Crystal Image through
Imaging **Innovation**

PIXELPLUS

DU

PI5008K

Driver

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6th Floor, 105, Gwanggyo-ro, Yeongtong-gu,

Suwong-si, Gyeonggi-do, 16229, Korea

Tel : +82-31-888-5300, FAX : +82-31-888-5399

Contents

1. Type

typedef void	PP_VOID;
typedef char	PP_CHAR;
typedef unsigned char	PP_U8;
typedef short	PP_S16;
typedef unsigned short	PP_U16;
typedef int	PP_S32;
typedef unsigned int	PP_U32;
typedef enum {PP_FALSE, PP_TRUE}	PP_BOOL;
#define null	PP_NULL
#define (-1)	PP_INVALID
#define (-1)	PP_FAILURE
#define (0L)	PP_SUCCESS

2. Enumeration

2.1. PP_DU_LAYER_E

[Syntax]

```
typedef enum ppDU_LAYER_E {
        eLayer0,
        eLayer1,
        eLayer2,
        eLayer3,
        eLayer4,
        eLayer_MAX
} PP_DU_LAYER_E;
```

[Description]

Layer enumeration

[Member]

Member	Description
eLayer0	Layer 0
eLayer1	Layer 1
eLayer2	Layer 2
eLayer3	Layer 3
eLayer4	Layer 4

2.2. PP_DU_AREA_E

[Syntax]

```
typedef enum ppDU_AREA_E {
        eArea0,
        eArea1,
        eArea2,
```

```
        eArea3,

        eArea_MAX

} PP_DU_AREA_E;
```

[Description]

Area enumeration

[Member]

Member	Description
eArea0	Area 0
eArea1	Area 1
eArea2	Area 2
eArea3	Area 3

2.3. PP_DU_FORMAT_E

[Syntax]

```
typedef enum ppDU_FORMAT_E {

        eFORMAT_RLE,

        eFORMAT_INDEX,

        eFORMAT_RGB565,

        eFORMAT_RGB888,

        eFORMAT_ARGB8888,

        eFORMAT_RGBA4444,

        eFORMAT_1BIT,

        eFORMAT_MAX

} PP_DU_FORMAT_E;
```

[Description]

Layer Format

[Member]

Member	Description

eFORMAT_RLE	RLE Format
eFORMAT_INDEX	INDEX (1byte per pixel) format
eFORMAT_RGB565	RGB565 format
eFORMAT_RGB888	RGB888 format
eFORMAT_ARGB8888	ARGB8888 format
eFORMAT_RGBA4444	RGBA4444 format
eFORMAT_1BIT	1BIT format

2.4. PP_DU_VIDEO_PATH_E

[Syntax]

```
typedef enum ppDU_VIDEO_PATH_E {
        ePATH_SVMOUT_BYPASS_OUT,
        ePATH_SVMIN0_BYPASS_OUT,
        ePATH_SVMIN1_BYPASS_OUT,
        ePATH_SVMIN2_BYPASS_OUT,
        ePATH_SVMIN3_BYPASS_OUT,
        ePATH_SVMOUT_MIXER_OUT,
        ePATH_SVMIN0_MIXER_OUT,
        ePATH_SVMIN1_MIXER_OUT,
        ePATH_SVMIN2_MIXER_OUT,
        ePATH_SVMIN3_MIXER_OUT,
} PP_DU_VIDEO_PATH_E;
```

[Description]

Video Path enemeration

[Member]

