SMDK2450 WINCE 5.0
Porting Manual

Revision History

Date	Version	Author	Amendment
2008-03-31	0.1	WinCE Team	1st Draft
2008-04-07	0.2	WinCE Team	Second Draft
2008-05-07	1.0	WinCE Team	

Contents

1 Board Type Configuration

1.1 Booting Mode Setting

- You can change booting Mode Nandboot or IromBoot. To change booting mode, you need to set CFG2 jummper and CFG7 jummper on CPU Board.
- For Example, we select 2048 Pages, 5 Cycle MLC Nand. You must set as following method.
- For NandBooting. In this case, Don't care CFG7_CPU setting.

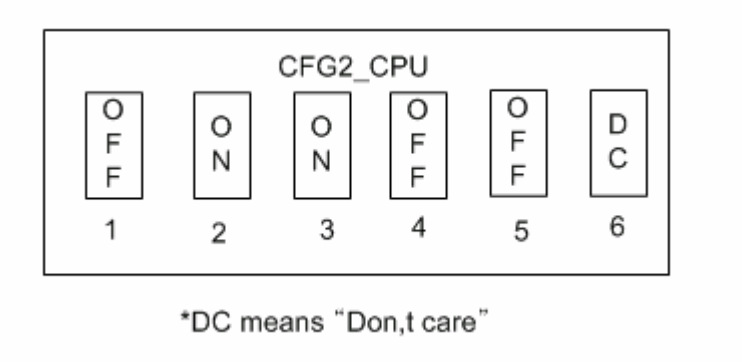


그림 **1 Nand Booting Configuration**

- For IROM Booting.

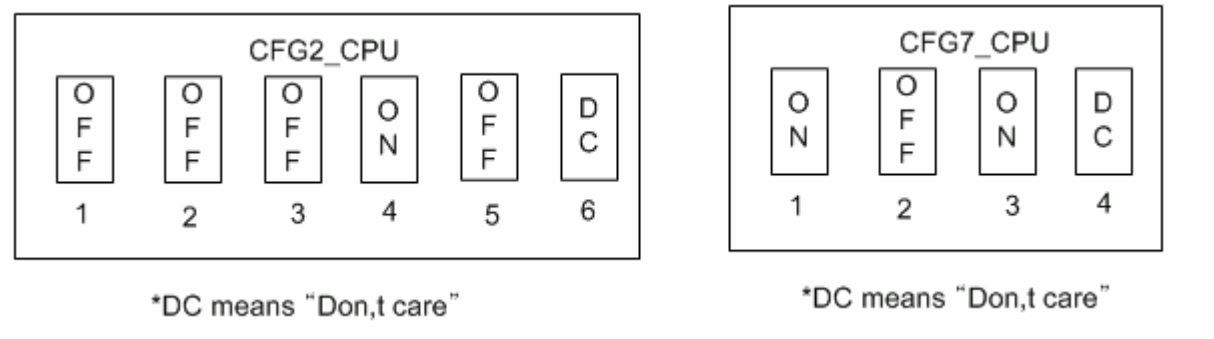


그림 **2 Irom Booting Configuration**

- In irom booting case, you must check board revision for Uart. Referenc capter 5.1 UART Poring Guide.

2 OAL option configuration

2.1 Clock Setting

- You can change CPU clock by some modification.
- There are some pre-defined setting in smdk2450\src\inc\s3c2450.inc

In smdk2450\src\inc\s3c2450.inc file

```
[ CLKVAL = 300          ; 300Mhz
]
[ CLKVAL = 400          ; 400Mhz CPU Clock, 100Mhz AHB Clock
]
[ CLKVAL = 400133       ; 400Mhz CPU Clock, 133Mhz AHB Clock
]
[ CLKVAL = 533          ; 533Mhz
]
```

- CPU clock setting is also in same file.
- Default setting is 400Mhz/133Mhz/66Mhz
- If you wanna change clock, change followings.

In smdk2450\src\inc\s3c2450.inc file

```
CLKVAL      SETA    400133
-> CLKVAL   SETA    533         ; change to 533 Mhz clock.
```

- And modify below statements to correct clock value.

In smdk2450\src\inc\ bsp_cfg.h file

```
#define S3C2450_FCLK            400000000           // 400.00MHz
#define S3C2450_HCLK            (S3C2450_FCLK/4)    // divisor 4
#define S3C2450_PCLK            (S3C2450_FCLK/8)    // divisor 2
-> //Change to 533Mhz, 133Mhz, 66Mhz
#define S3C2450_FCLK            534000000           // 400.00MHz
#define S3C2450_HCLK            (S3C2450_FCLK/3)    // divisor 4
#define S3C2450_PCLK            (S3C2450_FCLK/6)    // divisor 2
```

- These changes need rebuild all source. And make image.

2.2 RAM type configuration

- SDRRAM and mDDR and mDDR2 RAM can be chosen.
- Default is SDR. You can change like followings.

