Migrate eMMC to phone (MT6575)

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Reference modification (1/2)

- Modification reference
  - eMMC MCP
    - EMI list update
    - eMMC region layout update
  - Project config
    - Enable MTK_EMMC_SUPPORT
    - Update EMMC_CHIP
  - BoardConfig
    - EXT4 img
  - Kernel config
    - Enable EXT4
    - Disable CONFIG_MTK_MTD_NAND
  - Disable custom PMT
    - Preloader & uboot
  - Add MBR/EBR1/EBR2 partition
    - Preloader/uboot

Blue: 每次更换eMMC MCP都要update一次

Black: 第一次改nand为eMMC时做，之后再更换eMMC就不用做了

Reference modification (2/2)

- Modification reference
  - Uboot config header
  - MSDC host custom config
    - Remove MSDC_CD_PIN_EN & MSDC_REMOVABLE
    - Preloader/uboot/kernel
  - Init.rc
    - Mount ext4 fs
    - Normal & meta & factory mode
  - Vold
    - Indicate FAT partition num
  - eMMC factory entry
  - GFH_INFO_EMMC.txt (if security feature enabled)

Note

- 所有改动都可以参考
  - Project: mt6575_evb_emmc 对应的file
- 截图
  - 左侧为改前file
  - 右侧为改后file

eMMC feature option

- Mediatek/config/xxx/ProjectConfig.mk
  - Make sure
    - MTK_EMMC_SUPPORT = yes
  - Add EMMC_CHIP in AUTO_ADD_GLOBAL_DEFINE_BY_NAME_VALUE
    - EMMC_CHIP = 4 (举例，如何填后面会介绍)

eMMC MCP

- eMMC region layout update
  - Mediatek/build/tools/ptgen/emmc_region.xls
    - Add new eMMC partiton layout
    - How to get the new eMMC partiton layout?

	A	B	C	D	E
1	Index	Region	SanDisk-SDIN5C1-4G	SanDisk-SDIN5C1-8G	Hynix-H9DP32A4JJMCGR-4G
2	1	Boot1	1024	1024	2048
3	2	Boot2	1024	1024	2048
4	3	RPMB	128	128	2048
5	4	GP1			
6	5	GP2			
7	6	GP3			
8	7	GP4			
9	8	User	3563520	7757824	3784704

Project config

- Mediatek/config/xxx/ProjectConfig.mk
  - MTK_EMMC_SUPPORT = y
  - EMMC_CHIP = 4
    - '4' is the collum index in mediatek/build/tools/ptgen/emmc_region.xls

0 1 2 3 4

	A	B	C	D	E
1	Index	Region	SanDisk-SDIN5C1-4G	SanDisk-SDIN5C1-8G	Hynix-H9DP32A4JJMCGR-4G
2	1	Boot1	1024	1024	2048
3	2	Boot2	1024	1024	2048
4	3	RPMB	128	128	2048
5	4	GP1			
6	5	GP2			
7	6	GP3			
8	7	GP4			
9	8	User	3563520	7757824	3784704

Boardconfig

- EXT4 img size
  - Mediatek/config/xxx/BoardConfig.mk

```
41
42 USE_CAMERA_STUB := true
43
44 TARGET_NO_FACTORYIMAGE := true
45
46 HAVE_HTC_AUDIO_DRIVER := true
47
48 #BOARD_USES_GENERIC_AUDIO := true
```

```
41
42 # eMMC support
43 ifeq ($(MTK_EMMC_SUPPORT), yes)
44 TARGET_USERIMAGES_USE_EXT4 := true
45 endif
46
47 TARGET_USERIMAGES_SPARSE_EXT_DISABLED := true
48
```

Kernel config

- Mediatek/config/xxx/autoconfig/kconfig/project
  - Enable EXT4

```
24 CONFIG_FS_POSIX_ACL=y
25 CONFIG_GPS=y
26 CONFIG_MTK_GPS=y
27 # CONFIG_MTK_NFC is not set
28 #
29 # Network testing
30 #
31 CONFIG_WIRELESS=y
32 CONFIG_WIRELESS_EXT=y
33 CONFIG_WEXT_CORE=y
34 CONFIG_WEXT_PROC=y
35 CONFIG_WEXT_PRIV=y
```

```
25 CONFIG_FS_POSIX_ACL=y
26
27 CONFIG_EXT4_FS=y
28 CONFIG_EXT4_USE_FOR_EXT23=y
29 CONFIG_EXT4_FS_XATTR=y
30 # CONFIG_EXT4_FS_POSIX_ACL is not set
31 # CONFIG_EXT4_FS_SECURITY is not set
32 CONFIG_EXT4_DEBUG=y
33 CONFIG_JBD2=y
34 # CONFIG_JBD2_DEBUG is not set
35
36 CONFIG_GPS=y
```

