V59/V69 SW AP

- **概述**

(1) 软件的架构和之前 6M182 基本是一样的, 都有 sboot 系统,且 sboot 软件架构一样

(2) 软件编译环境一样,都是基于 colinux 编译；

(3) 2 个 USB 接口同一时间只能一个有用，如都插上则先侦测到的 USB 有用；

(4)只有一个 GOP，且仅 2 个 GWIN，一个 DWIN；

1）菜单与 DTV 码流字幕/TTX 互斥显示；

2）菜单和 CC 互斥显示

3）菜单和 MM 下码流的内部字幕以及外部的 BMP 字幕互斥显示

(5) GOP Buffer 只支持 960*540，即 UI 宽度不能超过 960 像素；

- **系统配置**

机种	配置		功能									
			DTV						多媒体		其他	
	DDR	Flash	H264	MPEG2	MHEG5	SUBTIELE	PVR	TIMESHIFT	H264	MPEG2	Mirror	TCON
ATV+MM+TTX/NICAM	64MB	4MB	N	N	N	N	N	N	Y	Y	Y	Y
ATV+MM+CC/VCHIP	64MB	4MB	N	N	N	N	N	N	Y	Y	Y	Y
ATV+MM+KTV	64MB	4MB	N	N	N	N	N	N	Y	Y	Y	Y
ATV+MM+3D	64MB	4MB	N	N	N	N	N	N	Y	Y	Y	Y
ATV+MM+MIRROR	64MB	4MB	N	N	N	N	N	N	Y	Y	Y	Y
ATV+MM+DTMB	64MB	4MB	Y	Y	N	Y	Y	N	Y	Y	Y	Y
ATV+MM+ISDB	64MB	4MB	Y	Y	N	Y	Y	N	Y	Y	Y	Y
ATV+MM+DVBT	64MB	4MB	Y	Y	N	Y	Y	N	Y	Y	Y	Y

1) ATV+多媒体+TTX/NICAM

[编译条件]:

```
ifeq ($(PROJ),R2_M12_ATV_ZUI_MM)
    BOARD_TYPE_SEL ?= BD_MST031B_10AL0_11523
    CC_TVOPTS += -DMS_BOARD_TYPE_SEL=$(BOARD_TYPE_SEL)
    CC_TVOPTS += -DMS_SW_CUS_SEL=SW_CONFIG_TRUNK_ATVMM
    CHIP_FAMILY ?=M12
    LOADER ?= ./project/loader/target_M12_R2.ld
    BUILD_TARGET ?= ORGINAL_ALL_SYSTEM
    OS_TYPE = nos_aeon
    MMAP ?= project/mmap/MMAP_ATVMM_M12_64_AEON.h
    CC_TVOPTS += -DMEMORY_MAP=MMAP_64MB
    MEMORY_SIZE = MEMORY_64MB
    BIN_FORMAT ?= COMPRESS
```

Endif

Board：BD_MST031B_10AL0_11523 →QFP100Pin

BD_MST6M180MS_128 →QFP128Pin

BD_MST6M180MT_156 →QFP156Pin

说明：TTX 需要将 ENABLE_TTX 定义打开，另外 TTX/NICAM 支持需要使用后缀是 E 的 IC

2) ATV+多媒体+CC/VCHIP

[编译条件]:

```
ifeq ($(PROJ),R2_M12_ZUI_64MB_ATVMM_SA)
    BOARD_TYPE_SEL ?= BD_MST031B_10AL0_11523
    CC_TVOPTS += -DMS_BOARD_TYPE_SEL=$(BOARD_TYPE_SEL)
    CC_TVOPTS += -DMS_SW_CUS_SEL=SW_CONFIG_TRUNK_ATVMM
    CHIP_FAMILY ?=M12
    LOADER ?= ./project/loader/target_M12_R2.ld
    BUILD_TARGET ?= ORGINAL_ALL_SYSTEM
    OS_TYPE = nos_aeon
    MMAP ?= project/mmap/MMAP_ATVMM_M12_64_AEON.h
    CC_TVOPTS += -DMEMORY_MAP=MMAP_64MB
    MEMORY_SIZE = MEMORY_64MB
    BIN_FORMAT ?= COMPRESS
endif
```

3) ATV+多媒体+KTV

[编译条件]:

```
ifeq ($(PROJ),R2_M12_ZUI_64MB_ATVMM_KTV)
    BOARD_TYPE_SEL ?= BD_MST031B_10AL0_11523
    CC_TVOPTS += -DMS_BOARD_TYPE_SEL=$(BOARD_TYPE_SEL)
    CC_TVOPTS += -DMS_SW_CUS_SEL=SW_CONFIG_TRUNK_ATVMM
    CHIP_FAMILY ?=M12
    LOADER ?= ./project/loader/target_M12_R2.ld
    BUILD_TARGET ?= ORGINAL_ALL_SYSTEM
    OS_TYPE = nos_aeon
    MMAP ?= project/mmap/MMAP_ATVMM_M12_64_AEON.h
    CC_TVOPTS += -DMEMORY_MAP=MMAP_64MB
    MEMORY_SIZE = MEMORY_64MB
    BIN_FORMAT ?= COMPRESS
endif
```

