



eYS3D
Microelectronics

eYs3D Linux SDK

5.0.1.48

Generated by Doxygen 1.8.13

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Chapter 1

Introduction

This document describes the usage of eYs3D Linux SDK

What's inside the SDK

Table 1.1 File List

Folder	Filename	Description
bin	All files	sample executables on Linux platform
console_tester	All files	a console program demonstrating how to use the APIs defined in eSPDI.h
cfg	All files	configuration files
eSPDI	eSPDI.h	functions definitions
	eSPDI_def.h	error/data type definitions
	eSPDI_↔ version.h	SDK version declaration header
DMPreview	All files	a sample project demonstrating how to open multiple devices in an application

Chapter 2

Class Index

2.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

AccelerationTag	7
APC_META_DATA	7
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DECIMATION_PARAMS	8
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Chapter 3

File Index

3.1 File List

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

eSPDI/ eSPDI.h	
Functions definitions	19
eSPDI/ eSPDI_def.h	
Error/data type definitions	19
eSPDI/ eSPDI_version.h	??

Chapter 4

Class Documentation

4.1 AccelerationTag Struct Reference

Public Attributes

- short **x**
- short **y**
- short **z**

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

- [eSPDI/eSPDI_def.h](#)

4.2 APC_META_DATA Struct Reference

Public Attributes

- uint8_t **protocolVersion**
- uint8_t **payloadSize**
- union {
 uint8_t **payload** [256]
};

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

- [eSPDI/eSPDI.h](#)

4.3 APCImageType Struct Reference

Public Types

- enum **Value** {
 IMAGE_UNKNOWN = -1, **COLOR_YUY2** = 0, **COLOR_RGB24**, **COLOR_MJPEG**,
 COLOR_UYVY, **DEPTH_8BITS** = 100, **DEPTH_8BITS_0x80**, **DEPTH_11BITS**,
 DEPTH_14BITS }

Static Public Member Functions

- static bool **IsImageColor** (APCImageType::Value type)
- static bool **IsImageDepth** (APCImageType::Value type)
- static bool **IsDepthDataTypeDisparity** (WORD dataType)
- static APCImageType::Value **DepthDataTypeToDepthImageType** (WORD dataType)

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

- [eSPDI/eSPDI_def.h](#)

4.4 CompassTag Struct Reference

Public Attributes

- short **x**
- short **y**
- short **z**

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

- [eSPDI/eSPDI_def.h](#)

4.5 DECIMATION_PARAMS Struct Reference

Public Attributes

- int **decimation_sub_sample_factor** = 2

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

- [eSPDI/eSPDI_def.h](#)

4.6 DEVINFORMATIONEX Class Reference

Public Member Functions

- [DEVINFORMATIONEX](#) & **operator=** (const [DEVINFORMATIONEX](#) &rhs)
- [DEVINFORMATIONEX](#) & **operator=** (const [DEVINFORMATION](#) &rhs)
- **DEVINFORMATIONEX** (const [DEVINFORMATIONEX](#) &rhs)

Public Attributes

- unsigned short [wPID](#) { 0 }
- unsigned short [wVID](#) { 0 }
- char [strDevName](#) [512] { '\0' }
- char [strDevPath](#) [512] { '\0' }
- unsigned short [nChipID](#) { 0 }
- unsigned short [nDevType](#) { 0 }
- unsigned short [wUsbNode](#) { 0xffff }

4.6.1 Member Data Documentation

4.6.1.1 unsigned short DEVINFORMATIONEX::nChipID { 0 }

chip ID, 0x18 for AXES1, 0x1C for KIWI, 0x15 for PUMA

4.6.1.2 unsigned short DEVINFORMATIONEX::nDevType { 0 }

chip enum value, see `APC_DEVICE_TYPE`

4.6.1.3 char DEVINFORMATIONEX::strDevName[512] { '\0' }

device name

4.6.1.4 char DEVINFORMATIONEX::strDevPath[512] { '\0' }

device path

4.6.1.5 unsigned short DEVINFORMATIONEX::wPID { 0 }

product ID

Table 4.1 PID List

Chip Name	Chip ID	PID
AXES1	0x18	0x0568
		0x0668
		0x0113
		0x0115
		0x0116
KIWI	0x1C	0x0118
PUMA	0x15	0x0112
		0x0120

4.6.1.6 unsigned short DEVINFORMATIONEX::wUsbNode { 0xffff }

USB Node representing djb2_hash hashed port numbers. Developers compare its equality to judge if devices share the same port.

4.6.1.7 unsigned short DEVINFORMATIONEX::wVID { 0 }

vender ID, 0x1E4E for ApcDI device

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

- [eSPDI/eSPDI_def.h](#)

4.7 eSPCtrl_RectLogData Struct Reference

Public Attributes

- union {
 - unsigned char [uByteArray](#) [1024]
 - struct {
 - unsigned short [InImgWidth](#)
 - unsigned short [InImgHeight](#)
 - unsigned short [OutImgWidth](#)
 - unsigned short [OutImgHeight](#)
 - int [RECT_ScaleEnable](#)
 - int [RECT_CropEnable](#)
 - unsigned short [RECT_ScaleWidth](#)
 - unsigned short [RECT_ScaleHeight](#)
 - float [CamMat1](#) [9]
 - float [CamDist1](#) [8]
 - float [CamMat2](#) [9]
 - float [CamDist2](#) [8]
 - float [RotaMat](#) [9]
 - float [TranMat](#) [3]
 - float [LRotaMat](#) [9]
 - float [RRotaMat](#) [9]
 - float [NewCamMat1](#) [12]
 - float [NewCamMat2](#) [12]
 - unsigned short [RECT_Crop_Row_BG](#)
 - unsigned short [RECT_Crop_Row_ED](#)
 - unsigned short [RECT_Crop_Col_BG_L](#)
 - unsigned short [RECT_Crop_Col_ED_L](#)
 - unsigned char [RECT_Scale_Col_M](#)
 - unsigned char [RECT_Scale_Col_N](#)
 - unsigned char [RECT_Scale_Row_M](#)
 - unsigned char [RECT_Scale_Row_N](#)
 - float [RECT_AvgErr](#)
 - unsigned short [nLineBuffers](#)
 - float [ReProjectMat](#) [16]
 - float [ParameterRatio](#) [2]
 - float [LR_cam_K_temperature](#) [2]
 - float [LR_cam_thermal_variation_rate_of_focal](#) [2]
 - float [depth_comp_pars](#) [2]


```

    long Date
    char type
    char version [4]
}
};