In smdk2450\src\inc\s3c2450.inc file

```
    ;GBLL    mDDR
    GBLL     mSDR
    ;GBLL    DDR2

->  GBLL  mDDR
    ;GBLL  mSDR
   ;GBLL   DDR2


->  ;GBLL mDDR
    ;GBLL  mSDR
   GBLL    DDR2
```

- These changes need rebuild stepldr.
- And download stepldr.nb0 to nand again.

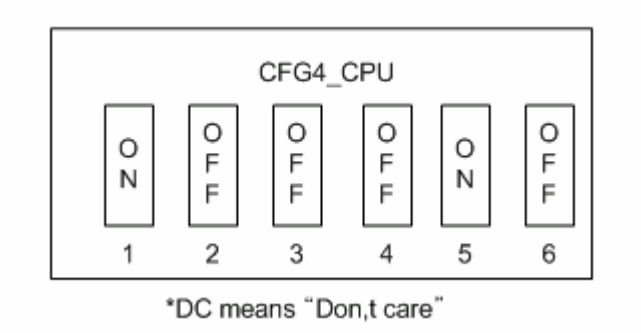


그림 **3 SDR Configuration**

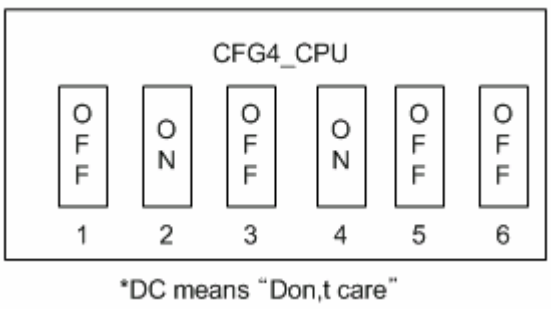


그림 **4 DDR Configuration**

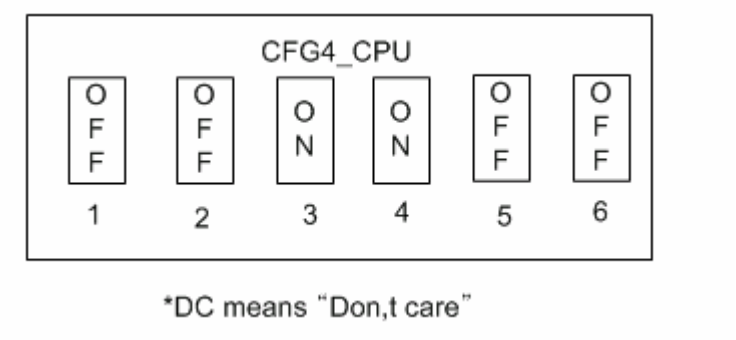


그림 **5 DDR2 Configuration**

2.3 System Tick type configuration

- There are two type system ticks. choose only one type.
- Fixed tick means that tick interrupt is occurred every 1ms.
- Variable tick means that timer interrupt period is changed when power mode is in idle.
- Default setting is fixed tick.
- If you change this to variable tick, change followings

In smdk2450\src\inc\bsp_cfg.h file

```
#define FIXEDTICK
-> #define VARTICK
```

In smdk2450\src\Common\Timer\Sources file

```
SOURCES= \
    timer_fixedtick.c \
    watchdog.c
->
SOURCES= \
    timer_vartick.c \
    watchdog.c
```

- Rebuild and make image.

3 DVS

3.1 Overview

'DVS' means 'Dynamic Voltage Scaling'. It's a technique to save power. DVS works with IDLE mode in windows CE. But it's not coupled tightly. The time when DVS is on and off can be different with the time when IDLE entry and exit. DVS changes three elements as below.

1. FCLK
2. HCLK
3. ARM Core voltage

In SMDK2450's User manual, 'DVS' bit in SYSCON register handles only FCLK. It changes FCLK to HCLK. So ARM core runs in HCLK and power is saved. It synchronized with system idle mode tightly. DVS Method counts idle ticks and use that as criterion to determine whether go in idle mode or not.

3.2 Activate DVS

To activate DVS, user change only two configuration files, SMDK2450.bat and bsp_cfg.h. you can activate and deactivate DVS feature to change environment variable SMDK2450.bat. It affects the build process. If you want to deactivate DVS, just delete the number.

The below is contents of **SMDK2450.bat**

In smdk2450\smdk2450.bat file

```
set BSP_USEDVS=1
```

3.3 Caution

DVS has strong dependency to hardware implementation. If you change hardware design from original ones, you must check power circuit carefully. In SMDK2450, MAX1718 chips are used to change voltage. And that is controlled through specific GPIO ports, do not use these GPIO ports with any other hardware. It can make some problems more complex.

4 Audio Driver Setting

4.1 AC97

- For AC97, clear BSP_NOAUDIO and set BSP_AUDIO_AC97

```
In smdk2450\smdk2450.bat file
set BSP_NOAUDIO=
set BSP_AUDIO_AC97=1
```

- And Change Base Board Configuration5 as following.