4) ATV+多媒体+3D

[编译条件]:

```
ifeq ($(PROJ),R2_M12_ZUI_64MB_ATVMM_3D)
    BOARD_TYPE_SEL ?= BD_MST031B_10AL0_11523
    CC_TVOPTS += -DMS_BOARD_TYPE_SEL=$(BOARD_TYPE_SEL)
    CC_TVOPTS += -DMS_SW_CUS_SEL=SW_CONFIG_TRUNK_ATVMM
    CHIP_FAMILY ?=M12
    LOADER ?= ./project/loader/target_M12_R2.ld
    BUILD_TARGET ?= ORGINAL_ALL_SYSTEM
    OS_TYPE = nos_aeon
    MMAP ?= project/mmap/MMAP_ATVMM_M12_64_AEON_3D.h
    CC_TVOPTS += -DMEMORY_MAP=MMAP_64MB
    MEMORY_SIZE = MEMORY_64MB
    BIN_FORMAT ?= COMPRESS
Endif
```

说明:支持 2D 转 3D，MM 下不支持内部字幕以及外部 BMP 字幕，而且 HD Timing 需要 scaling down 到 960，需要打开 ENABLE_MM_HD_FB.

5) ATV+多媒体+MIRROR

[编译条件]:

```
ifeq ($(PROJ),R2_M12_ZUI_64MB_ATVMM_MIRROR)
    BOARD_TYPE_SEL ?= BD_MST031B_10AL0_11523
    CC_TVOPTS += -DMS_BOARD_TYPE_SEL=$(BOARD_TYPE_SEL)
    CC_TVOPTS += -DMS_SW_CUS_SEL=SW_CONFIG_TRUNK_ATVMM
    CHIP_FAMILY ?=M12
    LOADER ?= ./project/loader/target_M12_R2.ld
    BUILD_TARGET ?= ORGINAL_ALL_SYSTEM
    OS_TYPE = nos_aeon
    MMAP ?= project/mmap/MMAP_ATVMM_M12_64_AEON.h
    CC_TVOPTS += -DMEMORY_MAP=MMAP_64MB
    MEMORY_SIZE = MEMORY_64MB
    BIN_FORMAT ?= COMPRESS
Endif
```

6) ATV+多媒体+DTMB

[编译条件]:

```
ifeq ($(PROJ),R2_M12_ZUI_64MB_DTMB)
```

```
    BOARD_TYPE_SEL ?= BD_MST030B_10AL8_11523
    CC_TVOPTS += -DMS_BOARD_TYPE_SEL=$(BOARD_TYPE_SEL)
    CC_TVOPTS += -DMS_SW_CUS_SEL=SW_CONFIG_TRUNK_64M_DTMB
    CHIP_FAMILY ?=M12
    LOADER ?= ./project/loader/target_M12_R2.ld
    BUILD_TARGET ?= ORGINAL_ALL_SYSTEM
    OS_TYPE = nos_aeon
    MMAP ?= project/mmap/MMAP_ATVMM_M12_64_DTMB_R2.h
    CC_TVOPTS += -DMEMORY_MAP=MMAP_64MB
    MEMORY_SIZE = MEMORY_64MB
    BIN_FORMAT ?= COMPRESS
Endif
```

Board：BD_MST030B_10AL8_11523 →QFP128Pin

BD_MST034B_10AL6_12071 →QFP156Pin

7) ATV+多媒体+ISDB

[编译条件]:

```
ifeq ($(PROJ),R2_M12_ZUI_64MB_Brazil)
    BOARD_TYPE_SEL ?= BD_MST030B_20AL8_11523
    CC_TVOPTS += -DMS_BOARD_TYPE_SEL=$(BOARD_TYPE_SEL)
    CC_TVOPTS += -DMS_SW_CUS_SEL=SW_CONFIG_TRUNK_64M_ISDB
    CHIP_FAMILY ?=M12
    LOADER ?= ./project/loader/target_M12_R2.ld
    BUILD_TARGET ?= ORGINAL_ALL_SYSTEM
    OS_TYPE = nos_aeon
    MMAP ?= project/mmap/MMAP_ATVMM_M12_64_Brazil_R2.h
    CC_TVOPTS += -DMEMORY_MAP=MMAP_64MB
    MEMORY_SIZE = MEMORY_64MB
    BIN_FORMAT ?= COMPRESS
Endif
```

Board：BD_MST030B_20AL8_11523 →QFP128Pin

BD_MST034B_20AL6_12071 →QFP156Pin

8) ATV+多媒体+DVBT

[编译条件]:

```
ifeq ($(PROJ),R2_M12_ZUI_64MB_DVBT)
    BOARD_TYPE_SEL ?= BD_MST030B_50AL8_12281
    CC_TVOPTS += -DMS_BOARD_TYPE_SEL=$(BOARD_TYPE_SEL)
    CC_TVOPTS += -DMS_SW_CUS_SEL=SW_CONFIG_TRUNK_DVBT_M12_64M
    CHIP_FAMILY ?=M12
    LOADER ?= ./project/loader/target_M12_R2.ld
    BUILD_TARGET ?= ORGINAL_ALL_SYSTEM
    OS_TYPE = nos_aeon
    MMAP ?= project/mmap/MMAP_DTVMM_M12_64_DVBT_R2.h
    CC_TVOPTS += -DMEMORY_MAP=MMAP_64MB
    CC_TVOPTS += -DVQ_ENABLE
    MEMORY_SIZE = MEMORY_64MB
    BIN_FORMAT ?= COMPRESS
Endif
```

