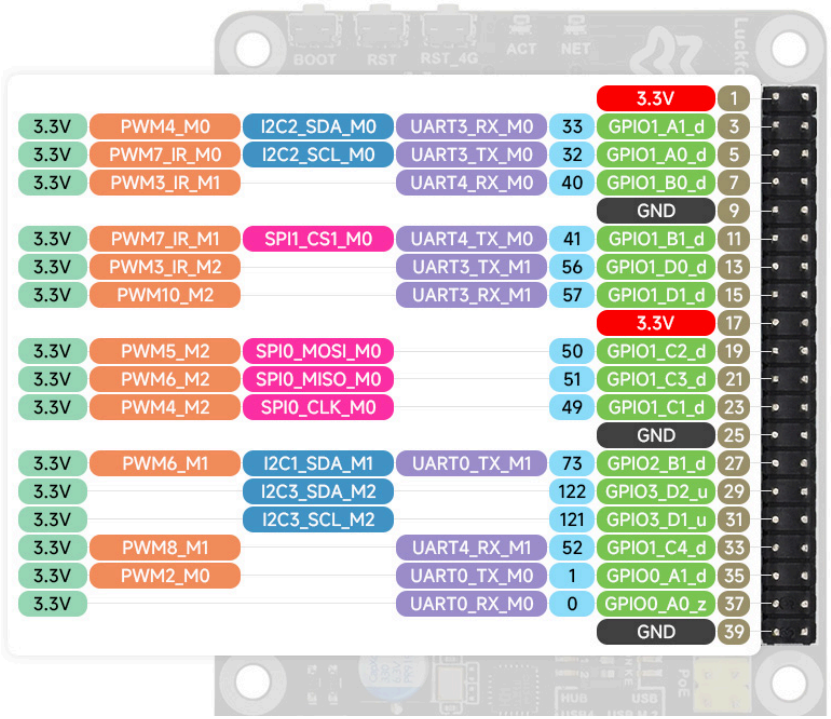
Conexoes:

