

1. Download Etcher tool on Ubuntu

2. modify code with SPI function

refer readme.txt

(1) start SPI

path:

git/som1_ek/buildroot-at91/output/build/linux-linux4sam-2020.10/arch/arm/boot/dts

file: sama5d2.dtsi

```
flx4: flexcom@fc018000 {
    compatible = "atmel,sama5d2-flexcom";
    reg = <0xfc018000 0x200>;
    clocks = <&pmc PMC_TYPE_PERIPHERAL 23>;
    #address-cells = <1>;
    #size-cells = <1>;
    ranges = <0x0 0xfc018000 0x800>;
    status = "okay"; //the status is set to "disabled" by default
};
```

(2) configure SPI parameter

path: git/som1_ek/buildroot-at91/output/build/linux-linux4sam-2020.10/arch/arm/boot/dts

file :at91-sama5d27_som1_ek.dts

```
spi3: spi@400 {
    compatible = "atmel,at91rm9200-spi";
    reg = <0x400 0x200>;
    interrupts = <23 IRQ_TYPE_LEVEL_HIGH 7>;
    clocks = <&pmc PMC_TYPE_PERIPHERAL 23>;
    clock-names = "spi_clk";
    pinctrl-names = "default";
    pinctrl-0 = <&pinctrl_mikrobus_spi &pinctrl_mikrobus1_spi_cs
&pinctrl_mikrobus2_spi_cs>;
    atmel,fifo-size = <16>;
    status = "okay"; /* Conflict with uart6 and i2c3. */
```

/*the following code is added to enable spidev in userspace
specifies which driver will be used for this device
definition that will be used as the CS number for SPIDEV
specifies the clock frequency for SPIDEV */

```
spidev@1{
    compatible = "atmel,at91rm9200-spidev";
    reg = <1>;
    spi-max-frequency = <2500000>;
```

```
};
```

(3) define compatibility

path: git/som1_ek/buildroot-at91/output/build/linux-linux4sam-2020.10/drivers/spi
File: spidev.c

```
#ifdef CONFIG_OF
static const struct of_device_id spidev_dt_ids[] = {
    { .compatible = "rohm,dh2228fv" },
    { .compatible = "lineartechnology,ltc2488" },
    { .compatible = "ge,achc" },
    { .compatible = "semtech,sx1301" },
    { .compatible = "atmel,at91rm9200-spidev" }, //add
    { .compatible = "lwn,bk4" },
    { .compatible = "dh,dhcom-board" },
    { .compatible = "menlo,m53cpld" },
    {}
};
```

(4) recompile and effective process

```
cd git/som1_ek/buildroot-at91/output/build/linux-linux4sam-2020.10$ rm .stamp_built
cd git/som1_ek/buildroot-at91/output/build/linux-linux4sam-2020.10$ rm
.stamp_target_installed
```

```
cd git/som1_ek/buildroot-at91/output/build/dt-overlay-at91-linux4sam-2020.10$ rm
.stamp_built
cd git/som1_ek/buildroot-at91/output/build/dt-overlay-at91-linux4sam-2020.10$ rm
.stamp_target_installed
```

3. observe how the SPI functionality was configured in the Linux kernel

refer to <https://microchipdeveloper.com/32mpu:apps-spi>

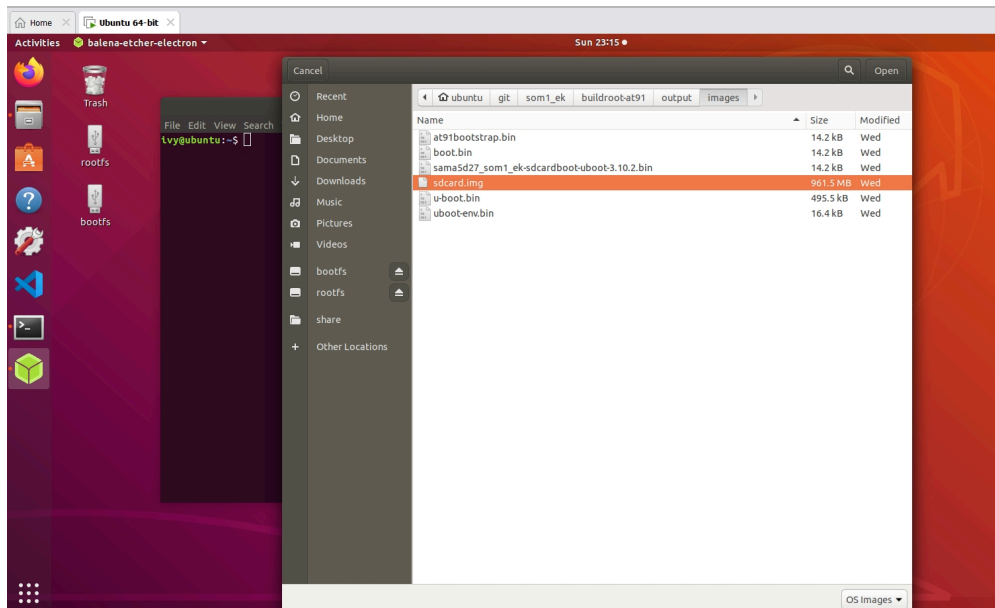
```
cd /git/som1_ek/buildroot-at91$ make linux-menuconfig
```

4. compile

```
cd /git/som1_ek/buildroot-at91$ make
```

5. SD1 burning via Etcher tool

Path:



6. change SD1 to Microchip and try to boot it

go to cd dev can see **spidev1.1** successfully

```

Serial-COM3 - SecureCRT
File Edit View Options Transfer Script Tools Help
Serial-COM3
# ls
autofs          mtd4           tty15          tty50
block           mtd4ro        tty16          tty51
bus            mtd5          tty17          tty52
char           mtd5ro        tty18          tty53
console        mtdblock0     tty19          tty54
cpu_dma_latency mtdblock1     tty2           tty55
disk           mtdblock2     tty20          tty56
fd             mtdblock3     tty21          tty57
full           mtdblock4     tty22          tty58
gpiochip0      mtdblock5     tty23          tty59
gpiochip1      null          tty24          tty6
hwrng          ptmx          tty25          tty60
i2c-0          pts           tty26          tty61
i2c-1          ptyp0         tty27          tty62
i2c-2          ptyp1         tty28          tty63
input          ptyp2         tty29          tty7
kmsg           ptyp3         tty3           tty8
log            ram0          tty30          tty9
loop-control   ram1          tty31          ttyS0
loop0          ram2          tty32          ttyS1
loop1          ram3          tty33          ttyS2
loop2          random        tty34          ttyS0
loop3          rfkill        tty35          ttyS1
loop4          rtc           tty36          ttyS2
loop5          rtc0          tty37          ttyS3
loop6          shm           tty38          ubi_ctrl
loop7          snd           tty39          urandom
mem            spidev1.1     tty4           vcs
mmcblk1        stderr        tty40          vcs1
mmcblk1p1      stdin         tty41          vcsa
mmcblk1p2      stdout        tty42          vcsa1
mtd0           tty           tty43          vcsu
mtd0ro         tty0          tty44          vcsu1
mtd1           tty1          tty45          vhci
mtd1ro         tty10         tty46          watchdog
mtd2           tty11         tty47          watchdog0
mtd2ro         tty12         tty48          zero
mtd3           tty13         tty49
mtd3ro         tty14         tty5
#
Ready      Serial: COM3   42, 3   42 Rows, 80 Cols   VT100      CAP  NUM

```