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/* Configuration Descriptor*/
0x09,          /* Descriptor Size */
CY_U3P_USB_CONFIG_DESCR, /* Configuration Descriptor Type */
0x5E,0x01, //0x88, 0x01, //0x1f, 0x02, /* Length of this descriptor and all sub descriptors */
0x03,          /* Number of interfaces */
0x01,          /* Configuration number */
0x00,          /* Configuration string index */
0xC0,          /* Config characteristics - Self Powered */
0x12,          /* Max power consumption of device (in 8mA unit) : 96mA */

/* Interface Association Descriptor */
0x08,          /* Descriptor Size */
ES_UVC_INTRFC_ASSN_DESCR, /* Interface Association Descriptor Type */
0x00,          /* Interface number of the VideoControl interface
that is associated with this function*/
0x02,          /* Number of contiguous Video interfaces that are
associated with this function */
0x0E,          /* Video Interface Class Code: CC_VIDEO */
0x03,          /* Subclass code: SC_VIDEO_INTERFACE_COLLECTION*/
0x00,          /* Protocol: PC_PROTOCOL_UNDEFINED*/
0x00,          /* String Descriptor index for interface */

/* Standard Video Control Interface Descriptor (Interface 0, Alternate Setting 0)*/
0x09,          /* Descriptor size */
CY_U3P_USB_INTRFC_DESCR, /* Interface Descriptor type */
0x00,          /* Index of this Interface */
0x00,          /* Alternate setting number */
0x01,          /* Number of end points - 1 Interrupt Endpoint*/
0x0E,          /* Video Interface Class Code: CC_VIDEO */
0x01,          /* Interface sub class: SC_VIDEOCONTROL */
0x00,          /* Interface protocol code: PC_PROTOCOL_UNDEFINED.*/
0x00,          /* Interface descriptor string index */

/* Class specific VC Interface Header Descriptor */
0x0D,          /* Descriptor size */
ES_UVC_CS_INTRFC_DESCR, /* Class Specific Interface Descriptor type: CS_INTERFACE */
0x01,          /* Descriptor Sub type: VC_HEADER */
0x00, 0x01,    /* Revision of UVC class spec: 1.0 - Legacy version */
0x4F, 0x00,    /* Total Size of class specific descriptors (till Output terminal) */
0x00, 0x6C, 0xDC, 0x02, /* Clock frequency : 48MHz(Deprecated) */
0x01,          /* Number of streaming interfaces */
0x01,          /* VideoStreaming interface 1 belongs to this VideoControl interface*/

/* Input (Camera) Terminal Descriptor */
0x12,          /* Descriptor size */
ES_UVC_CS_INTRFC_DESCR, /* CS_INTERFACE */
0x02,          /* VC_INPUT_TERMINAL subtype */
0x01,          /* ID of this input terminal */
0x01, 0x02,    /* ITT_CAMERA type. This terminal is a camera terminal representing the CCD
sensor*/
0x00,          /* No association terminal */
0x00,          /* Unused */
0x00, 0x00,    /* No optical zoom supported */
0x00, 0x00,    /* No optical zoom supported */
0x00, 0x00,    /* No optical zoom supported */
0x03,          /* Size of controls field for this terminal : 3 bytes */
    0x08,0x00,0x00, /* Manual Exposure control supported */

/* Processing Unit Descriptor */
0x0B,          /* Descriptor size */
ES_UVC_CS_INTRFC_DESCR, /* Class specific interface desc type */
0x05,          /* Processing Unit Descriptor type: VC_PROCESSING_UNIT*/
0x02,          /* ID of this unit */

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0x01,          /* Source ID: 1: Conected to input terminal */
0x00, 0x40,    /* Digital multiplier */
0x02,          /* Size of controls field for this terminal: 3 bytes */
    0x01,0x00, /* Manual Brightness control supported */
0x00,          /* String desc index: Not used */
// 0x00,        /* Analog Video Standards Supported: None */

/* Extension Unit Descriptor */
    0x1C,          /* Descriptor size */
    ES_UVC_CS_INTRFC_DESCR, /* Class specific interface desc type */
    0x06,          /* Extension Unit Descriptor type */
    0x03,          /* ID of this terminal */
/*DEFINE_GUID(GUID_EXTENSION_UNIT_DESCRIPTOR, 0XA8E5782B, 0X36E6, 0X4FA1,
0X87, 0XF8, 0X83, 0XE3, 0X2B, 0X32, 0X31, 0X24);*/
    0xFF, 0xFF, 0xFF, 0xFF, /* 16 byte GUID */
    0xFF, 0xFF, 0xFF, 0xFF,
    0xFF, 0xFF, 0xFF, 0xFF,
    0xFF, 0xFF, 0xFF, 0xFF,

