HanOS

0.1.xxxx

Generated by Doxygen 1.8.17

Chapter 1

Data Structure Index

1.1 Data Structures

Here are the data structures with brief descriptions:

Chapter 2

File Index

2.1 File List

Here is a list of all documented files with brief descriptions:

Chapter 3

Data Structure Documentation

3.1 fb_info_t Struct Reference

Data Fields

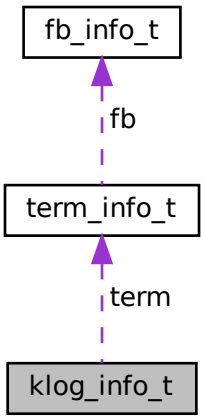
- uint8_t * **addr**
- uint32_t **width**
- uint32_t **height**
- uint32_t **pitch**
- uint8_t **backbuffer** [FB_HEIGHT *FB_PITCH]
- uint32_t **backbuffer_len**

The documentation for this struct was generated from the following file:

- kernel/device/fb.h

3.2 klog_info_t Struct Reference

Collaboration diagram for klog_info_t:



Data Fields

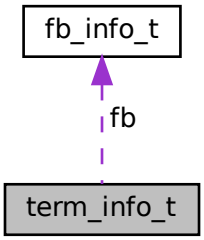
- uint8_t **buff** [KLOG_BUFFER_SIZE]
- int **start**
- int **end**
- term_info_t * **term**

The documentation for this struct was generated from the following file:

- kernel/lib/klog.h

3.3 term_info_t Struct Reference

Collaboration diagram for term_info_t:



Public Types

- enum { **STATE_IDLE**, **STATE_CMD**, **STATE_PARAM** }

Data Fields

- fb_info_t **fb**
- uint32_t **fgcolor**
- uint32_t **bgcolor**
- uint32_t **width**
- uint32_t **height**
- uint32_t **cursor_x**
- uint32_t **cursor_y**
- enum term_info_t:: { ... } **state**
- int **cparams** [16]
- int **cparamcount**
- uint8_t **lastch**

The documentation for this struct was generated from the following file:

- kernel/device/term.h

Chapter 4

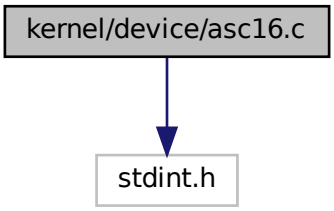
File Documentation

4.1 kernel/device/asc16.c File Reference

ASC16 font data matrix.

```
#include <stdint.h>
```

Include dependency graph for asc16.c:



Variables

- uint8_t **asc16_font** [ ]

4.1.1 Detailed Description

ASC16 font data matrix.

Author

JW

Date

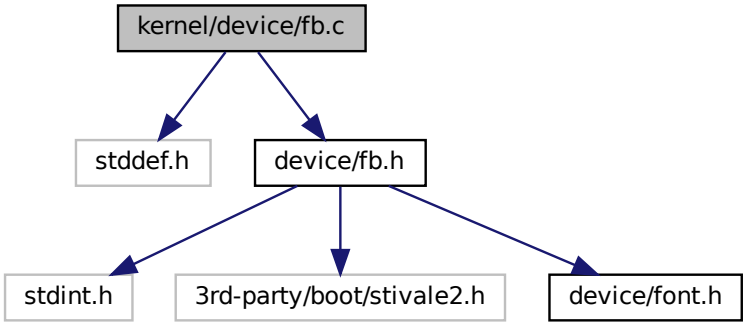
Nov 20, 2021

4.2 kernel/device/fb.c File Reference

Implementation of framebuffer related functions.

```
#include <stddef.h>
#include <device/fb.h>
```

Include dependency graph for fb.c:



Functions

- void **fb_putch** (fb_info_t *fb, uint32_t x, uint32_t y, uint32_t fgcolor, uint32_t bgcolor, uint8_t ch)
- void **fb_putzh** (fb_info_t *fb, uint32_t x, uint32_t y, uint32_t fgcolor, uint32_t bgcolor, uint8_t *ch)
- void **fb_putpixel** (fb_info_t *fb, uint32_t x, uint32_t y, uint32_t color)
- uint32_t **fb_getpixel** (fb_info_t *fb, uint32_t x, uint32_t y)
- void **fb_init** (fb_info_t *fb, struct stivale2_struct_tag_framebuffer *s)
- void **fb_refresh** (fb_info_t *fb)

4.2.1 Detailed Description

Implementation of framebuffer related functions.
Graphics can be displayed in a linear framebuffer - a simple array mapped in memory that represents the screen.
The address of framebuffer was got from Limine bootloader.

