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Mikica B Kocic

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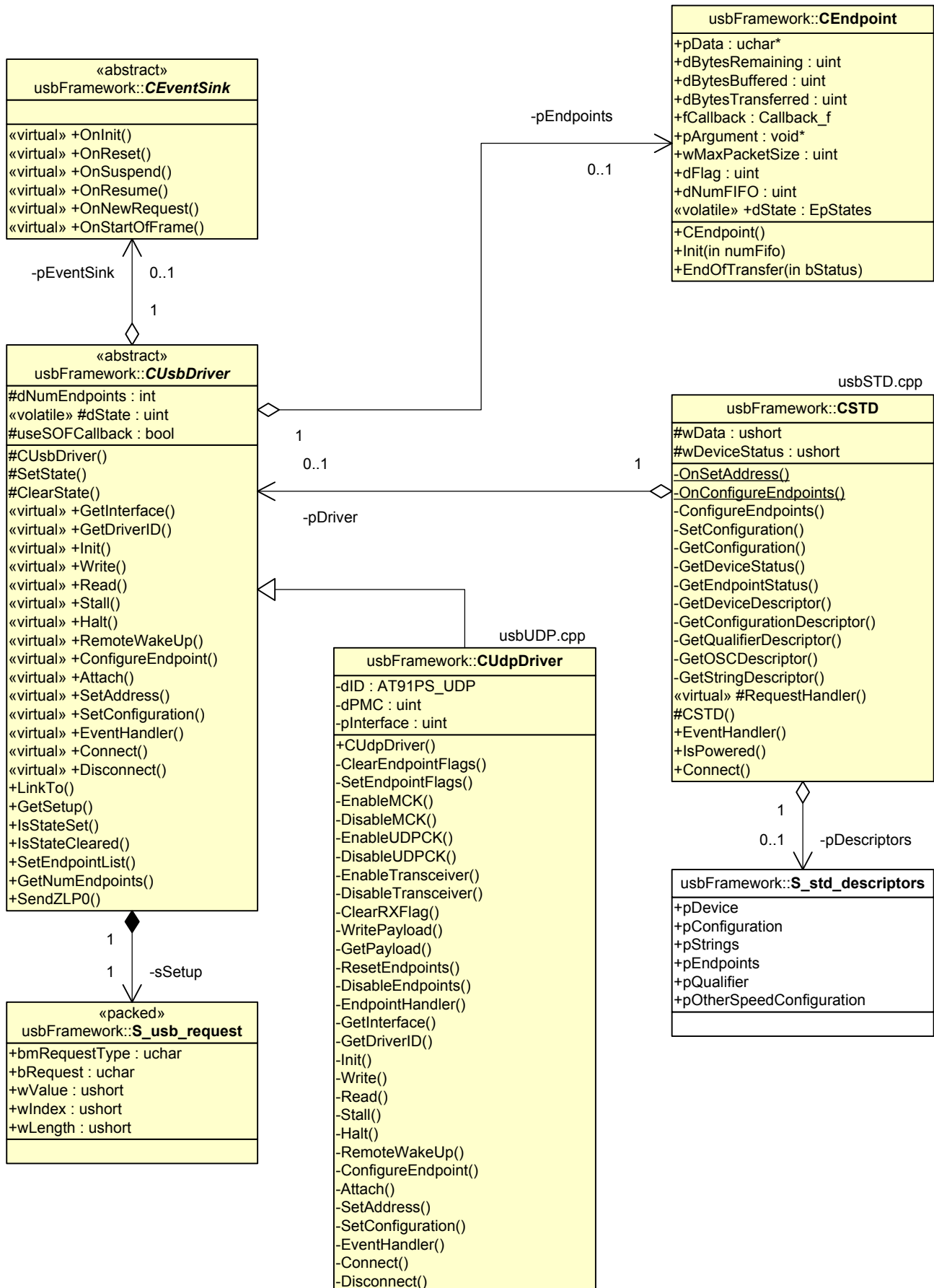
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USB Framework