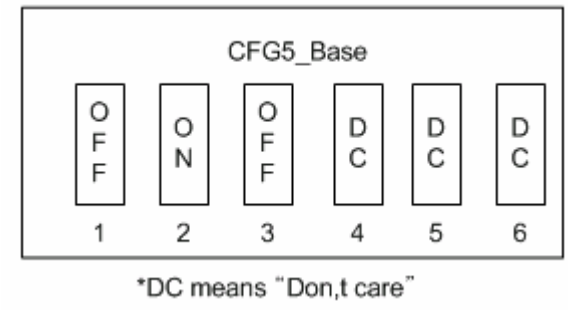


그림 **6 Audio(AC97) Configuration**

- Rebuild audio driver and make image

4.2 IIS

- For IIS, clear BSP_NOAUDIO and BSP_AUDIO_AC97

```
In smdk2450\smdk2450.bat file
set BSP_NOAUDIO=
set BSP_AUDIO_AC97=
```

- And Change Base Board Configuration5 as following.

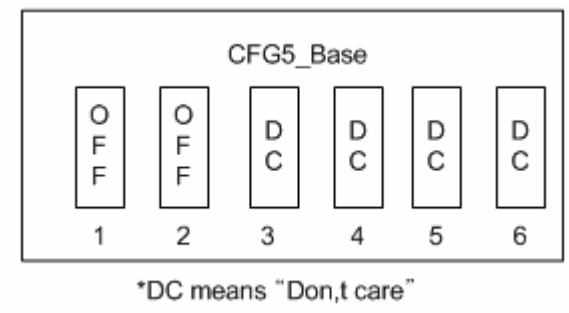


그림 **7 Audio(IIS) Configuration**

- Rebuild audio driver and make image

5 Serial Driver

- All serial driver can be disabled by setting BSP_NOSERIAL to 1
- So if you want to enable serial driver, clear BSP_NOSERIAL

In smdk2450\smdk2450.bat file

set BSP_NOSERIAL=

5.1 UART

- UART0 and UART3 can be disabled by each setting in BSP.
- The following codes means enable UART0, UART3.

In smdk2450\smdk2450.bat file

set BSP_NOUART0=

set BSP_NOUART3=

- After Changing, Build driver and make image.
- UART1 is used as debug message port.
- If you want to use UART1 for general purpose, set like the following. But you can not see debug message any more.

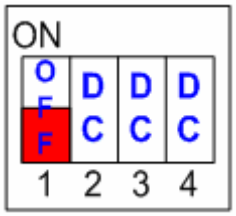
In smdk2450\smdk2450.bat file

set BSP_NOUART1=

set BDEBUGSERIAL_IS_UART1=1

- After Changing, Build driver and make image.
- UART1 and UART3 share same COM2 port.
- If you want to use UART1 on COM2 port, set CFG9 to the following.

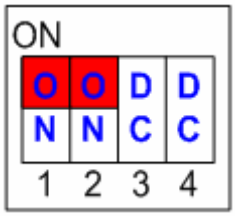
CFG9



***DC means don't care**

- If you want to use UART3 on COM2 port, set CFG9 to the following.

CFG9



***DC means don't care**

- You can test UART0(COM1) by serial ActiveSync.
- Enable UART0 and short jumper J10 on SMDK base board.

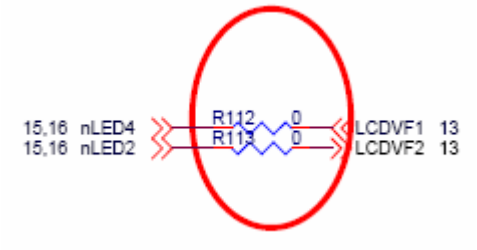
J10

- And configure WinCE and ActiveSync to use COM port.
- You can not use same UART and serial KITL at once.

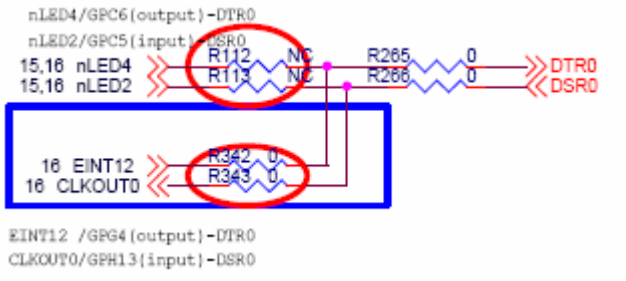
5.1.1 Board Revision

- In SMDK2450 Base Board Rev 0.0, DTR and DSR pins are not connected as follow Figure, so, you should connect R112 and R113. But in this case, you can not use IROM booting. So, if you want to use iROM booting, you should disconnect R112 and R113.

- In SMDK2450 Base Board Rev 0.1, DTR and DSR pins are connected as follow Figure. So, you don't need to connect R112 and R113. But in this case, you can not use IROM booting. So, if you want to use iROM booting, you should disconnect R112 and R113.