    0x00,          /* Number of controls in this terminal */
    0x01,          /* Number of input pins in this terminal */
    0x02,          /* Source ID : 2 : Connected to Proc Unit */
    0x03,          /* Size of controls field for this terminal : 3 bytes */
    0x00, 0x00, 0x00, /* 10 controls supported */
    0x00,          /* String descriptor index : Not used */

/* Output Terminal Descriptor */
    0x09,          /* Descriptor size */
    ES_UVC_CS_INTRFC_DESCR, /* Class specific interface desc type */
    0x03,          /* Output Terminal Descriptor type */
    0x04,          /* ID of this terminal */
    0x01, 0x01,    /* USB Streaming terminal type */
    0x00,          /* No association terminal */
    0x03,          /* Source ID : 3 : Connected to Extn Unit */
    0x00,          /* String desc index : Not used */

/* Video Control Status Interrupt Endpoint Descriptor */
    0x07,          /* Descriptor size */
    CY_U3P_USB_ENDPNT_DESCR, /* Endpoint Descriptor Type */
    ES_UVC_EP_CONTROL_STATUS, /* Endpoint address and description: EP-2 IN */
    CY_U3P_USB_EP_INTR,      /* Interrupt End point Type */
    0x00, 0x04,    /* Max packet size: 64 bytes */
    0x01,          /* Servicing interval */

/* Super Speed Endpoint Companion Descriptor */
    0x06,          /* Descriptor size */
    CY_U3P_SS_EP_COMPN_DESCR, /* SS Endpoint Companion Descriptor Type */
    0x00,          /* Max no. of packets in a Burst: 1 */
    0x00,          /* Attribute: N.A. */
    0x00,          /* Bytes per interval: 1024 */
    0x04,

/* Class Specific Interrupt Endpoint Descriptor */
    0x05,          /* Descriptor size */
    0x25,          /* Class Specific Endpoint Descriptor Type */
    CY_U3P_USB_EP_INTR, /* End point Sub Type */
    0x40, 0x00,    /* Max packet size = 64 bytes */

/* Standard Video Streaming Interface Descriptor (Interface 1, Alternate Setting 0) */
    0x09,          /* Descriptor size */
    CY_U3P_USB_INTRFC_DESCR, /* Interface Descriptor type */
    0x01,          /* Interface number: 1 */
    0x00,          /* Alternate setting number: 0 */

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0x01,          /* Number of end points: 1 Bulk Endpoint */
0x0E,          /* Interface class : CC_VIDEO */
0x02,          /* Interface sub class : SC_VIDEOSTREAMING */
0x00,          /* Interface protocol code : PC_PROTOCOL_UNDEFINED */
0x00,          /* Interface descriptor string index */

/* Class-specific Video Streaming Input Header Descriptor */
0x0F,          /* Descriptor size */
ES_UVC_CS_INTRFC_DESCR, /* Class-specific VS I/f Type */
0x01,          /* Descriptor Subtype: Input Header */
0x02,          /* 2 format descriptor follows */
0xA1, 0x00, // 0xA1, 0x00, // 0x61, 0x01,          /* Total size of Class specific VS descr */
ES_UVC_EP_BULK_VIDEO, /* EP address for BULK video data: EP 3 IN */
0x00,          /* No dynamic format change supported */
0x04,          /* Output terminal ID : 4 */
0x02,          /* No Still image capture method supported */
0x00,          /* Hardware trigger NOT supported */
0x00,          /* Hardware to initiate still image capture not supported */
0x01,          /* Size of controls field : 1 byte */
0x00,          /* D2 : Compression quality supported - No compression */
0x00,          /* Added for Y10 */
//0x00,

/* Class specific Uncompressed VS format descriptor */
0x1B,          /* Descriptor size */
ES_UVC_CS_INTRFC_DESCR, /* Class-specific VS interface Type */
0x04,          /* Subtype : VS_FORMAT_UNCOMPRESSED */
0x01,          /* Format descriptor index */
0x01,          /* Number of Frame Descriptors that follow this descriptor: 1 */
/* GUID, globally unique identifier used to identify streaming-encoding format: Y10 */
0x59, 0x31, 0x36, 0x20, // Y16
0x00, 0x00, 0x10, 0x00,
0x80, 0x00, 0x00, 0xAA,
0x00, 0x38, 0x9B, 0x71,
0x10,          /* Number of bits per pixel */

