

Mango64R3 10.4" LCD 포팅 가이드

<http://www.mangoboard.com/>

<http://cafe.naver.com/embeddedcrazyboys>

Crazy Embedded Laboratory

Document History

Revision	Date	Change note
1.0	2014-12-05	전종인

1. Release Note 2012 03 14 오류! 책갈피가 정의되어 있지 않습니다.
 - 1.1. Base 코드 오류! 책갈피가 정의되어 있지 않습니다.
 - 1.2. 수정사항 오류! 책갈피가 정의되어 있지 않습니다.

1. 필요한 장비

- [Mango64R3 Main Board \[S3C6410 EVB \]](#)
- 10.4inch TFT LCD with Resistive Touch Screen (800x600)
- LCD Expansion Board (CR-LIF1-LSA40AT9001_V1.0)
- AC/DC Adapter (5V/2A)
- 3pin Serial cable
- USB to RS232 Module
- 60P 15CM 0.5mm FFC Cable

2. 베이스 소스

http://crztech.iptime.org:8080/Release/mango64R3/linux/tutorials/auto_test/20141115/

3. 커널 수정

3.1. U-boot Write하기

<http://www.mangoboard.com/sub.html?ptype=view&idx=8108&page=1&code=Mango64R3&ii=3>

3.2. Kernel 수정하기

Define을 CONFIG_FB_S3C_LSA40AT9001 으로 합니다.

mango_10_4inch_lsa40at9001.c 파일을 만듭니다.

```
#include <linux/wait.h>
#include <linux/fb.h>
#include <linux/delay.h>
#include <linux/platform_device.h>
```

```

#include <plat/regs-gpio.h>
#include <plat/regs-lcd.h>

#include "s3cfb.h"

#define S3CFB_HFP          64//8    /* front porch */
#define S3CFB_HSW          128      /* hsync width */
#define S3CFB_HBP          64//13   /* back porch */

#define S3CFB_VFP          16//5     /* front porch */
#define S3CFB_VSW          1//1      /* vsync width */
#define S3CFB_VBP          14        /* back porch */

#define S3CFB_HRES          800      /* horizon pixel x resolution */
#define S3CFB_VRES          600      /* line cnt      y resolution */

#define S3CFB_HRES_VIRTUAL  800      /* horizon pixel x resolution */
#define S3CFB_VRES_VIRTUAL 1200      /* line cnt      y resolution */

#define S3CFB_HRES_OSD      800      /* horizon pixel x resolution */
#define S3CFB_VRES_OSD      600      /* line cnt      y resolution */

#define S3CFB_VFRAME_FREQ   60       /* frame rate freq */

#define S3CFB_PIXEL_CLOCK (S3CFB_VFRAME_FREQ * (S3CFB_HFP + S3CFB_HSW + S3CFB_HBP +
S3CFB_HRES) * (S3CFB_VFP + S3CFB_VSW + S3CFB_VBP + S3CFB_VRES))

static void s3cfb_set_fimd_info(void)
{
    s3cfb_fimd.vidcon1 = S3C_VIDCON1_IHSYNC_INVERT | S3C_VIDCON1_IVSYNC_INVERT |
S3C_VIDCON1_IVDEN_NORMAL;
    s3cfb_fimd.vidtcon0 = S3C_VIDTCON0_VBPD(S3CFB_VBP - 1) |
S3C_VIDTCON0_VFPD(S3CFB_VFP - 1) | S3C_VIDTCON0_VSPW(S3CFB_VSW - 1);
    s3cfb_fimd.vidtcon1 = S3C_VIDTCON1_HBPD(S3CFB_HBP - 1) |
S3C_VIDTCON1_HFPD(S3CFB_HFP - 1) | S3C_VIDTCON1_HSPW(S3CFB_HSW - 1);
    s3cfb_fimd.vidtcon2 = S3C_VIDTCON2_LINEVAL(S3CFB_VRES - 1) |
S3C_VIDTCON2_HOZVAL(S3CFB_HRES - 1);
}