- In SMDK2450 Base Board Rev 0.2, DTR and DSR pins are connected as follow Figure. So, you can use 2 GPIO Path. Default setting is GPG4 and GPH13. In this case, DTR and DSR pins are not connected to the same GPIO with CFG7. So, you can use DTR/DSR and iROM booing at the same time.



5.2 IrDA

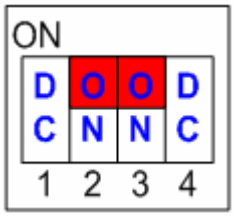
- IrDA uses UART2
- Default BSP setting is enabled.
- If you clear BSP_NOIRDA like following code, you can use IrDA device.

In smdk2450\smdk2450.bat file

set BSP_NOIRDA=

- After Changing, Build driver and make image.
- and you need SMDK base board setting.
- Set CFG9 to the following for IrDA test.

CFG9



***DC means don't care**

6 Display

- Display device can be disabled.
- Default setting is enabled.
- If you clear BSP_NODISPLAY like following code, you can use display device.

In smdk2450\smdk2450.bat file

```
set BSP_NODISPLAY=
```

- Setting 1 means that display is not used.
- After Changing, Build driver and make image.

- If you want to enable or disable 2D Hardware accelerator, you may modify this.

In smdk2450\src\drivers\display_2450\precomp.h file

```
    #define G2D_ACCELERATE      (TRUE)      //< If you want to use 2D HW for GDI, set this to "TRUE", if no, set to "FALSE


/// For using Physically Linear Surface on System Memory to wide 2D HW usage.
/// 2D HW need physically contiguous memory, and its address.
/// This will consume System Memory and allocate Physically and Virtually contiguous memory.
/// So if system has small memory, allocation may fail.
/// Then 2D HW will not work for that memory.
  #define USE_PACSURF      (TRUE)
```

- There are some optimization options provided for 2D Hardware

In smdk6410\src\drivers\display_2450\precomp.h file

```
    #define PAC_ALLOCATION_BOUNDARY     (320*240*2)     //<  PACSurf creation request is processed only for the surface has over QVGA 16bpp
    #define G2D_COMPROMISE_LIMIT  (28800) //< Transferring below this size(byte) using HW will be poor than using SW. so we will use software 2D flow under this size transfer
```

```
request.
    #define G2D_BLT_OPTIMIZE        (TRUE)      //< This option will enable above two
optimization method. This can increase 2D processing overhead.
```

We support 2 LCD Module Type : LCD_MODULE_LTV350(QVGA), LCD_MODULE_LTE480WV(WVGA).
If you want to use WVGA LCD Module, you must modify this.

```
In smdk2450\src\inc\bsp_cfg.h file
#define LCD_MODULE_LTS222          1
#define LCD_MODULE_LTV350          2
#define LCD_MODULE_LTE480WV        3
//#define LCD_MODULE_TYPE          LCD_MODULE_LTV350
#define LCD_MODULE_TYPE   LCD_MODULE_LTE480WV

In smdk2450\Files\platform.reg file
; SMDK2450   QVAG
;"CalibrationData"="2092,2054 1104,1293 1107,2828 3056,2831 3056,1293 "
; SMDK2450 WVGA
;    "CalibrationData"="524,498 283,668 280,329 764,326 763,662 "   ;for 10bit
   "CalibrationData"="2096,1972 1107,2649 1114,1306 3074,1304 3071,2623 "   ;for 12 bit
```

7 Touch

- Touch Screen can be disabled.
- Default setting is enabled.
- If you clear BSP_NOTOUCH like following code, you can use touch device.

```
In smdk2450\smdk2450.bat file
set BSP_NOTOUCH=
```

- Setting 1 means that touch is not used.
- After Changing, Build driver and make image.
- You can select 10bit or 12bit resolution. If you want to use 12 bit resolution, you must set following part.

```
In \Src\Drivers\Touch\ s3c2450_touch.cpp file
#define TOUCH_12BIT_SUPPORT 1


In smdk2450\Files\platform.reg file

; SMDK2450 WVGA
;    "CalibrationData"="524,498 283,668 280,329 764,326 763,662 "   ;for 10bit
   "CalibrationData"="2096,1972 1107,2649 1114,1306 3074,1304 3071,2623 "   ;for 12 bit
```

8 POST

- **Post device cannot be used with Camera device at once.**
- Default setting is disabled.
- If you clear BSP_NOPOST like following code, you can use POST device.

In smdk2450\smdk2450.bat file

set BSP_NOPOST=

- Setting 1 means that POST is not used.
- After Changing, Build driver and make image.

9 Camera

- **Camera device cannot be used with Post device at once.**
- **For using camera device, you need to enable I2C device.**
- Default setting is disabled.
- If you clear BSP_NOCAMERA like following code, you can use Camera device.

In smdk2450\smdk2450.bat file

```
set BSP_NOCAMERA=
```

- Setting 1 means that Camera is not used.
- After Changing, Build driver and make image.