Member	Description
ePATH_SVMOUT_BYPASS_OUT	SVM output will bypass DU Mixer
ePATH_SVMIN0_BYPASS_OUT	1st SVM input will be fed into video output directly.
ePATH_SVMIN1_BYPASS_OUT	2nd SVM input will be fed into video output directly
ePATH_SVMIN2_BYPASS_OUT	3rd SVM input will be fed into video output directly

ePATH_SVMIN3_BYPASS_OUT	4th SVM input will be fed into video output directly
ePATH_SVMOUT_MIXER_OUT	SVM output will be out through DU Mixer
ePATH_SVMIN0_MIXER_OUT	1st SVM input will be out through DU Mixer
ePATH_SVMIN1_MIXER_OUT	2nd SVM input will be out through DU Mixer
ePATH_SVMIN2_MIXER_OUT	3rd SVM input will be out through DU Mixer
ePATH_SVMIN3_MIXER_OUT	4th SVM input will be out through DU Mixer

2.5. PP_DU_MIXER_PATH_E

[Syntax]

```
typedef enum ppDU_MIXER_PATH_E {
        ePATH_IN_bypass_OUT,
        ePATH_IN_01234_OUT,
        ePATH_IN_12340_OUT,
        ePATH_IN_23401_OUT,
        ePATH_IN_34012_OUT,
        ePATH_IN_40123_OUT,
        ePATH_IN_43210_OUT,
        ePATH_IN_32104_OUT,
        ePATH_IN_21043_OUT,
        ePATH_IN_10432_OUT,
        ePATH_IN_04321_OUT,
        ePATH_IN_32140_OUT,


        ePATH_MIXER_MAX
} PP_DU_MIXER_PATH_E;
```

[Description]

Layer order enumeration

[Member]

Member	Description
ePATH_IN_bypass_OUT	Mixer bypass

ePATH_IN_01234_OUT	Video → Layer0 → Layer1 → Layer2 → Layer3 → Layer4 Sequence
ePATH_IN_12340_OUT	Video → Layer1 → Layer2 → Layer3 → Layer4 → Layer0 Sequence
ePATH_IN_23401_OUT	Video → Layer2 → Layer3 → Layer4 → Layer0 → Layer1 Sequence
ePATH_IN_34012_OUT	Video → Layer3 → Layer4 → Layer0 → Layer1 → Layer2 Sequence
ePATH_IN_40123_OUT	Video → Layer4 → Layer0 → Layer1 → Layer2 → Layer3 Sequence
ePATH_IN_43210_OUT	Video → Layer4 → Layer3 → Layer2 → Layer1 → Layer0 Sequence
ePATH_IN_32104_OUT	Video → Layer3 → Layer2 → Layer1 → Layer0 → Layer4 Sequence
ePATH_IN_21043_OUT	Video → Layer2 → Layer1 → Layer0 → Layer4 → Layer3 Sequence
ePATH_IN_10432_OUT	Video → Layer1 → Layer0 → Layer4 → Layer3 → Layer2 Sequence
ePATH_IN_04321_OUT	Video → Layer0 → Layer4 → Layer3 → Layer2 → Layer1 Sequence
ePATH_IN_32140_OUT	Video → Layer3 → Layer2 → Layer1 → Layer4 → Layer0 Sequence

2.6. PP_DU_RESOLUTION_E

[Syntax]

```
typedef enum ppDU_RESOLUTION_E {
        eRESOLUTION_720Hi_NTSC,
        eRESOLUTION_720Hi_PAL,
        eRESOLUTION_960Hi_NTSC,
        eRESOLUTION_960Hi_PAL,
        eRESOLUTION_720Hp_NTSC,
        eRESOLUTION_720Hp_PAL,
        eRESOLUTION_960Hp_NTSC,
        eRESOLUTION_960Hp_PAL,
        eRESOLUTION_WVGA,               // HD:800x480
        eRESOLUTION_WSVGA,             // HD:1024x600
        eRESOLUTION_720P,
        eRESOLUTION_960P,
        eRESOLUTION_1080P,


        eRESOLUTION_MAX
} PP_DU_RESOLUTION_E;
```

[Description]

     Resolution enumeration

[Member]