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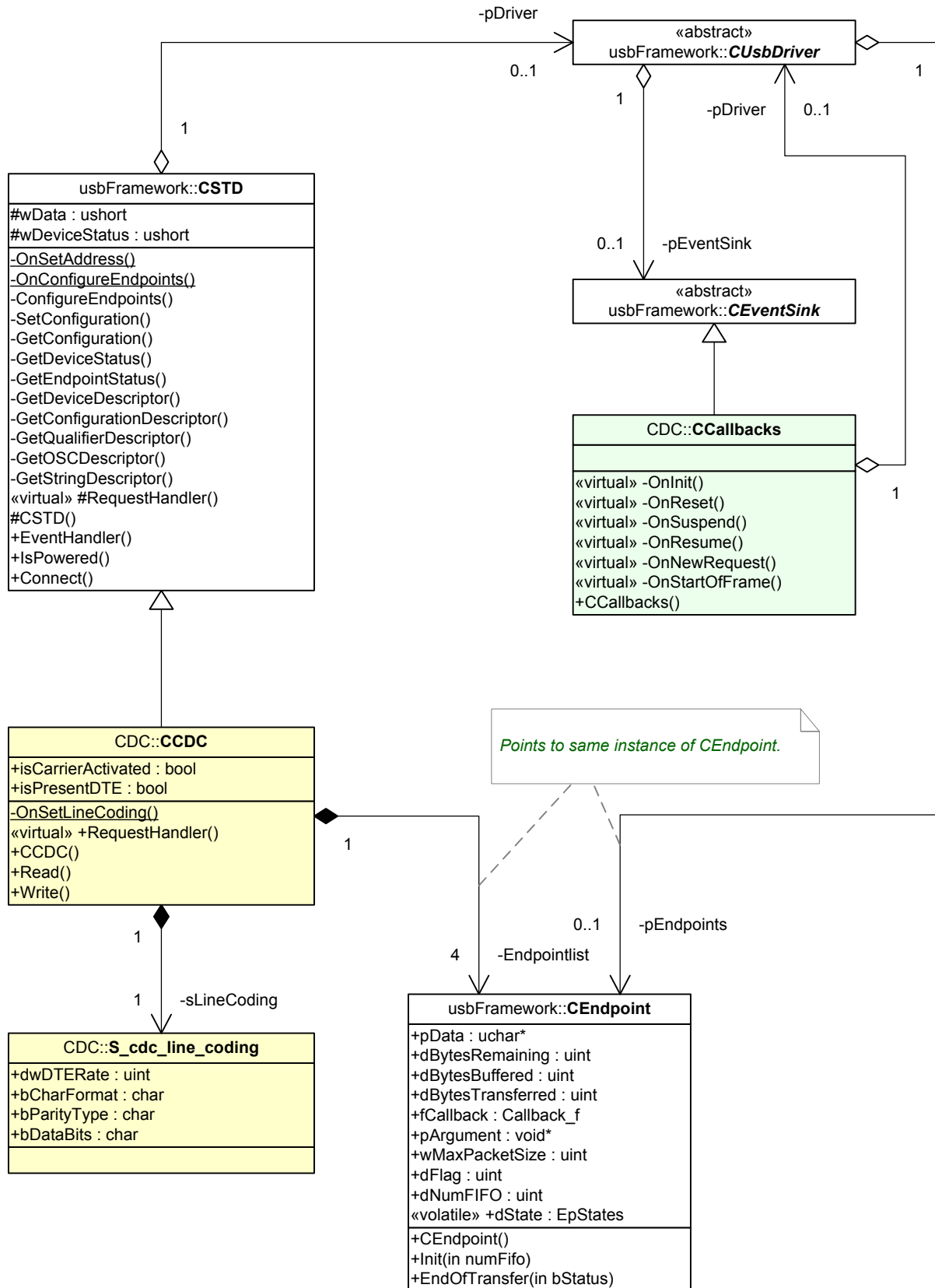
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