  - Disable CONFIG_MTK_MTD_NAND

```
1689 CONFIG_MTK_MTD_NAND=y
```

```
1689 # CONFIG_MTK_MTD_NAND is not set
```

Enable msdc0 in kernel

- Mediatek/custom/xxx/kernel/core/src/board-custom.h

```
43 /*=============================================================
44 //#define CFG_DEV_MSDC0
45 #define CFG_DEV_MSDC1
```

```
43 /*=====================
44 #define CFG_DEV_MSDC0
45 #define CFG_DEV_MSDC1
```

```
56 */
57 #define CONFIG_MTK_COMBO_SDIO_SLOT  (0) /* MSDC0 for temp use */
58 #else
```

```
56 */
57 #define CONFIG_MTK_COMBO_SDIO_SLOT  (2)
58 #else
```

Make sure the SDIO slot is NOT index 0

Init.rc

- Android normal mode
  - Mediatek/config/xxx/init.rc

Need

```
95      mount yaffs2 mtd@system /system nandboot
96      mkdir /system/secro 0600 system system
97      # RIL need to do this before the folder /system changed to read
98      chown radio system /system/etc/ril
99      chmod 0770 /system/etc/ril
100     chmod 0444 /system/etc/ril/oper.lis
101     mount yaffs2 mtd@system /system ro remount nandboot
102     mount yaffs2 mtd@userdata /data nosuid nodev nandboot
103     mount yaffs2 mtd@cache /cache nosuid nodev nandboot
104     write /proc/bootprof "INIT:NAND:Mount_END"
105
106 on post-fs
107     # once everything is setup, no need to modify /
108     mount rootfs rootfs / ro remount
109
110     # We chown/chmod /data again so because mount is run as root + de
111     chown system system /data
112     chmod 0771 /data
113
114     # Same reason as /data above
115     chown system cache /cache
116     chmod 0770 /cache
117
118     mkdir /cache/recovery 0770 system system
119
120 #     mount yaffs2 mtd@nvram /nvram nandboot
121     mount yaffs2 mtd@secstatic /system/secro nandboot
122     mount yaffs2 mtd@secstatic /system/secro ro remount nandboot
```

```
95      mount ext4 /dev/block/mmcblk0p6 /system wait
96      mkdir /system/secro 0600 system system
97      # RIL need to do this before the folder /system changed to read
98      chown radio system /system/etc/ril
99      chmod 0770 /system/etc/ril
100     chmod 0444 /system/etc/ril/oper.lis
101     mount ext4 /dev/block/mmcblk0p6 /system ro remount wait
102     mount ext4 /dev/block/mmcblk0p3 /data nosuid nodev wait
103     mount ext4 /dev/block/mmcblk0p2 /cache nosuid nodev wait
104     write /proc/bootprof "INIT:NAND:Mount_END"
105
106 on post-fs
107     # once everything is setup, no need to modify /
108     mount rootfs rootfs / ro remount
109
110     # We chown/chmod /data again so because mount is run as root +
111     chown system system /data
112     chmod 0771 /data
113
114     # Same reason as /data above
115     chown system cache /cache
116     chmod 0770 /cache
117
118     mkdir /cache/recovery 0770 system system
119
120 #     mount yaffs2 mtd@nvram /nvram nandboot
121     mount ext4 /dev/block/mmcblk0p5 /system/secro wait
122     mount ext4 /dev/block/mmcblk0p5 /system/secro ro remount wait
```