```

4.7.1 Member Data Documentation

4.7.1.1 float eSPCtrl_RectLogData::CamDist1[8]

Left Camera Distortion Matrix k1, k2, p1, p2, k3, k4, k5, k6 k1~k6 : radial distort ; p1,p2 : tangential distort

4.7.1.2 float eSPCtrl_RectLogData::CamDist2[8]

Right Camera Distortion Matrix k1, k2, p1, p2, k3, k4, k5, k6 k1~k6 : radial distort ; p1,p2 : tangential distort

4.7.1.3 float eSPCtrl_RectLogData::CamMat1[9]

Left Camera Matrix fx, 0, cx, 0, fy, cy, 0, 0, 1 fx,fy : focus ; cx,cy : principle point

4.7.1.4 float eSPCtrl_RectLogData::CamMat2[9]

Right Camera Matrix fx, 0, cx, 0, fy, cy, 0, 0, 1 fx,fy : focus ; cx,cy : principle point

4.7.1.5 long eSPCtrl_RectLogData::Date

pars for compensating disparity value, Formula: $\text{new_disp_vaule} = \text{disp_value} * \text{depth_comp_pars}[0] + \text{depth_comp_pars}[1]$

4.7.1.6 unsigned short eSPCtrl_RectLogData::InImgHeight

Input image height

4.7.1.7 unsigned short eSPCtrl_RectLogData::InImgWidth

Input image width(SideBySide image)

4.7.1.8 float eSPCtrl_RectLogData::LRotaMat[9]

3x3 rectification transform (rotation matrix) for the left camera. $\begin{bmatrix} [0] & [1] & [2] \\ [3] & [4] & [5] \\ [6] & [7] & [8] \end{bmatrix} \begin{bmatrix} |Xcl| \\ |Ycl| \\ |Zcl| \end{bmatrix} * \begin{bmatrix} |Xcl| \\ |Ycl| \\ |Zcl| \end{bmatrix} \Rightarrow cl = \text{left camera coordinate}$

4.7.1.9 float eSPCtrl_RectLogData::NewCamMat1[12]

3x4 projection matrix in the (rectified) coordinate systems for the left camera. $fx' \ 0 \ cx' \ 0 \ 0 \ 0 \ 0 \ 0 \ 1 \ 0 \ 0 \ 0 \ 0$: rectified focus ; $cx', \ cy'$: rectified principle point

4.7.1.10 float eSPCtrl_RectLogData::NewCamMat2[12]

3x4 projection matrix in the (rectified) coordinate systems for the right camera. $fx' \ 0 \ cx' \ 0 \ 0 \ 0 \ 0 \ 0 \ 1 \ 0 \ 0 \ 0 \ 0$: rectified focus ; $cx', \ cy'$: rectified principle point

4.7.1.11 unsigned short eSPCtrl_RectLogData::nLineBuffers

Linebuffer for Hardware limitation < 60

4.7.1.12 unsigned short eSPCtrl_RectLogData::OutImgHeight

Output image height

4.7.1.13 unsigned short eSPCtrl_RectLogData::OutImgWidth

Output image width(SideBySide image)

4.7.1.14 float eSPCtrl_RectLogData::RECT_AvgErr

Reprojection error

4.7.1.15 unsigned short eSPCtrl_RectLogData::RECT_Crop_Col_BG_L

Rectidied image crop column begin

4.7.1.16 unsigned short eSPCtrl_RectLogData::RECT_Crop_Col_ED_L

Rectidied image crop column end

4.7.1.17 unsigned short eSPCtrl_RectLogData::RECT_Crop_Row_BG

Rectidied image crop row begin

4.7.1.18 unsigned short eSPCtrl_RectLogData::RECT_Crop_Row_ED

Rectidied image crop row end

4.7.1.19 int eSPCtrl_RectLogData::RECT_CropEnable

Rectified image crop

4.7.1.20 unsigned char eSPCtrl_RectLogData::RECT_Scale_Col_M

Rectified image scale column factor M

4.7.1.21 unsigned char eSPCtrl_RectLogData::RECT_Scale_Col_N

Rectified image scale column factor N Rectified image scale column ratio = Scale_Col_N/ Scale_Col_M

4.7.1.22 unsigned char eSPCtrl_RectLogData::RECT_Scale_Row_M

Rectified image scale row factor M

4.7.1.23 unsigned char eSPCtrl_RectLogData::RECT_Scale_Row_N

Rectified image scale row factor N

4.7.1.24 int eSPCtrl_RectLogData::RECT_ScaleEnable

Rectified image scale

4.7.1.25 unsigned short eSPCtrl_RectLogData::RECT_ScaleHeight

Input image height(Single image) *RECT_Scale_Row_N /RECT_Scale_Row_M

4.7.1.26 unsigned short eSPCtrl_RectLogData::RECT_ScaleWidth

Input image width(Single image) *RECT_Scale_Col_N /RECT_Scale_Col_M

4.7.1.27 float eSPCtrl_RectLogData::RotaMat[9]

Rotation matrix between the left and right camera coordinate systems. $\begin{bmatrix} [0] & [1] & [2] \\ |Xcr| & [3] & [4] & [5] \\ * & |Ycr| \end{bmatrix} \Rightarrow cr$
= right camera coordinate $\begin{bmatrix} [6] & [7] & [8] \\ |Zcr| \end{bmatrix}$

4.7.1.28 float eSPCtrl_RectLogData::RRotaMat[9]

3x3 rectification transform (rotation matrix) for the left camera. $\begin{bmatrix} [0] & [1] & [2] \\ |Xcr| & [3] & [4] & [5] \\ * & |Ycr| \end{bmatrix} \Rightarrow cr$ = right camera coordinate $\begin{bmatrix} [6] & [7] & [8] \\ |Zcr| \end{bmatrix}$

4.7.1.29 float eSPCtrl_RectLogData::TranMat[3]

Translation vector between the coordinate systems of the cameras. $|[0]| |Xcr| | [1]| + |Ycr| => cr = \text{right camera coordinate } |[2]| |Zcr|$

4.7.1.30 unsigned char eSPCtrl_RectLogData::uByteArray[1024]

union data defined as below struct { }

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

- [eSPDI/eSPDI_def.h](#)

