

```
ubuntu@ubuntu:~$ sudo lsusb -v 0.5
```

Bus 002 Device 001: ID 1d6b:0003 Linux Foundation 3.0 root hub

Device Descriptor:

bLength 18

bDescriptorType 1

bcdUSB 3.00

bDeviceClass 9 Hub

bDeviceSubClass 0 Unused

bDeviceProtocol 3

bMaxPacketSize0 9

idVendor 0x1d6b Linux Foundation

idProduct 0x0003 3.0 root hub

bcdDevice 3.16

iManufacturer 3 Linux 3.16.0-23-generic xhci_hcd

iProduct 2 xHCI Host Controller

iSerial 1 0000:00:14.0

bNumConfigurations 1

Configuration Descriptor:

bLength 9

bDescriptorType 2

wTotalLength 31

bNumInterfaces 1

bConfigurationValue 1

iConfiguration 0

bmAttributes 0xe0

Self Powered

Remote Wakeup

MaxPower 0mA

Interface Descriptor:

bLength 9

bDescriptorType 4

bInterfaceNumber 0

bAlternateSetting 0

bNumEndpoints 1

bInterfaceClass 9 Hub

bInterfaceSubClass 0 Unused

bInterfaceProtocol 0 Full speed (or root) hub

iInterface 0

Endpoint Descriptor:

bLength 7

bDescriptorType 5

bEndpointAddress 0x81 EP 1 IN

bmAttributes 3

Transfer Type Interrupt

Synch Type None

Usage Type Data

wMaxPacketSize 0x0004 1x 4 bytes

bInterval 12

bMaxBurst 0

Hub Descriptor:

bLength 12

bDescriptorType 42

nNbrPorts 4

wHubCharacteristic 0x000a

No power switching (usb 1.0)

Per-port overcurrent protection

bPwrOn2PwrGood 10 * 2 milli seconds

bHubContrCurrent 0 milli Ampere

bHubDeclat 0.0 micro seconds

wHubDelay 0 nano seconds

DeviceRemovable 0x14

Hub Port Status:

Port 1: 0000.02a0 5Gbps power Rx.Detect

Port 2: 0000.02a0 5Gbps power Rx.Detect

Port 3: 0000.02a0 5Gbps power Rx.Detect

Port 4: 0000.02a0 5Gbps power Rx.Detect

Binary Object Store Descriptor:

bLength 5

bDescriptorType 15

wTotalLength 15

bNumDeviceCaps 1

SuperSpeed USB Device Capability:

bLength 10

bDescriptorType 16

bDevCapabilityType 3

bmAttributes 0x02

Latency Tolerance Messages (LTM) Supported

wSpeedsSupported 0x0008

Device can operate at SuperSpeed (5Gbps)

bFunctionalitySupport 3

Lowest fully-functional device speed is SuperSpeed (5Gbps)

bU1DevExitLat 10 micro seconds

bU2DevExitLat 512 micro seconds

Device Status: 0x0001

Self Powered

Bus 001 Device 004: ID 045e:07bf Microsoft Corp.

Device Descriptor:

bLength 18

bDescriptorType 1

bcdUSB 2.00

bDeviceClass 239 Miscellaneous Device

bDeviceSubClass 2 ?

bDeviceProtocol 1 Interface Association
bMaxPacketSize0 64
idVendor 0x045e Microsoft Corp.
idProduct 0x07bf
bcdDevice 21.52
iManufacturer 1 QCM
iProduct 2 Microsoft LifeCam Rear
iSerial 0
bNumConfigurations 1
Configuration Descriptor:
bLength 9
bDescriptorType 2
wTotalLength 1982
bNumInterfaces 3
bConfigurationValue 1
iConfiguration 2 Microsoft LifeCam Rear
bmAttributes 0x80
(Bus Powered)
MaxPower 250mA
Interface Association:
bLength 8
bDescriptorType 11
bFirstInterface 0
bInterfaceCount 3
bFunctionClass 14 Video
bFunctionSubClass 3 Video Interface Collection
bFunctionProtocol 0
iFunction 2 Microsoft LifeCam Rear
Interface Descriptor:
bLength 9
bDescriptorType 4
bInterfaceNumber 0
bAlternateSetting 0
bNumEndpoints 1
bInterfaceClass 14 Video
bInterfaceSubClass 1 Video Control
bInterfaceProtocol 1
iInterface 2 Microsoft LifeCam Rear
VideoControl Interface Descriptor:
bLength 14
bDescriptorType 36
bDescriptorSubtype 1 (HEADER)
bcdUVC 1.50
wTotalLength 105
dwClockFrequency 150.000000MHz
bInCollection 2
baInterfaceNr(0) 1
baInterfaceNr(1) 2

VideoControl Interface Descriptor:

bLength 18

bDescriptorType 36

bDescriptorSubtype 2 (INPUT_TERMINAL)

bTerminalID 1

wTerminalType 0x0201 Camera Sensor

bAssocTerminal 0

iTerminal 0

wObjectiveFocalLengthMin 0

wObjectiveFocalLengthMax 0

wOcularFocalLength 0

bControlSize 3

bmControls 0x00000a0e

Auto-Exposure Mode

Auto-Exposure Priority

Exposure Time (Absolute)

Zoom (Absolute)

PanTilt (Absolute)

VideoControl Interface Descriptor:

bLength 13

bDescriptorType 36

bDescriptorSubtype 5 (PROCESSING_UNIT)

bUnitID 2

bSourceID 1

wMaxMultiplier 0

bControlSize 3

bmControls 0x0000155b

Brightness

Contrast

Saturation

Sharpness

White Balance Temperature

Backlight Compensation

Power Line Frequency

White Balance Temperature, Auto

iProcessing 0

bmVideoStandards 0x 0

VideoControl Interface Descriptor:

bLength 29

bDescriptorType 36

bDescriptorSubtype 6 (EXTENSION_UNIT)

bUnitID 4

guidExtensionCode {29a787c9-d359-6945-8467-ff0849fc19e8}

bNumControl 22

bNrPins 1

baSourceID(0) 2

bControlSize 4

bmControls(0) 0xbf

bmControls(1) 0xfb
bmControls(2) 0xff
bmControls(3) 0x00
iExtension 0
VideoControl Interface Descriptor:
bLength 13
bDescriptorType 36
bDescriptorSubtype 7 (unknown)
Invalid desc subtype: 0b 04 00 03 cd 3e 00 cd 3e 00
VideoControl Interface Descriptor:
bLength 9
bDescriptorType 36
bDescriptorSubtype 3 (OUTPUT_TERMINAL)
bTerminalID 8
wTerminalType 0x0101 USB Streaming
bAssocTerminal 0
bSourceID 4
iTerminal 0
VideoControl Interface Descriptor:
bLength 9
bDescriptorType 36
bDescriptorSubtype 3 (OUTPUT_TERMINAL)
bTerminalID 9
wTerminalType 0x0101 USB Streaming
bAssocTerminal 0
bSourceID 11
iTerminal 0
Endpoint Descriptor:
bLength 7
bDescriptorType 5
bEndpointAddress 0x81 EP 1 IN
bmAttributes 3
Transfer Type Interrupt
Synch Type None
Usage Type Data
wMaxPacketSize 0x0040 1x 64 bytes
bInterval 6
Interface Descriptor:
bLength 9
bDescriptorType 4
bInterfaceNumber 1
bAlternateSetting 0
bNumEndpoints 0
bInterfaceClass 14 Video
bInterfaceSubClass 2 Video Streaming
bInterfaceProtocol 1
iInterface 0
VideoStreaming Interface Descriptor:

bLength 15
bDescriptorType 36
bDescriptorSubtype 1 (INPUT_HEADER)
bNumFormats 2
wTotalLength 563
bEndPointAddress 130
bmInfo 0
bTerminalLink 8
bStillCaptureMethod 1
bTriggerSupport 0
bTriggerUsage 0
bControlSize 1
bmaControls(0) 27
bmaControls(1) 27
VideoStreaming Interface Descriptor:
bLength 27
bDescriptorType 36
bDescriptorSubtype 4 (FORMAT_UNCOMPRESSED)
bFormatIndex 1
bNumFrameDescriptors 9
guidFormat {59555932-0000-1000-8000-00aa00389b71}
bBitsPerPixel 16
bDefaultFrameIndex 1
bAspectRatioX 0
bAspectRatioY 0
bmInterlaceFlags 0x00
Interlaced stream or variable: No
Fields per frame: 2 fields
Field 1 first: No
Field pattern: Field 1 only
bCopyProtect 0
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 5 (FRAME_UNCOMPRESSED)
bFrameIndex 1
bmCapabilities 0x01
Still image supported
wWidth 640
wHeight 360
dwMinBitRate 55296000
dwMaxBitRate 110592000
dwMaxVideoFrameBufferSize 460800
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:

bLength 34
bDescriptorType 36
bDescriptorSubtype 5 (FRAME_UNCOMPRESSED)
bFrameIndex 2
bmCapabilities 0x01
Still image supported
wWidth 640
wHeight 480
dwMinBitRate 73728000
dwMaxBitRate 147456000
dwMaxVideoFrameBufferSize 614400
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 5 (FRAME_UNCOMPRESSED)
bFrameIndex 3
bmCapabilities 0x01
Still image supported
wWidth 480
wHeight 270
dwMinBitRate 31104000
dwMaxBitRate 62208000
dwMaxVideoFrameBufferSize 259200
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 5 (FRAME_UNCOMPRESSED)
bFrameIndex 4
bmCapabilities 0x01
Still image supported
wWidth 424
wHeight 240
dwMinBitRate 24422400
dwMaxBitRate 48844800
dwMaxVideoFrameBufferSize 203520
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:

bLength 34
bDescriptorType 36
bDescriptorSubtype 5 (FRAME_UNCOMPRESSED)
bFrameIndex 5
bmCapabilities 0x01
Still image supported
wWidth 320
wHeight 240
dwMinBitRate 18432000
dwMaxBitRate 36864000
dwMaxVideoFrameBufferSize 153600
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 5 (FRAME_UNCOMPRESSED)
bFrameIndex 6
bmCapabilities 0x01
Still image supported
wWidth 320
wHeight 180
dwMinBitRate 13824000
dwMaxBitRate 27648000
dwMaxVideoFrameBufferSize 115200
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 5 (FRAME_UNCOMPRESSED)
bFrameIndex 7
bmCapabilities 0x01
Still image supported
wWidth 160
wHeight 120
dwMinBitRate 4608000
dwMaxBitRate 9216000
dwMaxVideoFrameBufferSize 38400
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:

bLength 30
bDescriptorType 36
bDescriptorSubtype 5 (FRAME_UNCOMPRESSED)
bFrameIndex 8
bmCapabilities 0x01
Still image supported
wWidth 2592
wHeight 1944
dwMinBitRate 161243136
dwMaxBitRate 161243136
dwMaxVideoFrameBufferSize 10077696
dwDefaultFrameInterval 5000000
bFrameIntervalType 1
dwFrameInterval(0) 5000000
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 5 (FRAME_UNCOMPRESSED)
bFrameIndex 9
bmCapabilities 0x01
Still image supported
wWidth 848
wHeight 480
dwMinBitRate 97689600
dwMaxBitRate 195379200
dwMaxVideoFrameBufferSize 814080
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 6
bDescriptorType 36
bDescriptorSubtype 13 (COLORFORMAT)
bColorPrimaries 1 (BT.709,sRGB)
bTransferCharacteristics 1 (BT.709)
bMatrixCoefficients 4 (SMPTE 170M (BT.601))
VideoStreaming Interface Descriptor:
bLength 11
bDescriptorType 36
bDescriptorSubtype 6 (FORMAT_MJPEG)
bFormatIndex 2
bNumFrameDescriptors 6
bFlags 1
Fixed-size samples: Yes
bDefaultFrameIndex 1
bAspectRatioX 0
bAspectRatioY 0

bmInterlaceFlags 0x00
Interlaced stream or variable: No
Fields per frame: 1 fields
Field 1 first: No
Field pattern: Field 1 only
bCopyProtect 0
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 7 (FRAME_MJPEG)
bFrameIndex 1
bmCapabilities 0x01
Still image supported
wWidth 1920
wHeight 1080
dwMinBitRate 248832000
dwMaxBitRate 497664000
dwMaxVideoFrameBufferSize 4147200
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 7 (FRAME_MJPEG)
bFrameIndex 2
bmCapabilities 0x01
Still image supported
wWidth 1280
wHeight 720
dwMinBitRate 110592000
dwMaxBitRate 221184000
dwMaxVideoFrameBufferSize 1843200
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 7 (FRAME_MJPEG)
bFrameIndex 3
bmCapabilities 0x01
Still image supported
wWidth 960
wHeight 540
dwMinBitRate 62208000

dwMaxBitRate 124416000
dwMaxVideoFrameBufferSize 1036800
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 30
bDescriptorType 36
bDescriptorSubtype 7 (FRAME_MJPEG)
bFrameIndex 4
bmCapabilities 0x01
Still image supported
wWidth 2592
wHeight 1944
dwMinBitRate 604661760
dwMaxBitRate 604661760
dwMaxVideoFrameBufferSize 10077696
dwDefaultFrameInterval 666666
bFrameIntervalType 1
dwFrameInterval(0) 666666
VideoStreaming Interface Descriptor:
bLength 30
bDescriptorType 36
bDescriptorSubtype 7 (FRAME_MJPEG)
bFrameIndex 5
bmCapabilities 0x01
Still image supported
wWidth 2592
wHeight 1728
dwMinBitRate 537477120
dwMaxBitRate 537477120
dwMaxVideoFrameBufferSize 8957952
dwDefaultFrameInterval 666666
bFrameIntervalType 1
dwFrameInterval(0) 666666
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 7 (FRAME_MJPEG)
bFrameIndex 6
bmCapabilities 0x01
Still image supported
wWidth 1296
wHeight 864
dwMinBitRate 134369280
dwMaxBitRate 268738560
dwMaxVideoFrameBufferSize 2239488

dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 6
bDescriptorType 36
bDescriptorSubtype 13 (COLORFORMAT)
bColorPrimaries 1 (BT.709,sRGB)
bTransferCharacteristics 1 (BT.709)
bMatrixCoefficients 4 (SMPTE 170M (BT.601))
Interface Descriptor:
bLength 9
bDescriptorType 4
bInterfaceNumber 1
bAlternateSetting 1
bNumEndpoints 1
bInterfaceClass 14 Video
bInterfaceSubClass 2 Video Streaming
bInterfaceProtocol 1
iInterface 0
Endpoint Descriptor:
bLength 7
bDescriptorType 5
bEndpointAddress 0x82 EP 2 IN
bmAttributes 5
Transfer Type Isochronous
Synch Type Asynchronous
Usage Type Data
wMaxPacketSize 0x1400 3x 1024 bytes
bInterval 1
Interface Descriptor:
bLength 9
bDescriptorType 4
bInterfaceNumber 2
bAlternateSetting 0
bNumEndpoints 0
bInterfaceClass 14 Video
bInterfaceSubClass 2 Video Streaming
bInterfaceProtocol 1
iInterface 0
VideoStreaming Interface Descriptor:
bLength 14
bDescriptorType 36
bDescriptorSubtype 1 (INPUT_HEADER)
bNumFormats 1
wTotalLength 1210
bEndPointAddress 131

bmlInfo 0
bTerminalLink 9
bStillCaptureMethod 1
bTriggerSupport 0
bTriggerUsage 0
bControlSize 1
bmaControls(0) 52
VideoStreaming Interface Descriptor:
bLength 52
bDescriptorType 36
bDescriptorSubtype 19 Invalid desc subtype: 01 16 02 03 00 43 03 00 0d f5 00 00 00 00 00 00
00 f5 00
00 00
VideoStreaming Interface Descriptor:
bLength 52
bDescriptorType 36
bDescriptorSubtype 20 Invalid desc subtype: 01 80 07 38 04 01 00 01 00 40 42 29 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 00 00 01 00 00 00 80 b1 4f 01 15 16 05 00 02 15 16 05 00 2a 2c
0a 00
VideoStreaming Interface Descriptor:
bLength 52
bDescriptorType 36
bDescriptorSubtype 20 Invalid desc subtype: 02 80 07 38 04 01 00 01 00 0c 64 29 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 00 00 01 00 00 00 80 b1 4f 01 15 16 05 00 02 15 16 05 00 2a 2c
0a 00
VideoStreaming Interface Descriptor:
bLength 52
bDescriptorType 36
bDescriptorSubtype 20 Invalid desc subtype: 03 00 05 d0 02 01 00 01 00 40 42 20 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 00 00 01 00 00 00 c0 e1 e4 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00
VideoStreaming Interface Descriptor:
bLength 52
bDescriptorType 36
bDescriptorSubtype 20 Invalid desc subtype: 04 00 05 d0 02 01 00 01 00 0c 64 20 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 00 00 01 00 00 00 c0 e1 e4 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00
VideoStreaming Interface Descriptor:
bLength 52
bDescriptorType 36
bDescriptorSubtype 20 Invalid desc subtype: 05 c0 03 1c 02 01 00 01 00 40 42 1f 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 00 00 01 00 00 00 80 9f d5 00 15 16 05 00 02 15 16 05 00 2a 2c
0a 00
VideoStreaming Interface Descriptor:
bLength 52
bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 06 c0 03 1c 02 01 00 01 00 0c 64 1f 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 00 01 00 00 00 80 9f d5 00 15 16 05 00 02 15 16 05 00 2a 2c
0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 07 50 03 e0 01 01 00 01 00 40 42 1f 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 00 01 00 00 00 80 9f d5 00 15 16 05 00 02 15 16 05 00 2a 2c
0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 08 50 03 e0 01 01 00 01 00 0c 64 1f 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 00 01 00 00 00 80 9f d5 00 15 16 05 00 02 15 16 05 00 2a 2c
0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 09 80 02 e0 01 01 00 01 00 40 42 1e 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 00 01 00 00 00 80 96 98 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 0a 80 02 e0 01 01 00 01 00 0c 64 1e 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 00 01 00 00 00 80 96 98 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 0b 80 02 68 01 01 00 01 00 40 42 1e 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 00 01 00 00 00 80 96 98 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 0c 80 02 68 01 01 00 01 00 0c 64 1e 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 00 01 00 00 00 80 96 98 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 0d e0 01 0e 01 01 00 01 00 40 42 15 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 00 01 00 00 00 00 09 3d 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 0e e0 01 0e 01 01 00 01 00 0c 64 15 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 00 01 00 00 00 00 09 3d 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 0f a8 01 f0 00 01 00 01 00 40 42 15 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 00 01 00 00 00 00 09 3d 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 10 a8 01 f0 00 01 00 01 00 0c 64 15 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 00 01 00 00 00 00 09 3d 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 11 40 01 f0 00 01 00 01 00 40 42 14 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 00 01 00 00 00 80 84 1e 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 12 40 01 f0 00 01 00 01 00 0c 64 14 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 00 01 00 00 00 80 84 1e 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 13 40 01 b4 00 01 00 01 00 40 42 14 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 00 01 00 00 00 80 84 1e 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 14 40 01 b4 00 01 00 01 00 0c 64 14 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 00 01 00 00 00 80 84 1e 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 15 a0 00 78 00 01 00 01 00 40 42 14 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 00 01 00 00 00 80 84 1e 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 16 a0 00 78 00 01 00 01 00 0c 64 14 00 00 03 00 01 00 2b 00 01 00 00 00 00 00 00 01 00 00 00 80 84 1e 00 15 16 05 00 02 15 16 05 00 2a 2c 0a 00