Member	Description
eRESOLUTION_720Hi_NTSC	720x480 NTSC Interlace
eRESOLUTION_720Hi_PAL	720x576 PAL Interlace
eRESOLUTION_960Hi_NTSC	960x480 NTSC Interlace
eRESOLUTION_960Hi_PAL	960x576 PAL Interlace
eRESOLUTION_720Hp_NTSC	720x480 NTSC Progressive
eRESOLUTION_720Hp_PAL	720x576 PAL Progressive
eRESOLUTION_960Hp_NTSC	960x480 NTSC Progressive
eRESOLUTION_960Hp_PAL	960x576 PAL Progressive
eRESOLUTION_WVGA	800x480 Progressive
eRESOLUTION_WSVGA	1024x600 Progressive
eRESOLUTION_720P	1280x720 Progressive
eRESOLUTION_960P	1280x960 Progressive
eRESOLUTION_1080P	1920x1080 Progressive

2.7. PP_DU_SYNC_E

[Syntax]

```
typedef enum ppDU_SYNC_E {
        eSYNC_EMBEDDED,
        eSYNC_EXTERNAL,


        eSYNC_MAX
} PP_DU_SYNC_E;
```

[Description]

    BTO sync enumeration

[Member]

Member	Description
eSYNC_EMBEDDED	Embedded sync
eSYNC_EXTERNAL	External sync

2.8. PP_DU_BAYER_BIT_E

[Syntax]

```
typedef enum ppDU_BAYER_BIT_E {
        eBAYER_8BIT,
        eBAYER_10BIT,


        eBAYER_BIT_MAX
} PP_DU_BAYER_BIT_E;
```

[Description]

Bayer Output Bit enumeration

[Member]

Member	Description
eBAYER_8BIT	8bit
eBAYER_10BIT	10bit

2.9. PP_DU_CSC_E

[Syntax]

```
typedef enum ppDU_CSC_E {
        eCSC_BYPASS,
        eCSC_BT601_to_BT709,
        eCSC_BT709_to_BT601,


        eCSC_MAX
} PP_DU_CSC_E;
```

[Description]

CSC(Color Space Conversion) enumeration

[Member]

Member	Description
eCSC_BYPASS	Bypass without color conversion
eCSC_BT601_to_BT709	CSC709 color conversion
eCSC_BT709_to_BT601	CSC601 color conversion

2.10. PP_PVITX_SRC

[Syntax]

```
typedef enum ppPVITX_SRC {
        ePVITX_SRC_DU,
        ePVITX_SRC_QUAD,


        ePVITX_SRC_MAX
} PP_PVITX_SRC;
```

[Description]

PVI 입력으로 넣어줄 path enumeration

[Member]

Member	Description
ePVITX_SRC_DU	DU(Mixer) Output
ePVITX_SRC_QUAD	Quad Output

3. Structure

3.1. PP_RECT_S

[Syntax]

```
typedef struct ppRECT_S {
        PP_U16          u16X;
        PP_U16          u16Y;
        PP_U16          u16Width;
        PP_U16          u16Height;
} PP_RECT_S;
```

[Description]

Structure for coordinate and size

[Member]

Member	Description
u16X	X
u16Y	Y
u16Width	Width
u16Height	Height

3.2. PP_DU_R2Y_COEF_S

[Syntax]

```
typedef struct ppDU_R2Y_COEF_S {
        PP_U32 y0;
        PP_U32 y1;
        PP_U32 y2;
        PP_U32 y3;
        PP_U32 u0;
        PP_U32 u1;
        PP_U32 u2;
        PP_U32 u3;
        PP_U32 v0;
        PP_U32 v1;
```

```
        PP_U32 v2;

        PP_U32 v3;

} PP_DU_R2Y_COEF_S;
```

[Description]

    Structure of coefficient of color conversion from RGB to YUV

[Member]