4.8 GyroTag Struct Reference

Public Attributes

- short **x**
- short **y**
- short **z**

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

- [eSPDI/eSPDI_def.h](#)

4.9 packet_s Struct Reference

Public Attributes

- int **len**
- int **serial**
- bool **bisRGB**
- bool **bisReady**
- union {
 - unsigned char **buffer_yuyv** [2 *2560 *2560]
 - unsigned char **buffer_RGB** [3 *2560 *2560]
 };

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

- [eSPDI/eSPDI_def.h](#)

4.10 PointCloudInfo Struct Reference

```
#include <eSPDI_def.h>
```

Public Attributes

- float **centerX**
- float **centerY**
- float **focalLength**
- float **disparityToW** [2048]
- int **disparity_len**
- WORD **wDepthType**
- float **fx1**
- float **fy1**
- float **fx2**
- float **fy2**
- float **cx1**
- float **cy1**
- float **cx2**
- float **cy2**
- float **Tx**
- int **depth_image_edian**
- float **focalLength_K**
- float **baseline_K**
- float **diff_K**
- float **slaveDeviceCamMat2** [9]
- float **slaveDeviceRotaMat** [9]
- float **slaveDeviceTranMat** [3]
- float **depthScaleRatio**
- bool **blsMIPISplit**

4.10.1 Detailed Description

Parameters

<i>M_dst</i>	input camera matrix of RGB-lens, including intrinsic parameters, such as RectifyLog-CamMat2 (M3). The buffer size is 9.
<i>R_dst_to_src</i>	input rotation matrix of dst-lens to src-lens, dst is the camera at left side, src is the camera at right side, such as RectifyLog-RotaMat (R31). The buffer size is 9.
<i>T_dst_to_src</i>	input translation matrix of dst-lens to src-lens, such as RectifyLog-TranMat (T13). The buffer size is 3.
<i>depthScaleRatio</i>	Fill in scaled depth height divided by rectified image output height. This ratio is needed when developers invoke APC_DecimationFilter to resize image depth.

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

- [eSPDI/eSPDI_def.h](#)

4.11 POST_PROCESS_PARAMS Struct Reference

Public Attributes

- int **spatial_filter_kernel_size** = 5
- float **spatial_filter_outlier_threshold** = 16

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

- [eSPDI/eSPDI_def.h](#)

4.12 tagAPC_STREAM_INFO Struct Reference

Public Attributes

- int **nWidth**
- int **nHeight**
- BOOL **bFormatMJPG**

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

- [eSPDI/eSPDI_def.h](#)

4.13 tagDEVINFORMATION Struct Reference

Public Attributes

- unsigned short **wPID**
- unsigned short **wVID**
- char * **strDevName**
- unsigned short **nChipID**
- unsigned short **nDevType**

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

- [eSPDI/eSPDI_def.h](#)

4.14 tagDEVSEL Struct Reference

Public Attributes

- int **index**

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

- [eSPDI/eSPDI_def.h](#)

4.15 tagKEEP_DATA_CTRL Struct Reference

Public Attributes

- bool **blsSerialNumberKeep**
- bool **blsSensorPositionKeep**
- bool **blsRectificationTableKeep**
- bool **blsZDTableKeep**
- bool **blsCalibrationLogKeep**

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

- [eSPDI/eSPDI_def.h](#)

4.16 tagZDTableInfo Struct Reference

Public Attributes

- int **nIndex**
- int **nDataType**

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

- [eSPDI/eSPDI_def.h](#)

Chapter 5

File Documentation

5.1 eSPDI/eSPDI.h File Reference

functions definitions

```
#include "eSPDI_def.h"
#include "eSPDI_version.h"
#include <stdlib.h>
#include <vector>
#include <cstdint>
Include dependency graph for eSPDI.h:
```

5.2 eSPDI/eSPDI_def.h File Reference

error/data type definitions

```
#include <cstring>
Include dependency graph for eSPDI_def.h: This graph shows which files directly or indirectly include this file:
```

Classes

- struct [packet_s](#)
- struct [tagDEVINFORMATION](#)
- struct [POST_PROCESS_PARAMS](#)
- struct [DECIMATION_PARAMS](#)
- struct [tagDEVSEL](#)
- struct [tagAPC_STREAM_INFO](#)
- struct [tagZDTableInfo](#)
- class [DEVINFORMATIONEX](#)
- struct [tagKEEP_DATA_CTRL](#)
- struct [eSPCtrl_RectLogData](#)
- struct [GyroTag](#)
- struct [AccelerationTag](#)
- struct [CompassTag](#)
- struct [APCImageType](#)
- struct [PointCloudInfo](#)

Macros

- `#define MAX_DEV_COUNT 20`
- `#define MAX_TOTAL_DEV_CONT (MAX_DEV_COUNT * 2 + MAX_DEV_COUNT)`
- `#define SIMPLE_DEV_START_IDX (MAX_TOTAL_DEV_CONT - (MAX_DEV_COUNT))`
- `#define APC_OK 0`
- `#define APC_NoDevice -1`
- `#define APC_NullPtr -2`
- `#define APC_ErrBufLen -3`
- `#define APC_Init_Fail -4`
- `#define APC_NoZDTable -5`
- `#define APC_READFLASHFAIL -6`
- `#define APC_WRITEFLASHFAIL -7`
- `#define APC_VERIFY_DATA_FAIL -8`
- `#define APC_KEEP_DATA_FAIL -9`
- `#define APC_RECT_DATA_LEN_FAIL -10`
- `#define APC_RECT_DATA_PARSING_FAIL -11`
- `#define APC_RET_BAD_PARAM -12`
- `#define APC_RET_OPEN_FILE_FAIL -13`
- `#define APC_NO_CALIBRATION_LOG -14`
- `#define APC_POSTPROCESS_INIT_FAIL -15`
- `#define APC_POSTPROCESS_NOT_INIT -16`
- `#define APC_POSTPROCESS_FRAME_FAIL -17`
- `#define APC_NotSupport -18`
- `#define APC_GET_RES_LIST_FAIL -19`
- `#define APC_READ_REG_FAIL -20`
- `#define APC_WRITE_REG_FAIL -21`
- `#define APC_SET_FPS_FAIL -22`
- `#define APC_VIDEO_RENDER_FAIL -23`
- `#define APC_OPEN_DEVICE_FAIL -24`
- `#define APC_FIND_DEVICE_FAIL -25`
- `#define APC_GET_IMAGE_FAIL -26`
- `#define APC_NOT_SUPPORT_RES -27`
- `#define APC_CALLBACK_REGISTER_FAIL -28`
- `#define APC_CLOSE_DEVICE_FAIL -29`
- `#define APC_GET_CALIBRATIONLOG_FAIL -30`
- `#define APC_SET_CALIBRATIONLOG_FAIL -31`
- `#define APC_DEVICE_NOT_SUPPORT -32`
- `#define APC_DEVICE_BUSY -33`
- `#define APC_DEVICE_TIMEOUT -34`
- `#define APC_IO_SELECT_INTR -35`
- `#define APC_IO_SELECT_ERROR -36`
- `#define APC_ILLEGAL_ANGLE -40`
- `#define APC_ILLEGAL_STEP -41`
- `#define APC_ILLEGAL_TIMEPERSTEP -42`
- `#define APC_MOTOR_RUNNING -43`
- `#define APC_GETSENSORREG_FAIL -44`
- `#define APC_SETSENSORREG_FAIL -45`
- `#define APC_READ_X_AXIS_FAIL -46`
- `#define APC_READ_Y_AXIS_FAIL -47`
- `#define APC_READ_Z_AXIS_FAIL -48`
- `#define APC_READ_PRESS_DATA_FAIL -49`
- `#define APC_READ_TEMPERATURE_FAIL -50`
- `#define APC_RETURNHOME_RUNNING -51`
- `#define APC_MOTOTSTOP_BY_HOME_INDEX -52`

