Discussion: Project 4 Intro

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Longan Nano

- https://longan.sipeed.com/en/
- Official download site: https://cn.dl.sipeed.com/LONGAN/Nano/
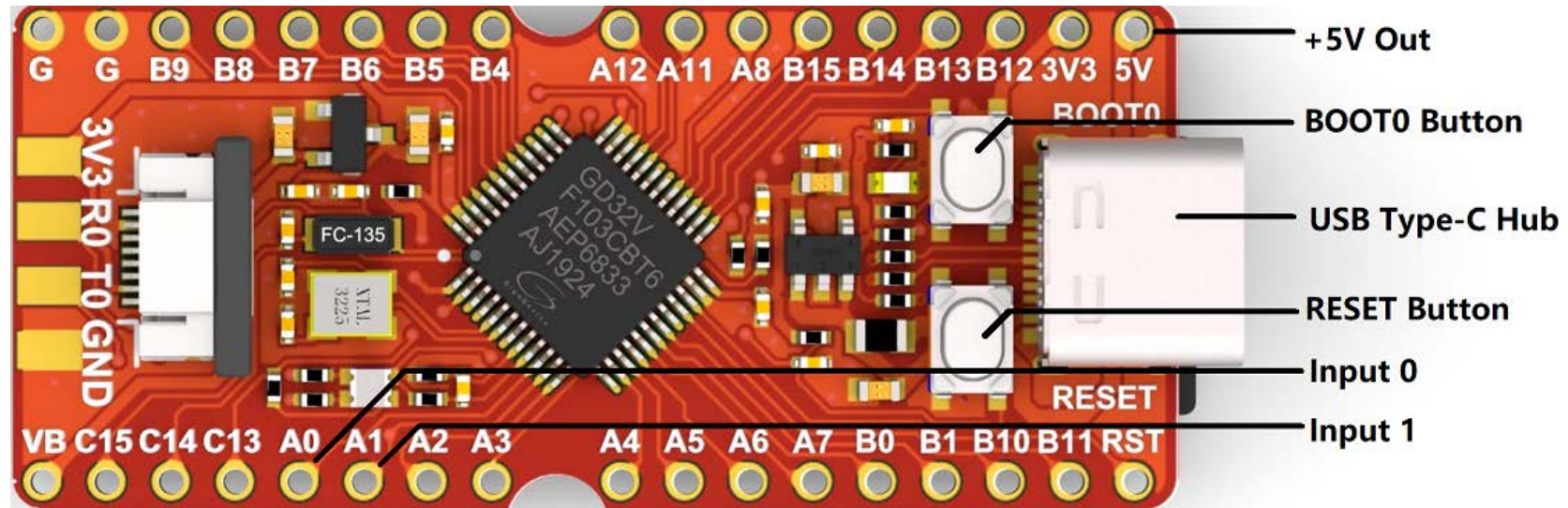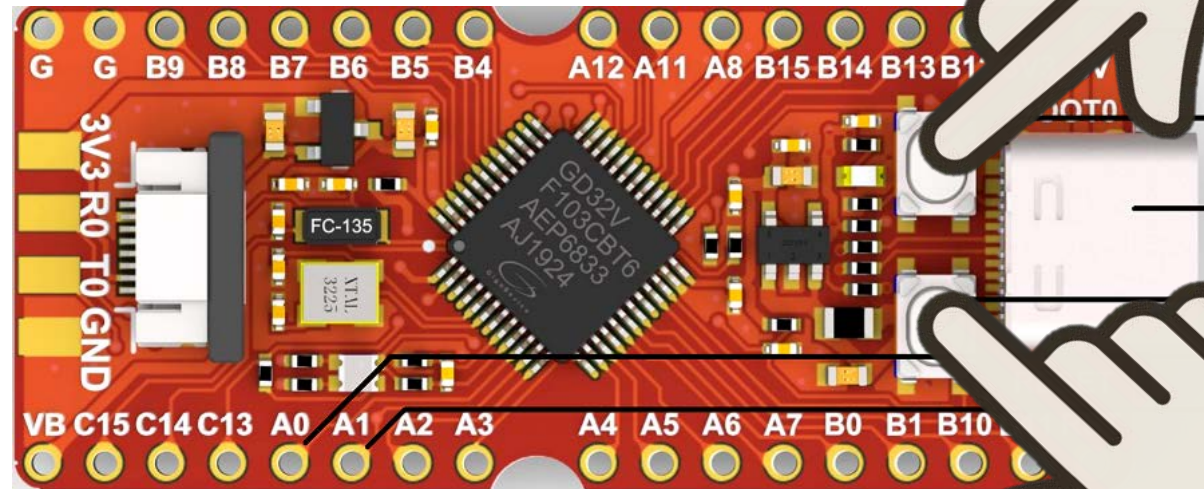
Compile

