

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									
	DDR	Flash	DTV						多媒体		其他	
			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_10A10_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 ?= ORIGINAL_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 ?= ORIGINAL_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 ?= ORIGINAL_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 ?= ORIGINAL_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 ?= ORIGINAL_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 ?= ORIGINAL_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 ?= ORIGINAL_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]:

Version: 0.1

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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 ?= ORIGINAL_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 ?= ORIGINAL_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

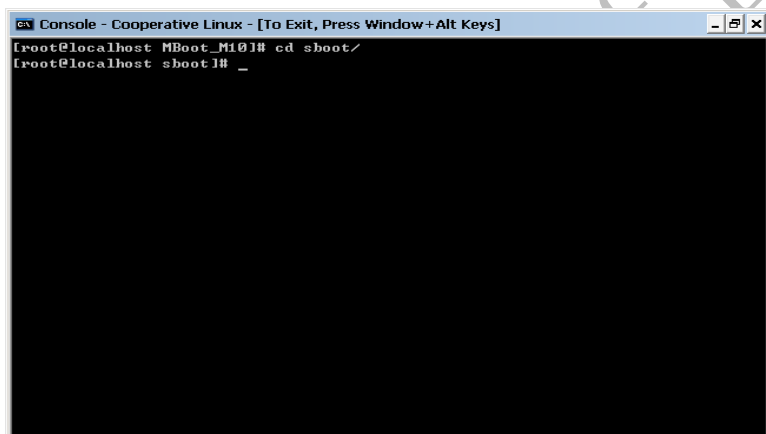
Sboot 概述

(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:



```
Console - Cooperative Linux - [To Exit, Press Window+Alt Keys]
[root@localhost MBoot_Mi01]# cd sboot/
[root@localhost sboot]# _
```

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

```

Console - Cooperative Linux - [To Exit, Press Window+Alt Keys]

SBoot 1.0.0 Configuration
-----
Platform Configuration
-----
Arrow keys navigate the menu. <Enter> selects submenus --->.
Highlighted letters are hotkeys. Pressing <Y> includes, <N> excludes,
<M> modularizes features. Press <Esc><Esc> to exit, <?> for Help, </>
for Search. Legend: [*] built-in [ ] excluded <M> module < >

Platform Configuration --->
General Configuration --->
Build Options --->
Debugging Options --->
Installation Options --->
Module Options --->

Load an Alternate Configuration File
Save Configuration to an Alternate File

<Select> <Exit> <Help>

```

```

Console - Cooperative Linux - [To Exit, Press Window+Alt Keys]

SBoot 1.0.0 Configuration
-----
Platform Configuration
-----
Arrow keys navigate the menu. <Enter> selects submenus --->.
Highlighted letters are hotkeys. Pressing <Y> includes, <N> excludes,
<M> modularizes features. Press <Esc><Esc> to exit, <?> for Help, </>
for Search. Legend: [*] built-in [ ] excluded <M> module < >

MStar Chip Family <Macawi2> --->
CPU Core Selection <AEOM R2 Only> --->
Booting mode <CPU Booting from external SPI> --->
CPU Clock Selection <216MHz> --->
Board Selection <BD_MST030B_10AL8_12052> --->
Mstar Panel Selection <PNL_WXGA_AU20_I200XW02> --->
Memory Map Type Selection <Macawi2 64MB> --->
Memory Frequency Selection <800 MHz> --->
BIOS Length Selection <0x1001 units> --->
0x81000000 BOOT BOOTRAM Memory Address <NEW>
0x41200000 BOOT BOOTRAM Memory Address <NEW>

<Select> <Exit> <Help>