- **#define APC_MOTOTSTOP_BY_PROTECT_SCHEME** -53
- **#define APC_MOTOTSTOP_BY_NORMAL** -54
- **#define APC_ILLEGAL_FIRMWARE_VERSION** -55
- **#define APC_ILLEGAL_STEPPERTIME** -56
- **#define APC_GET_PU_PROP_VAL_FAIL** -60
- **#define APC_SET_PU_PROP_VAL_FAIL** -61
- **#define APC_GET_CT_PROP_VAL_FAIL** -62
- **#define APC_SET_CT_PROP_VAL_FAIL** -63
- **#define APC_GET_CT_PROP_RANGE_STEP_FAIL** -64
- **#define APC_GET_PU_PROP_RANGE_STEP_FAIL** -65
- **#define APC_INVALID_USERDATA** -70
- **#define APC_MAP_LUT_FAIL** -71
- **#define APC_APPEND_TO_FILE_FRONT_FAIL** -72
- **#define APC_TOO_MANY_DEVICE** -80
- **#define APC_ACCESS_MP4_EXTRA_DATA_FAIL** -81
- **#define BIT_SET(a, b) ((a) |= (1<<(b)))**
- **#define BIT_CLEAR(a, b) ((a) &= ~(1<<(b)))**
- **#define BIT_FLIP(a, b) ((a) ^= (1<<(b)))**
- **#define BIT_CHECK(a, b) ((a) & (1<<(b)))**
- **#define FG_Address_1Byte** 0x01
- **#define FG_Address_2Byte** 0x02
- **#define FG_Value_1Byte** 0x10
- **#define FG_Value_2Byte** 0x20
- **#define FG_MULTI_BYTE_RW_SELECTOR_4** 0x200
- **#define EVENT_BUFFER_SHM_COLOR** "/shm_ring_buffer_color"
- **#define EVENT_BUFFER_SHM_DEPTH** "/shm_ring_buffer_depth"
- **#define EVENT_BUFFER_SHM** "/shm_ring_buffer"
- **#define CMD_FIFO_PATH** "/tmp/cmdfifo"
- **#define ZD_PATH** "/tmp/zd_addr"
- **#define RECTIFY_LOG_PATH** "/tmp/rectifylog_addr"
- **#define SRB_LENGTH** 10
- **#define CHIPID_ADDR** 0xf014
- **#define SERIAL_2BIT_ADDR** 0xf0fe
- **#define APC_DEPTH_DATA_OFF_RAW** 0 /* raw (depth off, only raw color) */
- **#define APC_DEPTH_DATA_DEFAULT** APC_DEPTH_DATA_OFF_RAW /* raw (depth off, only gray raw color) */
- **#define APC_DEPTH_DATA_8_BITS** 1 /* rectify, 1 byte per pixel */
- **#define APC_DEPTH_DATA_14_BITS** 2 /* rectify, 2 byte per pixel */
- **#define APC_DEPTH_DATA_8_BITS_x80** 3 /* rectify, 2 byte per pixel but using 1 byte only */
- **#define APC_DEPTH_DATA_11_BITS** 4 /* rectify, 2 byte per pixel but using 11 bit only */
- **#define APC_DEPTH_DATA_OFF_RECTIFY** 5 /* rectify (depth off, only rectify raw color) */
- **#define APC_DEPTH_DATA_8_BITS_RAW** 6 /* raw */
- **#define APC_DEPTH_DATA_14_BITS_RAW** 7 /* raw */
- **#define APC_DEPTH_DATA_8_BITS_x80_RAW** 8 /* raw */
- **#define APC_DEPTH_DATA_11_BITS_RAW** 9 /* raw */
- **#define APC_DEPTH_DATA_14_BITS_COMBINED_RECTIFY** 11
- **#define APC_DEPTH_DATA_11_BITS_COMBINED_RECTIFY** 13
- **#define APC_DEPTH_DATA_OFF_BAYER_RAW** 14
- **#define APC_DEPTH_DATA_INTERLEAVE_MODE_OFFSET** 16
- **#define APC_DEPTH_DATA_ILM_OFF_RAW** (APC_DEPTH_DATA_OFF_RAW + APC_DEPTH_DATA_INTERLEAVE_MODE_OFFSET) /* raw (depth off, only raw color) */
- **#define APC_DEPTH_DATA_ILM_DEFAULT** (APC_DEPTH_DATA_DEFAULT + APC_DEPTH_DATA_INTERLEAVE_MODE_OFFSET) /* raw (depth off, only raw color) */
- **#define APC_DEPTH_DATA_ILM_8_BITS** (APC_DEPTH_DATA_8_BITS + APC_DEPTH_DATA_INTERLEAVE_MODE_OFFSET) /* rectify, 1 byte per pixel */

