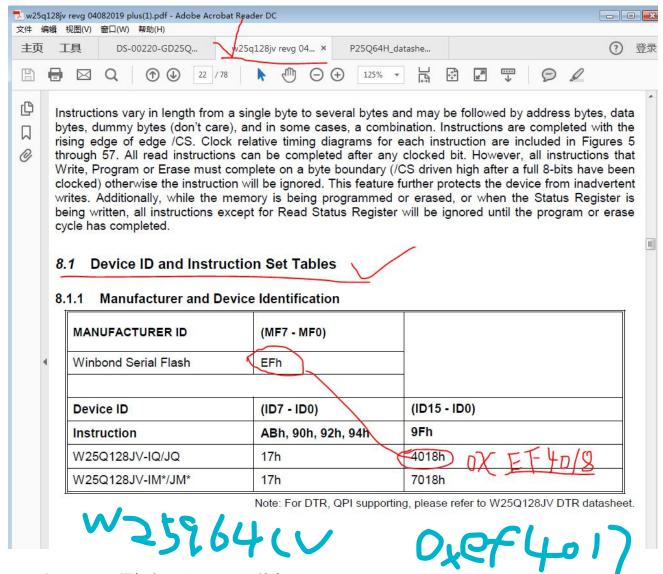ALLWINNER®

Spi nor 物料调试方法

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1. 从 datasheet 获取 spinor chip ID 号

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。

$$mtd->size = info->sector\_size * info->n\_sector = （64 * 1024） * 64 \quad (bytes) = 4\ M\ (bytes)$$

❖ 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

```
j 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:     },
```

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) },
811
 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

```
 3 };
 2
 1     spi@05010000 {
749        pinctrl-0 = <&spi0_pins_a &spi0_pins_b>;
 1         pinctrl-1 = <&spi0_pins_c>;
 2         status = "okay";
 3         spi_board0 {
 4             device_type = "spi_board0";
 5             compatible = "m25p80";
 6             spi-max-frequency = <0x5f5e100>;
 7             reg = <0x0>;
 8             spi-rx-bus-width = <0x4>;
 9             spi-tx-bus-width = <0x4>;
10         };
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)]
```