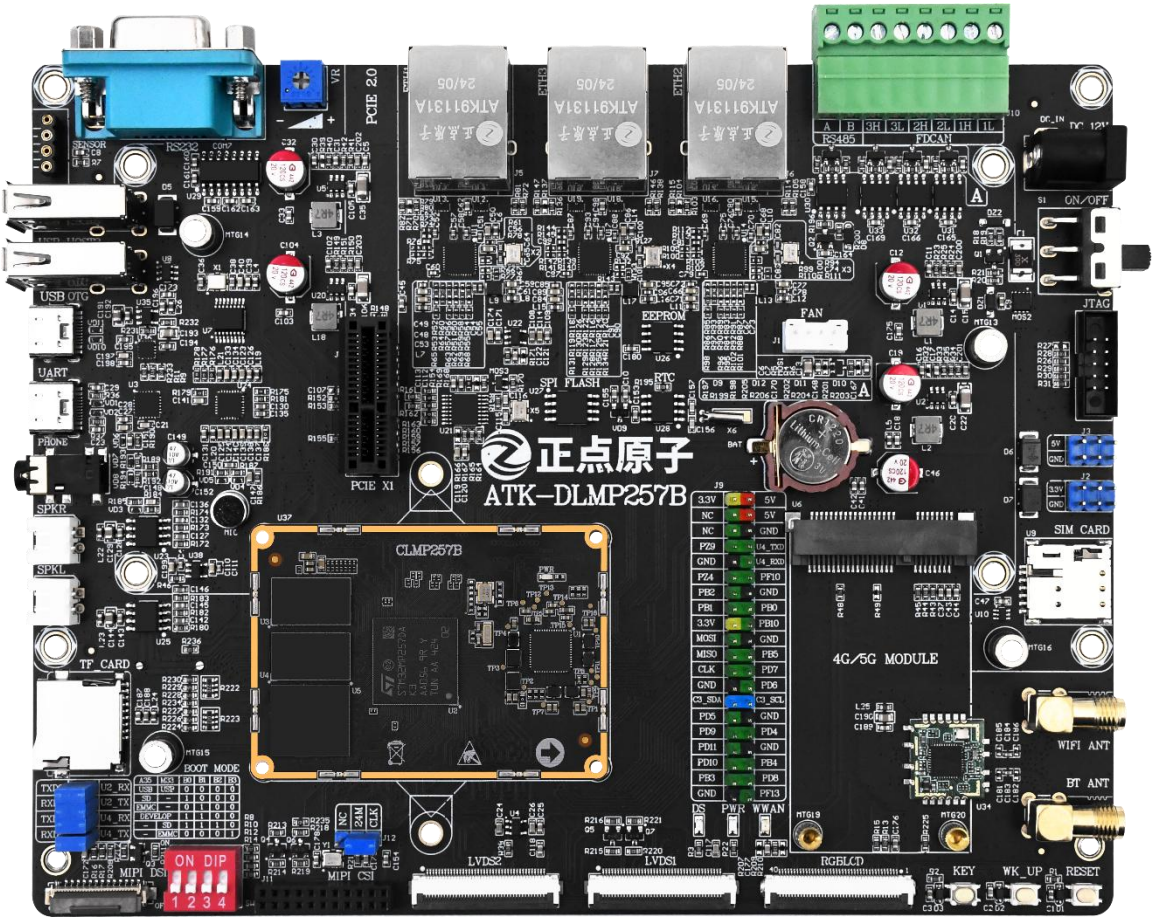
ATK-DLMP257B

Factory System LOGO Modification Manual

V1.1



ALIENTEK

1. Shopping:

TMALL: https://zhengdianyuanzi.tmall.com

TAOBAO: https://openedv.taobao.com

2. Download

Address: http://www.openedv.com/docs/index.html

3. FAE

Website : www.alientek.com

Forum : http://www.openedv.com/forum.php

Videos : www.yuanzige.com

Fax : +86 - 20 - 36773971

Phone : +86 - 20 - 38271790

Disclaimer

The product specifications and instructions mentioned in this document are for reference only and subject to update without prior notice; Unless otherwise agreed, this document is intended as a product guide only, and none of the representations made herein constitutes a warranty of any kind.

