GM8136

OSG

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GM8136 OSG User Guide

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Introduction

This chapter contains the following sections:

1.1 OSG Overview

OSG is called "On-Screen Graphic", and it is used to show various graphics on screen. GM8136 OSG only supports the RGB1555 format and transforms it into the black and white YUV422 format. OSG uses THINK2D to complete these jobs.

1.2 OSG Basic Usage

"sw_osg.ko" is the OSG driver module between the middleware and 2D engine driver. If users want to use the OSG function, users need to insert "sw_osg.ko" and "think2d.ko" kernel modules. Please remember to insert "think2d.ko" prior to "sw_osg.ko".

"sw_osg.ko" supports two memory manager modes: Dynamic and static. If users insert "sw_osg.ko" without any module parameter, the dynamic mode will dynamically allocate the memory when setting RGB1555 graphic as the blitting source. Figure1-1 shows how to insert the dynamic mode, "sw_osg.ko".

If users insert "sw_osg.ko " with the "idn" and "mem" module parameters, the static mode will allocate the memory by the "mem" parameter when inserting the "sw_osg.ko" module. Figure 1-2 shows how to insert the static mode, "sw_osg.ko".

```
/lib/modules # insmod think2d.ko
think2d_module_init
Think2dGE uses hclk/2.
** T2D VER:1.5 ** think2d_drv_probe done, vbase 0x908AC000, pbase 0x92200000 0x8F706240

/lib/modules # insmod sw_osg.ko
osg canvas is dynammic allocate mode
SWOSG ver 0.1.7
```

Figure 1-1. Insert Dynamic Mode

```
/lib/modules # insmod think2d.ko
think2d_module_init
Think2dGE uses hclk/2.
** T2D VER:1.5 ** think2d_drv_probe done, vbase 0x908AC000, pbase 0x92200000 0x8F706240

/lib/modules # insmod sw_osg.ko idn=132 mem=8192
osg canvas is static allocate mode
SWOSG ver 0.1.7
```

Figure 1-2. Insert Static Mode

When inserting "swosg.ko" with the "idn" and "mem" module parameters, "mem" refers to how many memories that users need to allocate, the unit is Kbyte (For example, if setting "mem=8192" , it refers to 8Mbytes). "idn" refers to how many pools of the blitting sources that users want, for example, if setting "idn=132", it refers to '128'.

After inserting "swosg.ko" as the static mode, users should use the "echo" command to plan the pool memory.

For example:

"echo 4 64 > /proc/swosg/canvas_static_info" , it refers to set pool of index 4 pool as 64Kbyte.

1.3 OSG Proc Usage

In the "/proc/swosg/" folder, there are two files, one is "canvas_info" which supports read-only, the other is "canvas_static_info" which supports read and write.

- canvas_static_info

If "sw_osg.ko" is inserted as the dynamic mode, this file will be invalid. If "sw_osg.ko" is inserted as the static mode, this file will be valid. In the static mode, users need to use the written function to set the size of the pool memory, and use the reading function to check the allocated memory size for every pool. Figure 1-3 shows the detailed information of "canvas_static_info".

```
/lib/modules # echo 4 64  > /proc/swosg/canvas_static_info
/lib/modules # cat /proc/swosg/canvas_static_info
runmode:static
tnum-alnum: 8-1
alsz-resz-tsz: 65536-8323072-8388608
frambuf info:91000000-3810000-8388608-91781258
id(0) info:0-0K-0-0
id(1) info:0-0K-0-0
id(2) info:0-0K-0-0
id(3) info:0-0K-0-0
id(4) info:91000000-64K-0-1
id(5) info:0-0K-0-0
id(6) info:0-0K-0-0
id(7) info:0-0K-0-0
```

Figure 1-3. Usage of canvas_static_info

- canvas_info

If users set the blitting source via the middleware, users can read this file to check the blitting source information. Figure 1-4 shows the detailed information of "canvas_info".

```
/lib/modules # cat /proc/swosg/canvas_info
osg dma allocate count=0
osg canvas idx: 4
osg canvas usage: 1
osg canvas vaddr: 0x92000000
osg canvas paddr: 0x03810000
osg canvas size: 65536
osg canvas width: 320
osg canvas heigh: 72
osg canvas idx: 6
osg canvas usage: 1
osg canvas vaddr: 0x92010000
osg canvas paddr: 0x03820000
osg canvas size: 65536
osg canvas width: 320
osg canvas heigh: 72
```

Figure 1-4. Usage of canvas_info