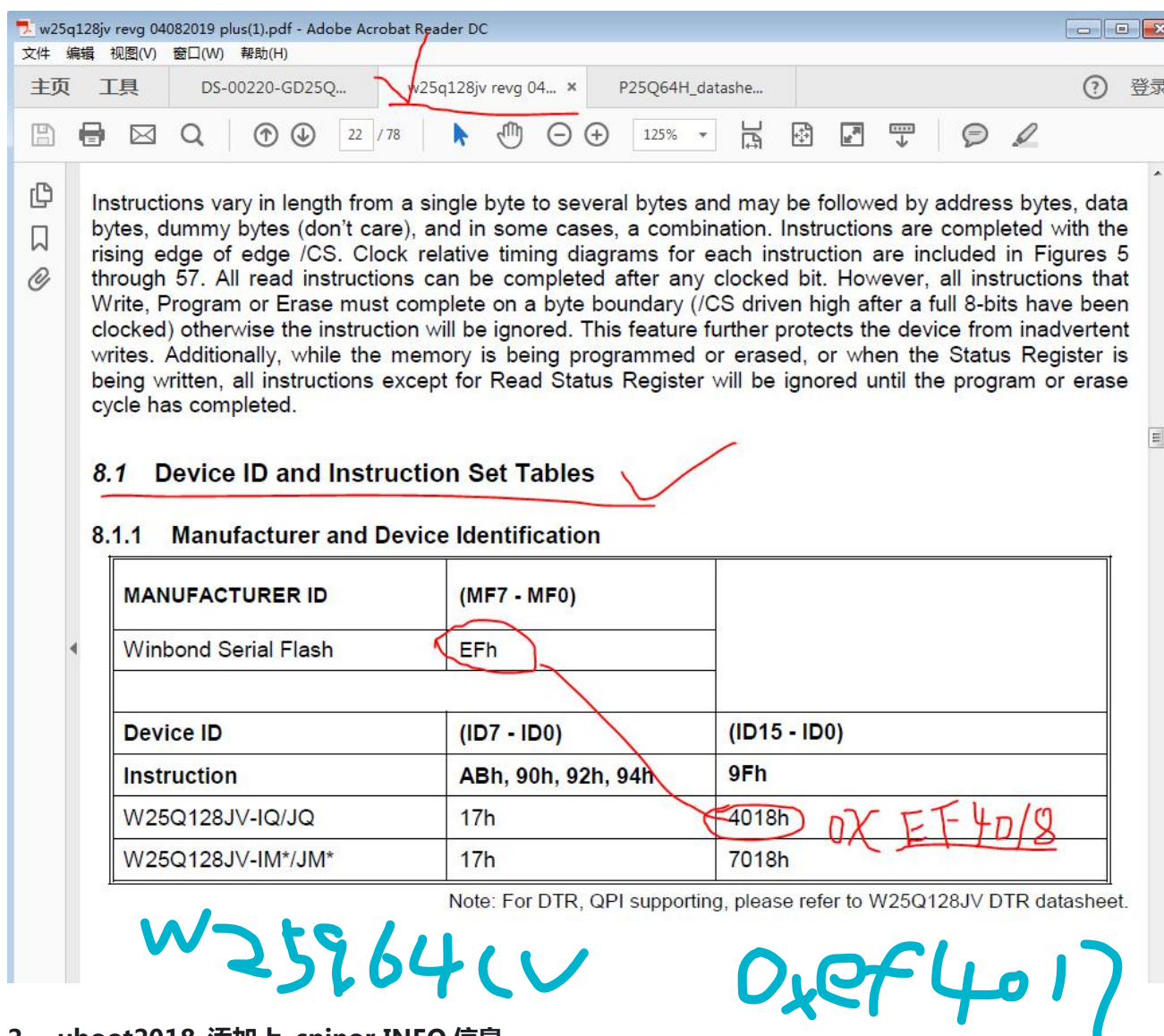


Spi nor 物料调试方法

V0.1 2019-10-24

1. 从 datasheet 获取 spinor chip ID 号



Instructions vary in length from a single byte to several bytes and may be followed by address bytes, data bytes, dummy bytes (don't care), and in some cases, a combination. Instructions are completed with the rising edge of edge /CS. Clock relative timing diagrams for each instruction are included in Figures 5 through 57. All read instructions can be completed after any clocked bit. However, all instructions that Write, Program or Erase must complete on a byte boundary (/CS driven high after a full 8-bits have been clocked) otherwise the instruction will be ignored. This feature further protects the device from inadvertent writes. Additionally, while the memory is being programmed or erased, or when the Status Register is being written, all instructions except for Read Status Register will be ignored until the program or erase cycle has completed.