In order to get the latest version of product information, please regularly visit the download center or contact the customer service of Taobao ALIENTEK flagship store. Thank you for your tolerance and support.

Revision History:

Version	Version Update Notes	Responsible person	Proofreading	Date
V1.0	release officially	ALIENTEK	ALIENTEK	2025.04.01
V1.1	Fix clerical errors	ALIENTEK	ALIENTEK	2025.4.24

Catalogue

Chapter 1. LOGO image modification in kernel phase

In the factory system, U-boot is not displayed by default, and there is no LOGO in the U-boot phase. There is also no progress bar in the filesystem, so only the kernel startup LOGO is retained by default to facilitate user development.

1.1 LOGO image replacement at kernel time

Use the source code: Development board CD A disk - basic information \1_codes \ 1_ALIENTEK_Linux_factory_system_source_code \ linux-xxxxx.tar.bz2, Use method please refer to STM32MP257 development board \10_user_manual \ [ALIENTEK] ATK-DLMP257B Factory System Source Code Use Guide V1.0.pdf factory kernel source code compilation section.

The LOGO image that runs in the kernel is the drivers/video/logo/logo_linux_clut224.ppm from the factory kernel sources

Figure 1.1-1 logo_linux_clut224.ppm

First install the netpbm image conversion tool in the Ubuntu development environment.

```
sudo apt install netpbm
```

backup logo_linux_clut224.ppm; here I rename this file to logo_linux_clut224.ppm-backup. Copy the LOGO image (png format) to the drivers/video/logo directory in the kernel sources, here the author image is atk-logo.png. The size of the picture should not exceed the resolution of the LCD you want.

backup logo_linux_clut224.ppm; here I rename this file to logo_linux_clut224.ppm-backup. Copy the LOGO image (png format) to the drivers/video/logo directory in the kernel sources, here the author image is atk-logo.png. The size of the picture should not exceed the resolution of the LCD you want.

```
alientek@ubuntu:~/mp257/v6.0_Factory/emmc_factory_files/other/2GB_git/linux/linux-6.6.48/drivers/video/logo$ ls
atk-logo.png                logo_linux_mono.pbm      logo_sun_clut224.ppm
clut_vga16.ppm              logo_linux_vga16.ppm     logo_superh_clut224.ppm
Kconfig                     logo_mac_clut224.ppm     logo_superh_mono.pbm
logo.c                      logo_parisc_clut224.ppm  logo_superh_vga16.ppm
logo_dec_clut224.ppm        logo_sgi_clut224.ppm     Makefile
logo_linux_clut224.ppm-backup  logo_spe_clut224.ppm  pnmtologo.c
```

Figure 1.1-2 Copy the prepared image to drivers/video/logo

The picture prepared by the author is shown below. The resolution is 1080x1080, and the screen used by the author is 1080x1920. The picture meets the requirements of the screen display.

Figure 1.1-3 Prepare the picture

The Linux kernel LOGO uses logo_linux_clut224.ppm by default; this file is in ppm format. To convert the image format using the netpbm tool, run the following command:

```
pngtopnm atk-logo.png > atk-logo.pnm
```

This step is to convert the prepared png images to pnm format images, i.e. to pnm format.

```
pnmquant 224 atk-logo.pnm > atk-logo_224.pnm
```

This is done by changing the maximum number of colors for pnm images to 224. Note that the name is not the same here, which can be understood as saving as. Otherwise, you will get an error.

```
pnmtoplainpnm atk-logo_224.pnm > logo_linux_clut224.ppm
```

This step is to convert the pnm image of 224 colors into ppm format and rename it to logo_linux_clut224.ppm. I did this directly in the drivers/video/logo directory of the kernel sources, so the original LOGO image is replaced directly.