- **#define APC_DEPTH_DATA_ILM_14_BITS** (APC_DEPTH_DATA_14_BITS + APC_DEPTH_DATA_INTERLEAVE_MODE_OFFSET) /* rectify, 2 byte per pixel */
- **#define APC_DEPTH_DATA_ILM_8_BITS_x80** (APC_DEPTH_DATA_8_BITS_x80 + APC_DEPTH_DATA_INTERLEAVE_MODE_OFFSET) /* rectify, 2 byte per pixel but using 1 byte only */
- **#define APC_DEPTH_DATA_ILM_11_BITS** (APC_DEPTH_DATA_11_BITS + APC_DEPTH_DATA_INTERLEAVE_MODE_OFFSET) /* rectify, 2 byte per pixel but using 11 bit only */
- **#define APC_DEPTH_DATA_ILM_OFF_RECTIFY** (APC_DEPTH_DATA_OFF_RECTIFY + APC_DEPTH_DATA_INTERLEAVE_MODE_OFFSET) /* rectify (depth off, only rectify color) */
- **#define APC_DEPTH_DATA_ILM_8_BITS_RAW** (APC_DEPTH_DATA_8_BITS_RAW + APC_DEPTH_DATA_INTERLEAVE_MODE_OFFSET) /* raw */
- **#define APC_DEPTH_DATA_ILM_14_BITS_RAW** (APC_DEPTH_DATA_14_BITS_RAW + APC_DEPTH_DATA_INTERLEAVE_MODE_OFFSET) /* raw */
- **#define APC_DEPTH_DATA_ILM_8_BITS_x80_RAW** (APC_DEPTH_DATA_8_BITS_x80_RAW + APC_DEPTH_DATA_INTERLEAVE_MODE_OFFSET) /* raw */
- **#define APC_DEPTH_DATA_ILM_11_BITS_RAW** (APC_DEPTH_DATA_11_BITS_RAW + APC_DEPTH_DATA_INTERLEAVE_MODE_OFFSET) /* raw */
- **#define APC_DEPTH_DATA_ILM_14_BITS_COMBINED_RECTIFY** (APC_DEPTH_DATA_14_BITS_COMBINED_RECTIFY + APC_DEPTH_DATA_INTERLEAVE_MODE_OFFSET)
- **#define APC_DEPTH_DATA_ILM_11_BITS_COMBINED_RECTIFY** (APC_DEPTH_DATA_11_BITS_COMBINED_RECTIFY + APC_DEPTH_DATA_INTERLEAVE_MODE_OFFSET)
- **#define APC_DEPTH_DATA_SCALE_DOWN_MODE_OFFSET** 32
- **#define APC_DEPTH_DATA_SCALE_DOWN_OFF_RAW** (APC_DEPTH_DATA_OFF_RAW + APC_DEPTH_DATA_SCALE_DOWN_MODE_OFFSET) /* raw (depth off, only raw color) */
- **#define APC_DEPTH_DATA_SCALE_DOWN_DEFAULT** (APC_DEPTH_DATA_DEFAULT + APC_DEPTH_DATA_SCALE_DOWN_MODE_OFFSET) /* raw (depth off, only raw color) */
- **#define APC_DEPTH_DATA_SCALE_DOWN_8_BITS** (APC_DEPTH_DATA_8_BITS + APC_DEPTH_DATA_SCALE_DOWN_MODE_OFFSET) /* rectify, 1 byte per pixel */
- **#define APC_DEPTH_DATA_SCALE_DOWN_14_BITS** (APC_DEPTH_DATA_14_BITS + APC_DEPTH_DATA_SCALE_DOWN_MODE_OFFSET) /* rectify, 2 byte per pixel */
- **#define APC_DEPTH_DATA_SCALE_DOWN_8_BITS_x80** (APC_DEPTH_DATA_8_BITS_x80 + APC_DEPTH_DATA_SCALE_DOWN_MODE_OFFSET) /* rectify, 2 byte per pixel but using 1 byte only */
- **#define APC_DEPTH_DATA_SCALE_DOWN_11_BITS** (APC_DEPTH_DATA_11_BITS + APC_DEPTH_DATA_SCALE_DOWN_MODE_OFFSET) /* rectify, 2 byte per pixel but using 11 bit only */
- **#define APC_DEPTH_DATA_SCALE_DOWN_OFF_RECTIFY** (APC_DEPTH_DATA_OFF_RECTIFY + APC_DEPTH_DATA_SCALE_DOWN_MODE_OFFSET) /* Rule 0.4b Reserved unused in any firmware */
- **#define APC_DEPTH_DATA_SCALE_DOWN_8_BITS_RAW** (APC_DEPTH_DATA_8_BITS_RAW + APC_DEPTH_DATA_SCALE_DOWN_MODE_OFFSET) /* raw */
- **#define APC_DEPTH_DATA_SCALE_DOWN_14_BITS_RAW** (APC_DEPTH_DATA_14_BITS_RAW + APC_DEPTH_DATA_SCALE_DOWN_MODE_OFFSET) /* raw */
- **#define APC_DEPTH_DATA_SCALE_DOWN_8_BITS_x80_RAW** (APC_DEPTH_DATA_8_BITS_x80_RAW + APC_DEPTH_DATA_SCALE_DOWN_MODE_OFFSET) /* raw */
- **#define APC_DEPTH_DATA_SCALE_DOWN_11_BITS_RAW** (APC_DEPTH_DATA_11_BITS_RAW + APC_DEPTH_DATA_SCALE_DOWN_MODE_OFFSET) /* raw */
- **#define APC_DEPTH_DATA_SCALE_DOWN_14_BITS_COMBINED_RECTIFY** (APC_DEPTH_DATA_14_BITS_COMBINED_RECTIFY + APC_DEPTH_DATA_SCALE_DOWN_MODE_OFFSET) /* Rule 0.4b Reserved unused in any firmware */
- **#define APC_DEPTH_DATA_SCALE_DOWN_11_BITS_COMBINED_RECTIFY** (APC_DEPTH_DATA_11_BITS_COMBINED_RECTIFY + APC_DEPTH_DATA_SCALE_DOWN_MODE_OFFSET) /* Rule 0.4b Reserved unused in any firmware */
- **#define APC_DEPTH_DATA_SCALE_DOWN_ILM_OFF_RAW** (APC_DEPTH_DATA_SCALE_DOWN_OFF_RAW + APC_DEPTH_DATA_INTERLEAVE_MODE_OFFSET) /* raw (depth off, only raw color) */
- **#define APC_DEPTH_DATA_SCALE_DOWN_ILM_DEFAULT** (APC_DEPTH_DATA_SCALE_DOWN_DEFAULT + APC_DEPTH_DATA_INTERLEAVE_MODE_OFFSET) /* raw (depth off, only raw color) */
- **#define APC_DEPTH_DATA_SCALE_DOWN_ILM_8_BITS** (APC_DEPTH_DATA_SCALE_DOWN_8_BITS + APC_DEPTH_DATA_INTERLEAVE_MODE_OFFSET) /* rectify, 1 byte per pixel */
- **#define APC_DEPTH_DATA_SCALE_DOWN_ILM_14_BITS** (APC_DEPTH_DATA_SCALE_DOWN_14_BITS + APC_DEPTH_DATA_INTERLEAVE_MODE_OFFSET) /* rectify, 2 byte per pixel */