Author

JW

Date

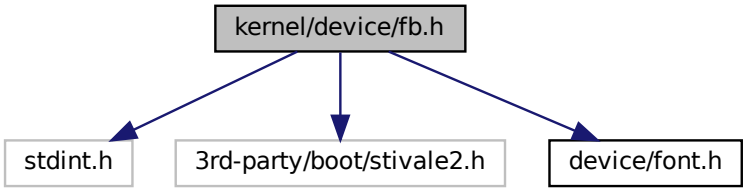
Nov 20, 2021

4.3 kernel/device/fb.h File Reference

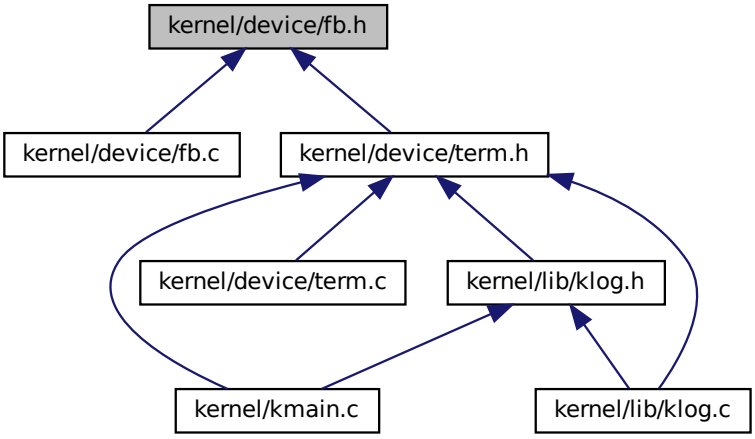
Definition of framebuffer related functions.

```
#include <stdint.h>
#include <3rd-party/boot/stivale2.h>
#include <device/font.h>
```

Include dependency graph for fb.h:



This graph shows which files directly or indirectly include this file:



Data Structures

- struct fb_info_t

Macros

- #define **FB_WIDTH** 1024
- #define **FB_HEIGHT** 768
- #define **FB_PITCH** (FB_WIDTH ∗ 4)
- #define **COLOR_BLACK** 0x000000
- #define **COLOR_RED** 0xFF0000
- #define **COLOR_GREEN** 0x00FF00
- #define **COLOR_YELLOW** 0xFFFF00
- #define **COLOR_BLUE** 0x0000FF
- #define **COLOR_WHITE** 0xFFFFFF
- #define **DEFAULT_FGCOLOR** COLOR_BLACK
- #define **DEFAULT_BGCOLOR** COLOR_WHITE

Functions

- void **fb_init** (fb_info_t *fb, struct stivale2_struct_tag_framebuffer *s)
- void **fb_putpixel** (fb_info_t *fb, uint32_t x, uint32_t y, uint32_t color)
- void **fb_putch** (fb_info_t *fb, uint32_t x, uint32_t y, uint32_t fgcolor, uint32_t bgcolor, uint8_t ch)
- void **fb_putzh** (fb_info_t *fb, uint32_t x, uint32_t y, uint32_t fgcolor, uint32_t bgcolor, uint8_t *ch)
- uint32_t **fb_getpixel** (fb_info_t *fb, uint32_t x, uint32_t y)
- void **fb_refresh** (fb_info_t *fb)

4.3.1 Detailed Description

Definition of framebuffer related functions.
Graphics can be displayed in a linear framebuffer - a simple array mapped in memory that represents the screen.
The address of framebuffer was got from Limine bootloader.