Board：BD_MST030B_50AL8_12281->QFP128Pin

说明：TS 流为串并行：#define SERIAL_TS 0x00//串行 1,并行 0

IIC 的串并行：DEMO_TUNER_IIC_TYPE DEMO_TO_TUNER 串行//TWO_ROAD_SEPARATE 并行

MSB1233_DVBT_ONLY 置为 1；不外挂 flash：LOAD_DSP_CODE_FROM_MAIN_CHIP_I2C 置为 1

9) ATV+多媒体+DVBT2

```
ifeq ($(PROJ),R2_M12_ZUI_64MB_DVBT2)
    BOARD_TYPE_SEL ?= BD_MST030B_50AL8_12281
    CC_TVOPTS += -DMS_BOARD_TYPE_SEL=$(BOARD_TYPE_SEL)
    CC_TVOPTS += -DMS_SW_CUS_SEL=SW_CONFIG_TRUNK_DVBT_M12_64M
    CHIP_FAMILY ?=M12
    LOADER ?= ./project/loader/target_M12_R2.ld
    BUILD_TARGET ?= ORGINAL_ALL_SYSTEM
    OS_TYPE = nos_aeon
    MMAP ?= project/mmap/MMAP_DTVMM_M12_64_DVBT_R2.h
    CC_TVOPTS += -DMEMORY_MAP=MMAP_64MB
    CC_TVOPTS += -DVQ_ENABLE
    MEMORY_SIZE = MEMORY_64MB
    BIN_FORMAT ?= COMPRESS
Endif
```

Board：BD_MST030B_50AL8_12281->QFP128Pin

说明：TS 流为串并行：#define T2_TS_SERIAL_VAL 0x00//串行 1,并行 0

IIC 的串并行：DEMO_TUNER_IIC_TYPE DEMO_TO_TUNER 串行//TWO_ROAD_SEPARATE 并行

MSB1233_DVBT_ONLY 置为 0，不外挂 flash： LOAD_DSP_CODE_FROM_MAIN_CHIP_I2C 置为 1

demod 软件配置	IC 型号	解码
MSTAR_MSB1233C_DEMOD；	MSB101A	DVB-T2/T/C
MSTAR_MSB1233C_DEMOD；	MSB101T	DVB-T
MSTAR_MSB1400_DEMOD	MSB101S	ISDB

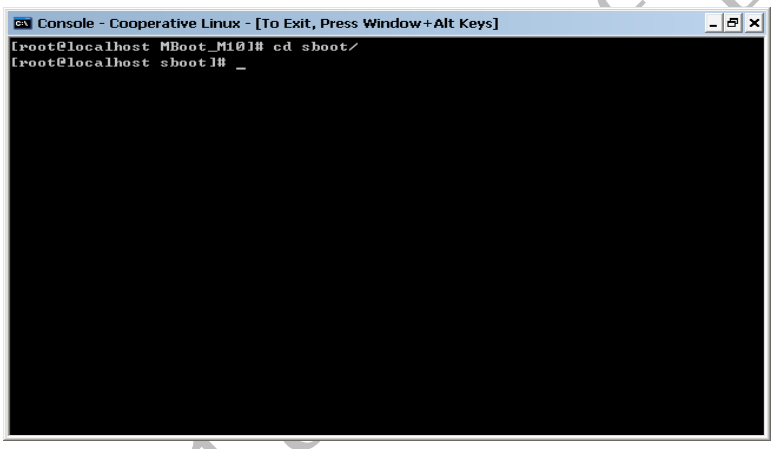
Sboot 概述

(1)主要作用: 用于修改 GPIO、MIU 的参数{ PHASE、ODT、CLOCK 等}

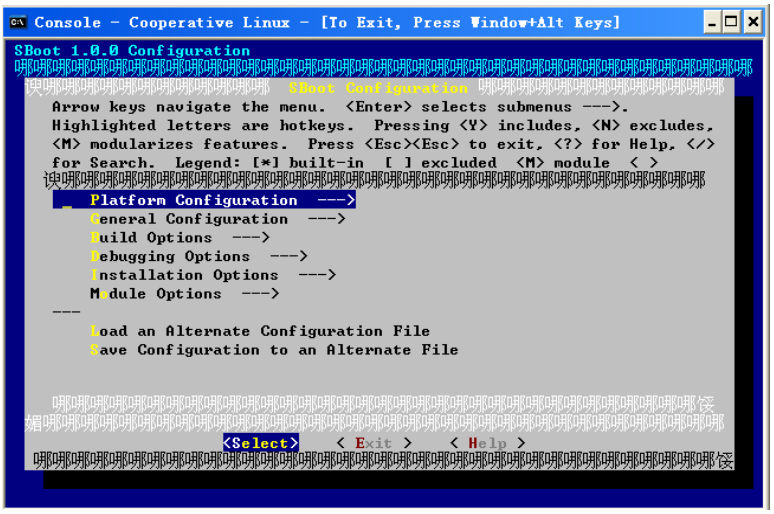
2.如何编译:

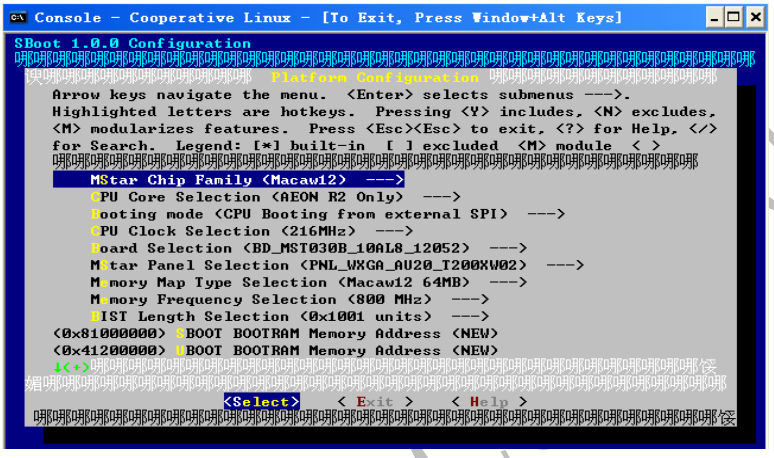
编译环境: coLinux

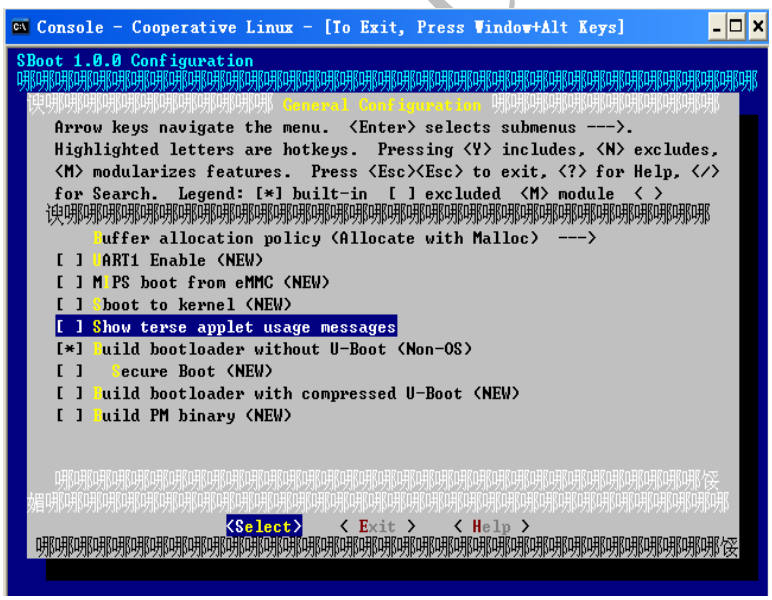
(1).进入 sboot 目录:

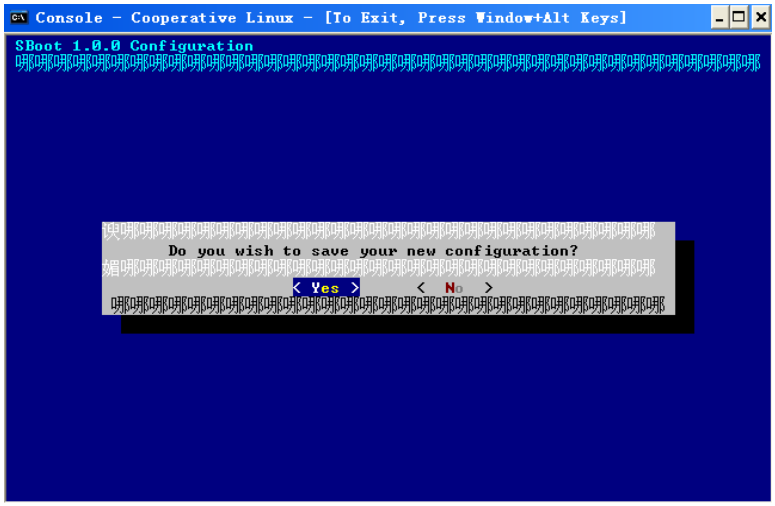


(2)配置 config 信息: make menuconfig 指令进入配置页面.









(3)配置页面分别选择如下:

[1] Mstar Chip Family <Select> Macaw12

[2] Board Selection <BD_XX> <Select> **选中你要的 BD_XX**

[3] CPU Core Select <Select>--AEON R2 Only

[4] CPU Colck Select <Select>--216MHZ

[5] Memory map Type Select <Select>--64MB

[6] Memory Frequency Select <Select>--800MHZ

[7] <General Configuration>，选到<Build bootloader without U-Boot(Non-OS)>上面，按 Y 将该项勾起来