- **#define APC_DEPTH_DATA_SCALE_DOWN_ILM_8_BITS_x80** (APC_DEPTH_DATA_SCALE_DOWN↵
_8_BITS_x80 + APC_DEPTH_DATA_INTERLEAVE_MODE_OFFSET) /* rectify, 2 byte per pixel but using 1
byte only */
- **#define APC_DEPTH_DATA_SCALE_DOWN_ILM_11_BITS** (APC_DEPTH_DATA_SCALE_DOWN_11↵
_BITS + APC_DEPTH_DATA_INTERLEAVE_MODE_OFFSET) /* rectify, 2 byte per pixel but using 11 bit
only */
- **#define APC_DEPTH_DATA_SCALE_DOWN_ILM_OFF_RECTIFY** (APC_DEPTH_DATA_SCALE_DO↵
WN_OFF_RECTIFY + APC_DEPTH_DATA_INTERLEAVE_MODE_OFFSET) /* rectify (depth off, only
rectify color) */
- **#define APC_DEPTH_DATA_SCALE_DOWN_ILM_8_BITS_RAW** (APC_DEPTH_DATA_SCALE_DOW↵
N_8_BITS_RAW + APC_DEPTH_DATA_INTERLEAVE_MODE_OFFSET) /* raw */
- **#define APC_DEPTH_DATA_SCALE_DOWN_ILM_14_BITS_RAW** (APC_DEPTH_DATA_SCALE_DO↵
WN_14_BITS_RAW + APC_DEPTH_DATA_INTERLEAVE_MODE_OFFSET) /* raw */
- **#define APC_DEPTH_DATA_SCALE_DOWN_ILM_8_BITS_x80_RAW** (APC_DEPTH_DATA_SCALE_D↵
OWN_8_BITS_x80_RAW + APC_DEPTH_DATA_INTERLEAVE_MODE_OFFSET) /* raw */
- **#define APC_DEPTH_DATA_SCALE_DOWN_ILM_11_BITS_RAW** (APC_DEPTH_DATA_SCALE_DO↵
WN_11_BITS_RAW + APC_DEPTH_DATA_INTERLEAVE_MODE_OFFSET) /* raw */
- **#define APC_DEPTH_DATA_SCALE_DOWN_ILM_14_BITS_COMBINED_RECTIFY** (APC_DEPTH_DA↵
TA_SCALE_DOWN_14_BITS_COMBINED_RECTIFY + APC_DEPTH_DATA_INTERLEAVE_MODE_OF↵
FSET)
- **#define APC_DEPTH_DATA_SCALE_DOWN_ILM_11_BITS_COMBINED_RECTIFY** (APC_DEPTH_DA↵
TA_SCALE_DOWN_11_BITS_COMBINED_RECTIFY + APC_DEPTH_DATA_INTERLEAVE_MODE_OF↵
FSET)
- **#define APC_READ_FLASH_TOTAL_SIZE** 128
- **#define APC_READ_FLASH_FW_PLUGIN_SIZE** 104
- **#define APC_WRITE_FLASH_TOTAL_SIZE** 128
- **#define APC_Y_OFFSET_FILE_ID_0** 30
- **#define APC_Y_OFFSET_FILE_SIZE** 256
- **#define APC_RECTIFY_FILE_ID_0** 40
- **#define APC_RECTIFY_FILE_SIZE** 1024
- **#define APC_ZD_TABLE_FILE_ID_0** 50
- **#define APC_ZD_TABLE_FILE_SIZE_8_BITS** 512
- **#define APC_ZD_TABLE_FILE_SIZE_11_BITS** 4096
- **#define APC_CALIB_LOG_FILE_ID_0** 240
- **#define APC_CALIB_LOG_FILE_SIZE** 4096
- **#define APC_USER_DATA_FILE_ID_0** 200
- **#define APC_USER_DATA_FILE_SIZE_0** 1024
- **#define APC_USER_DATA_FILE_SIZE_1** 4096
- **#define APC_BACKUP_USER_DATA_FILE_ID** 201
- **#define APC_BACKUP_USER_DATA_SIZE** 1024
- **#define APC_PID_8029** 0x0568
- **#define APC_PID_8030** APC_PID_8029
- **#define APC_PID_8039** APC_PID_8029
- **#define APC_PID_8031** 0x0117
- **#define APC_PID_8032** 0x0118
- **#define APC_PID_8036** 0x0120
- **#define APC_PID_8037** 0x0121
- **#define APC_PID_8038** 0x0124
- **#define APC_PID_8038_M0** APC_PID_8038
- **#define APC_PID_8038_M1** 0x0147
- **#define APC_PID_8040W** 0x0130
- **#define APC_PID_8040S** 0x0131
- **#define APC_PID_8040S_K** 0x0149
- **#define APC_PID_8041** 0x0126
- **#define APC_PID_8042** 0x0127