Author

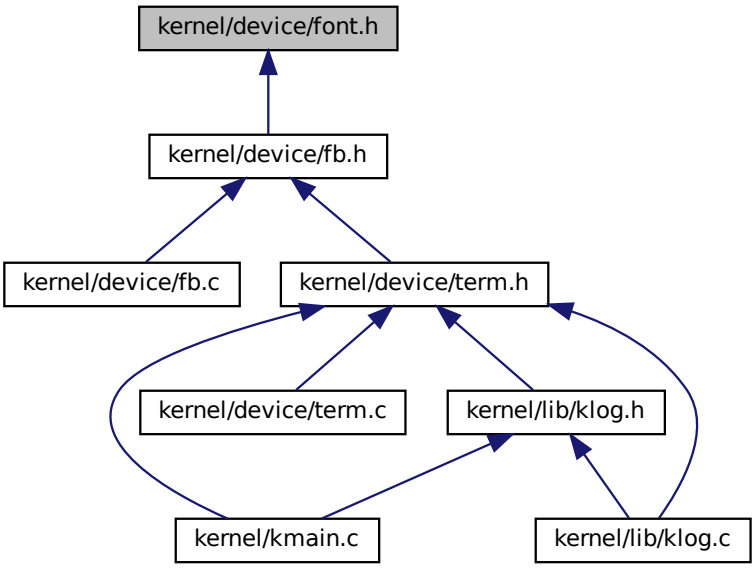
JW

Date

Nov 20, 2021

4.4 kernel/device/font.h File Reference

Definition of font data matrix.
This graph shows which files directly or indirectly include this file:



Variables

- uint8_t **asc16_font** [ ]
- uint8_t **hzk16_font** [ ]

4.4.1 Detailed Description

Definition of font data matrix.
It contains font data by static defined matrix. The ASC16 and HZK16 were included.

Author

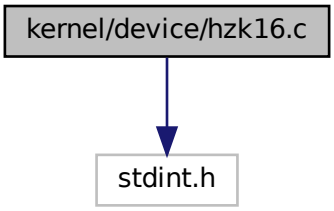
JW

Date

Nov 20, 2021

4.5 kernel/device/hzk16.c File Reference

HZK16 font data matrix.
`#include <stdint.h>`
Include dependency graph for hzk16.c:



Variables

- uint8_t **hzk16_font** [ ]

4.5.1 Detailed Description

HZK16 font data matrix.

Author

JW

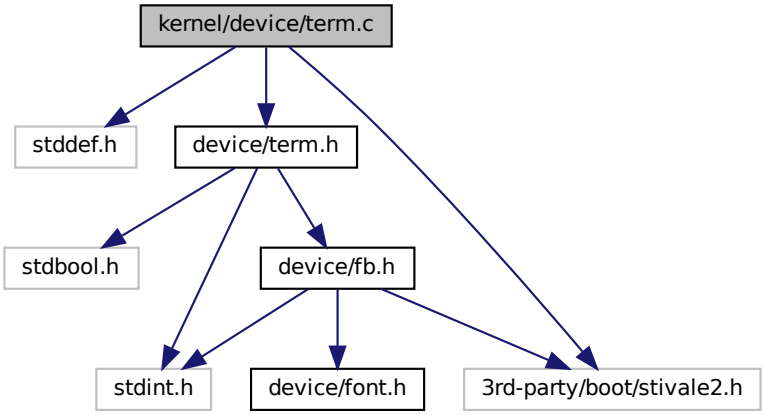
Date

Nov 20, 2021

4.6 kernel/device/term.c File Reference

Implementation of framebuffer terminal related functions.
`#include <stddef.h>`
`#include <device/term.h>`

```
#include <3rd-party/boot/stivale2.h>
```
Include dependency graph for term.c:



Functions

- void **term_refresh** (term_info_t *t)
- void **term_clear** (term_info_t *t)
- void **term_putch** (term_info_t *t, uint8_t c)
- void **term_init** (term_info_t *t, struct stivale2_struct_tag_framebuffer *s)

4.6.1 Detailed Description

Implementation of framebuffer terminal related functions.
A framebuffer based terminal was implemented. As the first step, it mainly supports information display.