Note: 其他设定项没有参考意义

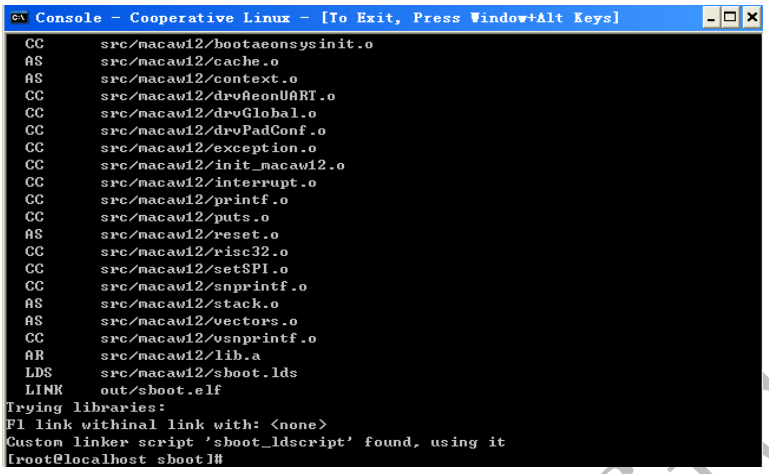
(4)退出 menuconfig 设置页面:

设置完上述 3 页就可以选择<Exit>退出配置页面，在弹出的保存对话框中选择<Yes>保存配置信息.

(5)编译 sboot:　　make 指令开始编译 sboot.

(6)拷贝 sboot.bin 文件:

Copy out 文件夹下的文件 sboot.bin 于\boot\sboot\bin\ **xx** 中.

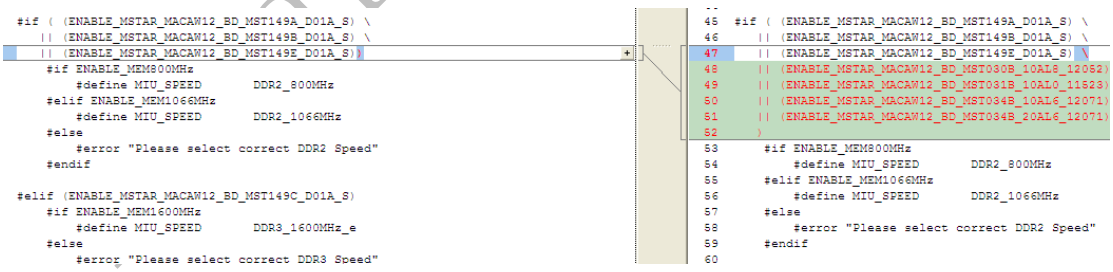


3.添加新的 Board :

(1)添加定义: Board.h 中

#define BD_MST030B_10AL8_12052　　0x0856　　，以及增加对应 H 文件

(2)参照类似 BD_XX.H 修改代码,修改之处如下:



```
#if (PIN_FLASH_WP0)
  #if(MS_BOARD_TYPE_SEL == BD_MST149A_D01A_S) //PAD_PWM1
    _RVM1(0x1e40,    0,  BIT5), //reg[101e40]#5 = 0b
    _RVM1(0x1e85, BIT5, BIT5), //output high
    _RVM1(0x1e87,    0,  BIT5), //oen: output(0)
  #elif(MS_BOARD_TYPE_SEL == BD_MST149B_D01A_S) //PAD_PWM2
    _RVM1(0x1e40,    0,  BIT6), //reg[101e40]#6 = 0b
    _RVM1(0x1e85, BIT6, BIT6), //output high
    _RVM1(0x1e87,    0,  BIT6), //oen: output(0)
  #elif((MS_BOARD_TYPE_SEL == BD_MST149C_D01A_S)||(MS_BOARD_TYPE_SEL == BD_MST149D_
    _RVM1(0x1e10,    0, BIT2|BIT1|BIT0 ),   //reg[101e10]#2~#0 = 000b
    _MEMMAP_PM_,
    _RVM1(0x0e3a, BIT1, BIT1), //output high
    _RVM1(0x0e3c,    0, BIT1), //oen: output(0)
  #elif(MS_BOARD_TYPE_SEL == BD_MST149E_D01A_S) //PAD_GPIO4
    _RVM1(0x1e04,    0, BIT7|BIT6 ), //reg[101e04]#7~#6 = 00b
    _RVM1(0x1eae,    0, BIT6|BIT5 ), //reg[101eae]#6 ~#5 = 00b
    _RVM1(0x1e7c, BIT4, BIT4), //output high
    _RVM1(0x1e7e,    0, BIT4), //oen: output(0)
  #else
    #error "Please select correct boards"
  #endif
#endif
```

```
1241 #if (PIN_FLASH_WP0)
1242   #if(MS_BOARD_TYPE_SEL == BD_MST149A_D01A_S) ||(MS_BOARD_TYPE_SEL ==BD_MST031B_
1243     _RVM1(0x1e40,    0,  BIT5), //reg[101e40]#5 = 0b
1244     _RVM1(0x1e85, BIT5, BIT5), //output high
1245     _RVM1(0x1e87,    0,  BIT5), //oen: output(0)
1246   #elif(MS_BOARD_TYPE_SEL == BD_MST149B_D01A_S)||(MS_BOARD_TYPE_SEL == BD_MST030
1247     _RVM1(0x1e40,    0,  BIT6), //reg[101e40]#6 = 0b
1248     _RVM1(0x1e85, BIT6, BIT6), //output high
1249     _RVM1(0x1e87,    0,  BIT6), //oen: output(0)
1250   #elif((MS_BOARD_TYPE_SEL == BD_MST149C_D01A_S)||(MS_BOARD_TYPE_SEL == BD_MST149D_
1251     _RVM1(0x1e10,    0, BIT2|BIT1|BIT0 ),   //reg[101e10]#2~#0 = 000b
1252     _MEMMAP_PM_,
1253     _RVM1(0x0e3a, BIT1, BIT1), //output high
1254     _RVM1(0x0e3c,    0, BIT1), //oen: output(0)
1255   #elif(MS_BOARD_TYPE_SEL == BD_MST149E_D01A_S) ||(MS_BOARD_TYPE_SEL == BD_MST03
1256     _RVM1(0x1e04,    0, BIT7|BIT6 ), //reg[101e04]#7~#6 = 00b
1257     _RVM1(0x1eae,    0, BIT6|BIT5 ), //reg[101eae]#6 ~#5 = 00b
1258     _RVM1(0x1e7c, BIT4, BIT4), //output high
1259     _RVM1(0x1e7e,    0, BIT4), //oen: output(0)
1260   #else
1261     #error "Please select correct boards"
1262   #endif
1263 #endif
```