```

```

Console - Cooperative Linux - [To Exit, Press Window+Alt Keys]

SBoot 1.0.0 Configuration
-----
General Configuration
-----
Arrow keys navigate the menu. <Enter> selects submenus --->.
Highlighted letters are hotkeys. Pressing <Y> includes, <N> excludes,
<M> modularizes features. Press <Esc><Esc> to exit, <?> for Help, </>
for Search. Legend: [*] built-in [ ] excluded <M> module < >

Buffer allocation policy <Allocate with Malloc> --->
[ ] UART1 Enable <NEW>
[ ] MIPS boot from eMMC <NEW>
[ ] Boot to kernel <NEW>
[ ] Show terse applet usage messages
[*] Build bootloader without U-Boot <Non-OS>
[ ] Secure Boot <NEW>
[ ] Build bootloader with compressed U-Boot <NEW>
[ ] Build PM binary <NEW>

<Select> <Exit> <Help>

```




(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.

```

C:\ Console - Cooperative Linux - [To Exit, Press Window+Alt Keys]
CC      src/macaw12/bootaeonsysinit.o
AS      src/macaw12/cache.o
AS      src/macaw12/context.o
CC      src/macaw12/drvAeonUART.o
CC      src/macaw12/drvGlobal.o
CC      src/macaw12/drvPadConf.o
CC      src/macaw12/exception.o
CC      src/macaw12/init_macaw12.o
CC      src/macaw12/interrupt.o
CC      src/macaw12/printf.o
CC      src/macaw12/puts.o
AS      src/macaw12/reset.o
CC      src/macaw12/risc32.o
CC      src/macaw12/setSPI.o
CC      src/macaw12/snprintf.o
AS      src/macaw12/stack.o
AS      src/macaw12/vectors.o
CC      src/macaw12/vsnprintf.o
AR      src/macaw12/lib.a
LDS      src/macaw12/sboot.lds
LINK     out/sboot.elf
Trying libraries:
Fl link withinal link with: <none>
Custom linker script 'sboot_ldscript' found, using it
[root@localhost sboot]#

```

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:

<pre> #if ((ENABLE_MSTAR_MACAW12_BD_MST149A_D01A_S) \ (ENABLE_MSTAR_MACAW12_BD_MST149B_D01A_S) \ (ENABLE_MSTAR_MACAW12_BD_MST149E_D01A_S)) #if ENABLE_MEM800MHz #define MIU_SPEED DDR2_800MHz #elif ENABLE_MEM1066MHz #define MIU_SPEED DDR2_1066MHz #else #error "Please select correct DDR2 Speed" #endif #elif (ENABLE_MSTAR_MACAW12_BD_MST149C_D01A_S) #if ENABLE_MEM1600MHz #define MIU_SPEED DDR3_1600MHz_e #else #error "Please select correct DDR3 Speed" </pre>	<pre> 45 #if ((ENABLE_MSTAR_MACAW12_BD_MST149A_D01A_S) \ 46 (ENABLE_MSTAR_MACAW12_BD_MST149B_D01A_S) \ 47 (ENABLE_MSTAR_MACAW12_BD_MST149E_D01A_S)) 48 #if (ENABLE_MSTAR_MACAW12_BD_MST030B_10AL8_12052) 49 (ENABLE_MSTAR_MACAW12_BD_MST031B_10AL0_11623) 50 (ENABLE_MSTAR_MACAW12_BD_MST034B_10AL6_12071) 51 (ENABLE_MSTAR_MACAW12_BD_MST034B_20AL6_12071) 52) 53 #if ENABLE_MEM800MHz 54 #define MIU_SPEED DDR2_800MHz 55 #elif ENABLE_MEM1066MHz 56 #define MIU_SPEED DDR2_1066MHz 57 #else 58 #error "Please select correct DDR2 Speed" 59 #endif 60 </pre>
---	---

```

1241 #if (PIN_FLASH_WP0)
1242 #if (MS_BOARD_TYPE_SEL == BD_MST149A_D01A_S) //PAD_PWM1
1243 _RWM1(0x1e40, 0, BIT5), //reg[101e40]#5 = 0b
1244 _RWM1(0x1e88, BIT5, BIT5), //output high
1245 _RWM1(0x1e87, 0, BIT5), //oen: output(0)
1246 #elif (MS_BOARD_TYPE_SEL == BD_MST149B_D01A_S) //PAD_PWM2
1247 _RWM1(0x1e40, 0, BIT6), //reg[101e40]#6 = 0b
1248 _RWM1(0x1e88, BIT6, BIT6), //output high
1249 _RWM1(0x1e87, 0, BIT6), //oen: output(0)
1250 #elif (MS_BOARD_TYPE_SEL == BD_MST149C_D01A_S) //MS_BOARD_TYPE_SEL == BD_MST149D
1251 _RWM1(0x1e10, 0, BIT2|BIT1|BIT0), //reg[101e10]#2~#0 = 000b
1252 _MEMGAP_RM,
1253 _RWM1(0x0e3a, BIT1, BIT1), //output high
1254 _RWM1(0x0e3c, 0, BIT1), //oen: output(0)
1255 #elif (MS_BOARD_TYPE_SEL == BD_MST149E_D01A_S) //PAD_OTIO4
1256 _RWM1(0x1e44, 0, BIT7|BIT6), //reg[101e44]#7~#6 = 00b
1257 _RWM1(0x1e4a, 0, BIT6|BIT5), //reg[101e4a]#6~#5 = 00b
1258 _RWM1(0x1e7c, BIT4, BIT4), //output high
1259 _RWM1(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"
    config MSTAR_MACAW12_BD_MST149S_D01A_S
        bool "BD_MST149S_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_10AL6_12062
845 bool "BD_MST030B_10AL6_12062"
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]