Author

JW

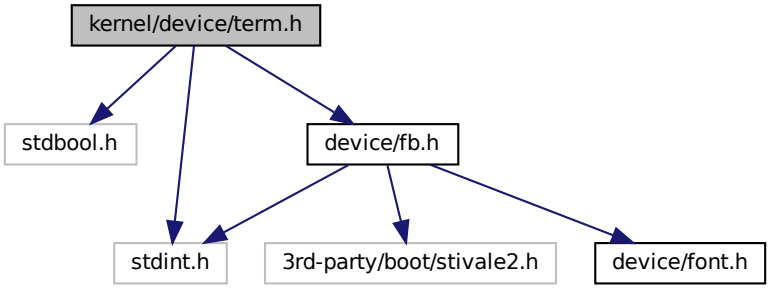
Date

Nov 20, 2021

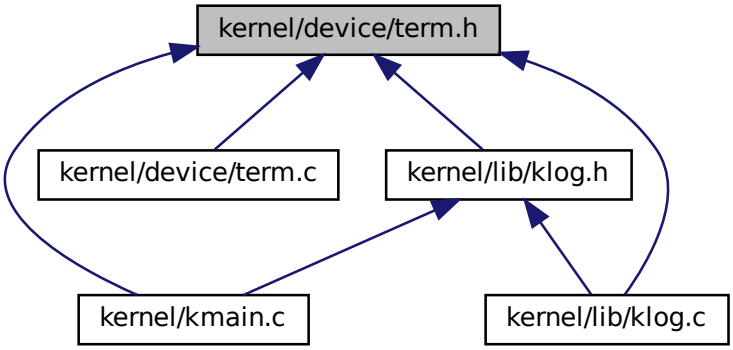
4.7 kernel/device/term.h File Reference

Definition of framebuffer terminal related functions.
```
#include <stdbool.h>
#include <stdint.h>
#include <device/fb.h>
```

Include dependency graph for term.h:



This graph shows which files directly or indirectly include this file:



Data Structures

- struct term_info_t

Macros

- #define **FONT_WIDTH** 8
- #define **FONT_HEIGHT** 16

Functions

- void **term_init** (term_info_t *t, struct stivale2_struct_tag_framebuffer *s)
- void **term_putch** (term_info_t *t, uint8_t ch)
- void **term_clear** (term_info_t *t)
- void **term_refresh** (term_info_t *t)

4.7.1 Detailed Description

Definition of framebuffer terminal related functions.
A framebuffer based terminal was implemented. As the first step, it mainly supports information display.

Author

JW

Date

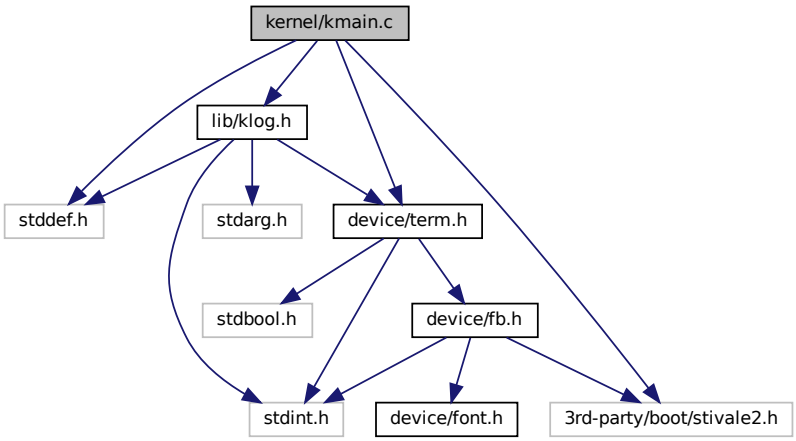
Nov 20, 2021

4.8 kernel/kmain.c File Reference

Entry function of HanOS kernel.

```
#include <stddef.h>
#include <3rd-party/boot/stivale2.h>
#include <device/term.h>
#include <lib/klog.h>
```

Include dependency graph for kmain.c:



Functions

- **__attribute__** ((section(".stivale2hdr"), used))
- void ∗ **stivale2_get_tag** (struct stivale2_struct ∗stivale2_struct, uint64_t id)
- void **kmain** (struct stivale2_struct ∗bootinfo)

4.8.1 Detailed Description

Entry function of HanOS kernel.

Finish kernel initializatio and start shell process.