(3) 修改 Config.in 文件: 用于在 menuconfig 配置选择中出现.

```
# Boards for Macaw12 (MSTAR)
if (MSTAR_MACAW12)
        config MSTAR_MACAW12_BD_MST149A_D01A_S
                bool "BD_MST149A_D01A_S"
        config MSTAR_MACAW12_BD_MST149B_D01A_S
                bool "BD_MST149B_D01A_S"
        config MSTAR_MACAW12_BD_MST149C_D01A_S
                bool "BD_MST149C_D01A_S"
        config MSTAR_MACAW12_BD_MST149D_D01A_S
                bool "BD_MST149D_D01A_S"
        config MSTAR_MACAW12_BD_MST149E_D01A_S
                bool "BD_MST149E_D01A_S"
endif
```

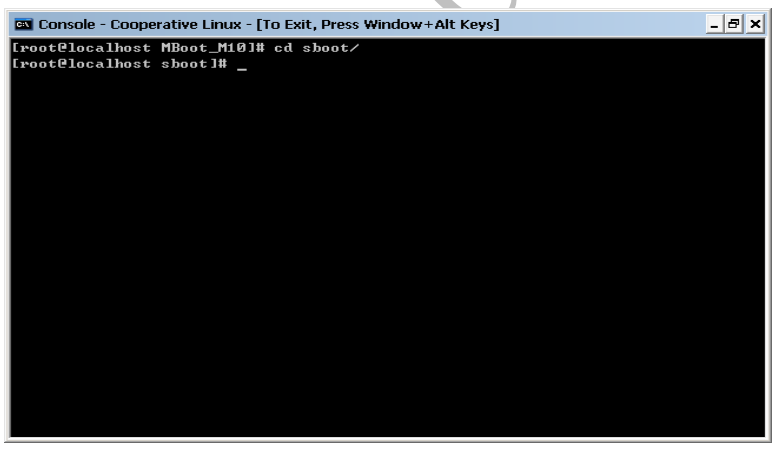
```
841                     bool "BD_MST149D_D01A_S"
842             config MSTAR_MACAW12_BD_MST149E_D01A_S
843                     bool "BD_MST149E_D01A_S"
844             config MSTAR_MACAW12_BD_MST030B_10AL8_12052
845                     bool "BD_MST030B_10AL8_12052"
846             config MSTAR_MACAW12_BD_MST031B_10AL0_11523
847                     bool "BD_MST031B_10AL0_11523"
848             config MSTAR_MACAW12_BD_MST034B_10AL6_12071
849                     bool "BD_MST034B_10AL6_12071"
850             config MSTAR_MACAW12_BD_MST034B_20AL6_12071
851                     bool "BD_MST034B_20AL6_12071"
852
853     endif
```

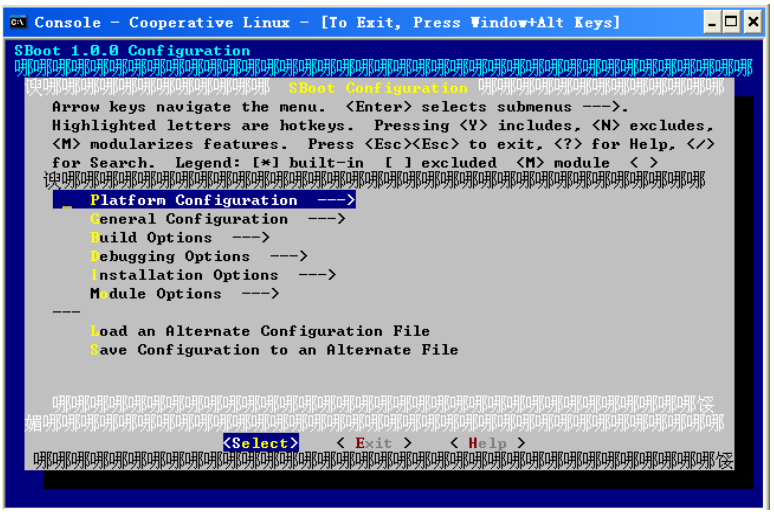
4.修改 MIU{PHASE、ODT、CLOCK 等}的初始值:

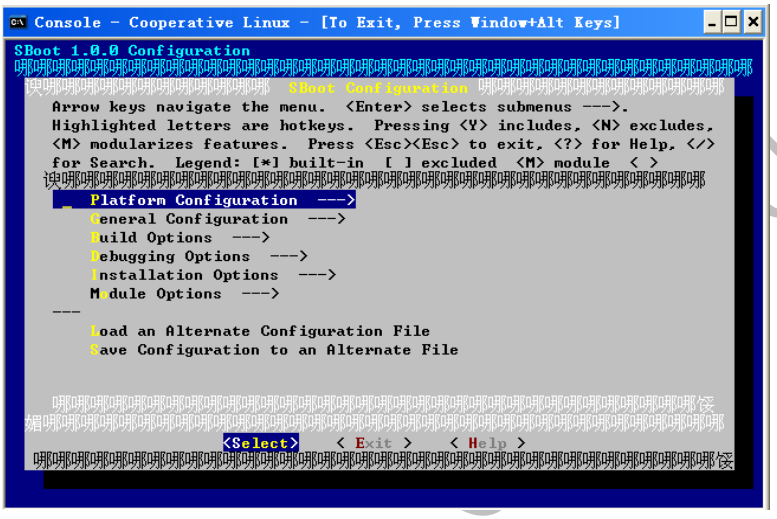
PM 概述

1. menuconfig

(1) select [General Configuration]





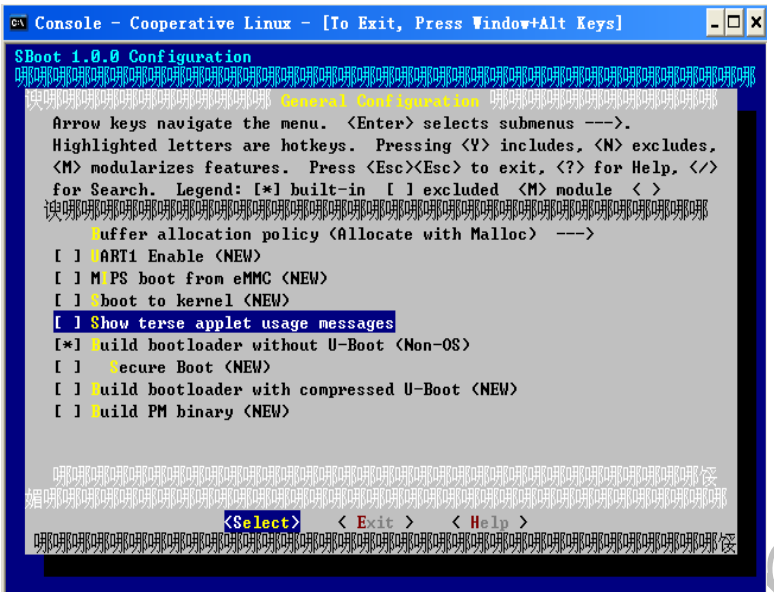


(2) Check the following options

a. Show terse applet usage messages

b. Build bootloader without U-Boot (Non-OS) ➔ MUST

c. Build PM binary ➔ MUST



2. make

3. Software structure for PM standby

   core ➔ original pm code base files

   app ➔ MApp_xxx.c & MApp_xxx.h

   api ➔ MApi_xxx.c & MApi_xxx.h

4. 产生的 PM Standy Bin 放在如下: \boot\sboot\bin \BD_xx\PM.bin

5. 宣告全局变量时，不可以指定预设值，倘若还是需要预设值的话，也需要设定为 0!! 否则全局变量会被指定到.DATA 区域（SPI）,而不是.BSS 区域（QMEM）[注一]

6. 系统的 QMEM 资源只有 4Kbytes,所以需要妥善使用才不会爆 code!

7. 倘若要查阅变数配置以及变数占用的空间大小，可以参考一下文件

Boot_Branch/sboot/out/sboot.elf.map.

8. 在 Standby mode 下由于所有的 PLL 都关掉，UART 参考到 XTAL, Uart Baundrate 最高支持到 38400。

3.字体编辑工具(MStarFontEd.exe)