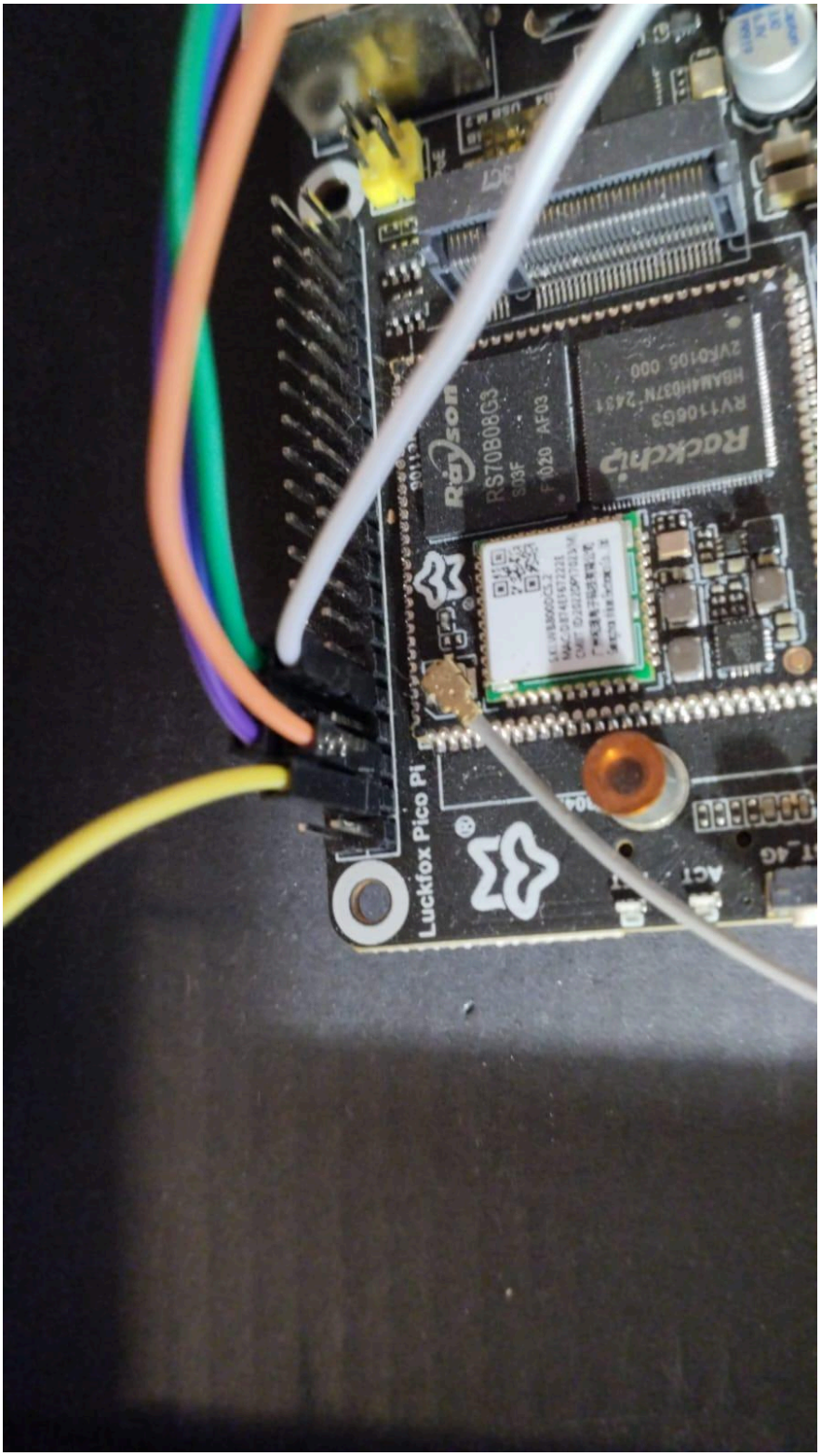
Conversor FTTDI

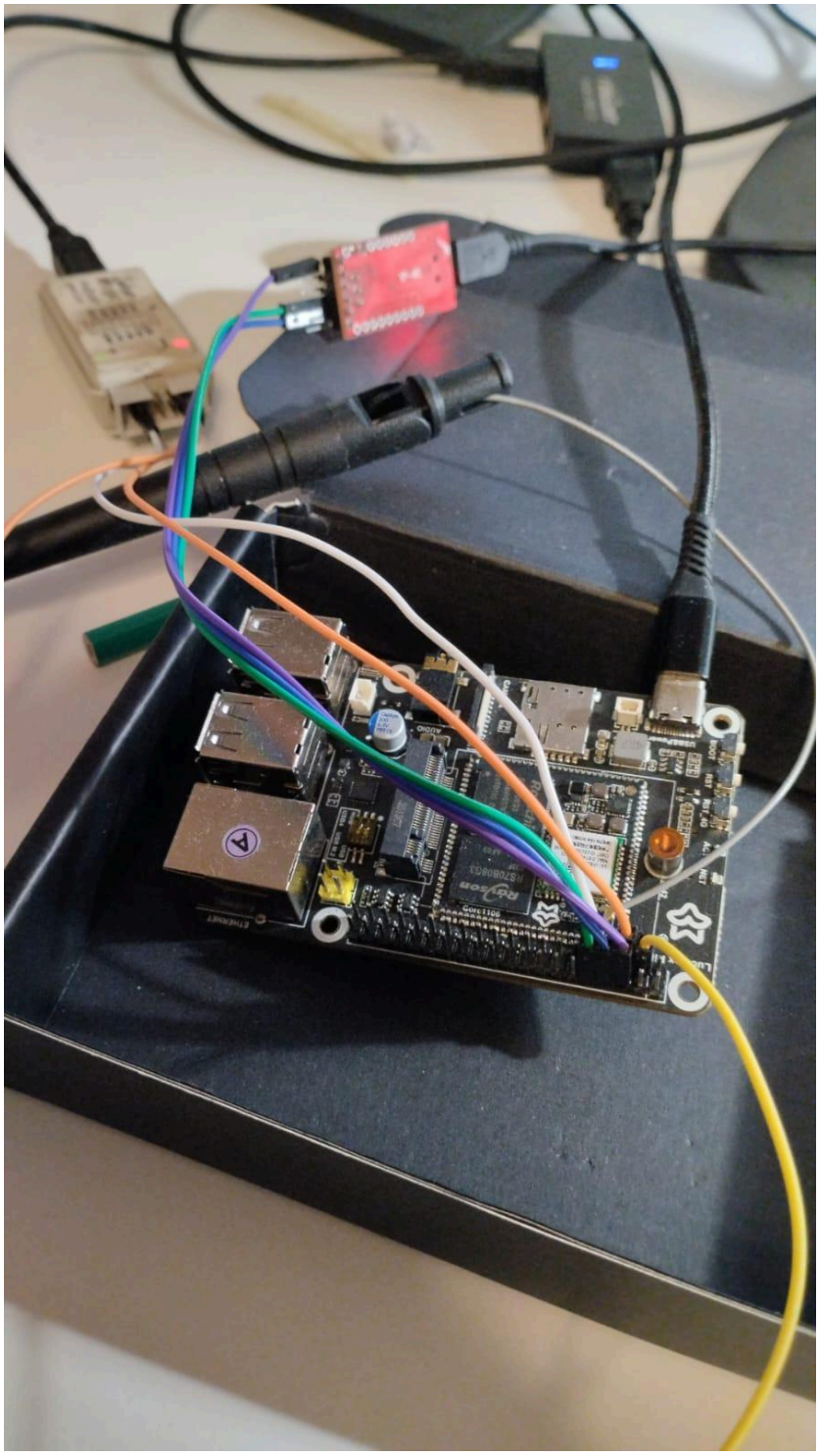
TX pino fisico marrom 8 da placa
RX pino fisico marrom 10 da placa