- `#define APC_PID_8043 0x0128`
- `#define APC_PID_8044 0x0129`
- `#define APC_PID_8045K 0x0134`
- `#define APC_PID_8046K 0x0135`
- `#define APC_PID_8051 0x0136`
- `#define APC_PID_8052 0x0137`
- `#define APC_PID_8053 0x0138`
- `#define APC_PID_8054 0x0139`
- `#define APC_PID_8054_K 0x0143`
- `#define APC_PID_8059 0x0146`
- `#define APC_PID_8060 0x0152`
- `#define APC_PID_8060_K 0x0150`
- `#define APC_PID_8060_T 0x0151`
- `#define APC_PID_AMBER 0x0112`
- `#define APC_PID_SALLY 0x0158`
- `#define APC_PID_HYPATIA 0x0160`
- `#define APC_PID_HYPATIA2 0x0173`
- `#define APC_PID_HYPATIA4 0x0204`
- `#define APC_PID_8062 0x0162`
- `#define APC_PID_8063 0x0164`
- `#define APC_PID_8063_K 0x0165`
- `#define APC_PID_8076 0x0181`
- `#define APC_PID_80362 APC_PID_8076`
- `#define APC_PID_8077 0x0182`
- `#define APC_PID_8081 0x0183`
- `#define APC_PID_IRIS 0x0184`
- `#define APC_PID_IVY 0x0177`
- `#define APC_PID_IVY2 0x0191`
- `#define APC_PID_IVY3 0x0192`
- `#define APC_PID_IVY2_S 0x0195`
- `#define APC_PID_IVY4 0x0198`
- `#define APC_PID_GRAP 0x0179`
- `#define APC_PID_GRAP_K 0x0000`
- `#define APC_PID_GRAP_SLAVE 0x0279`
- `#define APC_PID_GRAP_SLAVE_K 0x0283`
- `#define APC_PID_BOOTLOADER 0x0668`
- `#define APC_PID_GRAP_THERMAL 0xf9f9`
- `#define APC_PID_GRAP_THERMAL2 0xf8f8`
- `#define APC_PID_MIPI_8036 (APC_PID_8036 | 0xf000)`
- `#define APC_PID_NORA 0x0168`
- `#define APC_PID_HELEN 0x0171`
- `#define APC_PID_SANDRA 0x0167`
- `#define APC_VID_GRAP_THERMAL 0x04b4`
- `#define APC_VID_2170 0x0110`
- `#define APC_VID_EEVER 0x1e4e`
- `#define APC_VID_EYS3D 0x3438`
- `#define CT_PROPERTY_ID 1`
- `#define PU_PROPERTY_ID 3`
- `#define CT_PROPERTY_ID_AUTO_EXPOSURE_MODE_CTRL 0`
- `#define CT_PROPERTY_ID_AUTO_EXPOSURE_PRIORITY_CTRL 1`
- `#define CT_PROPERTY_ID_EXPOSURE_TIME_ABSOLUTE_CTRL 2`
- `#define CT_PROPERTY_ID_EXPOSURE_TIME_RELATIVE_CTRL 3`
- `#define CT_PROPERTY_ID_FOCUS_ABSOLUTE_CTRL 4`
- `#define CT_PROPERTY_ID_FOCUS_RELATIVE_CTRL 5`
- `#define CT_PROPERTY_ID_FOCUS_AUTO_CTRL 6`

- #define CT_PROPERTY_ID_IRIS_ABSOLUTE_CTRL 7
- #define CT_PROPERTY_ID_IRIS_RELATIVE_CTRL 8
- #define CT_PROPERTY_ID_ZOOM_ABSOLUTE_CTRL 9
- #define CT_PROPERTY_ID_ZOOM_RELATIVE_CTRL 10
- #define CT_PROPERTY_ID_PAN_ABSOLUTE_CTRL 11
- #define CT_PROPERTY_ID_PAN_RELATIVE_CTRL 12
- #define CT_PROPERTY_ID_TILT_ABSOLUTE_CTRL 13
- #define CT_PROPERTY_ID_TILT_RELATIVE_CTRL 14
- #define CT_PROPERTY_ID_PRIVACY_CTRL 15
- #define PU_PROPERTY_ID_BACKLIGHT_COMPENSATION_CTRL 0
- #define PU_PROPERTY_ID_BRIGHTNESS_CTRL 1
- #define PU_PROPERTY_ID_CONTRAST_CTRL 2
- #define PU_PROPERTY_ID_GAIN_CTRL 3
- #define PU_PROPERTY_ID_POWER_LINE_FREQUENCY_CTRL 4
- #define PU_PROPERTY_ID_HUE_CTRL 5
- #define PU_PROPERTY_ID_HUE_AUTO_CTRL 6
- #define PU_PROPERTY_ID_SATURATION_CTRL 7
- #define PU_PROPERTY_ID_SHARPNESS_CTRL 8
- #define PU_PROPERTY_ID_GAMMA_CTRL 9
- #define PU_PROPERTY_ID_WHITE_BALANCE_CTRL 10
- #define PU_PROPERTY_ID_WHITE_BALANCE_AUTO_CTRL 11
- #define AE_MOD_MANUAL_MODE 0x01
- #define AE_MOD_AUTO_MODE 0x02
- #define AE_MOD_SHUTTER_PRIORITY_MODE 0x04
- #define AE_MOD_APERTURE_PRIORITY_MODE 0x03
- #define PU_PROPERTY_ID_AWB_DISABLE 0
- #define PU_PROPERTY_ID_AWB_ENABLE 1
- #define FW_FID_GROUP_OFFSET 5
- #define CT_PROPERTY_ID_EXPOSURE 4
- #define POSTPAR_HR_MODE 5
- #define POSTPAR_HR_CURVE_0 6
- #define POSTPAR_HR_CURVE_1 7
- #define POSTPAR_HR_CURVE_2 8
- #define POSTPAR_HR_CURVE_3 9
- #define POSTPAR_HR_CURVE_4 10
- #define POSTPAR_HR_CURVE_5 11
- #define POSTPAR_HR_CURVE_6 12
- #define POSTPAR_HR_CURVE_7 13
- #define POSTPAR_HR_CURVE_8 14
- #define POSTPAR_HF_MODE 17
- #define POSTPAR_DC_MODE 20
- #define POSTPAR_DC_CNT_THD 21
- #define POSTPAR_DC_GRAD_THD 22
- #define POSTPAR_SEG_MODE 23
- #define POSTPAR_SEG_THD_SUB 24
- #define POSTPAR_SEG_THD_SLP 25
- #define POSTPAR_SEG_THD_MAX 26
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- #define POSTPAR_SEG_FILL_MODE 28
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- `#define POSTPAR_MF_MODE` 51
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- `#define POSTPAR_RF_MODE` 53
- `#define POSTPAR_RF_LEVEL` 54