Init.rc

- Meta mode
  - Mediatek/config/xxx/advanced_meta_init.rc

Need

```
96      mount yaffs2 mtd@system /system nandboot
97
98      mkdir /system/secro 0600 system system
99
100     # RIL need to do this before the folder /system changed to read
101     chown radio system /system/etc/ril
102     chmod 0770 /system/etc/ril
103     chmod 0444 /system/etc/ril/oper.lis
104     mount yaffs2 mtd@system /system ro remount nandboot
105     mount yaffs2 mtd@userdata /data nosuid nodev nandboot
106     mount yaffs2 mtd@cache /cache nosuid nodev nandboot
107     write /proc/bootprof "INIT:NAND:Mount_END"
108
109 on post-fs
110     # once everything is setup, no need to modify /
111     mount rootfs rootfs / ro remount
112     # We chown/chmod /data again so because mount is run as root + de
113     chown system system /data
114     chmod 0771 /data
115
116     # Same reason as /data above
117     chown system cache /cache
118     chmod 0770 /cache
119
120     mkdir /cache/recovery 0770 system system
121
122 #     mount yaffs2 mtd@nvram /nvram nandboot
123     mount yaffs2 mtd@secstatic /system/secro nandboot
124     mount yaffs2 mtd@secstatic /system/secro ro remount nandboot
```

```
96      mount ext4 /dev/block/mmcblk0p6 /system wait
97
98      mkdir /system/secro 0600 system system
99
100     # RIL need to do this before the folder /system changed to read
101     chown radio system /system/etc/ril
102     chmod 0770 /system/etc/ril
103     chmod 0444 /system/etc/ril/oper.lis
104     mount ext4 /dev/block/mmcblk0p6 /system ro remount wait
105     mount ext4 /dev/block/mmcblk0p3 /data nosuid nodev wait
106     mount ext4 /dev/block/mmcblk0p2 /cache nosuid nodev wait
107     write /proc/bootprof "INIT:NAND:Mount_END"
108
109 on post-fs
110     # once everything is setup, no need to modify /
111     mount rootfs rootfs / ro remount
112     # We chown/chmod /data again so because mount is run as root +
113     chown system system /data
114     chmod 0771 /data
115
116     # Same reason as /data above
117     chown system cache /cache
118     chmod 0770 /cache
119
120     mkdir /cache/recovery 0770 system system
121
122 #     mount yaffs2 mtd@nvram /nvram nandboot
123     mount ext4 /dev/block/mmcblk0p5 /system/secro wait
124     mount ext4 /dev/block/mmcblk0p5 /system/secro ro remount wait
```

Init.rc

- Meta mode
  - Mediatek/config/xxx/meta_init.rc

Need

```
28  mount yaffs2 mtd@system /system nandboot
29
30  # RIL need to do this before the folder /system changed to r
31  chown radio system /system/etc/ril
32  chmod 0770 /system/etc/ril
33  chmod 0444 /system/etc/ril/oper.lis
34
35  mount yaffs2 mtd@system /system ro remount nandboot
36
37  # We chown/chmod /data again so because mount is run as root
38  mount yaffs2 mtd@userdata /data nosuid nodev nandboot
```

```
28  mount ext4 /dev/block/mmcblk0p6 /system
29
30  # RIL need to do this before the folder /system chang
31  chown radio system /system/etc/ril
32  chmod 0770 /system/etc/ril
33  chmod 0444 /system/etc/ril/oper.lis
34
35  mount ext4 /dev/block/mmcblk0p6 /system ro remount
36
37  # We chown/chmod /data again so because mount is run
38  mount ext4 /dev/block/mmcblk0p3 /data nosuid nodev
```