Interface Descriptor:

bLength 9

bDescriptorType 4

bInterfaceNumber 2

bAlternateSetting 1

bNumEndpoints 1

bInterfaceClass 14 Video

bInterfaceSubClass 2 Video Streaming

bInterfaceProtocol 1

iInterface 0

Endpoint Descriptor:

bLength 7

bDescriptorType 5

bEndpointAddress 0x83 EP 3 IN

bmAttributes 5

Transfer Type Isochronous

Synch Type Asynchronous

Usage Type Data

wMaxPacketSize 0x0400 1x 1024 bytes

bInterval 1

Interface Descriptor:

bLength 9

bDescriptorType 4

bInterfaceNumber 2

bAlternateSetting 2

bNumEndpoints 1

bInterfaceClass 14 Video

bInterfaceSubClass 2 Video Streaming

bInterfaceProtocol 1

iInterface 0

Endpoint Descriptor:

bLength 7

bDescriptorType 5

bEndpointAddress 0x83 EP 3 IN

bmAttributes 5

Transfer Type Isochronous

Synch Type Asynchronous

Usage Type Data

wMaxPacketSize 0x0100 1x 256 bytes

bInterval 1

Device Qualifier (for other device speed):

bLength 10

bDescriptorType 6

bcdUSB 2.00

bDeviceClass 239 Miscellaneous Device

bDeviceSubClass 2 ?
bDeviceProtocol 1 Interface Association
bMaxPacketSize0 64
bNumConfigurations 1
Device Status: 0x0000
(Bus Powered)

Bus 001 Device 003: ID 045e:07be Microsoft Corp.

Device Descriptor:

bLength 18
bDescriptorType 1
bcdUSB 2.00
bDeviceClass 239 Miscellaneous Device
bDeviceSubClass 2 ?
bDeviceProtocol 1 Interface Association
bMaxPacketSize0 64
idVendor 0x045e Microsoft Corp.
idProduct 0x07be
bcdDevice 21.52
iManufacturer 1 QCM
iProduct 2 Microsoft LifeCam Front
iSerial 0

bNumConfigurations 1
Configuration Descriptor:

bLength 9
bDescriptorType 2
wTotalLength 1982
bNumInterfaces 3
bConfigurationValue 1
iConfiguration 2 Microsoft LifeCam Front
bmAttributes 0x80
(Bus Powered)

MaxPower 250mA

Interface Association:

bLength 8
bDescriptorType 11
bFirstInterface 0
bInterfaceCount 3
bFunctionClass 14 Video
bFunctionSubClass 3 Video Interface Collection
bFunctionProtocol 0
iFunction 2 Microsoft LifeCam Front

Interface Descriptor:

bLength 9
bDescriptorType 4
bInterfaceNumber 0
bAlternateSetting 0
bNumEndpoints 1

bInterfaceClass 14 Video
bInterfaceSubClass 1 Video Control
bInterfaceProtocol 1
iInterface 2 Microsoft LifeCam Front
VideoControl Interface Descriptor:
bLength 14
bDescriptorType 36
bDescriptorSubtype 1 (HEADER)
bcdUVC 1.50
wTotalLength 105
dwClockFrequency 150.000000MHz
bInCollection 2
baInterfaceNr(0) 1
baInterfaceNr(1) 2
VideoControl Interface Descriptor:
bLength 18
bDescriptorType 36
bDescriptorSubtype 2 (INPUT_TERMINAL)
bTerminalID 1
wTerminalType 0x0201 Camera Sensor
bAssocTerminal 0
iTerminal 0
wObjectiveFocalLengthMin 0
wObjectiveFocalLengthMax 0
wOcularFocalLength 0
bControlSize 3
bmControls 0x00000a0e
Auto-Exposure Mode
Auto-Exposure Priority
Exposure Time (Absolute)
Zoom (Absolute)
PanTilt (Absolute)
VideoControl Interface Descriptor:
bLength 13
bDescriptorType 36
bDescriptorSubtype 5 (PROCESSING_UNIT)
bUnitID 2
bSourceID 1
wMaxMultiplier 0
bControlSize 3
bmControls 0x0000155b
Brightness
Contrast
Saturation
Sharpness
White Balance Temperature
Backlight Compensation
Power Line Frequency

White Balance Temperature, Auto
iProcessing 0
bmVideoStandards 0x 0
VideoControl Interface Descriptor:
bLength 29
bDescriptorType 36
bDescriptorSubtype 6 (EXTENSION_UNIT)
bUnitID 4
guidExtensionCode {29a787c9-d359-6945-8467-ff0849fc19e8}
bNumControl 22
bNrPins 1
baSourceID(0) 2
bControlSize 4
bmControls(0) 0xbf
bmControls(1) 0xfb
bmControls(2) 0xff
bmControls(3) 0x00
iExtension 0
VideoControl Interface Descriptor:
bLength 13
bDescriptorType 36
bDescriptorSubtype 7 (unknown)
Invalid desc subtype: 0b 04 00 03 cd 3e 00 cd 3e 00
VideoControl Interface Descriptor:
bLength 9
bDescriptorType 36
bDescriptorSubtype 3 (OUTPUT_TERMINAL)
bTerminalID 8
wTerminalType 0x0101 USB Streaming
bAssocTerminal 0
bSourceID 4
iTerminal 0
VideoControl Interface Descriptor:
bLength 9
bDescriptorType 36
bDescriptorSubtype 3 (OUTPUT_TERMINAL)
bTerminalID 9
wTerminalType 0x0101 USB Streaming
bAssocTerminal 0
bSourceID 11
iTerminal 0
Endpoint Descriptor:
bLength 7
bDescriptorType 5
bEndpointAddress 0x81 EP 1 IN
bmAttributes 3
Transfer Type Interrupt
Synch Type None

Usage Type Data
wMaxPacketSize 0x0040 1x 64 bytes
bInterval 6
Interface Descriptor:
bLength 9
bDescriptorType 4
bInterfaceNumber 1
bAlternateSetting 0
bNumEndpoints 0
bInterfaceClass 14 Video
bInterfaceSubClass 2 Video Streaming
bInterfaceProtocol 1
iInterface 0
VideoStreaming Interface Descriptor:
bLength 15
bDescriptorType 36
bDescriptorSubtype 1 (INPUT_HEADER)
bNumFormats 2
wTotalLength 563
bEndPointAddress 130
bmInfo 0
bTerminalLink 8
bStillCaptureMethod 1
bTriggerSupport 0
bTriggerUsage 0
bControlSize 1
bmaControls(0) 27
bmaControls(1) 27
VideoStreaming Interface Descriptor:
bLength 27
bDescriptorType 36
bDescriptorSubtype 4 (FORMAT_UNCOMPRESSED)
bFormatIndex 1
bNumFrameDescriptors 9
guidFormat {59555932-0000-1000-8000-00aa00389b71}
bBitsPerPixel 16
bDefaultFrameIndex 1
bAspectRatioX 0
bAspectRatioY 0
bmInterlaceFlags 0x00
Interlaced stream or variable: No
Fields per frame: 2 fields
Field 1 first: No
Field pattern: Field 1 only
bCopyProtect 0
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36

bDescriptorSubtype 5 (FRAME_UNCOMPRESSED)
bFrameIndex 1
bmCapabilities 0x01
Still image supported
wWidth 640
wHeight 360
dwMinBitRate 55296000
dwMaxBitRate 110592000
dwMaxVideoFrameBufferSize 460800
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 5 (FRAME_UNCOMPRESSED)
bFrameIndex 2
bmCapabilities 0x01
Still image supported
wWidth 640
wHeight 480
dwMinBitRate 73728000
dwMaxBitRate 147456000
dwMaxVideoFrameBufferSize 614400
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 5 (FRAME_UNCOMPRESSED)
bFrameIndex 3
bmCapabilities 0x01
Still image supported
wWidth 480
wHeight 270
dwMinBitRate 31104000
dwMaxBitRate 62208000
dwMaxVideoFrameBufferSize 259200
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36