9.1 Module setting

- Default camera module setting is for 3AA – Samsung 1.3M camera module -.
- Driver can support 3BA –Samsung 2.0M camera module - also.
- You can change module by changing CIS_TYPE definition in camif.h file

In smdk2450\src\drivers\camera\camif.h file

```
#define CIS_S5X3A1          3    //megapixel CIS
#define CIS_S5K3AA          4
#define CIS_S5K3BAFB        5
#define CIS_TYPE            CIS_ S5K3BAFB
```

- After Changing, Build driver and make image.

9.2 Adding New Module

- First, add module setting in s5x532.h file

In smdk2450\src\drivers\camera\s5x532.h file

```
unsigned char NewModule_YCbCr8bit[][2]   = {
{0xfc, 0x02},
{0x52, 0x86},          // PLL M
//{0x52, 0x80},                // PLL M
//{0x52, 0x64},                // PLL M
{0xfc, 0x01},
{0x04, 0x03},          // Original        ARM Clock Divider
//{0x04, 0x02},
```

```
{0xfc, 0x02},
//{0x50, 0x5B}, //Original
{0x50, 0x59},          // Input Clock 25Mhz
.
.
};
```

- Add module definition.

In smdk2450\src\drivers\camera\camif.h file

```
#define CIS_S5K3AA          4
#define CIS_S5K3BAFB        5
#define CIS_NEWMODULE       6
#define CIS_TYPE            CIS_ NEWMODULE
```

- Modify Clock setting

In smdk2450\src\drivers\camera\camif.h file

```
#define CAM_CLK_DIV             1
// 96M / (DIV + 1) - 0:96M, 1:48M, 2:32M, 3:24M, 4:19.2M, 5:16M
```

- Modify image source size from module output.

In smdk2450\src\drivers\camera\camif.h file

```
#define CAM_SRC_HSIZE           (640)
#define CAM_SRC_VSIZE           (480)
```

- Add module setting routine in source code. This function configure module using I2C.

function CAM_WriteBlock() In smdk2450\src\drivers\camera\camera.cpp file.

```
#elif (CIS_TYPE == CIS_ NEWMODULE)
    for(i=0; i<(sizeof(NewModule_YCbCr8bit)/2); i++)
    {
        HW_WriteRegisters(pCIS, &NewModule_YCbCr8bit[i][1],
NewModule_YCbCr8bit[i][0], 1);
    }
```

- And add camera interface input configuration in CamInit function

function CamInit() In smdk2450\src\drivers\camera\camera.cpp file.

```
#elif(CIS_TYPE == CIS_ NEWMODULE)
        s2450CAM->CISRCFMT=(CAM_ITU601<<31)|(0<<30)|(0<<29)|
(CAM_SRC_HSIZE<<16)|(CAM_ORDER_YCBYCR<<14)|(CAM_SRC_VSIZE);
```

10 I2C

- **I2C must be enabled for camera device.**
- Default setting is disabled.
- If you clear BSP_NOI2C like following code, you can use I2C device.

In smdk2450\smdk2450.bat file

set BSP_NOI2C=

- Setting 1 means that I2C is not used.
- After Changing, Build driver and make image.

11 USB Device

11.1 USB Device Class Selection

- In WinCE50, MS support 2 class type, Serial class and Mass storage class,
- If you want to use USB Serial Class, you must set this.

```
In smdk2450\smdk2450.bat file
set BSP_USBFNCLASS=SERIAL
@REM set BSP_USBFNCLASS=MASS_STORAGE
```