8.1 Device ID and Instruction Set Tables

8.1.1 Manufacturer and Device Identification

MANUFACTURER ID	(MF7 - MF0)	
Winbond Serial Flash	EFh	
Device ID	(ID7 - ID0)	(ID15 - ID0)
Instruction	ABh, 90h, 92h, 94h	9Fh
W25Q128JV-IQ/JQ	17h	4018h
W25Q128JV-IM*/JM*	17h	7018h

Note: For DTR, QPI supporting, please refer to W25Q128JV DTR datasheet.

W25Q128JV

0xEF4017

2. uboot2018 添加上 spinor INFO 信息

- 1) 路径 : `brandy/brandy-2.0/u-boot-2018$ vim ./drivers/mtd/spi/spi-nor-ids.c`
- 2) INFO(flash name , chip id , sector size , n_sectors , flags) 如下 :

- ❖ flash name : 可以看 datasheet 或直接看芯片表面文字
- ❖ chip id : datasheet 获取 , 如第 1 点.

- ❖ sector size&n_sectors : datasheet 获取。

$\text{mtd} \rightarrow \text{size} = \text{info} \rightarrow \text{sector_size} * \text{info} \rightarrow \text{n_sector} = (64 * 1024) * 64 \text{ (bytes)} = 4 \text{ M (bytes)}$

- ❖ Flags : 是擦除或其他标志位 比如最低支持 4K 擦除 , 需要看 datasheet 。

3) 范例

```
Project - Source Insight - [Spi-nor-ids.c (brandy\...\spi)]
Project Options View Window Help

00061:  * disabled: CONFIG_MTD_SPI_NOR_USE_4K_SECTORS.
00062:  * For historical (and compatibility) reasons (before we got above config) some
00063:  * old entries may be missing 4K flag.
00064:  */
00065:  const struct flash_info spi_nor_ids[] = {
00066:  #ifdef CONFIG_SPI_FLASH_ATMEL          /* ATMEL */
00067:  /* Atmel -- some are (confusingly) marketed as "DataFlash" */
00068:  { INFO("at26df321", 0x1f4700, 0, 64 * 1024, 64, SECT_4K) },
00069:  { INFO("at25df321a", 0x1f4701, 0, 64 * 1024, 64, SECT_4K) },
00070:
00071:  { INFO("at45db011d", 0x1f2200, 0, 64 * 1024, 4, SECT_4K) },
00072:  { INFO("at45db021d", 0x1f2300, 0, 64 * 1024, 8, SECT_4K) },
00073:  { INFO("at45db041d", 0x1f2400, 0, 64 * 1024, 8, SECT_4K) },
00074:  { INFO("at45db081d", 0x1f2500, 0, 64 * 1024, 16, SECT_4K) },
00075:  { INFO("at45db161d", 0x1f2600, 0, 64 * 1024, 32, SECT_4K) },
00076:  { INFO("at45db321d", 0x1f2700, 0, 64 * 1024, 64, SECT_4K) },
00077:  { INFO("at45db641d", 0x1f2800, 0, 64 * 1024, 128, SECT_4K) },
00078:  { INFO("at26df081a", 0x1f4501, 0, 64 * 1024, 16, SECT_4K) },
00079:  #endif
00080:  #ifdef CONFIG_SPI_FLASH_EON          /* EON */
00081:  /* EON -- en25xxx */
00082:  { INFO("en25q32b", 0x1c3016, 0, 64 * 1024, 64, 0) },
00083:  { INFO("en25q64", 0x1c3017, 0, 64 * 1024, 128, SECT_4K) },
00084:  { INFO("en25qh128", 0x1c7018, 0, 64 * 1024, 256, 0) },
00085:  { INFO("en25s64", 0x1c3817, 0, 64 * 1024, 128, SECT_4K) },
00086:  #endif
00087:  #ifdef CONFIG_SPI_FLASH_GIGADEVICE /* GIGADEVICE */
00088:  /* GigaDevice */
00089:  {
00090:      INFO("gd25q16", 0xc84015, 0, 64 * 1024, 32,
00091:          SECT_4K | SPI_NOR_DUAL_READ | SPI_NOR_QUAD_READ |
00092:          SPI_NOR_HAS_LOCK | SPI_NOR_HAS_TB)
00093:  },
00094:  {
00095:      INFO("gd25q32", 0xc84016, 0, 64 * 1024, 64,
00096:          SECT_4K | SPI_NOR_DUAL_READ | SPI_NOR_QUAD_READ |
00097:          SPI_NOR_HAS_LOCK | SPI_NOR_HAS_TB)
00098:  },
00099:  }
```