bDescriptorSubtype 5 (FRAME_UNCOMPRESSED)
bFrameIndex 4
bmCapabilities 0x01
Still image supported
wWidth 424
wHeight 240
dwMinBitRate 24422400
dwMaxBitRate 48844800
dwMaxVideoFrameBufferSize 203520
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 5 (FRAME_UNCOMPRESSED)
bFrameIndex 5
bmCapabilities 0x01
Still image supported
wWidth 320
wHeight 240
dwMinBitRate 18432000
dwMaxBitRate 36864000
dwMaxVideoFrameBufferSize 153600
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 5 (FRAME_UNCOMPRESSED)
bFrameIndex 6
bmCapabilities 0x01
Still image supported
wWidth 320
wHeight 180
dwMinBitRate 13824000
dwMaxBitRate 27648000
dwMaxVideoFrameBufferSize 115200
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36

bDescriptorSubtype 5 (FRAME_UNCOMPRESSED)
bFrameIndex 7
bmCapabilities 0x01
Still image supported
wWidth 160
wHeight 120
dwMinBitRate 4608000
dwMaxBitRate 9216000
dwMaxVideoFrameBufferSize 38400
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 30
bDescriptorType 36
bDescriptorSubtype 5 (FRAME_UNCOMPRESSED)
bFrameIndex 8
bmCapabilities 0x01
Still image supported
wWidth 2592
wHeight 1944
dwMinBitRate 161243136
dwMaxBitRate 161243136
dwMaxVideoFrameBufferSize 10077696
dwDefaultFrameInterval 5000000
bFrameIntervalType 1
dwFrameInterval(0) 5000000
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 5 (FRAME_UNCOMPRESSED)
bFrameIndex 9
bmCapabilities 0x01
Still image supported
wWidth 848
wHeight 480
dwMinBitRate 97689600
dwMaxBitRate 195379200
dwMaxVideoFrameBufferSize 814080
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 6
bDescriptorType 36
bDescriptorSubtype 13 (COLORFORMAT)

bColorPrimaries 1 (BT.709,sRGB)
bTransferCharacteristics 1 (BT.709)
bMatrixCoefficients 4 (SMPTE 170M (BT.601))
VideoStreaming Interface Descriptor:
bLength 11
bDescriptorType 36
bDescriptorSubtype 6 (FORMAT_MJPEG)
bFormatIndex 2
bNumFrameDescriptors 6
bFlags 1
Fixed-size samples: Yes
bDefaultFrameIndex 1
bAspectRatioX 0
bAspectRatioY 0
bmInterlaceFlags 0x00
Interlaced stream or variable: No
Fields per frame: 1 fields
Field 1 first: No
Field pattern: Field 1 only
bCopyProtect 0
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 7 (FRAME_MJPEG)
bFrameIndex 1
bmCapabilities 0x01
Still image supported
wWidth 1920
wHeight 1080
dwMinBitRate 248832000
dwMaxBitRate 497664000
dwMaxVideoFrameBufferSize 4147200
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 7 (FRAME_MJPEG)
bFrameIndex 2
bmCapabilities 0x01
Still image supported
wWidth 1280
wHeight 720
dwMinBitRate 110592000
dwMaxBitRate 221184000
dwMaxVideoFrameBufferSize 1843200

dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 7 (FRAME_MJPEG)
bFrameIndex 3
bmCapabilities 0x01
Still image supported
wWidth 960
wHeight 540
dwMinBitRate 62208000
dwMaxBitRate 124416000
dwMaxVideoFrameBufferSize 1036800
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 30
bDescriptorType 36
bDescriptorSubtype 7 (FRAME_MJPEG)
bFrameIndex 4
bmCapabilities 0x01
Still image supported
wWidth 2592
wHeight 1944
dwMinBitRate 604661760
dwMaxBitRate 604661760
dwMaxVideoFrameBufferSize 10077696
dwDefaultFrameInterval 666666
bFrameIntervalType 1
dwFrameInterval(0) 666666
VideoStreaming Interface Descriptor:
bLength 30
bDescriptorType 36
bDescriptorSubtype 7 (FRAME_MJPEG)
bFrameIndex 5
bmCapabilities 0x01
Still image supported
wWidth 2592
wHeight 1728
dwMinBitRate 537477120
dwMaxBitRate 537477120
dwMaxVideoFrameBufferSize 8957952
dwDefaultFrameInterval 666666

bFrameIntervalType 1
dwFrameInterval(0) 666666
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 7 (FRAME_MJPEG)
bFrameIndex 6
bmCapabilities 0x01
Still image supported
wWidth 1296
wHeight 864
dwMinBitRate 134369280
dwMaxBitRate 268738560
dwMaxVideoFrameBufferSize 2239488
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 6
bDescriptorType 36
bDescriptorSubtype 13 (COLORFORMAT)
bColorPrimaries 1 (BT.709,sRGB)
bTransferCharacteristics 1 (BT.709)
bMatrixCoefficients 4 (SMPTE 170M (BT.601))
Interface Descriptor:
bLength 9
bDescriptorType 4
bInterfaceNumber 1
bAlternateSetting 1
bNumEndpoints 1
bInterfaceClass 14 Video
bInterfaceSubClass 2 Video Streaming
bInterfaceProtocol 1
iInterface 0
Endpoint Descriptor:
bLength 7
bDescriptorType 5
bEndpointAddress 0x82 EP 2 IN
bmAttributes 5
Transfer Type Isochronous
Synch Type Asynchronous
Usage Type Data
wMaxPacketSize 0x1400 3x 1024 bytes
bInterval 1
Interface Descriptor:
bLength 9
bDescriptorType 4

bInterfaceNumber 2
bAlternateSetting 0
bNumEndpoints 0
bInterfaceClass 14 Video
bInterfaceSubClass 2 Video Streaming
bInterfaceProtocol 1
iInterface 0
VideoStreaming Interface Descriptor:
bLength 14
bDescriptorType 36
bDescriptorSubtype 1 (INPUT_HEADER)
bNumFormats 1
wTotalLength 1210
bEndPointAddress 131
bmInfo 0
bTerminalLink 9
bStillCaptureMethod 1
bTriggerSupport 0
bTriggerUsage 0
bControlSize 1
bmaControls(0) 52
VideoStreaming Interface Descriptor:
bLength 52
bDescriptorType 36
bDescriptorSubtype 19 Invalid desc subtype: 01 16 02 03 00 43 03 00 0d f5 00 00 00 00 00 00
00 f5 00
00 00
VideoStreaming Interface Descriptor:
bLength 52
bDescriptorType 36
bDescriptorSubtype 20 Invalid desc subtype: 01 80 07 38 04 01 00 01 00 40 42 29 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 00 01 00 00 00 80 b1 4f 01 15 16 05 00 02 15 16 05 00 2a 2c
0a 00
VideoStreaming Interface Descriptor:
bLength 52
bDescriptorType 36
bDescriptorSubtype 20 Invalid desc subtype: 02 80 07 38 04 01 00 01 00 0c 64 29 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 00 01 00 00 00 80 b1 4f 01 15 16 05 00 02 15 16 05 00 2a 2c
0a 00
VideoStreaming Interface Descriptor:
bLength 52
bDescriptorType 36
bDescriptorSubtype 20 Invalid desc subtype: 03 00 05 d0 02 01 00 01 00 40 42 20 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 00 01 00 00 00 c0 e1 e4 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00
VideoStreaming Interface Descriptor:
bLength 52
bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 04 00 05 d0 02 01 00 01 00 0c 64 20 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 00 01 00 00 00 c0 e1 e4 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 05 c0 03 1c 02 01 00 01 00 40 42 1f 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 00 01 00 00 00 80 9f d5 00 15 16 05 00 02 15 16 05 00 2a 2c
0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 06 c0 03 1c 02 01 00 01 00 0c 64 1f 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 00 01 00 00 00 80 9f d5 00 15 16 05 00 02 15 16 05 00 2a 2c
0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 07 50 03 e0 01 01 00 01 00 40 42 1f 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 00 01 00 00 00 80 9f d5 00 15 16 05 00 02 15 16 05 00 2a 2c
0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 08 50 03 e0 01 01 00 01 00 0c 64 1f 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 00 01 00 00 00 80 9f d5 00 15 16 05 00 02 15 16 05 00 2a 2c
0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 09 80 02 e0 01 01 00 01 00 40 42 1e 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 00 01 00 00 00 80 96 98 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 0a 80 02 e0 01 01 00 01 00 0c 64 1e 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 00 01 00 00 00 80 96 98 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 0b 80 02 68 01 01 00 01 00 40 42 1e 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 00 01 00 00 00 80 96 98 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 0c 80 02 68 01 01 00 01 00 0c 64 1e 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 01 00 00 00 80 96 98 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 0d e0 01 0e 01 01 00 01 00 40 42 15 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 01 00 00 00 00 09 3d 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 0e e0 01 0e 01 01 00 01 00 0c 64 15 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 01 00 00 00 00 09 3d 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 0f a8 01 f0 00 01 00 01 00 40 42 15 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 01 00 00 00 00 09 3d 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 10 a8 01 f0 00 01 00 01 00 0c 64 15 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 01 00 00 00 00 09 3d 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 11 40 01 f0 00 01 00 01 00 40 42 14 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 01 00 00 00 80 84 1e 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 12 40 01 f0 00 01 00 01 00 0c 64 14 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 01 00 00 00 80 84 1e 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 13 40 01 b4 00 01 00 01 00 40 42 14 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 01 00 00 00 80 84 1e 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 14 40 01 b4 00 01 00 01 00 0c 64 14 00 00 03 00 01 00 2b 00 01 00 00 00 00 00 00 01 00 00 00 80 84 1e 00 15 16 05 00 02 15 16 05 00 2a 2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 15 a0 00 78 00 01 00 01 00 40 42 14 00 00 03 00 01 00 21 00 01 00 00 00 00 00 00 01 00 00 00 80 84 1e 00 15 16 05 00 02 15 16 05 00 2a 2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 16 a0 00 78 00 01 00 01 00 0c 64 14 00 00 03 00 01 00 2b 00 01 00 00 00 00 00 00 01 00 00 00 80 84 1e 00 15 16 05 00 02 15 16 05 00 2a 2c 0a 00