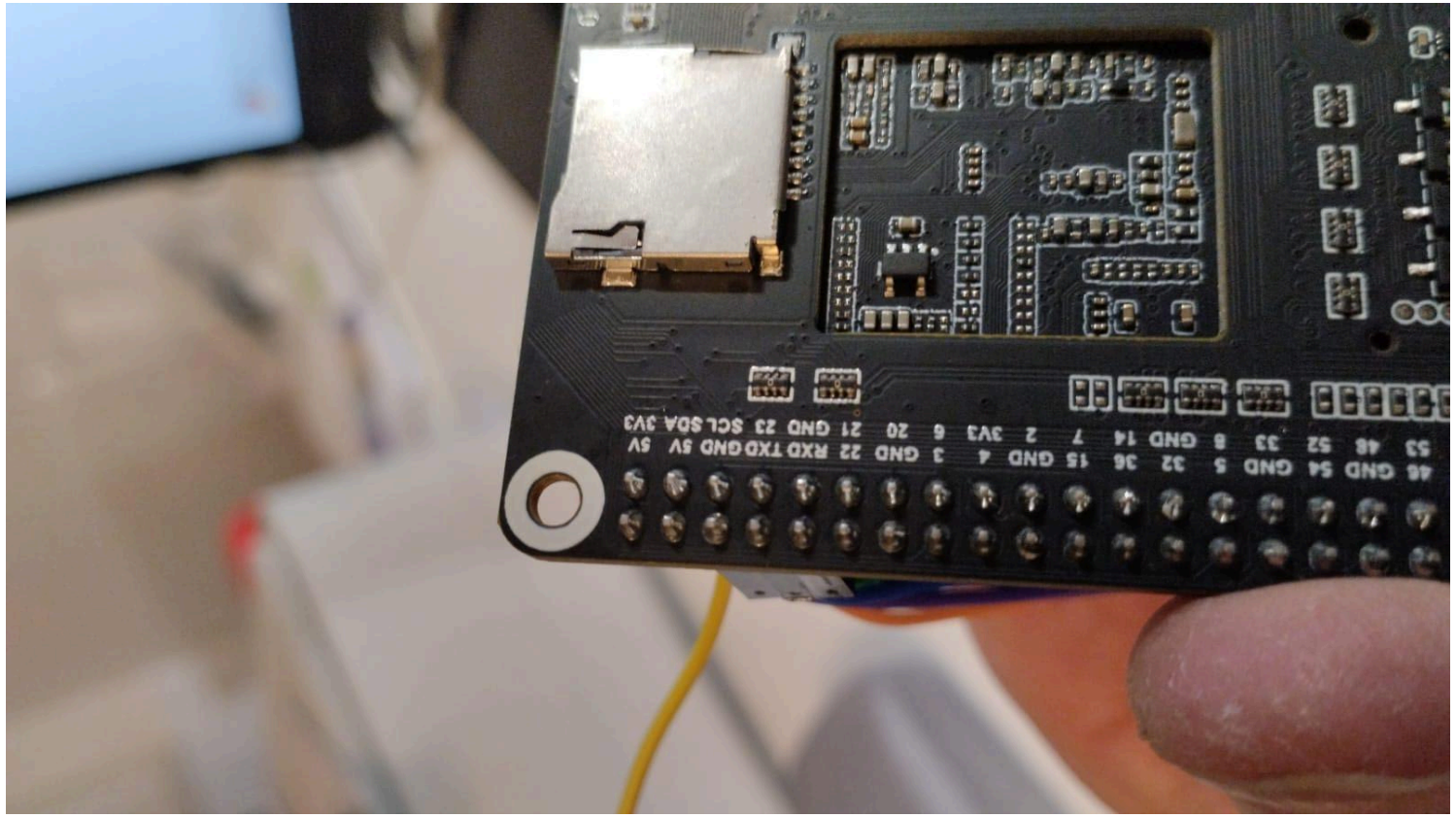


Logic Analyser
GPIO A1_d pino 33 (pino fisico marrom 3 da placa)
GPIO A0_d pino 32 (pino fisico marrom 5 da placa)
insmod /root/gpio_blink.ko out_gpio=32 interval_ms=10
—->pisca esse pino fisico 5 da placa a cada 10ms
https://wiki.luckfox.com/Luckfox-Pico-Pi/Pinout


BOOT
RST
RST_4G
ACT
NET
3.3V 1
3.3V PWM4_M0 I2C2_SDA_M0 UART3_RX_M0 33 GPIO1_A1_d 3
3.3V PWM7_IR_M0 I2C2_SCL_M0 UART3_TX_M0 32 GPIO1_A0_d 5
3.3V PWM3_IR_M1 UART4_RX_M0 40 GPIO1_B0_d 7
GND 9
3.3V PWM7_IR_M1 SPI1_CS1_M0 UART4_TX_M0 41 GPIO1_B1_d 11
3.3V PWM3_IR_M2 UART3_TX_M1 56 GPIO1_D0_d 13
3.3V PWM10_M2 UART3_RX_M1 57 GPIO1_D1_d 15
3.3V 17
3.3V PWM5_M2 SPI0_MOSI_M0 50 GPIO1_C2_d 19
3.3V PWM6_M2 SPI0_MISO_M0 51 GPIO1_C3_d 21
3.3V PWM4_M2 SPI0_CLK_M0 49 GPIO1_C1_d 23
GND 25
3.3V PWM6_M1 I2C1_SDA_M1 UART0_TX_M1 73 GPIO2_B1_d 27
3.3V I2C3_SDA_M2 122 GPIO3_D2_u 29
3.3V I2C3_SCL_M2 121 GPIO3_D1_u 31
3.3V PWM8_M1 UART4_RX_M1 52 GPIO1_C4_d 33
3.3V PWM2_M0 UART0_TX_M0 1 GPIO0_A1_d 35
3.3V UART0_RX_M0 0 GPIO0_A0_z 37
GND 39

