Linux Guide to SMT32 for EE329

Setup

ensure that gcc-arm-embedded-13 and st-flash are installed. Ex:

```
sudo apt-get install -y gcc-arm-embedded-13 st-flash
```

Grab example Codebase

```
git clone https://github.com/stuntangel/stm32-linux-example.git
```

Linking and creating object files

```
arm-none-eabi-gcc "../Core/Src/main.c" -mcpu=cortex-m4 -g3 -
DDEBUG -DUSE_HAL_DRIVER -DSTM32L4A6xx -c -I../Core/Inc -I../
Drivers/STM32L4xx_HAL_Driver/Inc -I../Drivers/
STM32L4xx_HAL_Driver/Inc/Legacy -I../Drivers/CMSIS/Device/ST/
STM32L4xx/Include -I../Drivers/CMSIS/Include -O0 -ffunction-
sections -fdata-sections -Wall -fstack-usage -MMD -MP -MF"Core/
Src/main.d" -MT"Core/Src/main.o"  -mfpu=fpv4-sp-d16 -mfloat-
abi=hard -mthumb -o "Core/Src/main.o"
```

Compiling to .elf file

```
arm-none-eabi-gcc -o "bootloaderfinal.elf" @"objects.list"  -
Wl,--start-group  -Wl,--end-group -mcpu=cortex-m4 -T"~/
STM32CubeIDE/workspace_1.18.0/bootloaderfinal/
STM32L4A6ZGTX_FLASH.ld" --specs=nosys.specs -Wl,-
Map="bootloaderfinal.map" -Wl,--gc-sections -static  -mfpu=fpv4-
sp-d16 -mfloat-abi=hard -mthumb -Wl,--start-group -lc -lm -Wl,--
end-group
```

Creating the .bin file

```
arm-none-eabi-objcopy  -O binary bootloaderfinal.elf
"bootloaderfinal.bin"
```

flashing the .bin file to STM32

```
st-flash --reset write ./Debug/bootloaderfinal.bin 0x08000000
```

Debugging

If it complains that it can not write to the usb port, run (where PORT is the port mentioned in the error message):

```
sudo chmod o+w /dev/bus/usb/001/PORT
```

Additionally, make sure the USB port is seen on your computer (either /dev/ttyACM0 or /dev/ttyUSB0)

Sometimes on Linux a new STM32 board will need to be manually power-cycled for the first time by holding the reset button on board while flashing.