Interface Descriptor:

bLength 9

bDescriptorType 4

bInterfaceNumber 2

bAlternateSetting 1

bNumEndpoints 1

bInterfaceClass 14 Video

bInterfaceSubClass 2 Video Streaming

bInterfaceProtocol 1

iInterface 0

Endpoint Descriptor:

bLength 7

bDescriptorType 5

bEndpointAddress 0x83 EP 3 IN

bmAttributes 5

Transfer Type Isochronous

Synch Type Asynchronous

Usage Type Data

wMaxPacketSize 0x0400 1x 1024 bytes

bInterval 1

Interface Descriptor:

bLength 9

bDescriptorType 4

bInterfaceNumber 2

bAlternateSetting 2

bNumEndpoints 1

bInterfaceClass 14 Video

bInterfaceSubClass 2 Video Streaming

bInterfaceProtocol 1

iInterface 0

Endpoint Descriptor:

bLength 7

bDescriptorType 5

bEndpointAddress 0x83 EP 3 IN
bmAttributes 5
Transfer Type Isochronous
Synch Type Asynchronous
Usage Type Data
wMaxPacketSize 0x0100 1x 256 bytes
bInterval 1
Device Qualifier (for other device speed):
bLength 10
bDescriptorType 6
bcdUSB 2.00
bDeviceClass 239 Miscellaneous Device
bDeviceSubClass 2 ?
bDeviceProtocol 1 Interface Association
bMaxPacketSize0 64
bNumConfigurations 1
Device Status: 0x0000
(Bus Powered)

Bus 001 Device 006: ID 046d:c52b Logitech, Inc. Unifying Receiver

Device Descriptor:

bLength 18
bDescriptorType 1
bcdUSB 2.00
bDeviceClass 0 (Defined at Interface level)
bDeviceSubClass 0
bDeviceProtocol 0
bMaxPacketSize0 8
idVendor 0x046d Logitech, Inc.
idProduct 0xc52b Unifying Receiver
bcdDevice 12.01
iManufacturer 1 Logitech
iProduct 2 USB Receiver
iSerial 0
bNumConfigurations 1
Configuration Descriptor:
bLength 9
bDescriptorType 2
wTotalLength 84
bNumInterfaces 3
bConfigurationValue 1
iConfiguration 4 RQR12.01_B0019
bmAttributes 0xa0
(Bus Powered)
Remote Wakeup
MaxPower 98mA
Interface Descriptor:
bLength 9

bDescriptorType 4
bInterfaceNumber 0
bAlternateSetting 0
bNumEndpoints 1
bInterfaceClass 3 Human Interface Device
bInterfaceSubClass 1 Boot Interface Subclass
bInterfaceProtocol 1 Keyboard
iInterface 0
HID Device Descriptor:
bLength 9
bDescriptorType 33
bcdHID 1.11
bCountryCode 0 Not supported
bNumDescriptors 1
bDescriptorType 34 Report
wDescriptorLength 59
Report Descriptors:
** UNAVAILABLE **
Endpoint Descriptor:
bLength 7
bDescriptorType 5
bEndpointAddress 0x81 EP 1 IN
bmAttributes 3
Transfer Type Interrupt
Synch Type None
Usage Type Data
wMaxPacketSize 0x0008 1x 8 bytes
bInterval 8
Interface Descriptor:
bLength 9
bDescriptorType 4
bInterfaceNumber 1
bAlternateSetting 0
bNumEndpoints 1
bInterfaceClass 3 Human Interface Device
bInterfaceSubClass 1 Boot Interface Subclass
bInterfaceProtocol 2 Mouse
iInterface 0
HID Device Descriptor:
bLength 9
bDescriptorType 33
bcdHID 1.11
bCountryCode 0 Not supported
bNumDescriptors 1
bDescriptorType 34 Report
wDescriptorLength 148
Report Descriptors:
** UNAVAILABLE **

Endpoint Descriptor:

bLength 7
bDescriptorType 5
bEndpointAddress 0x82 EP 2 IN
bmAttributes 3
Transfer Type Interrupt
Synch Type None
Usage Type Data
wMaxPacketSize 0x0008 1x 8 bytes
bInterval 2

Interface Descriptor:

bLength 9
bDescriptorType 4
bInterfaceNumber 2
bAlternateSetting 0
bNumEndpoints 1
bInterfaceClass 3 Human Interface Device
bInterfaceSubClass 0 No Subclass
bInterfaceProtocol 0 None
iInterface 0

HID Device Descriptor:

bLength 9
bDescriptorType 33
bcdHID 1.11
bCountryCode 0 Not supported
bNumDescriptors 1

bDescriptorType 34 Report
wDescriptorLength 98

Report Descriptors:

** UNAVAILABLE **

Endpoint Descriptor:

bLength 7
bDescriptorType 5
bEndpointAddress 0x83 EP 3 IN
bmAttributes 3
Transfer Type Interrupt
Synch Type None
Usage Type Data
wMaxPacketSize 0x0020 1x 32 bytes
bInterval 2
Device Status: 0x0000
(Bus Powered)

Bus 001 Device 005: ID 13fe:5100 Kingston Technology Company Inc. Flash Drive

Device Descriptor:

bLength 18
bDescriptorType 1
bcdUSB 2.10

bDeviceClass 0 (Defined at Interface level)
bDeviceSubClass 0
bDeviceProtocol 0
bMaxPacketSize0 64
idVendor 0x13fe Kingston Technology Company Inc.
idProduct 0x5100 Flash Drive
bcdDevice 1.00
iManufacturer 1
iProduct 2 USB DISK 3.0
iSerial 3 070727088FD7E002
bNumConfigurations 1
Configuration Descriptor:
bLength 9
bDescriptorType 2
wTotalLength 32
bNumInterfaces 1
bConfigurationValue 1
iConfiguration 0
bmAttributes 0x80
(Bus Powered)
MaxPower 498mA
Interface Descriptor:
bLength 9
bDescriptorType 4
bInterfaceNumber 0
bAlternateSetting 0
bNumEndpoints 2
bInterfaceClass 8 Mass Storage
bInterfaceSubClass 6 SCSI
bInterfaceProtocol 80 Bulk-Only
iInterface 0
Endpoint Descriptor:
bLength 7
bDescriptorType 5
bEndpointAddress 0x81 EP 1 IN
bmAttributes 2
Transfer Type Bulk
Synch Type None
Usage Type Data
wMaxPacketSize 0x0200 1x 512 bytes
bInterval 0
Endpoint Descriptor:
bLength 7
bDescriptorType 5
bEndpointAddress 0x02 EP 2 OUT
bmAttributes 2
Transfer Type Bulk
Synch Type None

Usage Type Data
wMaxPacketSize 0x0200 1x 512 bytes
bInterval 0
Binary Object Store Descriptor:
bLength 5
bDescriptorType 15
wTotalLength 22
bNumDeviceCaps 2
USB 2.0 Extension Device Capability:
bLength 7
bDescriptorType 16
bDevCapabilityType 2
bmAttributes 0x00000002
Link Power Management (LPM) Supported
SuperSpeed USB Device Capability:
bLength 10
bDescriptorType 16
bDevCapabilityType 3
bmAttributes 0x00
wSpeedsSupported 0x000e
Device can operate at Full Speed (12Mbps)
Device can operate at High Speed (480Mbps)
Device can operate at SuperSpeed (5Gbps)
bFunctionalitySupport 2
Lowest fully-functional device speed is High Speed (480Mbps)
bU1DevExitLat 10 micro seconds
bU2DevExitLat 2047 micro seconds
Device Status: 0x0000
(Bus Powered)