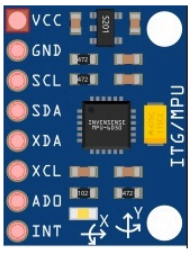

Luckfox Pico Pi
RS70B08G3
Rockchip




5V 5V GND TXD RXD GND 23 21 22 3 GND 4 3V3 6 20 GND 2 15 7 14 36 GND 8 32 5 GND 33 54 52 GND 46 53
3V3 SDA SCL 5V

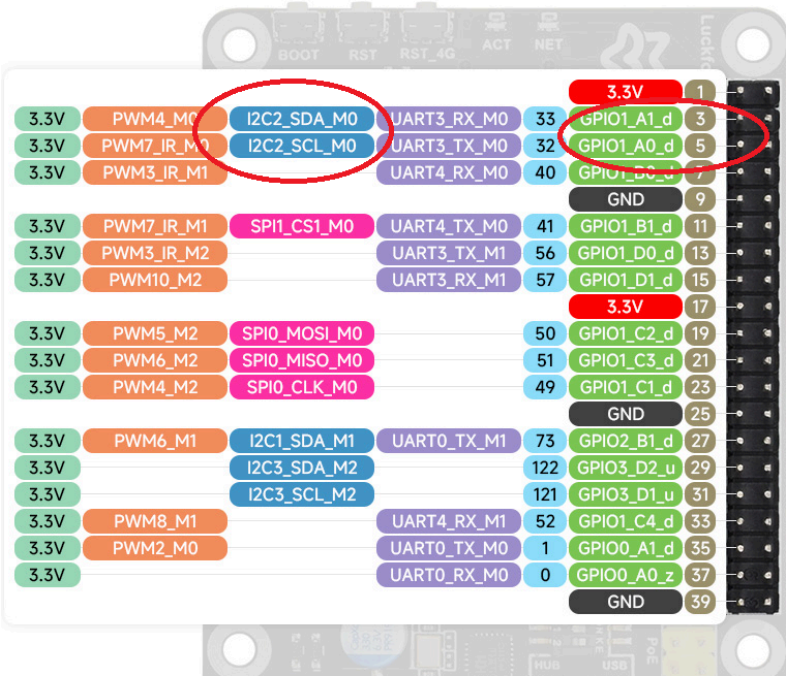
Modulo Giroscopio MPU-6050
https://invensense.tdk.com/wp-content/uploads/2015/02/MPU-6000-Datasheet1.pdf

Pinout



- VCC - 3.3V DC power supply
- GND - Ground
- SCL - Serial Clock
- SDA - Serial Data
- XDA - Auxiliary Serial Data (Used when another sensor is connected to this module)
- XCL - Auxiliary Serial Clock (Used when another sensor is connected to this module)
- AD0 - I2C Address bit. Allows you to change the internal I2C address of the MPU-6050 module. It can be used if the module is conflicting with another I2C device, of if you wish to use two MPU-6050s on the same I2C bus.
- INT - Interrupt output

conectado a
I2C2-SDA_M0 PINO3
I2C2-SCL_M0 PINO5



no console da placa rodar luckfox-config e ativar o i2c2-m0 com velocidade de 100000
porque vem desabilitado
depois verificar se apareceu o bus

[root@luckfox]# ls /sys/bus/i2c/devices/

```
4-0030  4-0031  i2c-2   i2c-3   i2c-4
[root@luckfox ]# i2cdetect -a -y 2
     0  1  2  3  4  5  6  7  8  9  a  b  c  d  e  f
00: -- -- -- -- -- -- -- -- -- -- -- -- -- -- -- --
10: -- -- -- -- -- -- -- -- -- -- -- -- -- -- -- --
20: -- -- -- -- -- -- -- -- -- -- -- -- -- -- -- --
30: -- -- -- -- -- -- -- -- -- -- -- -- -- -- -- --
40: -- -- -- -- -- -- -- -- -- -- -- -- -- -- -- --
50: -- -- -- -- -- -- -- -- -- -- -- -- -- -- -- --
60: -- -- -- -- -- -- -- -- 68 -- -- -- -- -- -- --
70: -- -- -- -- -- -- -- -- -- -- -- -- -- -- -- --
[root@luckfox ]#

[root@luckfox ]# i2cdump  -f -y 2 0x68
     0  1  2  3  4  5  6  7  8  9  a  b  c  d  e  f    0123456789abcdef
00: ff 05 ff 3e c1 4f eb 7c f8 97 04 a2 28 6e 6e b3    .?.>?O?|????(nn?
10: f8 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00    ?...............
20: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00    ................
30: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00    ................
40: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00    ................
50: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00    ................
60: 00 00 00 00 00 00 00 00 00 00 00 40 00 00 00 00    ...........@....
70: 00 00 00 00 00 68 00 00 00 00 00 00 00 00 00 00    .....h..........
80: ff 05 ff 3e c1 4f eb 7c f8 97 04 a2 28 6e 6e b3    .?.>?O?|????(nn?
90: f8 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00    ?...............
a0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00    ................
b0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00    ................
c0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00    ................
d0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00    ................
e0: 00 00 00 00 00 00 00 00 00 00 00 40 00 00 00 00    ...........@....
f0: 00 00 00 00 00 68 00 00 00 00 00 00 00 00 00 00    .....h..........
[root@luckfox ]#
```

Endereco 0x75 tem 0x68, que é a identidade do MPU6050

https://wiki.luckfox.com/Luckfox-Pico-Ultra/I2C

Documento com descricao dos registradores:
https://invensense.tdk.com/wp-content/uploads/2015/02/MPU-6000-Register-Map1.pdf