```

```

s3cfb_fimd.vidosd0a = S3C_VIDOSDxA_OSD_LTX_F(0) | S3C_VIDOSDxA_OSD_LTY_F(0);
s3cfb_fimd.vidosd0b = S3C_VIDOSDxB_OSD_RBX_F(S3CFB_HRES - 1) |
S3C_VIDOSDxB_OSD_RBY_F(S3CFB_VRES - 1);

s3cfb_fimd.vidosd1a = S3C_VIDOSDxA_OSD_LTX_F(0) | S3C_VIDOSDxA_OSD_LTY_F(0);
s3cfb_fimd.vidosd1b = S3C_VIDOSDxB_OSD_RBX_F(S3CFB_HRES_OSD - 1) |
S3C_VIDOSDxB_OSD_RBY_F(S3CFB_VRES_OSD - 1);

s3cfb_fimd.width = S3CFB_HRES;
s3cfb_fimd.height = S3CFB_VRES;
s3cfb_fimd.xres = S3CFB_HRES;
s3cfb_fimd.yres = S3CFB_VRES;

#if defined(CONFIG_FB_S3C_VIRTUAL_SCREEN)
s3cfb_fimd.xres_virtual = S3CFB_HRES_VIRTUAL;
s3cfb_fimd.yres_virtual = S3CFB_VRES_VIRTUAL;
#else
s3cfb_fimd.xres_virtual = S3CFB_HRES;
s3cfb_fimd.yres_virtual = S3CFB_VRES;
#endif

s3cfb_fimd.osd_width = S3CFB_HRES_OSD;
s3cfb_fimd.osd_height = S3CFB_VRES_OSD;
s3cfb_fimd.osd_xres = S3CFB_HRES_OSD;
s3cfb_fimd.osd_yres = S3CFB_VRES_OSD;

s3cfb_fimd.osd_xres_virtual = S3CFB_HRES_OSD;
s3cfb_fimd.osd_yres_virtual = S3CFB_VRES_OSD;

s3cfb_fimd.pixclock = S3CFB_PIXEL_CLOCK;

s3cfb_fimd.hsync_len = S3CFB_HSW;
s3cfb_fimd.vsync_len = S3CFB_VSW;
s3cfb_fimd.left_margin = S3CFB_HFP;
s3cfb_fimd.upper_margin = S3CFB_VFP;
s3cfb_fimd.right_margin = S3CFB_HBP;
s3cfb_fimd.lower_margin = S3CFB_VBP;

```

```

}

void s3cfb_init_hw(void)
{
    printk(KERN_INFO "LCD TYPE :: 7inch  will be initialized\n");

    s3cfb_set_fimd_info();
    s3cfb_set_gpio();
}

```

"drivers/video/samsung/Makefile" 파일에 추가

```
obj-$(CONFIG_FB_S3C_LSA40AT9001) += mango_10_4inch_lsa40at9001.o
```

"drivers/input/touchscreen/s3c-ts.c" 파일에 추가

```

/* Touchscreen default configuration */
struct s3c_ts_mach_info s3c_ts_default_cfg __initdata = {
    .delay =          10000,
    .presc =          49,
    .oversampling_shift =  2,
#ifdef CONFIG_FB_S3C_FL500WVR
    .resol_bit =       10
#elif defined(CONFIG_FB_S3C_LTE480WV)
    .resol_bit =       12
#elif defined(CONFIG_FB_S3C_LSA40AT9001 )
    .resol_bit =       12

#endif

    ...

#ifdef CONFIG_FB_S3C_FL500WVR
    static int pointercal[7]={-8, -5258, 67843504, -4626, 6, 53654464, 65536};
#elif defined(CONFIG_FB_S3C_LTE480WV)
    static int pointercal[7]={-11, -4732, 63903928, 5076, -17, -26328380, 65536};//org
#elif defined(CONFIG_FB_S3C_LSA40AT9001)

```

```
static int pointercal[7]={-11, -4732, 63903928, 5076, -17, -26328380, 65536};//org
```

추가 했다.

"drivers/video/Kconfig"

```
config FB_S3C_LSA40AT9001
    bool "10.4 LCD LSA40AT9001"
    ---help---
    TBA
```

```
$ ./build_kernel defconfig mango64r3_7inch_mrvl8787_defconfig
```

```
$ ./build_kernel config
```

Device Drivers --->

Graphics support --->

<*> Support for frame buffer devices --->

[illegible]

3.3. Kernel 컴파일하기

```
$ ./build_kernel
```