0x01,          /* Optimum Frame Index for this stream: 1 (1596x1300) */
0x00,          /* X dimension of the picture aspect ratio; Non-interlaced */
0x00,          /* Y dimension of the picture aspect ratio: Non-interlaced */
0x00,          /* Interlace Flags: Progressive scanning, no interlace */
0x00,          /* duplication of the video stream restriction: 0 - no restriction */

/* Class specific Uncompressed VS frame descriptor 1 - 1596x1300 @60fps */
0x1E,          /* Descriptor size */
ES_UVC_CS_INTRFC_DESCR, /* Descriptor type */
0x05,          /* Subtype: Uncompressed frame interface */
0x01,          /* Frame Descriptor Index: 1 */
0x00,          /* No Still image capture method supported */
0x80, 0x02, // (uint8_t)(Es_Resolution1_Width), (uint8_t)((Es_Resolution1_Width>>8) &0xff),
/* Width in pixel: 640 */
0xE0, 0x01, // (uint8_t)(Es_Resolution1_Height), (uint8_t)((Es_Resolution1_Height>>8) &0xff),
/* Height in pixel: 480 */
0x00, 0x00, 0xBC, 0x34, /* Min bit rate (bits/s): 1596 x 1300 x 50 x 10 = 1244880000 */
0x00, 0x00, 0xBC, 0x34, /* Max bit rate (bits/s): Fixed rate so same as Min */
0x00, 0x60, 0x09, 0x00, /* Maximum video or still frame size in bytes (Deprecated): 1596 x
1300 x 1.25 */
0x03, 0xD9, 0x00, 0x00, /* Default frame interval (in 100ns units): (1/60)x10^7 */
0x01,          /*
Frame interval type : No of discrete intervals */
0x03, 0xD9, 0x00, 0x00, /* Frame interval 1: Same as Default frame interval - 60FPS */

/* Still image descriptor */
0x0A,

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0x24,
0x03,
0x00,
0x01, //No of frame Resolutions
Follows
0x80, 0x02, //(uint8_t)(Es_Resolution1_Width), (uint8_t)((Es_Resolution1_Width>>8) &0xff),
/* Width in pixel: 640 */
0xE0, 0x01, //(uint8_t)(Es_Resolution1_Height), (uint8_t)((Es_Resolution1_Height>>8) &0xff),
/* Height in pixel: 480 */
// 0x00, 0x05, // Height in pixel: 1280 */
// 0xD0, 0x02, // Width in pixel: 720 */
0x00,

/* Colour matching descriptor - Required to remove USBview error */
0x06, // Descriptor size */
CX3_CS_INTRFC_DESCR, // Class-specific VS interface Type */
0x0D, // Subtype : VS_COLORFORMAT */
0x01, // bColorPrimaries */
0x01, // bTransferCharacteristics */
0x04, // MatrixCoefficients */

// /* Class specific VS format descriptor */
// 0x0B, // Descriptor size */
// 0x24, // Class-specific VS i/f type */
// 0x06, // Descriptotor subtype : VS_FORMAT_MJPEG */
// 0x02, // Format descriptor index */
// 0x01, // 5 Frame descriptor follows */
// 0x01, // Uses fixed size samples */
// 0x01, // Default frame index is 1 */
// 0x00, // Non interlaced stream not reqd. */
// 0x00, // Non interlaced stream not reqd. */
// 0x00, // Non interlaced stream */
// 0x00, // CopyProtect: duplication unrestricted */
//
// /* Class specific VS_FRAME_MJPEG frame descriptor 1 - 720p@ 30fps*/
// 0x1E, // Descriptor size */
// CX3_CS_INTRFC_DESCR, // Descriptor type*/
// 0x07, // Subtype: VS_FRAME_MJPEG frame interface*/
// 0x01, // Frame Descriptor Index: 1 */
// 0x00, // No Still image capture method supported */
// 0x00, 0x05, // Height in pixel: 1280 */
// 0xD0, 0x02, // Width in pixel: 720 */
// 0x00, 0x00, 0xBC, 0x34, // Min bit rate (bits/s): 720 x 1280 x 60 x 2 x 8 */
// 0x00, 0x00, 0xBC, 0x34, // Max bit rate (bits/s): Fixed rate so same as Min */
// 0x00, 0x20, 0x1C, 0x00, // Maximum video or still frame size in bytes(Deprecated): 720 x
1280 x 2 */
// (uint8_t)(((TEN_7/ES_MJPEG_720P_3) & 0X000000FF)>>0), (uint8_t)
(((TEN_7/ES_MJPEG_720P_3) & 0X0000FF00)>>8), (uint8_t)(((TEN_7/ES_MJPEG_720P_3) &
0X00FF0000)>>16), (uint8_t)(((TEN_7/ES_MJPEG_720P_3) & 0XFF000000)>>24),
// 0x01, // Frame interval type : No of discrete intervals */
// (uint8_t)(((TEN_7/ES_MJPEG_720P_3) & 0X000000FF)>>0), (uint8_t)
(((TEN_7/ES_MJPEG_720P_3) & 0X0000FF00)>>8), (uint8_t)(((TEN_7/ES_MJPEG_720P_3) &
0X00FF0000)>>16), (uint8_t)(((TEN_7/ES_MJPEG_720P_3) & 0XFF000000)>>24),