- Setup:
  - python -m pip install platformio

- Compile:
  - python -m platformio run

How to enter DFU mode

1. Hold BOOT0 button (and do not release)

2. Hold RESET button (and do not release)

3. Release RESET button

4. Release BOOT0 button

DFU Download

- First of all: Connect your board and computer via a Type-C cable

- ./dfu-util -l | grep 28e9:0189

- ./dfu-util -a 0 --dfuse-address 0x08000000:leave -D .pio/build/sipeed-longan-nano/firmware.bin

Function Calls

```
// C code
int a = add(3, 4, 5); // a = 12
```

```
# RISC-V code
# ...
add t0, a0, a1  # a0 - 3, a1 - 4
add t0, t0, a2  # a2 - 5
mv a0, t0       # a0 - return value
# ...
ret
```

```
# RISC-V code
li a0, 1;
li a1, 2;
jal sub     # a0 = -1 after this step
```

```
// C code
int sub(int a, int b) // a - 1, b - 2
{
        return a - b;
}
```
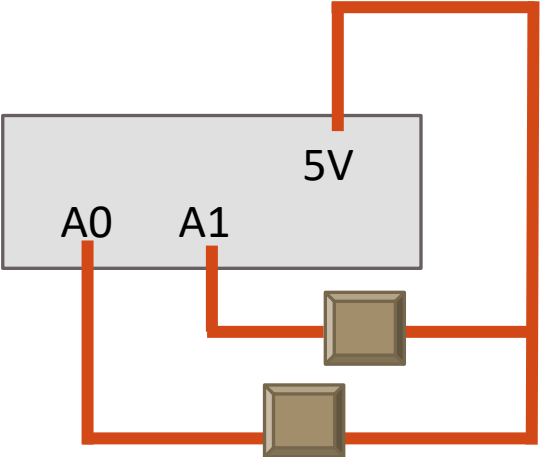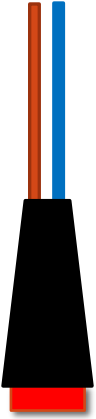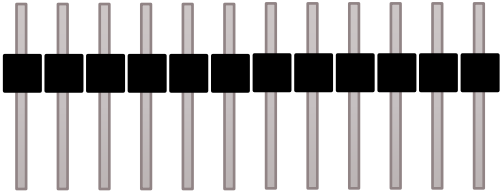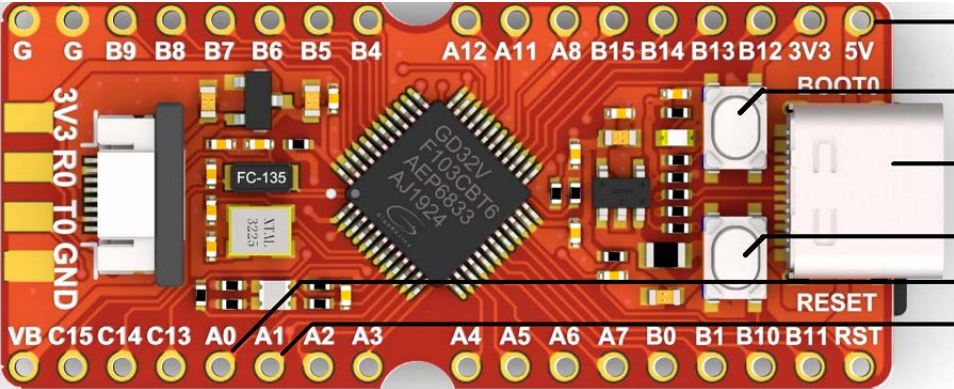
Calling conventions