Member	Description
y0	y0 coefficient
y1	y1 coefficient
y2	y2 coefficient
y3	y3 coefficient
u0	u0 coefficient
u1	u1 coefficient
u2	u2 coefficient
u3	u3 coefficient
v0	v0 coefficient
v1	v1 coefficient
v2	v2 coefficient
v3	v3 coefficient

4. Variable

4.1. PP_DU_CALLBACK

[Syntax]

typedef PP_VOID (*PP_DU_CALLBACK) (PP_VOID);

[Description]

Variable to register DU Callback function

[Parameter]

Member	Description
PP_VOID	

[Return]

Member	Description
PP_VOID	

5. Function

5.1. PPDRV_DU_GetVersion

[Syntax]

PP_U32 PPDRV_DU_GetVersion (PP_VOID);

[Description]

DU version

[Parameter]

Member	Description
PP_VOID	

[Return]

Member	Description
version	DU version

5.2. PPDRV_DU_SetInterrupt

[Syntax]

PP_VOID PPDRV_DU_SetInterrupt (PP_DU_CALLBACK IN callback);

[Description]

This driver is used to register DU Interrupt

[Parameter]

Member	Description
callback	Callback function to be called when the interrupt is happened

[Return]

Member	Description
PP_VOID	

5.3. PPDRV_DU_SetVideoPath

[Syntax]

PP_VOID PPDRV_DU_SetVideoPath (PP_DU_VIDEOPATH_E IN path);

[Description]

Set video path

[Parameter]

Member	Description
path	video path

[Return]

Member	Description
PP_VOID	

5.4. PPDRV_DU_BTO_SetYC8

[Syntax]

PP_VOID PPDRV_DU_BTO_SetYC8 (PP_DU_RESOLUTION_E IN in_resolution, PP_DU_RESOLUTION_E IN out_resolution, PP_DU_SYNC_E IN sync);

[Description]

Output BTO YC 8bit

[Parameter]

Member	Description
in_resolution	BTO Input resolution
out_resolution	BTO output resolution
sync	BTO sync

[Return]

Member	Description
PP_VOID	

5.5. PPDRV_DU_BTO_SetYC16

[Syntax]

PP_VOID   PPDRV_DU_BTO_SetYC16   (PP_DU_RESOLUTION_E   IN   resolution,

PP_DU_SYNC_E IN sync);

[Description]

Output BTO YC 16bit

[Parameter]

Member	Description
resolution	BTO in/out resolution
sync	BTO sync

[Return]

Member	Description
PP_VOID	

5.6. PPDRV_DU_BTO_SetRGB24

[Syntax]

PP_VOID PPDRV_DU_BTO_SetRGB24 (PP_DU_RESOLUTION_E IN resolution);

[Description]

Output BTO RGB 24bit

[Parameter]

Member	Description
resolution	BTO in/out resolution

[Return]

Member	Description
PP_VOID	

5.7. PPDRV_DU_BTO_SetBayer

[Syntax]

PP_VOID   PPDRV_DU_BTO_SetBayer   (PP_DU_RESOLUTION_E   IN   resolution,

PP_DU_BAYER_BIT_E IN bit);

[Description]

Output BTO Bayer

[Parameter]

Member	Description
resolution	BTO in/out resolution
bit	Bayer output bit

[Return]

Member	Description
PP_VOID	

5.8. PPDRV_DU_BTO_EnableBrightness

[Syntax]

PP_VOID PPDRV_DU_BTO_EnableBrightness (PP_BOOL IN enable);

[Description]

Enable Brightness

[Parameter]

Member	Description
enable	Enable brightness

[Return]

Member	Description
PP_VOID	

5.9. PPDRV_DU_BTO_GetBrightness

[Syntax]

PP_U8 PPDRV_DU_BTO_GetBrightness (PP_VOID);

[Description]

Get Brightness value

[Parameter]

Member	Description
PP_VOID	

[Return]

Member	Description
brightness	Current brightness value

5.10. PPDRV_DU_BTO_SetBrightness

[Syntax]