Init.rc

- Factory mode
  - Mediatek/custom/xxx/factory/init.rc

Need

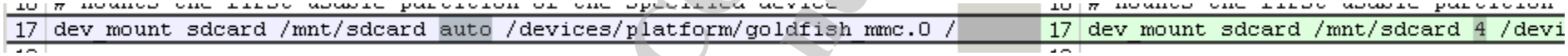
```
56      mount yaffs2 mtd@system /system nandboot
57      mkdir /system/secro 0600 system system
58      # RIL need to do this before the folder /system changed to read
59      chown radio system /system/etc/ril
60      chmod 0770 /system/etc/ril
61      chmod 0444 /system/etc/ril/oper.lis
62      mount yaffs2 mtd@system /system ro remount nandboot
63      mount yaffs2 mtd@userdata /data nosuid nodev nandboot
64      mount yaffs2 mtd@cache /cache nosuid nodev nandboot
65
66  on post-fs
67      # once everything is setup, no need to modify /
68      mount rootfs rootfs / ro remount
69
70      # We chown/chmod /data again so because mount is run as root +
71      chown system system /data
72      chmod 0771 /data
73
74      # Same reason as /data above
75      chown system cache /cache
76      chmod 0770 /cache
77
78      mkdir /cache/recovery 0770 system system
79
80      # mount yaffs2 mtd@nvram /nvram nandboot
81      mount yaffs2 mtd@secstatic /system/secro nandboot
82      mount yaffs2 mtd@secstatic /system/secro ro remount nandboot
```

```
56      mount ext4 /dev/block/mmcblk0p6 /system wait
57      mkdir /system/secro 0600 system system
58      # RIL need to do this before the folder /system changed to read
59      chown radio system /system/etc/ril
60      chmod 0770 /system/etc/ril
61      chmod 0444 /system/etc/ril/oper.lis
62      mount ext4 /dev/block/mmcblk0p6 /system ro remount wait
63      mount ext4 /dev/block/mmcblk0p3 /data nosuid nodev wait
64      mount ext4 /dev/block/mmcblk0p2 /cache nosuid nodev wait
65
66  on post-fs
67      # once everything is setup, no need to modify /
68      mount rootfs rootfs / ro remount
69
70      # We chown/chmod /data again so because mount is run as root +
71      chown system system /data
72      chmod 0771 /data
73
74      # Same reason as /data above
75      chown system cache /cache
76      chmod 0770 /cache
77
78      mkdir /cache/recovery 0770 system system
79
80      # mount yaffs2 mtd@nvram /nvram nandboot
81      mount ext4 /dev/block/mmcblk0p5 /system/secro wait
82      mount ext4 /dev/block/mmcblk0p5 /system/secro ro remount wait
```

Vold

- Indicate FAT partition num
  - Mediatek/config/xxx/vold.fstab

Need



eMMC factory entry

- Need change 3 files:
  - mediatek/custom/*[project]*/factory/inc/cust_mcard.h
  - mediatek/custom/*[project]*/factory/inc/cust.h
  - mediatek/custom/*[project]*/factory/factory.ini
- Your can find source files in
  - ALPS.GB.TDFD.MP/mediatek/custom/*xxx*/factory/

eMMC factory entry

– mediatek/custom/*[project]*/factory/factory.ini

//ALPS_SW/MP/ALPS.GB.TDFD_MP/alps/mediatek/custom/lenovo73_gb/factory/factory.ini#1

```
// test item and test flow configuration
MenuItem=Keys;
MenuItem=Jogball;
MenuItem=OFN;
MenuItem=Touch Panel;
MenuItem=Backlight Level;
MenuItem=Nand Flash;
MenuItem=Memory Card;
MenuItem=SIM Detect;
MenuItem=Signaling Test;
MenuItem=Vibrator;
MenuItem=LED;
MenuItem=RTC;
MenuItem=Loopback;
MenuItem=Ringtone;
MenuItem=Receiver;
```

//ALPS_SW/MP/ALPS.GB.TDFD_MP/alps/mediatek/custom/lenovo73_gb/factory/factory.ini#2

```
1  // test item and test flow configuration
2  MenuItem=Keys;
3  MenuItem=Jogball;
4  MenuItem=OFN;
5  MenuItem=Touch Panel;
6  MenuItem=Backlight Level;
7  MenuItem=Nand Flash;
8  MenuItem=eMMC;
9  MenuItem=Memory Card;
10 MenuItem=SIM Detect;
11 MenuItem=Signaling Test;
12 MenuItem=Vibrator;
13 MenuItem=LED;
14 MenuItem=RTC;
15 MenuItem=Loopback;
16 MenuItem=Ringtone;
```

Ext4 naming mount

Need

- Init.rc
- Mediatek/custom/xxx/kernel/core/src/board.c

recovery.fstab

- Recovery mode
  - alps/mediatek/config/project/recovery.fstab

NEED

```
# mount point   fstype          device                  [device2]

/boot           mtd             boot
/cache          yaffs2          cache
/data           yaffs2          userdata
/misc           mtd             misc
/recovery       mtd             recovery
/sdcard         vfat            /dev/block/mmcblk0p1    /dev/block/mmcblk0
/system         yaffs2          system
```

```
# mount point   fstype          device                  [device2]

/boot           emmc            boot
/cache          ext4            /dev/block/mmcblk0p2
/data           ext4            /dev/block/mmcblk0p3
/misc           emmc            misc
/recovery       emmc            recovery
/sdcard         vfat            /dev/block/mmcblk0p4
/system         ext4            /dev/block/mmcblk0p6
```