◦ s0-s11 registers (fp = s0) are saved by the callee

◦ Others by the caller

◦ addi sp, sp, -8
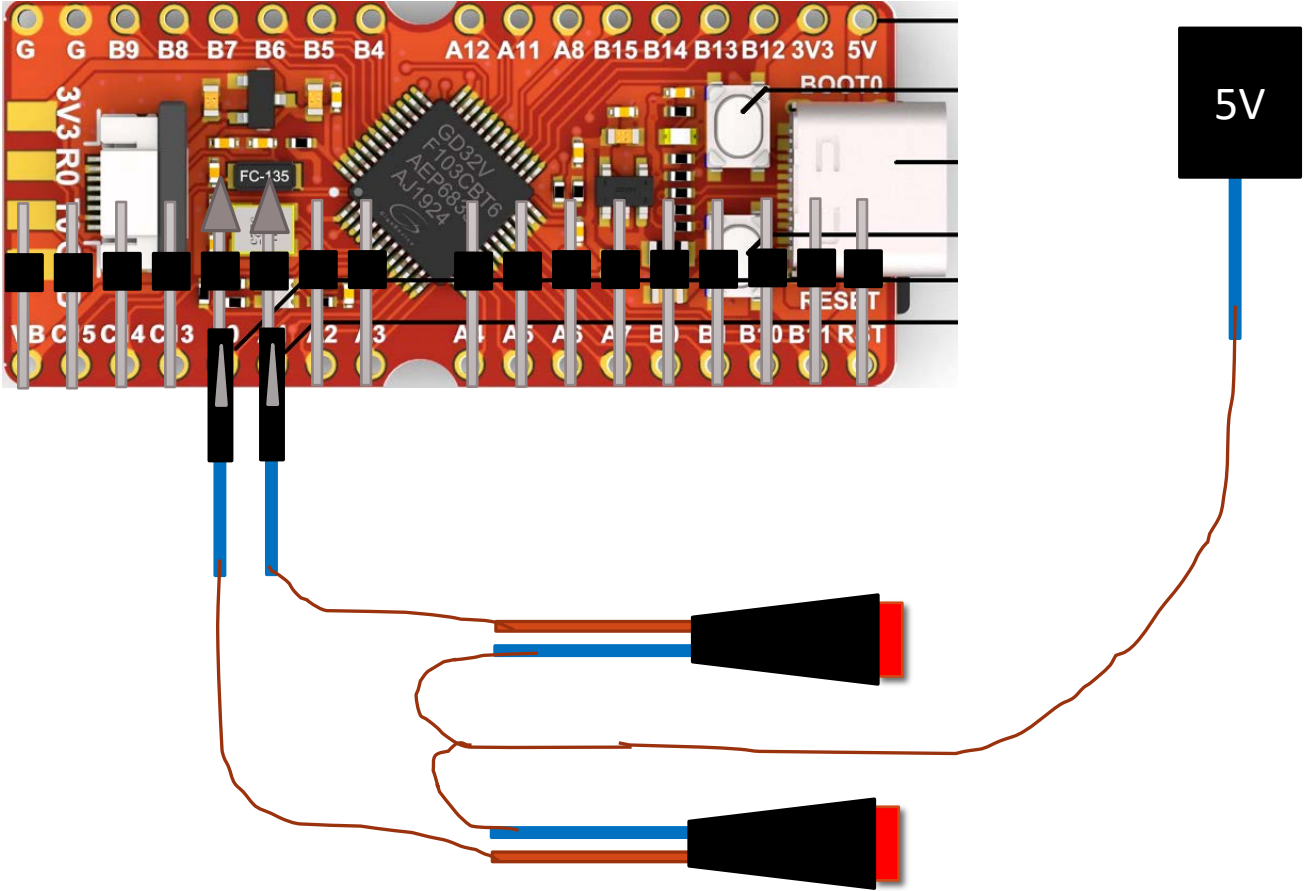◦ sw ra, 0(sp)
◦ sw s0, 4(sp)

◦ Are they the same?

Utils

➢ LCD

➢ Get_Button

➢ Get_Boot

➢ FatFS (optional)

Hardware: Button connection

Hardware: Button connection

Thank you!

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