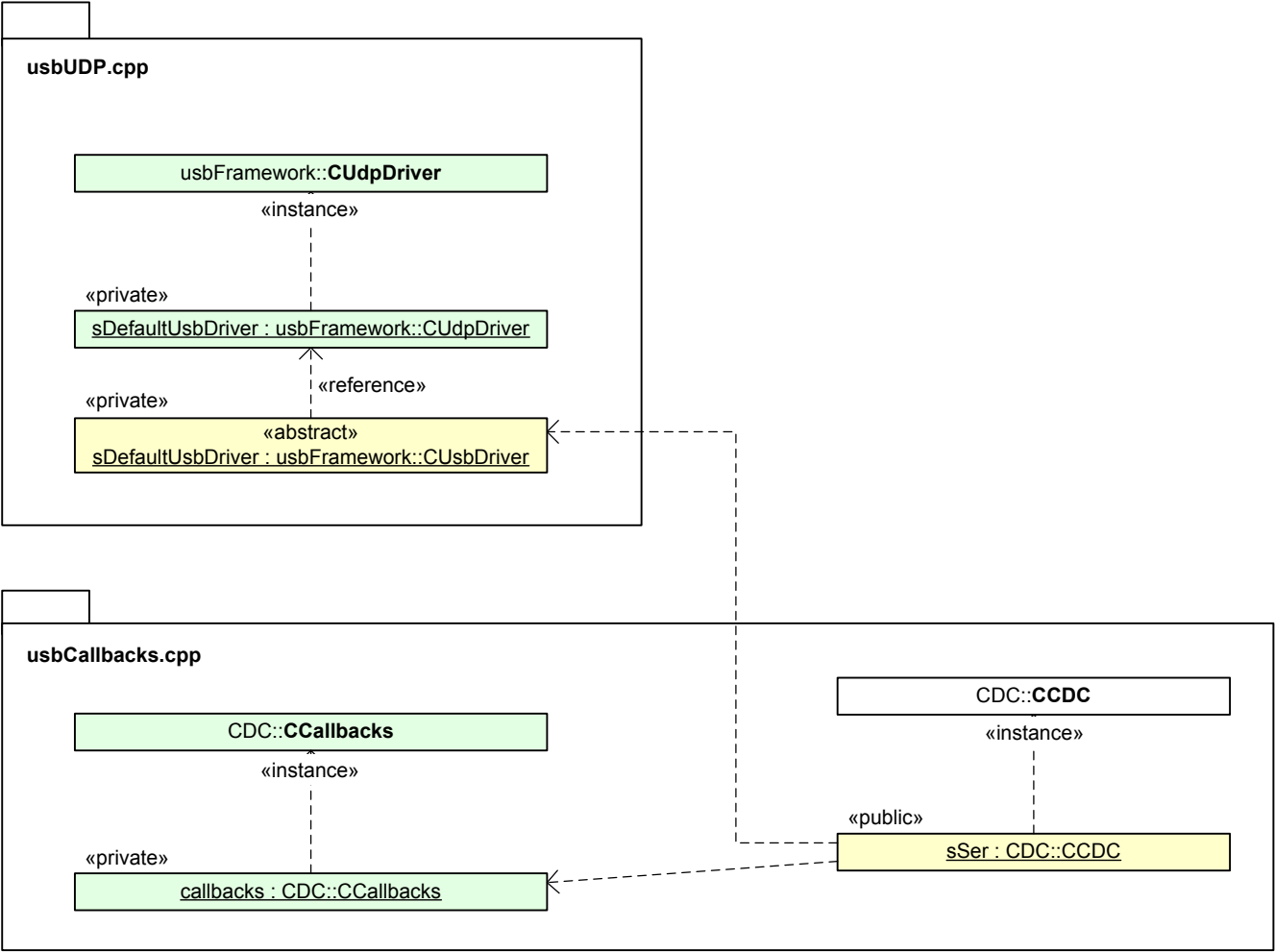
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CDC Class