/* Class specific Uncompressed VS format descriptor */
0x1B, // Descriptor size */
ES_UVC_CS_INTRFC_DESCR, // Class-specific VS interface Type */
0x04, // Subtype : VS_FORMAT_UNCOMPRESSED */
0x02, // Format descriptor index */
0x01, // Number of Frame Descriptors that follow this descriptor: 1 */
/* GUID, globally unique identifier used to identify streaming-encoding format: Y10 */
// 0x59, 0x38, 0x20, 0x20, //Y8

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//      0x00,0x00,0x10,0x00,
//      0x80,0x00,0x00,0xAA,
//      0x00,0x38,0x9B,0x71,
//      0x55, 0x59, 0x56, 0x59, //0x59, 0x55, 0x59, 0x32,      /*MEDIASUBTYPE_YUY2 GUID:
32595559-0000-0010-8000-00AA00389B71 */
//      0x00, 0x00, 0x10, 0x00,
//      0x80, 0x00, 0x00, 0xAA,
//      0x00, 0x38, 0x9B, 0x71,
//
//      0x10,                                     /* Number of bits per pixel */
//      0x01,                                     /* Optimum Frame Index for this stream: 1 (1596x1300) */
//      0x00,                                     /* X dimension of the picture aspect ratio; Non-interlaced */
//      0x00,                                     /* Y dimension of the picture aspect ratio; Non-interlaced */
//      0x00,                                     /* Interlace Flags: Progressive scanning, no interlace */
//      0x00,                                     /* duplication of the video stream restriction: 0 - no restriction */
//
//      /* Class specific Uncompressed VS frame descriptor 1 */
//      0x1E,                                     /* Descriptor size */
//      ES_UVC_CS_INTRFC_DESCR,                 /* Descriptor type */
//      0x05,                                     /* Subtype: Uncompressed frame interface */
//      0x01,                                     /* Frame Descriptor Index: 1 */
//      0x00,                                     /* No Still image capture method supported */
//      0x80, 0x02, //(uint8_t)(Es_Resolution1_Width), (uint8_t)((Es_Resolution1_Width>>8) &0xff),
/* Width in pixel: 640 */
//      0xE0, 0x01, //(uint8_t)(Es_Resolution1_Height), (uint8_t)((Es_Resolution1_Height>>8) &0xff),
/* Height in pixel: 480 */
//      0x00, 0x00, 0x5E, 0x1A,                 /* Min bit rate (bits/s): 1596 x 1300 x 50 x 10 = 1244880000 */
//      0x00, 0x00, 0x5E, 0x1A,                 /* Max bit rate (bits/s): Fixed rate so same as Min */
//      0x00, 0xB0, 0x04, 0x00,                 /* Maximum video or still frame size in
bytes(Deprecated): 1596 x 1300 x 1.25 */
//      0x03, 0xD9, 0x00, 0x00,                 /* Default frame interval (in 100ns units): (1/60)x10^7 */
//      0x01,                                     /*
Frame interval type : No of discrete intervals */
//      0x03, 0xD9, 0x00, 0x00,                 /* Default frame interval (in 100ns units): (1/60)x10^7 */
Frame interval 1: Same as Default frame interval - 60FPS */
//
//      /* Still image descriptor */
//      0x0A,
//      0x24,
//      0x03,
//      0x00,
//      0x01,                                     //No of frame
Resolutions Follows
//      0x80, 0x02, //(uint8_t)(Es_Resolution1_Width), (uint8_t)((Es_Resolution1_Width>>8)
&0xff),
/* Width in pixel: 640 */
//      0xE0, 0x01, //(uint8_t)(Es_Resolution1_Height), (uint8_t)
((Es_Resolution1_Height>>8) &0xff),
/* Height in pixel: 480 */
//      0x00,
//
//      /* Colour matching descriptor - Required to remove USBview error */
//      0x06,                                     /* Descriptor size */
//      CX3_CS_INTRFC_DESCR,                     /* Class-specific VS interface Type */
//      0x0D,                                     /* Subtype : VS_COLORFORMAT */
//      0x01,                                     /* bColorPrimaries */
//      0x01,                                     /* bTransferCharacteristics */
//      0x04,                                     /* MatrixCoefficients */
//
//      /* Endpoint Descriptor for BULK Streaming Video Data */
//      0x07,                                     /* Descriptor size */
//      CY_U3P_USB_ENDPNT_DESCR,                 /* Endpoint Descriptor Type */
//      ES_UVC_EP_BULK_VIDEO,                     /* Endpoint address and description: EP 3 IN */
//      CY_U3P_USB_EP_BULK,                       /* BULK End point */