```

[root@localhost MBoot_M10]# cd shoot/
[root@localhost shoot]#

```

```

Console - Cooperative Linux - [To Exit, Press Window+Alt Keys]
SBoot 1.0.0 Configuration
Back Configuration
Arrow keys navigate the menu. <Enter> selects submenus --->.
Highlighted letters are hotkeys. Pressing <Y> includes, <N> excludes,
<M> modularizes features. Press <Esc><Esc> to exit, <?> for Help, </>
for Search. Legend: [*] built-in [ ] excluded <M> module < >
Platform Configuration --->
General Configuration --->
Build Options --->
Debugging Options --->
Installation Options --->
Module Options --->
---
Load an Alternate Configuration File
Save Configuration to an Alternate File
<Select> <Exit> <Help>

```

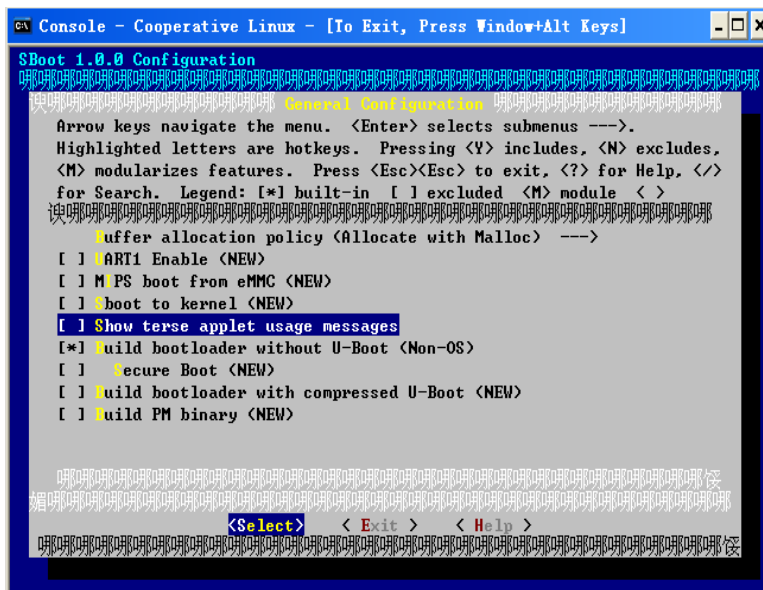
```