Bus 001 Device 002: ID 05e3:0608 Genesys Logic, Inc. USB-2.0 4-Port HUB
Device Descriptor:
bLength 18
bDescriptorType 1
bcdUSB 2.00
bDeviceClass 9 Hub
bDeviceSubClass 0 Unused
bDeviceProtocol 1 Single TT
bMaxPacketSize0 64
idVendor 0x05e3 Genesys Logic, Inc.
idProduct 0x0608 USB-2.0 4-Port HUB
bcdDevice 9.01
iManufacturer 0
iProduct 1 USB2.0 Hub
iSerial 0
bNumConfigurations 1
Configuration Descriptor:
bLength 9

bDescriptorType 2
wTotalLength 25
bNumInterfaces 1
bConfigurationValue 1
iConfiguration 0
bmAttributes 0xe0
Self Powered
Remote Wakeup
MaxPower 100mA
Interface Descriptor:
bLength 9
bDescriptorType 4
bInterfaceNumber 0
bAlternateSetting 0
bNumEndpoints 1
bInterfaceClass 9 Hub
bInterfaceSubClass 0 Unused
bInterfaceProtocol 0 Full speed (or root) hub
iInterface 0
Endpoint Descriptor:
bLength 7
bDescriptorType 5
bEndpointAddress 0x81 EP 1 IN
bmAttributes 3
Transfer Type Interrupt
Synch Type None
Usage Type Data
wMaxPacketSize 0x0001 1x 1 bytes
bInterval 12
Hub Descriptor:
bLength 9
bDescriptorType 41
nNbrPorts 4
wHubCharacteristic 0x00e0
Ganged power switching
Ganged overcurrent protection
TT think time 32 FS bits
Port indicators
bPwrOn2PwrGood 50 * 2 milli seconds
bHubContrCurrent 100 milli Ampere
DeviceRemovable 0x00
PortPwrCtrlMask 0xff
Hub Port Status:
Port 1: 0000.0503 highspeed power enable connect
Port 2: 0000.0100 power
Port 3: 0000.0100 power
Port 4: 0000.0103 power enable connect
Device Qualifier (for other device speed):

bLength 10
bDescriptorType 6
bcdUSB 2.00
bDeviceClass 9 Hub
bDeviceSubClass 0 Unused
bDeviceProtocol 0 Full speed (or root) hub
bMaxPacketSize0 64
bNumConfigurations 1
Device Status: 0x0001
Self Powered

Bus 001 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub

Device Descriptor:

bLength 18
bDescriptorType 1
bcdUSB 2.00
bDeviceClass 9 Hub
bDeviceSubClass 0 Unused
bDeviceProtocol 1 Single TT
bMaxPacketSize0 64
idVendor 0x1d6b Linux Foundation
idProduct 0x0002 2.0 root hub
bcdDevice 3.16
iManufacturer 3 Linux 3.16.0-23-generic xhci_hcd
iProduct 2 xHCI Host Controller
iSerial 1 0000:00:14.0
bNumConfigurations 1
Configuration Descriptor:
bLength 9
bDescriptorType 2
wTotalLength 25
bNumInterfaces 1
bConfigurationValue 1
iConfiguration 0
bmAttributes 0xe0
Self Powered
Remote Wakeup
MaxPower 0mA
Interface Descriptor:
bLength 9
bDescriptorType 4
bInterfaceNumber 0
bAlternateSetting 0
bNumEndpoints 1
bInterfaceClass 9 Hub
bInterfaceSubClass 0 Unused
bInterfaceProtocol 0 Full speed (or root) hub
iInterface 0

Endpoint Descriptor:

bLength 7
bDescriptorType 5
bEndpointAddress 0x81 EP 1 IN
bmAttributes 3
Transfer Type Interrupt
Synch Type None
Usage Type Data
wMaxPacketSize 0x0004 1x 4 bytes
bInterval 12

Hub Descriptor:

bLength 11
bDescriptorType 41
nNbrPorts 9
wHubCharacteristic 0x000a
No power switching (usb 1.0)
Per-port overcurrent protection
TT think time 8 FS bits
bPwrOn2PwrGood 10 * 2 milli seconds
bHubContrCurrent 0 milli Ampere
DeviceRemovable 0xc4 0x01
PortPwrCtrlMask 0xff 0xff

Hub Port Status:

Port 1: 0000.0503 highspeed power enable connect
Port 2: 0000.0100 power
Port 3: 0000.0100 power
Port 4: 0000.0100 power
Port 5: 0000.0100 power
Port 6: 0000.0100 power
Port 7: 0000.0503 highspeed power enable connect
Port 8: 0000.0503 highspeed power enable connect
Port 9: 0000.0100 power
Device Status: 0x0001
Self Powered

```
ubuntu@ubuntu:~$ sudo dmesg | grep ntrig scrn v0.5
```

Usage:

dmesg [options]

Options:

- C, --clear clear the kernel ring buffer
- c, --read-clear read and clear all messages
- D, --console-off disable printing messages to console
- E, --console-on enable printing messages to console
- F, --file <file> use the file instead of the kernel log buffer
- f, --facility <list> restrict output to defined facilities
- H, --human human readable output
- k, --kernel display kernel messages
- L, --color[=<when>] colorize messages (auto, always or never)
- l, --level <list> restrict output to defined levels
- n, --console-level <level> set level of messages printed to console
- P, --nopager do not pipe output into a pager
- r, --raw print the raw message buffer
- S, --syslog force to use syslog(2) rather than /dev/kmsg
- s, --buffer-size <size> buffer size to query the kernel ring buffer
- u, --userspace display userspace messages
- w, --follow wait for new messages
- x, --decode decode facility and level to readable string
- d, --show-delta show time delta between printed messages
- e, --retime show local time and time delta in readable format
- T, --ctime show human readable timestamp
- t, --notime don't print messages timestamp
- time-format <format> show time stamp using format:
[delta|retime|ctime|notime|iso]

Suspending/resume will make ctime and iso timestamps inaccurate.

- h, --help display this help and exit
- V, --version output version information and exit

Supported log facilities:

- kern - kernel messages
- user - random user-level messages
- mail - mail system
- daemon - system daemons
- auth - security/authorization messages
- syslog - messages generated internally by syslogd
- lpr - line printer subsystem
- news - network news subsystem

Supported log levels (priorities):

- emerg - system is unusable
- alert - action must be taken immediately

crit - critical conditions

err - error conditions

warn - warning conditions notice - normal but significant condition

info - informational

debug - debug-level messages

```
ubuntu@ubuntu:~$ sudo lsusb -v from working cord no scrn
```

Bus 002 Device 001: ID 1d6b:0003 Linux Foundation 3.0 root hub

Device Descriptor:

bLength 18

bDescriptorType 1

bcdUSB 3.00

bDeviceClass 9 Hub

bDeviceSubClass 0 Unused

bDeviceProtocol 3

bMaxPacketSize0 9

idVendor 0x1d6b Linux Foundation

idProduct 0x0003 3.0 root hub

bcdDevice 3.16

iManufacturer 3 Linux 3.16.0-23-generic xhci_hcd

iProduct 2 xHCI Host Controller

iSerial 1 0000:00:14.0

bNumConfigurations 1

Configuration Descriptor:

bLength 9

bDescriptorType 2

wTotalLength 31

bNumInterfaces 1

bConfigurationValue 1

iConfiguration 0

bmAttributes 0xe0

Self Powered

Remote Wakeup

MaxPower 0mA

Interface Descriptor:

bLength 9

bDescriptorType 4

bInterfaceNumber 0

bAlternateSetting 0

bNumEndpoints 1

bInterfaceClass 9 Hub

bInterfaceSubClass 0 Unused

bInterfaceProtocol 0 Full speed (or root) hub

iInterface 0

Endpoint Descriptor:

bLength 7

bDescriptorType 5

bEndpointAddress 0x81 EP 1 IN

bmAttributes 3

Transfer Type Interrupt

Synch Type None

Usage Type Data

wMaxPacketSize 0x0004 1x 4 bytes

bInterval 12

bMaxBurst 0

Hub Descriptor:

bLength 12

bDescriptorType 42

nNbrPorts 4

wHubCharacteristic 0x000a

No power switching (usb 1.0)

Per-port overcurrent protection

bPwrOn2PwrGood 10 * 2 milli seconds

bHubContrCurrent 0 milli Ampere

bHubDeclat 0.0 micro seconds

wHubDelay 0 nano seconds

DeviceRemovable 0x14

Hub Port Status:

Port 1: 0000.02a0 5Gbps power Rx.Detect

Port 2: 0000.02a0 5Gbps power Rx.Detect

Port 3: 0000.02a0 5Gbps power Rx.Detect

Port 4: 0000.02a0 5Gbps power Rx.Detect

Binary Object Store Descriptor:

bLength 5

bDescriptorType 15

wTotalLength 15

bNumDeviceCaps 1

SuperSpeed USB Device Capability:

bLength 10

bDescriptorType 16

bDevCapabilityType 3

bmAttributes 0x02

Latency Tolerance Messages (LTM) Supported

wSpeedsSupported 0x0008

Device can operate at SuperSpeed (5Gbps)

bFunctionalitySupport 3

Lowest fully-functional device speed is SuperSpeed (5Gbps)

bU1DevExitLat 10 micro seconds

bU2DevExitLat 512 micro seconds

Device Status: 0x0001

Self Powered

Bus 001 Device 004: ID 045e:07bf Microsoft Corp.