PP_RESULT_E PPDRV_DU_BTO_SetBrightness (PP_U8 IN brt);

[Description]

brightness 설정

[Parameter]

Member	Description
brt	Target brightness value (Range: 0(-50%) ~ 128(0%) ~ 256(+50%))

[Return]

Member	Description
PP_VOID	

5.11. PPDRV_DU_BTO_EnableContrast

[Syntax]

PP_VOID PPDRV_DU_BTO_EnableContrast (PP_BOOL IN enable);

[Description]

Enable Contrast

[Parameter]

Member	Description
enable	Enable contrast

[Return]

Member	Description
PP_VOID	

5.12. PPDRV_DU_BTO_GetContrast

[Syntax]

PP_U8 PPDRV_DU_BTO_GetContrast (PP_VOID);

[Description]

Get contrast value

[Parameter]

Member	Description
PP_VOID	

[Return]

Member	Description
contrast	Current contast value

5.13. PPDRV_DU_BTO_SetContrast

[Syntax]

PP_RESULT_E PPDRV_DU_BTO_SetContrast (PP_U8 IN cont);

[Description]

Set contrast

[Parameter]

Member	Description
cont	Target contrast value (Range: 0(x0) ~ 128(x1) ~ 256(x2))

[Return]

Member	Description
PP_VOID	

5.14. PPDRV_DU_BTO_EnableSaturation

[Syntax]

PP_VOID PPDRV_DU_BTO_EnableSaturation (PP_BOOL IN enable);

[Description]

Enable saturation

[Parameter]

Member	Description
enable	Enable saturation

[Return]

Member	Description
PP_VOID	

5.15. PPDRV_DU_BTO_GetSaturation

[Syntax]

PP_U8 PPDRV_DU_BTO_GetSaturation (PP_VOID);

[Description]

Get saturation value

[Parameter]

Member	Description
PP_VOID	

[Return]

Member	Description
saturation	Current saturation value

5.16. PPDRV_DU_BTO_SetSaturation

[Syntax]

PP_RESULT_E PPDRV_DU_BTO_SetSaturation (PP_U8 IN sat);

[Description]

saturation 설정

[Parameter]

Member	Description
sat	Target saturation value (Range: 0(x0) ~ 128(x1) ~ 256(x2))

[Return]

Member	Description
PP_VOID	

5.17. PPDRV_DU_OSD_SetMixerPath

[Syntax]

PP_VOID PPDRV_DU_OSD_SetMixerPath (PP_DU_MIXER_PATH_E path)

[Description]

Set Mixer Path

[Parameter]

Member	Description
path	Layer order path

[Return]

Member	Description
PP_VOID	

5.18. PPDRV_DU_OSD_RunMixer

[Syntax]

PP_VOID PPDRV_DU_OSD_RunMixer (PP_VOID);

[Description]

Run mixer

[Parameter]

Member	Description
PP_VOID	

[Return]

Member	Description
PP_VOID	

5.19. PPDRV_DU_OSD_GetColorLut

[Syntax]

PP_RESULT_E PPDRV_DU_OSD_GetColorLut (PP_DU_LAYER_E IN layer, PP_U32* IN lut);

[Description]

Read color LUT of target layer

[Parameter]

Member	Description
layer	Target layer
lut	Color LUT to be read

[Return]

Member	Description
eSUCCESS	Success
eERROR_DU_NOT_INITIALIZE	DU is not initialized

5.20. PPDRV_DU_OSD_SetColorLut

[Syntax]

PP_RESULT_E PPDRV_DU_OSD_SetColorLut (PP_DU_LAYER_E IN layer, PP_U32* IN lut);

[Description]

Set color LUT

[Parameter]

Member	Description
layer	Target layer
lut	color lut to be set

[Return]

Member	Description
eSUCCESS	Success
eERROR_DU_NOT_INITIALIZE	DU is not initialized
eERROR_INVALID_ARGUMENT	Invalid input augment