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MBK	-	2008-01-29	23	Object Instances



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MBK	-	2008-01-29	95	STD Desc

usbFramework::S_std_descriptors
+pDevice : S_usb_device_descriptor
+pConfiguration : S_usb_configuration_descriptor
+pStrings
+pEndpoints : S_usb_endpoint_descriptor
+pQualifier : S_usb_device_qualifier_descriptor
+pOtherSpeedConfiguration : S_usb_configuration_descriptor

«packed» usbFramework::S_usb_device_descriptor
+bLength
+bDescriptorType
+bscUSB
+bDeviceClass
+bcdDevice
+bDeviceSubClass
+bDeviceProtocol
+bMaxPacketSize0
+idVendor
+idProduct
+iManufacturer
+iProduct
+iSerialNumber
+bNumConfigurations

«packed» usbFramework::S_usb_interface_descriptor
+bLength
+bDescriptorType
+bInterfaceNumber
+bAlternateSetting
+bNumEndpoints
+bInterfaceClass
+bInterfaceSubClass
+bInterfaceProtocol
+iInterface

«packed» usbFramework::S_usb_configuration_descriptor
+bLength
+bDescriptorType
+wTotalLength
+bNumInterfaces
+bConfigurationValue
+iConfiguration
+bmAttributes
+bMaxPower

«packed» usbFramework::S_usb_device_qualifier_descriptor
+bLength
+bDescriptorType
+bscUSB
+bDeviceClass
+bDeviceSubClass
+bDeviceProtocol
+bMaxPacketSize0
+bNumConfigurations
+bReserved

«packed» usbFramework::S_usb_endpoint_descriptor
+bLength
+bDescriptorType
+bEndpointAddress
+bmAttributes
+wMaxPacketSize
+bInterval

«packed» usbFramework::S_usb_language_id
+bLength
+bDescriptorType
+wLANGID

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MBK	-	2008-01-29	95	CDC Desc

«packed»
<b>CDC::S_ser_configuration_descriptor</b>
+sCfg : S_usb_configuration_descriptor
+sCommunication : S_usb_interface_descriptor
+sHeader : S_cdc_header_descriptor
+sCallManagement : S_cdc_call_management_descriptor
+sAbstract : S_cdc_abstract_control_management_descriptor
+sUnion : S_cdc_union_descriptor
+sNotification : S_usb_endpoint_descriptor
+sData : S_usb_interface_descriptor
+sDataOut : S_usb_endpoint_descriptor
+sDataIn : S_usb_endpoint_descriptor

«packed»
<b>CDC::S_cdc_header_descriptor</b>
+bFunctionLength : uchar
+bDescriptorType : uchar
+bDescriptorSubtype : uchar
+bcdCDC : ushort

«packed»
<b>CDC::S_cdc_call_management_descriptor</b>
+bFunctionLength : uchar
+bDescriptorType : uchar
+bDescriptorSubtype : uchar
+bmCapabilities : uchar
+bDataInterface : uchar

«packed»
<b>CDC::S_cdc_abstract_control_management_descriptor</b>
+bFunctionLength : uchar
+bDescriptorType : uchar
+bDescriptorSubtype : uchar
+bmCapabilities : uchar

«packed»
<b>CDC::S_cdc_union_1slave_descriptor</b>
+sUnion : S_cdc_union_descriptor
+bSlaveInterfaces : uchar[ 1 ]

«packed»
<b>CDC::S_cdc_union_descriptor</b>
+bFunctionLength : uchar
+bDescriptorType : uchar
+bDescriptorSubtype : uchar
+bMasterInterface : uchar

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### <<packed>> S\_usb\_request

This structure represents a standard SETUP request  
See usb\_20.pdf - Section 9.3 - Table 9.2

```
uchar bmRequestType:8; // Characteristics of the request
uchar bRequest:8; // Particular request
ushort wValue:16; // Request-specific parameter
ushort wIndex:16; // Request-specific parameter
ushort wLength:16; // Length of data for the data phase
```