11.2 Disk Selection for USB Mass Storage Class

- In WinCE50 USB Mass Storage Class, We support SD(MMC) Disk or MLC Nand Disk.
- We fixed SD(MMC) DISK Index is 4 and MLC Nand DISK Index is 1. you can change DISK index.
- MS cannot support 2 Disk simultaneously.
- If you want to use SD(MMC) Disk for USB Mass storage, you must set this.

```
In smdk2450\smdk2450.bat file
set BSP_USBFNCLASS=MASS_STORAGE

In smdk2450\src\drives\usb\function\Sc2450pdd.cpp file
DWORD bSDMMCMSF = TRUE;

In smdk2450\Files\platform.reg file
[HKEY_LOCAL_MACHINE\Drivers\USB\FunctionDrivers\Mass_Storage_Class]
    "Dll"="usbmsfn.dll"
    "InterfaceSubClass"=dword:06
    "InterfaceProtocol"=dword:50
    "DeviceName"="DSK4:"
    "FriendlyName"="Mass Storage"
    "idVendor"=dword:045E
    "Manufacturer"="Generic Manufacturer (PROTOTYPE--Remember to change idVendor)"
    "idProduct"=dword:FFFF
    "Product"="Generic Mass Storage (PROTOTYPE--Remember to change idVendor)"
    "bcdDevice"=dword:0
    "Removable"=dword:0
```

```
; SD Memory Storage class driver
[HKEY_LOCAL_MACHINE\Drivers\SDCARD\ClientDrivers\Class\SDMemory_Class]
    "Dll"="SDMemory.dll"
    "Prefix"="DSK"
    "Index"=dword:4
    "BlockTransferSize"=dword:40   ; send no more than 64 blocks of data per bus transfer
    ;"SingleBlockWrites"=dword:1   ; alternatively force the driver to use single block access
    ;"IdleTimeout"=dword:7D0        ; 2000 milliseconds
    ;"IdlePowerState"=dword:2       ; 0 == D0, 1 == D1, etc.
    ;"DisablePowerManagement"=""   ; if value present, then disable (remove value to enable)
    "Profile"="SDMemory"
    "IClass"=multi_sz:"{A4E7EDDA-E575-4252-9D6B-4195D48BB865}",
                      "{8DD679CE-8AB4-43c8-A14A-EA4963FAA715}"

; MMC Storage Class Driver
[HKEY_LOCAL_MACHINE\Drivers\SDCARD\ClientDrivers\Class\MMC_Class]
    "Dll"="SDMemory.dll"
    "Prefix"="DSK"
    "Index"=dword:4
    "BlockTransferSize"=dword:40   ; send no more than 64 blocks of data per bus transfer
    ;"SingleBlockWrites"=dword:1   ; alternatively force the driver to use single block access
    ;"IdleTimeout"=dword:7D0        ; milliseconds
    ;"IdlePowerState"=dword:2       ; 0 == D0, 1 == D1, etc.
    ;"DisablePowerManagement"=""   ; if value present, then disable (remove value to enable)
    "Profile"="MMC"
    "IClass"=multi_sz:"{A4E7EDDA-E575-4252-9D6B-4195D48BB865}",
                      "{8DD679CE-8AB4-43c8-A14A-EA4963FAA715}"
```

- If you want to use MLC Nand Disk for USB Mass storage, you must set this

-

```
In smdk2450\smdk2450.bat file
set BSP_USBFNCLASS=MASS_STORAGE

In smdk2450\src\drives\usb\function\Sc2450pdd.cpp file
DWORD bSDMMCMSF = FALSE;
```

```
In smdk2450\Files\platform.reg file
[HKEY_LOCAL_MACHINE\Drivers\USB\FunctionDrivers\Mass_Storage_Class]
      "Dll"="usbmsfn.dll"
      "InterfaceSubClass"=dword:06
      "InterfaceProtocol"=dword:50
      "DeviceName"="DSK1:"
      "FriendlyName"="Mass Storage"
      "idVendor"=dword:045E
      "Manufacturer"="Generic Manufacturer (PROTOTYPE--Remember to change idVendor)"
      "idProduct"=dword:FFFF
      "Product"="Generic Mass Storage (PROTOTYPE--Remember to change idVendor)"
      "bcdDevice"=dword:0
      "Removable"=dword:0


[HKEY_LOCAL_MACHINE\Drivers\BuiltIn\FlashDisk]
    "Prefix"="DSK"
    "Dll"="ONDisk.dll"
    "Order"=dword:1
    "Index"=dword:2
    "IClass"=multi_sz:"{A4E7EDDA-E575-4252-9D6B-4195D48BB865}"
    "Profile"="FlashDisk"
    "BmlVolumeId"=dword:0    ; BML volume ID = 0
    "BmlPartitionId"=dword:8  ; BML parition ID = PARTITION_ID_FILESYSTEM
    "WMRStartSector"=dword:0
    "WMRNumOfSector"=dword:10000  ; 32MByte
;     "Flags"=dword:11000       ; do not load again in boot phase 2           ;
.......
;-------------------------------------------------------------------------
; 2nd FAT Area
;-------------------------------------------------------------------------

[HKEY_LOCAL_MACHINE\Drivers\BuiltIn\FlashDisk1]
    "Prefix"="DSK"
    "Dll"="ONDisk.dll"
```

```
        "Order"=dword:1
        "Index"=dword:1
        "IClass"=multi_sz:"{A4E7EDDA-E575-4252-9D6B-4195D48BB865}"
        "Profile"="FlashDisk1"
        "BmlVolumeId"=dword:0               ; BML volume ID = 0
        "BmlPartitionId"=dword:9  ; BML parition ID = PARTITION_ID_FILESYSTEM1
        "WMRStartSector"=dword:10000
        "WMRNumOfSector"=dword:ffffffff  ; last location
    ;    "Flags"=dword:11000       ; do not load again in boot phase 2          ;
```

12 Supporting NAND

- Enable about nand configuriaton for using Nand storage

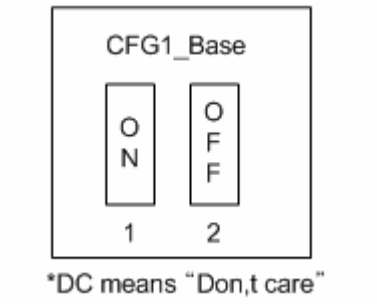


그림 8 **Nand Configuation**

- Default setting is MLC.

In smdk2450\Src\Whimory\wmrenv.bat file

set WMR_NAND_SUPPORT=MLC

- If you want to use SLC type NAND Flash Device, modify like follows.