5.21. PPDRV_DU_OSD_SetLayerSize

[Syntax]

```
PP_VOID PPDRV_DU_OSD_SetLayerSize (PP_DU_LAYER_E IN layer, PP_RECT_S IN rect);
```

[Description]

Set layer size

[Parameter]

Member	Description
layer	Target layer
rect	Size to be set

[Return]

Member	Description
PP_VOID	

5.22. PPDRV_DU_OSD_GetLayerSize

[Syntax]

```
PP_RECT_S PPDRV_DU_OSD_GetLayerSize (PP_DU_LAYER_E IN layer);
```

[Description]

      Read layer size

[Parameter]

Member	Description
layer	Target layer

[Return]

Member	Description
rect	Layer size

5.23. PPDRV_DU_OSD_SetLayerColor

[Syntax]

PP_VOID PPDRV_DU_OSD_SetLayerColor (PP_DU_LAYER_E IN layer, PP_U32 IN color);

[Description]

      Set Layer color

[Parameter]

Member	Description
layer	Target layer
color	Target color

[Return]

Member	Description
PP_VOID	

5.24. PPDRV_DU_OSD_GetLayercolor

[Syntax]

PP_U32 PPDRV_DU_OSD_GetLayercolor (PP_DU_LAYER_E IN layer);

[Description]

Read layer color.

[Parameter]

Member	Description
layer	Target layer

[Return]

Member	Description
color	Color of target layer

5.25. PPDRV_DU_OSD_SetLayerFormat

[Syntax]

PP_RESULT_E   PPDRV_DU_OSD_SetLayerFormat   (PP_DU_LAYER_E   IN   layer, PP_DU_FORMAT_E IN format);

[Description]

Set Layer format

[Parameter]

Member	Description
layer	Target layer
format	Format to be set

[Return]

Member	Description
eSUCCESS	Success
eERROR_INVALID_ARGUMENT	Invalid argument
eERROR_NOT_SUPPORT	Unsupported format

5.26. PPDRV_DU_OSD_GetLayerFormat

[Syntax]

PP_DU_FORMAT_E PPDRV_DU_OSD_GetLayerFormat (PP_DU_LAYER_E IN layer);

[Description]

Read layer format of target layer.

[Parameter]

Member	Description
layer	Target layer

[Return]

Member	Description
format	Format of target layer

5.27. PPDRV_DU_OSD_EnableLayer2dDMA

[Syntax]

```
PP_VOID PPDRV_DU_OSD_EnableLayer2dDMA (PP_DU_LAYER_E IN layer, PP_BOOL
IN enable);
```

[Description]

Set 2D-DMA mode for target layer

[Parameter]

Member	Description
layer	Target layer
enable	Whether to enable or diable

[Return]

Member	Description
PP_VOID	

5.28. PPDRV_DU_OSD_EnableLayerInterlace

[Syntax]

```
PP_VOID    PPDRV_DU_OSD_EnableLayerInterlace    (PP_DU_LAYER_E    IN    layer,
PP_BOOL IN enable);
```

[Description]

Set interlace mode for target layer.

PPDRV_DU_OSD_EnableLayer2dDMA() has to be called for interface mode.

[Parameter]

Member	Description
layer	Target layer
enable	Whether to enable or disable

[Return]

Member	Description
PP_VOID	

5.29. PPDRV_DU_OSD_EnableLayerGlobalAlpha

[Syntax]

PP_RESULT_E PPDRV_DU_OSD_EnableLayerGlobalAlpha (PP_DU_LAYER_E IN layer, PP_BOOL IN enable);

[Description]

Set global alpha for target layer.

