

display-dma2d

User Manual



MICROEJ[®]

Reference:	TLT-XXX-MAN-display-dma2d-display-dma2d
Version:	2.0.1
Revision:	XXX

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Table of Contents

1. Data Structure Documentation	1
1.1. DRAWING_DMA2D_memcpy struct Reference	1
1.1.1. Data Fields	1
1.1.2. Field Documentation	1
2. File Documentation	2
2.1. drawing_dma2d.h File Reference	2
2.1.1. Data Structures	2
2.1.2. Functions	2
2.2. drawing_dma2d.c File Reference	3
2.2.1. Typedefs	3
2.2.2. Variables	3
2.2.3. Functions	3

Chapter 1. Data Structure Documentation

1.1. DRAWING_DMA2D_memcpy struct Reference

1.1.1. Data Fields

- uint8_t * src_address
- uint8_t * dest_address
- uint16_t width
- uint16_t height

1.1.2. Field Documentation

Chapter 2. File Documentation

2.1. drawing_dma2d.h File Reference

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

```
#include "LLUI_DISPLAY_IMPL.h"
```

```
#include "sni.h"
```

2.1.1. Data Structures

- struct DRAWING_DMA2D_memcpy

2.1.2. Functions

- void DRAWING_DMA2D_initialize (void * binary_semaphore_handle)
- void DRAWING_DMA2D_IRQHandler (void)
- void DRAWING_DMA2D_configure_memcpy (uint8_t * srcAddr, uint8_t * destAddr, uint32_t xmin, uint32_t ymin, uint32_t xmax, uint32_t ymax, uint32_t stride, DRAWING_DMA2D_memcpy * memcpy_data)
- void DRAWING_DMA2D_start_memcpy (DRAWING_DMA2D_memcpy * memcyp_data)

Detailed Description

Use STM32 DMA2D (ChromART) for MicroEJ ui_drawing.h implementation.

This library provides the implementation of ui_drawing.h "UI_DRAWING_fillRectangle()" and "UI_DRAWING_drawImage()" functions. The third feature "memcpy" is useful when a copy from frame buffer to back buffer is required after the call to "LLUI_DISPLAY_IMPL_flush()".

How to use this library:

- Set the define DRAWING_DMA2D_BPP to 16, 24 or 32
- Set the define STM32F4XX or STM32F7XX
- Call "DRAWING_DMA2D_initialize()" during "LLUI_DISPLAY_IMPL_initialize()"
- Redirect the STM32 DMA2D interrupt routine to "DRAWING_DMA2D_IRQHandler()"

- Call "DRAWING_DMA2D_configure_memcpy()" in "LLUI_DISPLAY_IMPL_flush()" before enabling LCD interrupt (optional).
- Call "DRAWING_DMA2D_start_memcpy()" in LCD interrupt (optional).

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Definition in file C:/Jenkins/workspace/master77851a12/bsp-lldisplay_dma2d/target~/ccomponent-Working/bsp/ui/inc/drawing_dma2d.h

2.2. drawing_dma2d.c File Reference

```
#include "drawing_dma2d.h"
```

```
#include "ui_drawing.h"
```

```
#include "ui_drawing_soft.h"
```

```
#include "bsp_util.h"
```

2.2.1. Typedefs

- typedef void(* t_drawing_notification

2.2.2. Variables

- static DMA2D_HandleTypeDef g_hdma2d
- static t_drawing_notification g_callback_notification
- static bool g_dma2d_running
- static void * g_dma2d_semaphore

2.2.3. Functions

- static void _drawing_dma2d_wait (void)
- static void _drawing_dma2d_done (void)

- static uint8_t * _drawing_dma2d_adjust_address (uint8_t * address, uint32_t x, uint32_t y, uint32_t stride, uint32_t bpp)
- static void _drawing_dma2d_configure_alpha_image_data (MICROUI_GraphicsContext * gc, jint * alphaAndColor)
- static void _cleanDCache (void)
- void DRAWING_DMA2D_IRQHandler (void)
- void DRAWING_DMA2D_initialize (void * binary_semaphore_handle)
- void DRAWING_DMA2D_configure_memcpy (uint8_t * srcAddr, uint8_t * destAddr, uint32_t xmin, uint32_t ymin, uint32_t xmax, uint32_t ymax, uint32_t stride, DRAWING_DMA2D_memcpy * memcpy_data)
- void DRAWING_DMA2D_start_memcpy (DRAWING_DMA2D_memcpy * memcpy_data)
- DRAWING_Status UI_DRAWING_fillRectangle (MICROUI_GraphicsContext * gc, jint x1, jint y1, jint x2, jint y2)
- DRAWING_Status UI_DRAWING_drawImage (MICROUI_GraphicsContext * gc, MICROUI_Image * image, jint x_src, jint y_src, jint width, jint height, jint x_dest, jint y_dest, jint alpha)

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Definition in file C:/Jenkins/workspace/master77851a12/bsp-lldisplay_dma2d/target~/ccomponent-Working/bsp/ui/src/drawing_dma2d.c