1. Initial codes are modified from Limine's demo projects:
   - https://github.com/limine-bootloader/limine-barebones
2. System initialization to enable terminal outputs
   - lib: klog system which just realizes printf function.
   - device: initialize framebuffer based terminal.

Author

JW

Date

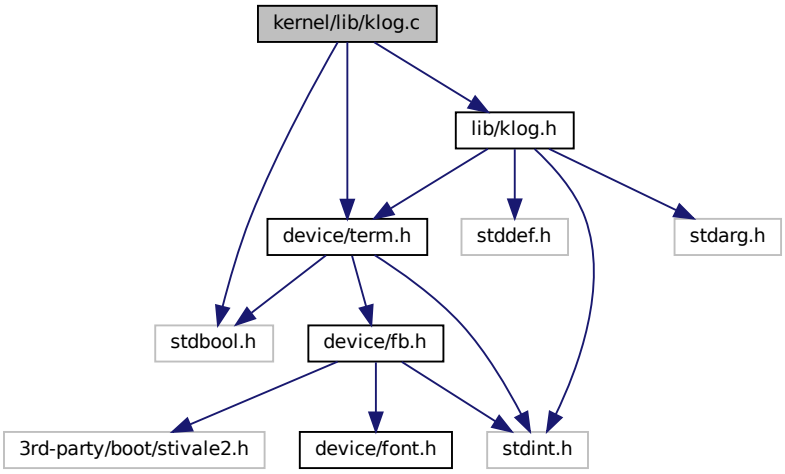
Oct 23, 2021

4.9 kernel/lib/klog.c File Reference

Implementation of kernel log related functions.

```
#include <stdbool.h>
#include <lib/klog.h>
#include <device/term.h>
```

Include dependency graph for klog.c:



Functions

- void **klog_init** (klog_info_t *k, term_info_t *t)
- void **klog_printf** (klog_info_t *k, const char *s,...)
- void **klog_refresh** (klog_info_t *k)

4.9.1 Detailed Description

Implementation of kernel log related functions.

A kernel-level log system was implemented. As the first step, it mainly supports information display.

Author

JW

Date

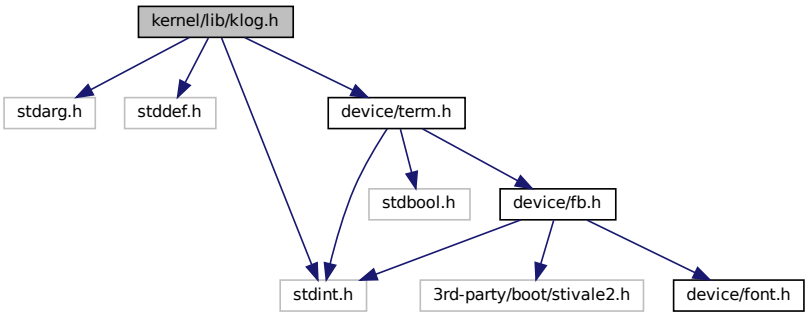
Nov 20, 2021

4.10 kernel/lib/klog.h File Reference

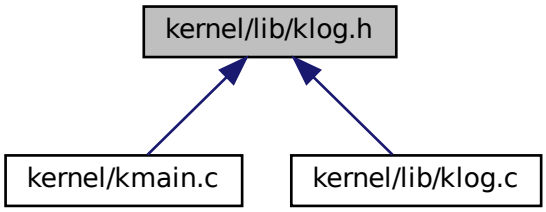
Definition of kernel log related functions.

```
#include <stdarg.h>
#include <stddef.h>
#include <stdint.h>
#include <device/term.h>
```

Include dependency graph for klog.h:



This graph shows which files directly or indirectly include this file:



Data Structures

- struct klog_info_t

Macros

- #define **KLOG_BUFFER_SIZE** (UINT16_MAX + 1)

Functions

- void **klog_init** (klog_info_t ∗k, term_info_t ∗t)
- void **klog_printf** (klog_info_t ∗k, const char ∗,...)
- void **klog_refresh** (klog_info_t ∗k)

4.10.1 Detailed Description

Definition of kernel log related functions.
A kernel-level log system was implemented. As the first step, it mainly supports information display.

Author

JW

Date

Nov 20, 2021

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