In smdk2450\Src\Whimory\wmrenv.bat file

set WMR_NAND_SUPPORT=SLC

- There are two methods for building image as if first build or not.
- 1. in the case of first building image with this BSP :
  Before making a new platform on platform builder, modify wmrenv.bat file and save it. Then create new platform on platform builder. From this refer to installation manual.
- 2. in the case of building image for SLC after building image for supporting MLC :
  Open the command widows using platform builder menu [Build OS] → [Open Release Directory]. Then change directory forward BSP folder(example: X:\WCE500\PLATFORM\SMDK2450\) and execute 'build –c' for building with clean option. After completion change directory forward release folder(example: X:\WCE500\PBWorkspaces\Project_Name\RelDir\smdk2450_ARM4VI_Release) and execute 'romimage ce.bib' for making images.

13 Supporting Multi-Partition

- This BSP supports multiple partition on FAT file system area.
- As modifying platform.reg(registry file) you can easily add or remove the multiple partition area and change the size of partition with sector dimension.
- Check the following for multiple partition

```
IF BSP_POCKETMORY

[HKEY_LOCAL_MACHINE\Drivers\BuiltIn\FlashDisk]
    "Prefix"="DSK"
    "Dll"="ONDisk.dll"
    "Order"=dword:1
;    "Index"=dword:1
    "IClass"=multi_sz:"{A4E7EDDA-E575-4252-9D6B-4195D48BB865}"
    "Profile"="FlashDisk"
    "BmlVolumeId"=dword:0    ; BML volume ID = 0
    "BmlPartitionId"=dword:8  ; BML parition ID = PARTITION_ID_FILESYSTEM
    "WMRStartSector"=dword:0
    "WMRNumOfSector"=dword:10000  ; 32MByte
;    "Flags"=dword:11000       ; do not load again in boot phase 2          ;

[HKEY_LOCAL_MACHINE\System\StorageManager\Profiles\FlashDisk]
     "DefaultFileSystem"="FATFS"
     "PartitionDriver"="mspart.dll"
     "Name"="PocketMory MLC Disk"
     "Folder"="PocketMory"
     "AutoMount"=dword:1
     "AutoPart"=dword:1
     "AutoFormat"=dword:1
     "MountFlags"=dword:0
;     "Ioctl"=dword:4

[HKEY_LOCAL_MACHINE\System\StorageManager\Profiles\FlashDisk\FATFS]
     "FriendlyName"="PocketMory FAT FileSystem"
     "Dll"="fatfsd.dll"
```

```
        "Flags"=dword:00000014                    ; FATFS_ENABLE_BACKUP_FAT |
FATFS_DISABLE_AUTOSCAN
        "FormatTfat"=dword:1
        "EnableCacheWarm"=dword:0

;------------------------------------------------------------------------
; 2nd FAT Area
;------------------------------------------------------------------------

[HKEY_LOCAL_MACHINE\Drivers\BuiltIn\FlashDisk1]
    "Prefix"="DSK"
    "Dll"="ONDisk.dll"
    "Order"=dword:1
;    "Index"=dword:1
    "IClass"=multi_sz:"{A4E7EDDA-E575-4252-9D6B-4195D48BB865}"
    "Profile"="FlashDisk1"
    "BmlVolumeId"=dword:0              ; BML volume ID = 0
    "BmlPartitionId"=dword:9  ; BML parition ID = PARTITION_ID_FILESYSTEM1
    "WMRStartSector"=dword:10000
    "WMRNumOfSector"=dword:ffffffff  ; last location
;    "Flags"=dword:11000       ; do not load again in boot phase 2          ;

[HKEY_LOCAL_MACHINE\System\StorageManager\Profiles\FlashDisk1]
        "DefaultFileSystem"="FATFS"
        "PartitionDriver"="mspart.dll"
        "Name"="PocketMory MLC Disk1"
        "Folder"="PocketMory1"
        "AutoMount"=dword:1
        "AutoPart"=dword:1
        "AutoFormat"=dword:1
        "MountFlags"=dword:0
;       "Ioctl"=dword:4

[HKEY_LOCAL_MACHINE\System\StorageManager\Profiles\FlashDisk1\FATFS]
        "FriendlyName"="PocketMory FAT FileSystem1"
        "Dll"="fatfsd.dll"
```

```
    "Flags"=dword:00000014                    ; FATFS_ENABLE_BACKUP_FAT |
FATFS_DISABLE_AUTOSCAN
    "FormatTfat"=dword:1
    "EnableCacheWarm"=dword:0

ENDIF BSP_POCKETMORY
```

- If you want to resize the partition, modify this keys both “WMRStartSector” and “WMRNumOfSector”.
  0xFFFFFFFF on the “WMRNumOfSector” key value represents the remained sectors.
  For example, if you want the size of the 1st partition is 10MByte, you should set this.
  1st partition registry value :
  “WMRStartSector”=dword:0
  “WMRNumOfSector” =dword:5000 (hexa value) (0x5000 * 512Byte = 10MByte)
  2nd partition registry value :
  “WMRStartSector”=dword:5000 (hexa value)
  “WMRNumOfSector” =dword:ffffffff (hexa value)