Typedefs

- `typedef unsigned char` **BYTE**
- `typedef signed int` **BOOL**
- `typedef unsigned short` **WORD**
- `typedef struct packet_s srb_packet_s`
- `typedef struct tagDEVINFORMATION` **DEVINFORMATION**
- `typedef struct tagDEVINFORMATION *` **PDEVINFORMATION**
- `typedef struct tagDEVSEL` **DEVSELINFO**
- `typedef struct tagDEVSEL *` **PDEVSELINFO**
- `typedef struct tagAPC_STREAM_INFO` **APC_STREAM_INFO**
- `typedef struct tagAPC_STREAM_INFO *` **PAPC_STREAM_INFO**
- `typedef struct tagZDTableInfo` **ZDTABLEINFO**
- `typedef struct tagZDTableInfo *` **PZDTABLEINFO**
- `typedef struct tagKEEP_DATA_CTRL` **KEEP_DATA_CTRL**
- `typedef enum AE_STATUS *` **PAE_STATUS**
- `typedef enum AWB_STATUS *` **PAWB_STATUS**
- `typedef struct eSPCtrl_RectLogData` **eSPCtrl_RectLogData**
- `typedef struct GyroTag` **GYRO_ANGULAR_RATE_DATA**
- `typedef struct AccelerationTag` **ACCELERATION_DATA**
- `typedef struct CompassTag` **COMPASS_DATA**
- `typedef void(* APC_ImgCallbackFn)` (**APCImageType::Value** imgType, int imgId, unsigned char *imgBuf, int imgSizeByte, int width, int height, int serialNumber, long long timestamp, void *pParameter)

Enumerations

- `enum SENSORMODE_INFO {`
SENSOR_A = 0, **SENSOR_B**, **SENSOR_BOTH**, **SENSOR_C**,
SENSOR_D `}`
- `enum PIXEL_FMT {`
YUV22_YUYV_PIXEL_FMT = 0, **YUV22_UYVY_PIXEL_FMT**, **RAW10_GBRG_PIXEL_FMT**, **RAW10_BGRG_PIXEL_FMT**,
RAW10_RGBG_PIXEL_FMT, **RAW10_GRBG_PIXEL_FMT**, **MJPEG_PIXEL_FMT**, **UNKOWN_PIXEL_FMT** = 0xffff `}`
- `enum DEVICE_TYPE {`
OTHERS = 0, **AXES1**, **PUMA**, **KIWI**,
PLUM, **UNKNOWN_DEVICE_TYPE** = 0xffff `}`
- `enum FLASH_DATA_TYPE {`
Total = 0, **FW_PLUGIN**, **BOOTLOADER_ONLY**, **FW_ONLY**,
PLUGIN_ONLY, **UNP** `}`
- `enum USERDATA_SECTION_INDEX {`
USERDATA_SECTION_0 = 0, **USERDATA_SECTION_1**, **USERDATA_SECTION_2**, **USERDATA_SECTION_3**,
USERDATA_SECTION_4, **USERDATA_SECTION_5**, **USERDATA_SECTION_6**, **USERDATA_SECTION_7**,
USERDATA_SECTION_8, **USERDATA_SECTION_9** `}`

- enum **CALIBRATION_LOG_TYPE** {
ALL_LOG = 0, **SERIAL_NUMBER**, **PRJFILE_LOG**, **STAGE_TIME_RESULT_LOG**,
SENSOR_OFFSET, **AUTO_ADJUST_LOG**, **RECTIFY_LOG**, **ZD_LOG**,
DEPTHMAP_KOG }
- enum **CONTROL_MODE** { **IMAGE_SN_NONSYNC** = 0, **IMAGE_SN_SYNC**, **IMAGE_NORECTIFY_DATA** = 100, **IMAGE_RECTIFY_DATA** }
- enum **DEPTH_TRANSFER_CTRL** { **DEPTH_IMG_NON_TRANSFER**, **DEPTH_IMG_GRAY_TRANSFER**, **DEPTH_IMG_COLORFUL_TRANSFER** }
- enum **SENSOR_TYPE_NAME** {
APC_SENSOR_TYPE_H22 = 0, **APC_SENSOR_TYPE_H65** = 1, **APC_SENSOR_TYPE_OV7740** = 2, **APC_SENSOR_TYPE_AR0134** = 3,
APC_SENSOR_TYPE_AR0135 = 4, **APC_SENSOR_TYPE_AR0144** = 5, **APC_SENSOR_TYPE_AR0330** = 6, **APC_SENSOR_TYPE_AR0522** = 7,
APC_SENSOR_TYPE_AR1335 = 8, **APC_SENSOR_TYPE_OV9714** = 9, **APC_SENSOR_TYPE_OV9282** = 10, **APC_SENSOR_TYPE_H68** = 11,
APC_SENSOR_TYPE_OV2740 = 12, **APC_SENSOR_TYPE_OC0SA10** = 13, **APC_SENSOR_TYPE_VD56G3** = 14, **APC_SENSOR_TYPE_VD66GY** = 15,
APC_SENSOR_TYPE_SC2356 = 16, **APC_SENSOR_TYPE_UNKOWN** = 0xffff }
- enum **AE_STATUS** { **AE_ENABLE** = 0, **AE_DISABLE** }
- enum **AWB_STATUS** { **AWB_ENABLE** = 0, **AWB_DISABLE** }
- enum **USB_PORT_TYPE** { **USB_PORT_TYPE_2_0** = 2, **USB_PORT_TYPE_3_0**, **MIPI_PORT_TYPE**, **USB_PORT_TYPE_UNKNOW** }
- enum **SENSITIVITY_LEVEL_L3G** { **DPS_245** = 0, **DPS_500**, **DPS_2000** }
- enum **SENSITIVITY_LEVEL_LSM** {
_2G = 0, **_4G**, **_6G**, **_8G**,
_16G }
- enum **OUTPUT_DATA_RATE** {
One_Shot = 0, **_1_HZ_1_HZ**, **_7_HZ_1_HZ**, **_12_5_HZ_1HZ**,
_25_HZ_1_HZ, **_7_HZ_7_HZ**, **_12_5_HZ_12_5_HZ**, **_25_HZ_25_HZ** }
- enum **POWER_STATE** { **POWER_ON** = 0, **POWER_OFF** }
- enum **BRIGHTNESS_LEVEL** {
LEVEL_0 = 0, **LEVEL_1**, **LEVEL_2**, **LEVEL_3**,
LEVEL_4, **LEVEL_5**, **LEVEL_6**, **LEVEL_7**,
LEVEL_8, **LEVEL_9**, **LEVEL_10**, **LEVEL_11**,
LEVEL_12, **LEVEL_13**, **LEVEL_14**, **LEVEL_15** }

5.2.1 Detailed Description

error/data type definitions

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