Device Descriptor:

bLength 18

bDescriptorType 1

bcdUSB 2.00

bDeviceClass 239 Miscellaneous Device

bDeviceSubClass 2 ?

bDeviceProtocol 1 Interface Association
bMaxPacketSize0 64
idVendor 0x045e Microsoft Corp.
idProduct 0x07bf
bcdDevice 21.52
iManufacturer 1 QCM
iProduct 2 Microsoft LifeCam Rear
iSerial 0
bNumConfigurations 1
Configuration Descriptor:
bLength 9
bDescriptorType 2
wTotalLength 1982
bNumInterfaces 3
bConfigurationValue 1
iConfiguration 2 Microsoft LifeCam Rear
bmAttributes 0x80
(Bus Powered)
MaxPower 250mA
Interface Association:
bLength 8
bDescriptorType 11
bFirstInterface 0
bInterfaceCount 3
bFunctionClass 14 Video
bFunctionSubClass 3 Video Interface Collection
bFunctionProtocol 0
iFunction 2 Microsoft LifeCam Rear
Interface Descriptor:
bLength 9
bDescriptorType 4
bInterfaceNumber 0
bAlternateSetting 0
bNumEndpoints 1
bInterfaceClass 14 Video
bInterfaceSubClass 1 Video Control
bInterfaceProtocol 1
iInterface 2 Microsoft LifeCam Rear
VideoControl Interface Descriptor:
bLength 14
bDescriptorType 36
bDescriptorSubtype 1 (HEADER)
bcdUVC 1.50
wTotalLength 105
dwClockFrequency 150.000000MHz
bInCollection 2
baInterfaceNr(0) 1
baInterfaceNr(1) 2

VideoControl Interface Descriptor:

bLength 18

bDescriptorType 36

bDescriptorSubtype 2 (INPUT_TERMINAL)

bTerminalID 1

wTerminalType 0x0201 Camera Sensor

bAssocTerminal 0

iTerminal 0

wObjectiveFocalLengthMin 0

wObjectiveFocalLengthMax 0

wOcularFocalLength 0

bControlSize 3

bmControls 0x00000a0e

Auto-Exposure Mode

Auto-Exposure Priority

Exposure Time (Absolute)

Zoom (Absolute)

PanTilt (Absolute)

VideoControl Interface Descriptor:

bLength 13

bDescriptorType 36

bDescriptorSubtype 5 (PROCESSING_UNIT)

bUnitID 2

bSourceID 1

wMaxMultiplier 0

bControlSize 3

bmControls 0x0000155b

Brightness

Contrast

Saturation

Sharpness

White Balance Temperature

Backlight Compensation

Power Line Frequency

White Balance Temperature, Auto

iProcessing 0

bmVideoStandards 0x 0

VideoControl Interface Descriptor:

bLength 29

bDescriptorType 36

bDescriptorSubtype 6 (EXTENSION_UNIT)

bUnitID 4

guidExtensionCode {29a787c9-d359-6945-8467-ff0849fc19e8}

bNumControl 22

bNrPins 1

baSourceID(0) 2

bControlSize 4

bmControls(0) 0xbf

bmControls(1) 0xfb
bmControls(2) 0xff
bmControls(3) 0x00
iExtension 0
VideoControl Interface Descriptor:
bLength 13
bDescriptorType 36
bDescriptorSubtype 7 (unknown)
Invalid desc subtype: 0b 04 00 03 cd 3e 00 cd 3e 00
VideoControl Interface Descriptor:
bLength 9
bDescriptorType 36
bDescriptorSubtype 3 (OUTPUT_TERMINAL)
bTerminalID 8
wTerminalType 0x0101 USB Streaming
bAssocTerminal 0
bSourceID 4
iTerminal 0
VideoControl Interface Descriptor:
bLength 9
bDescriptorType 36
bDescriptorSubtype 3 (OUTPUT_TERMINAL)
bTerminalID 9
wTerminalType 0x0101 USB Streaming
bAssocTerminal 0
bSourceID 11
iTerminal 0
Endpoint Descriptor:
bLength 7
bDescriptorType 5
bEndpointAddress 0x81 EP 1 IN
bmAttributes 3
Transfer Type Interrupt
Synch Type None
Usage Type Data
wMaxPacketSize 0x0040 1x 64 bytes
bInterval 6
Interface Descriptor:
bLength 9
bDescriptorType 4
bInterfaceNumber 1
bAlternateSetting 0
bNumEndpoints 0
bInterfaceClass 14 Video
bInterfaceSubClass 2 Video Streaming
bInterfaceProtocol 1
iInterface 0
VideoStreaming Interface Descriptor:

bLength 15
bDescriptorType 36
bDescriptorSubtype 1 (INPUT_HEADER)
bNumFormats 2
wTotalLength 563
bEndPointAddress 130
bmInfo 0
bTerminalLink 8
bStillCaptureMethod 1
bTriggerSupport 0
bTriggerUsage 0
bControlSize 1
bmaControls(0) 27
bmaControls(1) 27
VideoStreaming Interface Descriptor:
bLength 27
bDescriptorType 36
bDescriptorSubtype 4 (FORMAT_UNCOMPRESSED)
bFormatIndex 1
bNumFrameDescriptors 9
guidFormat {59555932-0000-1000-8000-00aa00389b71}
bBitsPerPixel 16
bDefaultFrameIndex 1
bAspectRatioX 0
bAspectRatioY 0
bmInterlaceFlags 0x00
Interlaced stream or variable: No
Fields per frame: 2 fields
Field 1 first: No
Field pattern: Field 1 only
bCopyProtect 0
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 5 (FRAME_UNCOMPRESSED)
bFrameIndex 1
bmCapabilities 0x01
Still image supported
wWidth 640
wHeight 360
dwMinBitRate 55296000
dwMaxBitRate 110592000
dwMaxVideoFrameBufferSize 460800
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:

bLength 34
bDescriptorType 36
bDescriptorSubtype 5 (FRAME_UNCOMPRESSED)
bFrameIndex 2
bmCapabilities 0x01
Still image supported
wWidth 640
wHeight 480
dwMinBitRate 73728000
dwMaxBitRate 147456000
dwMaxVideoFrameBufferSize 614400
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 5 (FRAME_UNCOMPRESSED)
bFrameIndex 3
bmCapabilities 0x01
Still image supported
wWidth 480
wHeight 270
dwMinBitRate 31104000
dwMaxBitRate 62208000
dwMaxVideoFrameBufferSize 259200
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 5 (FRAME_UNCOMPRESSED)
bFrameIndex 4
bmCapabilities 0x01
Still image supported
wWidth 424
wHeight 240
dwMinBitRate 24422400
dwMaxBitRate 48844800
dwMaxVideoFrameBufferSize 203520
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:

bLength 34
bDescriptorType 36
bDescriptorSubtype 5 (FRAME_UNCOMPRESSED)
bFrameIndex 5
bmCapabilities 0x01
Still image supported
wWidth 320
wHeight 240
dwMinBitRate 18432000
dwMaxBitRate 36864000
dwMaxVideoFrameBufferSize 153600
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 5 (FRAME_UNCOMPRESSED)
bFrameIndex 6
bmCapabilities 0x01
Still image supported
wWidth 320
wHeight 180
dwMinBitRate 13824000
dwMaxBitRate 27648000
dwMaxVideoFrameBufferSize 115200
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 5 (FRAME_UNCOMPRESSED)
bFrameIndex 7
bmCapabilities 0x01
Still image supported
wWidth 160
wHeight 120
dwMinBitRate 4608000
dwMaxBitRate 9216000
dwMaxVideoFrameBufferSize 38400
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:

bLength 30
bDescriptorType 36
bDescriptorSubtype 5 (FRAME_UNCOMPRESSED)
bFrameIndex 8
bmCapabilities 0x01
Still image supported
wWidth 2592
wHeight 1944
dwMinBitRate 161243136
dwMaxBitRate 161243136
dwMaxVideoFrameBufferSize 10077696
dwDefaultFrameInterval 5000000
bFrameIntervalType 1
dwFrameInterval(0) 5000000
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 5 (FRAME_UNCOMPRESSED)
bFrameIndex 9
bmCapabilities 0x01
Still image supported
wWidth 848
wHeight 480
dwMinBitRate 97689600
dwMaxBitRate 195379200
dwMaxVideoFrameBufferSize 814080
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 6
bDescriptorType 36
bDescriptorSubtype 13 (COLORFORMAT)
bColorPrimaries 1 (BT.709,sRGB)
bTransferCharacteristics 1 (BT.709)
bMatrixCoefficients 4 (SMPTE 170M (BT.601))
VideoStreaming Interface Descriptor:
bLength 11
bDescriptorType 36
bDescriptorSubtype 6 (FORMAT_MJPEG)
bFormatIndex 2
bNumFrameDescriptors 6
bFlags 1
Fixed-size samples: Yes
bDefaultFrameIndex 1
bAspectRatioX 0
bAspectRatioY 0

bmInterlaceFlags 0x00
Interlaced stream or variable: No
Fields per frame: 1 fields
Field 1 first: No
Field pattern: Field 1 only
bCopyProtect 0
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 7 (FRAME_MJPEG)
bFrameIndex 1
bmCapabilities 0x01
Still image supported
wWidth 1920
wHeight 1080
dwMinBitRate 248832000
dwMaxBitRate 497664000
dwMaxVideoFrameBufferSize 4147200
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 7 (FRAME_MJPEG)
bFrameIndex 2
bmCapabilities 0x01
Still image supported
wWidth 1280
wHeight 720
dwMinBitRate 110592000
dwMaxBitRate 221184000
dwMaxVideoFrameBufferSize 1843200
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 7 (FRAME_MJPEG)
bFrameIndex 3
bmCapabilities 0x01
Still image supported
wWidth 960
wHeight 540
dwMinBitRate 62208000