[Parameter]

Member	Description
layer	Target layer
enable	Whether to enable or disable

[Return]

Member	Description
eSUCCESS	Success
eERROR_FAILURE	Failure

5.30. PPDRV_DU_OSD_SetLayerGlobalAlpha

[Syntax]

PP_RESULT_E PPDRV_DU_OSD_SetLayerGlobalAlpha (PP_DU_LAYER_E IN layer, PP_U8 IN value);

[Description]

      Set global alpha value for a layer

[Parameter]

Member	Description
layer	Target layer
valuekk	Global alpha value to be set

[Return]

Member	Description
eSUCCESS	Success
eERROR_FAILURE	Failure

5.31. PPDRV_DU_OSD_EnableArea

[Syntax]

PP_RESULT_E   PPDRV_DU_OSD_EnableArea   (PP_DU_LAYER_E   IN   layer, PP_DU_AREA_E IN area, PP_BOOL IN enable);

[Description]

      Display target area

[Parameter]

Member	Description
layer	Layer to be displayed
area	Area to be displayed
enable	Whether to display or not the area

[Return]

Member	Description
eSUCCESS	Success
eERROR_DU_NOT_INITIALIZE	DU is not initialized.

5.32. PPDRV_DU_OSD_SetArea

[Syntax]

PP_RESULT_E   PPDRV_DU_OSD_SetArea   (PP_DU_LAYER_E   IN   layer,
PP_DU_AREA_E IN area, PP_U32* IN addr, PP_U32* IN addr2, PP_U32 IN byte,
PP_U32 IN stride, PP_DU_FORMAT_E IN format);

[Description]

Set configuration of an area

[Parameter]

Member	Description
layer	Layer to be set
area	Area to be set
addr	Image address to be displayed (odd address for interlace mode)
addr2	Even address to be displayed. (Used only for interlace mode
byte	Byte size of image
stride	Stride of image (Used for 2D-DMA)
format	Image format

[Return]

Member	Description
eSUCCESS	Success
eERROR_DU_NOT_INITIALIZE	DU block is not initialized
eERROR_FAILURE	Failure

5.33. PPDRV_DU_OSD_SetAreaPosition

[Syntax]

PP_RESULT_E   PPDRV_DU_OSD_SetAreaPosition   (PP_DU_LAYER_E   IN   layer,
PP_DU_AREA_E IN area, PP_U16 IN x, PP_U16 IN y, PP_U16 IN w, PP_U16 IN h);

[Description]

Set the position of an area

[Parameter]

Member	Description

layer	Layer to be displayed
area	Area to be displayed
x	X position of area
y	Y position of area
w	Area width
h	Area height

[Return]

Member	Description
eSUCCESS	Success
eERROR_DU_NOT_INITIALIZE	DU block is not initialized
eERROR_INVALID_ARGUMENT	Invalid argument

5.34. PPDRV_DU_OSD_SetAreaConfig

[Syntax]

PP_RESULT_E   PPDRV_DU_OSD_SetAreaConfig   (PP_DU_LAYER_E   IN   layer, PP_DU_AREA_E IN area, PP_U32* IN addr, PP_U32* IN addr2, PP_U32 IN byte, PP_RECT_S IN rect, PP_U32 IN stride, PP_DU_FORMAT_E IN format);

[Description]

Set area configuration and position

PPDRV_DU_OSD_SetArea()   and   PPDRV_DU_OSD_SetAreaPosition()   will   be executed simultaneously by this API.

[Parameter]

Member	Description
layer	Target layer
area	Target area
addr	Image address to be displayed (Odd address for interlace mode)
addr2	Even address to be displayed (Used only for interlace mode)
byte	Size of image in byte
rect	Image position and size
stride	Image stride (Used for 2D-DMA)
format	Image format

[Return]

Member	Description
eSUCCESS	Success
eERROR_DU_NOT_INITIALIZE	DU block is not initialized
eERROR_INVALID_ARGUMENT	Invalid argument
eERROR_NOT_SUPPORT	Does not support
eERROR_FAILURE	Failure

5.35. PPDRV_DU_OSD_SetR2Y

[Syntax]