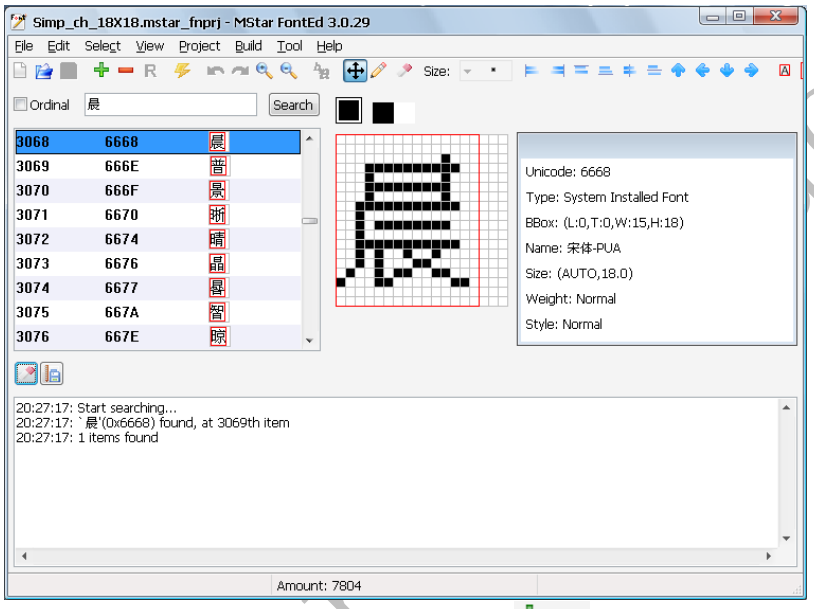
(1)工具概述

1).工程文件扩展名为*.mstar_fnprj；

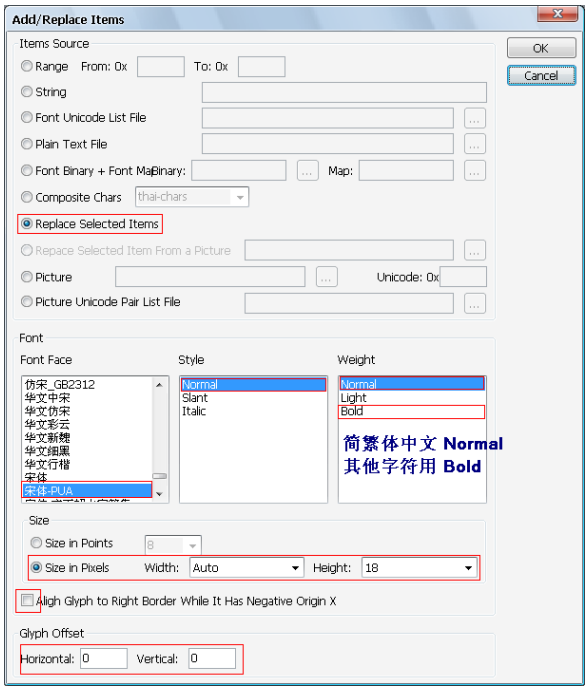
2).可以打开*.mfd 文件；

3).可以导入 Unicode List File,Plan Text File 等等；

4).目前用的字体为“宋体 PUA”,且简繁体中文用普通，其他用 Bold 模式；



(2)修改字体，选中需要修改的字符后，按 ➕ ➖ 按钮弹出设置窗口，按需求设置字体即可(注意红线框起来的地方)

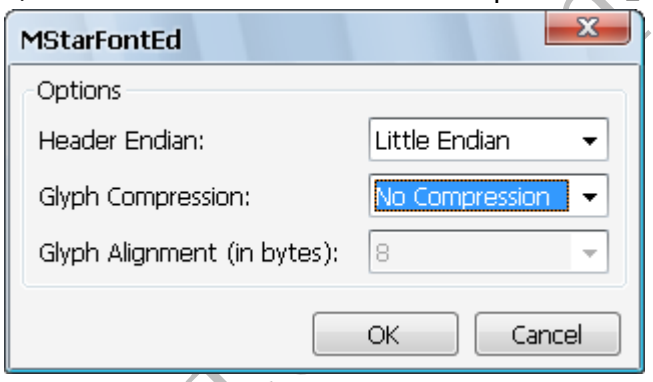


(3)编译字体生成.bin 文件

1).点击按钮或菜单栏 Build|Generate Font Bin...弹出编译设置对话框(MstarFontEd)如下图.

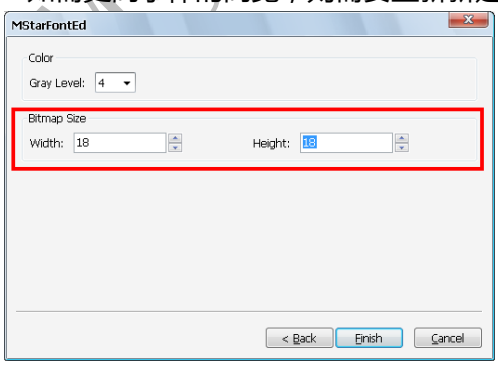
2).设置为{Little Endian、No Compression},即如下图所示.

3).生成后的 Bin 文件拷贝到文件夹\tv-ap\dvb\ui2_M10\font 替换 Simp_ch_18X18.bin 文件；



附注：

1.如需更高字体的高宽，则需要重新新建工程，设置好高宽在导入原来字体才行；



2.如想修改*.mfd 项目字体的宽高，需要借助工具 MsFontEd.exe 导出 Unicode 文本，MStarFontEd.exe 没这个功能；

3.版本 MStar FontEd 3.0.43.exe 以及之后的版本可以直接修改项目字体的宽高了；

4.内存设置工具(SCA.exe)

1).用于分配 Memory 时，自动生成内存分配文件 MMAP_ATVMM_M12_XX.h。

2).按钮 Load 用于打开内存分配文件 MMAP_ATVMM_M12_XX.h;

3).右边的对话框 Image 可以查看内存分配状况，可以在左边对话框中蓝线框住的地方修改;

4).内存分配文件的路径:MMAP_ATVMM_M12_XX.h (project\mmap)