### <<packed>> S\_usb\_device\_descriptor

This descriptor structure is used to provide information on various parameters of the device. See usb\_20.pdf - Section 9.6.1

```
uchar bLength; // Size of this descriptor in bytes
uchar bDescriptorType; // DEVICE descriptor type
ushort bscUSB; // USB specification release number
uchar bDeviceClass; // Class code
uchar bDeviceSubClass; // Subclass code
uchar bDeviceProtocol; // Protocol code
uchar bMaxPacketSize0; // Control endpoint 0 max. packet size
ushort idVendor; // Vendor ID
ushort idProduct; // Product ID
ushort bcdDevice; // Device release number
uchar iManufacturer; // Index of manu. string descriptor
uchar iProduct; // Index of prod. string descriptor
uchar iSerialNumber; // Index of S.N. string descriptor
uchar bNumConfigurations; // Number of possible configurations
```

### <<packed>> S\_usb\_configuration\_descriptor

This is the standard configuration descriptor structure. It is used to report the current configuration of the device. See usb\_20.pdf - Section 9.6.3

```
uchar bLength; // Size of this descriptor in bytes
uchar bDescriptorType; // CONFIGURATION descriptor type
ushort wTotalLength; // Total length of data returned for this configuration
uchar bNumInterfaces; // Number of interfaces for this configuration
uchar bConfigurationValue; // Value to use as an argument for the Set Configuration request to select this configuration
uchar iConfiguration; // Index of string descriptor describing this configuration
uchar bmAttributes; // Configuration characteristics
uchar bMaxPower; // Maximum power consumption of the device
```

### <<packed>> S\_usb\_interface\_descriptor

Standard interface descriptor. Used to describe a specific interface of a configuration. See usb\_20.pdf - Section 9.6.5

```
uchar bLength; // Size of this descriptor in bytes
uchar bDescriptorType; // INTERFACE descriptor type
uchar bInterfaceNumber; // Number of this interface
uchar bAlternateSetting; // Value used to select this alternate setting
uchar bNumEndpoints; // Number of endpoints used by this interface (excluding endpoint zero)
uchar bInterfaceClass; // Class code
uchar bInterfaceSubClass; // Sub-class
uchar bInterfaceProtocol; // Protocol code
uchar iInterface; // Index of string descriptor describing this interface
```

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<<packed>> S_usb_endpoint_descriptor	
This structure is the standard endpoint descriptor. It contains the necessary information for the host to determine the bandwidth required by the endpoint. See usb_20.pdf - Section 9.6.6	
uchar bLength;	// Size of this descriptor in bytes
uchar bDescriptorType;	// ENDPOINT descriptor type
uchar bEndpointAddress;	// Address of the endpoint on the USB device described by this descriptor
uchar bmAttributes;	// Endpoint attributes when configured
ushort wMaxPacketSize;	// Maximum packet size this endpoint is capable of sending or receiving
uchar bInterval;	// Interval for polling endpoint for data transfers

<<packed>> S_usb_device_qualifier_descriptor	
The device qualifier structure provide information on a high-speed capable device if the device was operating at the other speed. See usb_20.pdf - Section 9.6.2	
uchar bLength;	// Size of this descriptor in bytes
uchar bDescriptorType;	// DEVICE_QUALIFIER descriptor type
ushort bscUSB;	// USB specification release number
uchar bDeviceClass;	// Class code
uchar bDeviceSubClass;	// Sub-class code
uchar bDeviceProtocol;	// Protocol code
uchar bMaxPacketSize0;	// Control endpoint 0 max. packet size
uchar bNumConfigurations;	// Number of possible configurations
uchar bReserved;	// Reserved for future use, must be 0

<<packed>> S_usb_language_id	
The structure represents the string descriptor zero, used to specify the languages supported by the device. This structure only define one language ID. See usb_20.pdf - Section 9.6.7 - Table 9.15	
uchar bLength;	// Size of this descriptor in bytes
uchar bDescriptorType;	// STRING descriptor type
ushort wLANGID;	// LANGID code zero