PP_VOID PPDRV_DU_OSD_SetR2Y (PP_DU_LAYER_E IN layer, PP_U32 IN bypass, PP_DU_R2Y_COEF_S IN coef);

[Description]

Set coefficient for color conversion from RGB to YUV

$Y = (R × ycoef0 + G × ycoef1 + B × ycoef2 + ycoef3) / 512$

$U = (R × ucoef0 + G × ucoef1 + B × ucoef2 + ucoef3) / 512$

$V = (R × vcoef0 + G × vcoef1 + B × vcoef2 + vcoef3) / 512$

[Parameter]

Member	Description
layer	Target layer
bypass	Decide whether to bypass conversion without applying coefficient.
coef	Coefficient value to be applied

[Return]

Member	Description
PP_VOID	

5.36. PPDRV_DU_PVITX_SelSrc

[Syntax]

PP_VOID PPDRV_DU_PVITX_SelSrc (PP_PVITX_SRC IN src);

[Description]

      Set input source for PVI

[Parameter]

Member	Description
src	PVI input source

[Return]

Member	Description
PP_VOID	

5.37. PPDRV_DU_OSD_GetFrameCnt

[Syntax]

PP_U32 PPDRV_DU_OSD_GetFrameCnt (PP_VOID);

[Description]

      Get current frame count. Only for debugging purpose.

[Parameter]

Member	Description
PP_VOID	

[Return]

Member	Description
count	frame count

5.38. PPDRV_DU_SetTestPattern

[Syntax]

PP_VOID PPDRV_DU_SetTestPattern(PP_BOOL IN enb, PP_U8 IN mode, PP_U8 IN sel);

[Description]

      Set BTO Test Pattern. Only for debugging purpose

[Parameter]

Member	Description
enb	Whether to enable test pattern (enable / disable)
mode	Test pattern mode 0 : White, 1 : Yellow, 2 : Cyan, 3 : Green, 4 : Magenta, 5 : Red, 6 : Blue, 7 : Black, 8: color bar, 9: ramp, 10: gray bar, 11: combination
sel	Test pattern 0: 720p25, 1: 720p30, 2: 720p50, 3: 720p60, 4:1080p25, 5:1080p30, 6:1080i50, 7:1080i60, 8:960Hi50, 9: 960Hi60, 10:720Hi50, 11:720Hi60, 12:960Hp50, 13: 960Hp60, 14:720Hp50, 15:720Hp60

[Return]

Member	Description
PP_VOID	

5.39. PPDRV_DU_BTO_SetCSC

[Syntax]

PP_VOID PPDRV_DU_BTO_SetCSC(PP_DU_CSC_E IN csc);

[Description]

Set CSC(Color Space Conversion) of BTO

[Parameter]

Member	Description
csc	csc mode

[Return]

Member	Description
PP_VOID	

5.40. PPDRV_DU_WaitBlank

[Syntax]

PP_VOID PPDRV_DU_WaitBlank (PP_VOID);

[Description]

      Wait until blank period of SVM v sync.

[Parameter]

Member	Description
PP_VOID	

[Return]

Member	Description
PP_VOID	

5.41. PPDRV_DU_SkipVSync

[Syntax]

PP_VOID PPDRV_DU_SkipVSync (PP_VOID)

[Description]

      Wait until next blank period of SVM v sync

[Parameter]

Member	Description
PP_VOID	

[Return]

Member	Description
PP_VOID	

5.42. PPDRV_DU_WaitBlank_BT

[Syntax]

PP_VOID PPDRV_DU_WaitBlank_BT (PP_VOID)

[Description]

Wait until blank period of BTO v sync

[Parameter]

Member	Description
PP_VOID	

[Return]

Member	Description
PP_VOID	

6. Revision History

Version	Date	Description
v 0.1	2018.04.05	Draft
v 0.11	2018.06.04	Renewal & Update