- If you don’t want to use multiple partition solution, modify platform.reg file like followings.
  1. Erase the registry for 2nd FAT Area
  2. Modify the WMRNumOfSector value of the 1st partition to FFFFFFFF
  3. Makeimage again

```
IF BSP_POCKETMORY

[HKEY_LOCAL_MACHINE\Drivers\BuiltIn\FlashDisk]
    "Prefix"="DSK"
    "Dll"="ONDisk.dll"
    "Order"=dword:1
;    "Index"=dword:1
    "IClass"=multi_sz:"{A4E7EDDA-E575-4252-9D6B-4195D48BB865}"
    "Profile"="FlashDisk"
    "BmlVolumeId"=dword:0    ; BML volume ID = 0
    "BmlPartitionId"=dword:8  ; BML parition ID = PARTITION_ID_FILESYSTEM
    "WMRStartSector"=dword:0
    "WMRNumOfSector"=dword:ffffffff  ; all sectors
;    "Flags"=dword:11000       ; do not load again in boot phase 2          ;
```

```
[HKEY_LOCAL_MACHINE\System\StorageManager\Profiles\FlashDisk]
    "DefaultFileSystem"="FATFS"
    "PartitionDriver"="mspart.dll"
    "Name"="PocketMory MLC Disk"
    "Folder"="PocketMory"
    "AutoMount"=dword:1
    "AutoPart"=dword:1
    "AutoFormat"=dword:1
    "MountFlags"=dword:0
;    "Ioctl"=dword:4

[HKEY_LOCAL_MACHINE\System\StorageManager\Profiles\FlashDisk\FATFS]
    "FriendlyName"="PocketMory FAT FileSystem"
    "Dll"="fatfsd.dll"
    "Flags"=dword:00000014                    ; FATFS_ENABLE_BACKUP_FAT |
FATFS_DISABLE_AUTOSCAN
    "FormatTfat"=dword:1
    "EnableCacheWarm"=dword:0

ENDIF BSP_POCKETMORY
```

14 SD / HSMMC

- The driver supporting 4 bit DAT bus width on SD/HSMMC Channel 0 can be disable, Default setting is enabled.

In smdk2450\smdk2450.bat file

set BSP_NOHSMMC_CH0=1

- The drivers supporting 4 bit DAT bus width on SD/HSMMC Channel 1 can be disabled, Default setting is enabled.

In smdk2450\smdk2450.bat file

set BSP_NOHSMMC_CH1=1

- Driver Supporting 8 bit DAT bus width on Channel 1 can be disabled, Default setting is enabled.

In smdk2450\smdk2450.bat file

set BSP_HSMMC_CH1_8BIT=

- If you clear BSP_NOHSMMC_CHx as following code, SD/HSMMC drivers will be included in OS image. (Channel 0 is 4 bit, Channel 1 is 8 bit.)

In smdk2450\smdk2450.bat file

set BSP_NOHSMMC_CH0=

set BSP_NOHSMMC_CH1=

set BSP_HSMMC_CH1_8BIT=1

- **In this time, SD/HSMMC Drivers are under developing. Some kind of HS-MMC does not work with Driver.**

15 CF

- **TRUE-IDE mode on S3C2450 CF Controller does not support HOT-PLUG. CF device must be in the slot before booting OS up.**
- First, clear BSP_NOATAPI for using CF-ATAPI

In smdk2450\smdk2450.bat file

set BSP_NOCFATAPI=

- S3C2450 CF Controller does not support Ultra-DMA mode.
- If you want to change mode between PIO and PDMA, change registry as follows,

```
[HKEY_LOCAL_MACHINE\Drivers\BuiltIn\2450_CF\Device0]
    "Prefix"="DSK"
    "Dll"="s3c2450_cf_atapi.dll"
    "Index"=dword:0
    "Order"=dword:3
    "IClass"=multi_sz:"{A4E7EDDA-E575-4252-9D6B-4195D48BB865}",
                      "{8DD679CE-8AB4-43c8-A14A-EA4963FAA715}"
    "InterruptDriven"=dword:00          ; en(1) dis(0)able interrupt driven I/O
    "DMA"=dword:00                      ; disable DMA. DMA is not supported
    "DoubleBufferSize"=dword:10000      ; 128 sector (65536 byte) double buffer
    "DrqDataBlockSize"=dword:200        ; 1 sector (512 byte) DRQ data block
    "WriteCache"=dword:01               ; enable on-disk write cache
    "LookAhead"=dword:01                ; enable on-disk look-ahead
    "DeviceId"=dword:00                 ; device 0, i.e., primary master
    "TransferMode"=dword:ff             ; use mode 0;
    "EnablePDMA"=dword:1                ; 0 = PIO, 1 = PDMA. We recommend PDMA mode.
```