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```
ES_UVC_EP_BULK_VIDEO_PKT_SIZE_L, /* ES_UVC_EP_BULK_VIDEO_PKT_SIZE_L */
ES_UVC_EP_BULK_VIDEO_PKT_SIZE_H, /* ES_UVC_EP_BULK_VIDEO_PKT_SIZE_H */
0x00, /* Servicing interval for data transfers */
```

```
/* Super Speed Endpoint Companion Descriptor */
0x06, /* Descriptor size */
CY_U3P_SS_EP_COMPN_DESCR, /* SS Endpoint Companion Descriptor Type */
0x0F, /* Max number of packets per burst: 12 */
0x00, /* Attribute: Streams not defined */
0x00, /* No meaning for bulk */
0x00,
```

```
/*HID interface descriptor */
0x09, /* bLength */
CY_U3P_USB_INTRFC_DESCR, /* bDescriptorType */
0x02, /* bInterfaceNumber */
0x00, /* bAlternateSetting */
0x02, /* bNumEndpoints */
0x03, /* bInterfaceClass -> HID
Interface Class */
0x00, /* bInterfaceSubClass: */
0x00, /* bInterfaceProtocol: */
0x00, /* iInterface: */
```

```
/* HID Class descriptors */
0x09, /* bLength: */
CY_U3P_USB_HID_DESCR, /* bDescriptorType: */
0x11,0x01, /* bcdHID: */
0x00, /* bCountryCode: */
0x01, /* bNumDescriptors: */
0x22, /* bDescriptorType: */
0x1D,0x00, /* wDescriptorLength: */
```

```
/*Endpoint Descriptor*/
0x07, /* bLength: */
0x05, /* bDescriptorType: */
0x85, /* bEndpointAddress:
-> Direction: IN - EndpointID: 5 */
0x03, /* bmAttributes:
-> Interrupt Transfer Type */
0x40,0x00, /* wMaxPacketSize:
= 1 transactions per microframe, 0x40 max bytes */
0x01, /* bInterval: */
```

```
/* Super Speed Endpoint Companion Descriptor */
0x06, /* Descriptor size */
CY_U3P_SS_EP_COMPN_DESCR, /* SS Endpoint Companion Descriptor Type */
0x00, /* Max number of packets per burst: 16 */
0x00, /* Attribute: Streams not defined */
0x40, /* No meaning for bulk */
0x00,
```

```
/*Endpoint Descriptor*/
0x07, /* bLength: */
0x05, /* bDescriptorType: */
0x06, /* bEndpointAddress:
-> Direction: OUT - EndpointID: 6 */
0x03, /* bmAttributes:
Interrupt Transfer Type */
0x40,0x00, /* wMaxPacketSize:
= 1 transactions per microframe, 0x40 max bytes */
0x01, /* bInterval: */
```

```
/* Super Speed Endpoint Companion Descriptor */
0x06,          /* Descriptor size */
CY_U3P_SS_EP_COMPN_DESCR, /* SS Endpoint Companion Descriptor Type */
0x00,          /* Max number of packets per burst: 16 */
0x00,          /* Attribute: Streams not defined */
0x40,          /* No meaning for bulk */
0x00,
```