3. 内核添加上 spinor INFO 信息

- 1) 路径 : linux-4.9/drivers/mtd/spi-nor\$ vim spi-nor.c
- 2) INFO(flash name , chip id , sector size , n_sectors , flags)参考 2.(2)
- 3) 范例

```

17 * old entries may be missing 4K flag.
16 */
15 static const struct flash_info spi_nor_ids[] = {
14     /* Atmel -- some are (confusingly) marketed as "DataFlash" */
13     { "at25fs010", INFO(0x1f6601, 0, 32 * 1024, 4, SECT_4K) },
12     { "at25fs040", INFO(0x1f6604, 0, 64 * 1024, 8, SECT_4K) },
11
10     { "at25df041a", INFO(0x1f4401, 0, 64 * 1024, 8, SECT_4K) },
9     { "at25df321a", INFO(0x1f4701, 0, 64 * 1024, 64, SECT_4K) },
8     { "at25df641", INFO(0x1f4800, 0, 64 * 1024, 128, SECT_4K) },
7
6     { "at26f004", INFO(0x1f0400, 0, 64 * 1024, 8, SECT_4K) },
5     { "at26df081a", INFO(0x1f4501, 0, 64 * 1024, 16, SECT_4K) },
4     { "at26df161a", INFO(0x1f4601, 0, 64 * 1024, 32, SECT_4K) },
3     { "at26df321", INFO(0x1f4700, 0, 64 * 1024, 64, SECT_4K) },
2
1     { "at45db081d", INFO(0x1f2500, 0, 64 * 1024, 16, SECT_4K) },
311
1     /* EON -- en25xxx */
2     { "en25f32", INFO(0x1c3116, 0, 64 * 1024, 64, SECT_4K) },
3     { "en25p32", INFO(0x1c2016, 0, 64 * 1024, 64, 0) },
4     { "en25q32b", INFO(0x1c3016, 0, 64 * 1024, 64, 0) },
5     { "en25p64", INFO(0x1c2017, 0, 64 * 1024, 128, 0) },
pi-nor.c | [Git(sunxi-dev)] spi_nor_is_locked() | c

```

4. 若要支持 4 线读,需要到内核下面路径进行配置

- 1) 配置路径 : device/config/chips/v459/configs/perf1\$ vim board.dts
- 2) 范例

```

1
2
3
1
749 spi@05010000 {
    pinctrl-0 = <&spi0_pins_a &spi0_pins_b>;
    pinctrl-1 = <&spi0_pins_c>;
    status = "okay";
    spi_board0 {
        device_type = "spi_board0";
        compatible = "m25p80";
        spi-max-frequency = <0x5f5e100>;
        reg = <0x0>;
        spi-rx-bus-width = <0x4>;
        spi-tx-bus-width = <0x4>;
    };
};
11
12
13 s_owc0: s_owc@07040400 {
14     pinctrl-0 = <&owc0_pins_a>;
15     pinctrl-1 = <&owc0_pins_b>;
16     status = "okay";
17 };
18
19 pwm0: pwm0@0300a000 {
board.dts | [Git(sunxi-dev)]

```