Q & A

Notes

- Make sure
  - EMI setting right
  - GPIO setting right

Q&A 1

- Q: Build error

```
2011/11/08 16:57:24 ptgening ...
            LOG: out/target/product/lenovo75_ptgen.log
                    ==> [FAIL]  2011/11/08 16:57:24

[mtksws022:alps]$ cat out/target/product/lenovo75_ptgen.log
Can't call method "get_cell" on an undefined value at mediatek/build/tools/ptgen/ptgen.pl
line 840.
Os = linux

argument:
MT6575 no mediatek/build/tools/ptgen/partition_table.xls mediatek/custom/lenovo75/common
mediatek/source/misc/ 4K yes 4 mediatek/config/lenovo75/configs/EMMC_partition_size.mk
PLATFORM=MT6575
LCA_PRJ=no
PART_TABLE_FILENAME=mediatek/build/tools/ptgen/partition_table.xls
SCAT_NAME=mediatek/source/misc/
PARTITION_DEFINE_H_NAME=mediatek/custom/lenovo75/common
EMMC_SUPPORT=yes
EMMC_CHIP= 4
EMMC_PART_SIZE_LOCATION=mediatek/config/lenovo75/configs/EMMC_partition_size.mk
SCAT_NAME=mediatek/source/misc/MT6575_Android_scatter.txt
PARTITION_DEFINE_H_NAME=mediatek/custom/lenovo75/common/partition_define.h
SHEET_NAME=MT6575 no 4K emmc
EMMC_REGION_FILENAME=mediatek/build/tools/ptgen/emmc_region.xls
mbr start is 2176
get_sheet failed? MT6575 no 4K emmc
```

- A:Mediatek/build/tools/ptgen/partiton_table.xls
  - Rename sheet ‘MT6575 no emmc sheet ‘
    - → MT6575 no 4K emmc sheet?

Q&A 2

- Q: How to adjust Multi-binary image alignment (e.g. 512KB)
  - Align column ‘size(KB)’ in partition_table.xls

	A	B	C	D	E	F	G	H	I	J
1	Index	Partition	Type	Start	End	Size	Size (KB)	Size2	Size(HEX)	DL
2	1	PRELOADER	Raw data	#NAME?	#NAME?	256 KB	256	262144	#NAME?	1
3	2	DSP_BL	Raw data	#NAME?	#NAME?	768KB	768	786432	#NAME?	1
4	3	MBR	Raw data	#NAME?	#NAME?	16KB	512	524288	#NAME?	1
5	4	EBR1	Raw data	#NAME?	#NAME?	368KB	512	524288	#NAME?	1
6	5	NVRAM	YAFFS2	#NAME?	#NAME?	3 MB	3072	3145728	#NAME?	0
7	6	SECCFG	Raw data	#NAME?	#NAME?	128 KB	512	524288	#NAME?	0
8	7	UBOOT	Raw data	#NAME?	#NAME?	384 KB	512	524288	#NAME?	1
9	8	BOOTIMG	Raw data	#NAME?	#NAME?	6 MB	6144	6291456	#NAME?	1
10	9	RECOVERY	Raw data	#NAME?	#NAME?	6 MB	6144	6291456	#NAME?	1
11	10	SEC_RO	EXT4	#NAME?	#NAME?	6 MB	6144	6291456	#NAME?	1
12	11	MISC	Raw data	#NAME?	#NAME?	384KB	512	524288	#NAME?	0
13	12	LOGO	Raw data	#NAME?	#NAME?	3 MB	3072	3145728	#NAME?	1
14	13	EXPDB	Raw data	#NAME?	#NAME?	640 KB	1024	1048576	#NAME?	0
15	14	EBR2	Raw data	#NAME?	#NAME?	16 KB	512	524288	#NAME?	1
16	15	ANDROID	EXT4	#NAME?	#NAME?	200MB	256000	262144000	#NAME?	1
17	16	CACHE	EXT4	#NAME?	#NAME?	60 MB	61440	62914560	#NAME?	1
18	17	USRDATA	EXT4	#NAME?	END	128 MB	131072	134217728	#NAME?	1
19	18	BMTPOOL	Raw data	FFFF0050	0	50	50	50	0	0
20	19	END	Raw data	0	#########	#########	0	339	0	0
21							User data Rem	-83	MB (256MB)	
22								173	MB (512MB)	