If the conversion was not performed in the drivers/video/logo directory, copy the converted logo_linux_clut224.ppm to the drivers/video/logo directory and replace the original logo_linux_clut224.ppm.

After the operation is completed, the kernel image is compiled and updated to the development board to start and you can see the kernel LOGO replacement effect.

1.2 Full screen display of LOGO at kernel stage

After completing the operations in the previous section, compile the kernel image update to the development board and start to see the kernel LOGO replacement effect. However, some pictures will not be displayed after replacement. This is because the kernel LOGO is set in the kernel source code by default, which limits the height of the picture. Next, I will explain how to modify the LOGO height limited by the kernel, so that my LOGO image can be displayed normally.

Open the factory kernel source drivers/video/fbdev/core/fbcon.c c file, find fbcon_prepare_logo function, you can see a `logo_height + = (info - > var. Yres / 2) - (214/2);` Code, 214 in this code corresponds to the height of the default LOGO image, the default LOGO image resolution is 428x214.

```
    int logo_height;

    if (info->fbops->owner) {
            logo_shown = FBCON_LOGO_DONTSHOW;
            return;
    }

    /*
     * remove underline attribute from erase character
     * if black and white framebuffer.
     */
    if (fb_get_color_depth(&info->var, &info->fix) == 1)
            erase &= ~0x400;
    logo_height = fb_prepare_logo(info, ops->rotate);
    logo_height += (info->var.yres/2) - (214/2); //ALIENTEK
    logo_lines = DIV_ROUND_UP(logo_height, vc->vc_font.height);
    q = (unsigned short *) (vc->vc_origin +
                            vc->vc_size_row * rows);
```

Figure 1.2-1 Change the LOGO height definition

Change the parameter in the code to the actual height of your own LOGO picture, for example, the author here uses a 1080x1080 picture, the display screen is 1080x1920, you can change the parameter to 1080. If the user's LOGO image is 640x480, then change the code parameter to 480.

Open the drivers/video/fbdev/core/fbmem. C file, also have a piece of code in fb_show_logo_line function defines the LOGO shows the starting coordinates, similarly will start the Y axis function parameters change and now in the height of the LOGO image, Change the start X-axis function to match the width of the LOGO image.

```
}

if (fb_center_logo) {
        int xres = info->var.xres;
        int yres = info->var.yres;

        if (rotate == FB_ROTATE_CW || rotate == FB_ROTATE_CCW) {
                xres = info->var.yres;
                yres = info->var.xres;
        }

        while (n && (n * (logo->width + 8) - 8 > xres))
                --n;
        image.dx = (xres - (n * (logo->width + 8) - 8)) / 2;
        image.dy = y ?: (yres - logo->height) / 2;
} else {
        //image.dx = 0;
        //image.dy = y;
        image.dx = (info->var.xres/2) - (428/2);
        image.dy = (info->var.yres/2) - (214/2); //ALIENTEK
}
```

Figure 1.2-2 Modify the LOGO's Y-axis coordinates definition

If the user's LOGO image is 640x480, then change the code parameters to 640 and 480. Then save the modified code and compile to generate Image files. For the compilation method, please refer to the factory kernel source code compilation section of the factory kernel source code of the STM32MP257 development board (disk A) - Basic Information \10_user_manual \ ATK-DLMP257B Factory System Source Code Use Guide V1.0.

Replace the compiled Image.gz with /boot of the factory system of the development board and start it. In my example, the result is as follows:

Figure 1.2-3 Kernel LOGO modification effect

The verification phase is over. If you need to update the made image into the burning firmware to facilitate subsequent mass production and burning, please refer to [ALIENTEK] STM32MP257 development board (disk A) - Basic Information \10_user_manual \ [ALIENTEK] ATK-DLMP257B Firmware Update Reference Documentation V1.0.pdf.