Console - Cooperative Linux - [To Exit, Press Window+Alt Keys]
SBoot 1.0.0 Configuration
Back Configuration
Arrow keys navigate the menu. <Enter> selects submenus --->.
Highlighted letters are hotkeys. Pressing <Y> includes, <N> excludes,
<M> modularizes features. Press <Esc><Esc> to exit, <?> for Help, </>
for Search. Legend: [*] built-in [ ] excluded <M> module < >
Platform Configuration --->
General Configuration --->
Build Options --->
Debugging Options --->
Installation Options --->
Module Options --->
---
Load an Alternate Configuration File
Save Configuration to an Alternate File
<Select> <Exit> <Help>

```

(2) Check the following options

- Show terse applet usage messages
- Build bootloader without U-Boot (Non-OS) → MUST
- 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 Standby 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

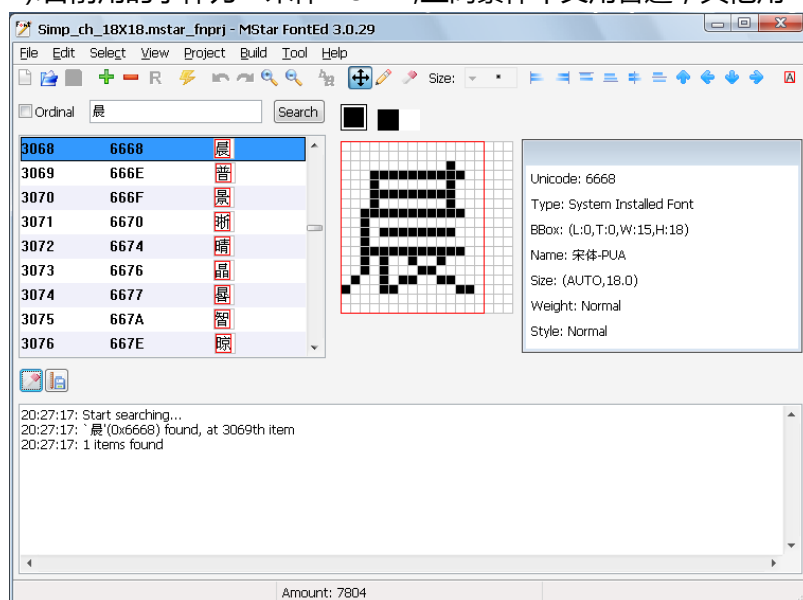
Boot_Branch/sboot/out/sboot.elf.map.



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。

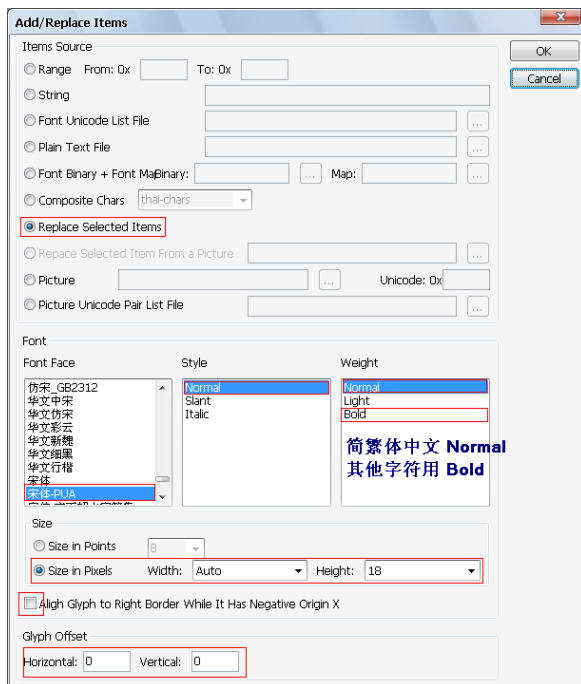
3.字体编辑工具(MStarFontEd.exe)

(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)



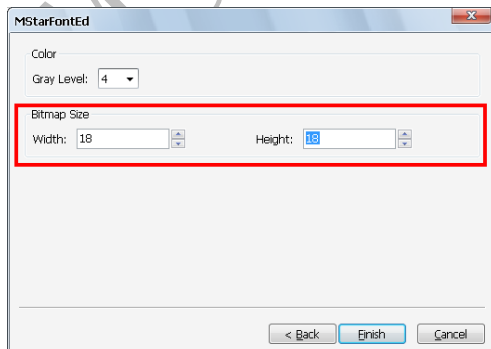
(3)编译字体生成.bin 文件

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)