Q&A 2

- Adjust MBR/EBR align to 512KB
  - Mediatek/build/tools/ptgen/ptgen.pl
    - Previous : offset 1 cylinder = 0x20 blocks
    - Now: offset 512KB = 32 cylinder = 0x400 blocks

```
524     #MBR
525     print "MBR start is $mbr_start\n";
526     $BR[0][1][0][1] = $p1_start_block = 0x20;
527     $BR[0][1][1][1] = $p2_start_block;
528     $BR[0][1][2][1] = $p3_start_block;
529     $BR[0][1][3][1] = $p4_start_block = $p3_start_block -
530     print "P1 start is $p1_start_block\n";
531     print "P2 start is $p2_start_block\n";
532     print "P3 start is $p3_start_block\n";
533     print "P4 start is $p4_start_block\n";
534     $BR[0][1][0][2] = $p1_size_block = $p2_start_block -
535     $BR[0][1][1][2] = $p2_size_block;
536     $BR[0][1][2][2] = $p3_size_block;
537     $BR[0][1][3][2] = $p4_size_block = $eMMC_size_block -
538     print "P1 size is $p1_size_block\n";
539     print "P2 size is $p2_size_block\n";
540     print "P3 size is $p3_size_block\n";
541     print "P4 size is $p4_size_block\n";
542     print "eMMC size is $eMMC_size_block\n";
543
544     print "P5 start is $p5_start_block\n";
545     print "P5 size is $p5_size_block\n";
546     print "P6 start is $p6_start_block\n";
547     print "P6 size is $p6_size_block\n";
548     #EBR1
549     $BR[1][1][0][1] = $p5_start_block - $p1_start_block;
550     $BR[1][1][0][2] = $p5_size_block;
551     $BR[1][1][1][1] = $p6_start_block - 0x20 - 0x20;
552     $BR[1][1][1][2] = $p6_size_block + 0x20;
553
554     #EBR2
555     $BR[2][1][0][1] = 0x20;
556     $BR[2][1][0][2] = $p6_size_block;
557
```

```
524     #MBR
525     print "MBR start is $mbr_start\n";
526     $BR[0][1][0][1] = $p1_start_block = 0x400;
527     $BR[0][1][1][1] = $p2_start_block;
528     $BR[0][1][2][1] = $p3_start_block;
529     $BR[0][1][3][1] = $p4_start_block = $p3_start_block -
530     print "P1 start is $p1_start_block\n";
531     print "P2 start is $p2_start_block\n";
532     print "P3 start is $p3_start_block\n";
533     print "P4 start is $p4_start_block\n";
534     $BR[0][1][0][2] = $p1_size_block = $p2_start_block -
535     $BR[0][1][1][2] = $p2_size_block;
536     $BR[0][1][2][2] = $p3_size_block;
537     $BR[0][1][3][2] = $p4_size_block = $eMMC_size_block -
538     print "P1 size is $p1_size_block\n";
539     print "P2 size is $p2_size_block\n";
540     print "P3 size is $p3_size_block\n";
541     print "P4 size is $p4_size_block\n";
542     print "eMMC size is $eMMC_size_block\n";
543
544     print "P5 start is $p5_start_block\n";
545     print "P5 size is $p5_size_block\n";
546     print "P6 start is $p6_start_block\n";
547     print "P6 size is $p6_size_block\n";
548     #EBR1
549     $BR[1][1][0][1] = $p5_start_block - $p1_start_block;
550     $BR[1][1][0][2] = $p5_size_block;
551     $BR[1][1][1][1] = $p6_start_block - 0x400 - 0x400;
552     $BR[1][1][1][2] = $p6_size_block + 0x400;
553
554     #EBR2
555     $BR[2][1][0][1] = 0x400;
556     $BR[2][1][0][2] = $p6_size_block;
557
```

Appendix

eMMC partition layout

- Use ‘Memory test’ to get eMMC partition
  - Unit : KB

	A	B	C	D	E
1	Index	Region	SanDisk-SDIN5C1-4G	SanDisk-SDIN5C1-8G	Hynix-H9DP32A4JJMCGR-4G
2	1	Boot1	1024	1024	2048 A
3	2	Boot2	1024	1024	2048 B
4	3	RPMB	128	128	2048 C
5	4	GP1			
6	5	GP2			
7	6	GP3			
8	7	GP4			
9	8	User	3563520	7757824	3778560 D-(A+B+C)