dwMaxBitRate 124416000
dwMaxVideoFrameBufferSize 1036800
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 30
bDescriptorType 36
bDescriptorSubtype 7 (FRAME_MJPEG)
bFrameIndex 4
bmCapabilities 0x01
Still image supported
wWidth 2592
wHeight 1944
dwMinBitRate 604661760
dwMaxBitRate 604661760
dwMaxVideoFrameBufferSize 10077696
dwDefaultFrameInterval 666666
bFrameIntervalType 1
dwFrameInterval(0) 666666
VideoStreaming Interface Descriptor:
bLength 30
bDescriptorType 36
bDescriptorSubtype 7 (FRAME_MJPEG)
bFrameIndex 5
bmCapabilities 0x01
Still image supported
wWidth 2592
wHeight 1728
dwMinBitRate 537477120
dwMaxBitRate 537477120
dwMaxVideoFrameBufferSize 8957952
dwDefaultFrameInterval 666666
bFrameIntervalType 1
dwFrameInterval(0) 666666
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 7 (FRAME_MJPEG)
bFrameIndex 6
bmCapabilities 0x01
Still image supported
wWidth 1296
wHeight 864
dwMinBitRate 134369280
dwMaxBitRate 268738560
dwMaxVideoFrameBufferSize 2239488

dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 6
bDescriptorType 36
bDescriptorSubtype 13 (COLORFORMAT)
bColorPrimaries 1 (BT.709,sRGB)
bTransferCharacteristics 1 (BT.709)
bMatrixCoefficients 4 (SMPTE 170M (BT.601))
Interface Descriptor:
bLength 9
bDescriptorType 4
bInterfaceNumber 1
bAlternateSetting 1
bNumEndpoints 1
bInterfaceClass 14 Video
bInterfaceSubClass 2 Video Streaming
bInterfaceProtocol 1
iInterface 0
Endpoint Descriptor:
bLength 7
bDescriptorType 5
bEndpointAddress 0x82 EP 2 IN
bmAttributes 5
Transfer Type Isochronous
Synch Type Asynchronous
Usage Type Data
wMaxPacketSize 0x1400 3x 1024 bytes
bInterval 1
Interface Descriptor:
bLength 9
bDescriptorType 4
bInterfaceNumber 2
bAlternateSetting 0
bNumEndpoints 0
bInterfaceClass 14 Video
bInterfaceSubClass 2 Video Streaming
bInterfaceProtocol 1
iInterface 0
VideoStreaming Interface Descriptor:
bLength 14
bDescriptorType 36
bDescriptorSubtype 1 (INPUT_HEADER)
bNumFormats 1
wTotalLength 1210
bEndPointAddress 131

bmlInfo 0
bTerminalLink 9
bStillCaptureMethod 1
bTriggerSupport 0
bTriggerUsage 0
bControlSize 1
bmaControls(0) 52
VideoStreaming Interface Descriptor:
bLength 52
bDescriptorType 36
bDescriptorSubtype 19 Invalid desc subtype: 01 16 02 03 00 43 03 00 0d f5 00 00 00 00 00 00
00 f5 00
00 00
VideoStreaming Interface Descriptor:
bLength 52
bDescriptorType 36
bDescriptorSubtype 20 Invalid desc subtype: 01 80 07 38 04 01 00 01 00 40 42 29 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 00 00 01 00 00 00 80 b1 4f 01 15 16 05 00 02 15 16 05 00 2a 2c
0a 00
VideoStreaming Interface Descriptor:
bLength 52
bDescriptorType 36
bDescriptorSubtype 20 Invalid desc subtype: 02 80 07 38 04 01 00 01 00 0c 64 29 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 00 00 01 00 00 00 80 b1 4f 01 15 16 05 00 02 15 16 05 00 2a 2c
0a 00
VideoStreaming Interface Descriptor:
bLength 52
bDescriptorType 36
bDescriptorSubtype 20 Invalid desc subtype: 03 00 05 d0 02 01 00 01 00 40 42 20 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 00 00 01 00 00 00 c0 e1 e4 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00
VideoStreaming Interface Descriptor:
bLength 52
bDescriptorType 36
bDescriptorSubtype 20 Invalid desc subtype: 04 00 05 d0 02 01 00 01 00 0c 64 20 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 00 00 01 00 00 00 c0 e1 e4 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00
VideoStreaming Interface Descriptor:
bLength 52
bDescriptorType 36
bDescriptorSubtype 20 Invalid desc subtype: 05 c0 03 1c 02 01 00 01 00 40 42 1f 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 00 00 01 00 00 00 80 9f d5 00 15 16 05 00 02 15 16 05 00 2a 2c
0a 00
VideoStreaming Interface Descriptor:
bLength 52
bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 06 c0 03 1c 02 01 00 01 00 0c 64 1f 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 01 00 00 00 80 9f d5 00 15 16 05 00 02 15 16 05 00 2a 2c
0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 07 50 03 e0 01 01 00 01 00 40 42 1f 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 01 00 00 00 80 9f d5 00 15 16 05 00 02 15 16 05 00 2a 2c
0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 08 50 03 e0 01 01 00 01 00 0c 64 1f 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 01 00 00 00 80 9f d5 00 15 16 05 00 02 15 16 05 00 2a 2c
0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 09 80 02 e0 01 01 00 01 00 40 42 1e 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 01 00 00 00 80 96 98 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 0a 80 02 e0 01 01 00 01 00 0c 64 1e 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 01 00 00 00 80 96 98 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 0b 80 02 68 01 01 00 01 00 40 42 1e 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 01 00 00 00 80 96 98 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 0c 80 02 68 01 01 00 01 00 0c 64 1e 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 01 00 00 00 80 96 98 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 0d e0 01 0e 01 01 00 01 00 40 42 15 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 01 00 00 00 00 93 d 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 0e e0 01 0e 01 01 00 01 00 0c 64 15 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 00 01 00 00 00 00 09 3d 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 0f a8 01 f0 00 01 00 01 00 40 42 15 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 00 01 00 00 00 00 09 3d 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 10 a8 01 f0 00 01 00 01 00 0c 64 15 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 00 01 00 00 00 00 09 3d 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 11 40 01 f0 00 01 00 01 00 40 42 14 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 00 01 00 00 00 80 84 1e 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 12 40 01 f0 00 01 00 01 00 0c 64 14 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 00 01 00 00 00 80 84 1e 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 13 40 01 b4 00 01 00 01 00 40 42 14 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 00 01 00 00 00 80 84 1e 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 14 40 01 b4 00 01 00 01 00 0c 64 14 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 00 01 00 00 00 80 84 1e 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 15 a0 00 78 00 01 00 01 00 40 42 14 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 00 01 00 00 00 80 84 1e 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 16 a0 00 78 00 01 00 01 00 0c 64 14 00 00 03 00 01 00 2b 00 01 00 00 00 00 00 00 01 00 00 00 80 84 1e 00 15 16 05 00 02 15 16 05 00 2a 2c 0a 00

Interface Descriptor:

bLength 9

bDescriptorType 4

bInterfaceNumber 2

bAlternateSetting 1

bNumEndpoints 1

bInterfaceClass 14 Video

bInterfaceSubClass 2 Video Streaming

bInterfaceProtocol 1

iInterface 0

Endpoint Descriptor:

bLength 7

bDescriptorType 5

bEndpointAddress 0x83 EP 3 IN

bmAttributes 5

Transfer Type Isochronous

Synch Type Asynchronous

Usage Type Data

wMaxPacketSize 0x0400 1x 1024 bytes

bInterval 1

Interface Descriptor:

bLength 9

bDescriptorType 4

bInterfaceNumber 2

bAlternateSetting 2

bNumEndpoints 1

bInterfaceClass 14 Video

bInterfaceSubClass 2 Video Streaming

bInterfaceProtocol 1

iInterface 0

Endpoint Descriptor:

bLength 7

bDescriptorType 5

bEndpointAddress 0x83 EP 3 IN

bmAttributes 5

Transfer Type Isochronous

Synch Type Asynchronous

Usage Type Data

wMaxPacketSize 0x0100 1x 256 bytes

bInterval 1

Device Qualifier (for other device speed):

bLength 10

bDescriptorType 6

bcdUSB 2.00

bDeviceClass 239 Miscellaneous Device

bDeviceSubClass 2 ?
bDeviceProtocol 1 Interface Association
bMaxPacketSize0 64
bNumConfigurations 1
Device Status: 0x0000
(Bus Powered)

Bus 001 Device 003: ID 045e:07be Microsoft Corp.

Device Descriptor:

bLength 18
bDescriptorType 1
bcdUSB 2.00
bDeviceClass 239 Miscellaneous Device
bDeviceSubClass 2 ?
bDeviceProtocol 1 Interface Association
bMaxPacketSize0 64
idVendor 0x045e Microsoft Corp.
idProduct 0x07be
bcdDevice 21.52
iManufacturer 1 QCM
iProduct 2 Microsoft LifeCam Front
iSerial 0

bNumConfigurations 1
Configuration Descriptor:

bLength 9
bDescriptorType 2
wTotalLength 1982
bNumInterfaces 3
bConfigurationValue 1
iConfiguration 2 Microsoft LifeCam Front
bmAttributes 0x80
(Bus Powered)

MaxPower 250mA

Interface Association:

bLength 8
bDescriptorType 11
bFirstInterface 0
bInterfaceCount 3
bFunctionClass 14 Video
bFunctionSubClass 3 Video Interface Collection
bFunctionProtocol 0
iFunction 2 Microsoft LifeCam Front

Interface Descriptor:

bLength 9
bDescriptorType 4
bInterfaceNumber 0
bAlternateSetting 0
bNumEndpoints 1

bInterfaceClass 14 Video
bInterfaceSubClass 1 Video Control
bInterfaceProtocol 1
iInterface 2 Microsoft LifeCam Front
VideoControl Interface Descriptor:
bLength 14
bDescriptorType 36
bDescriptorSubtype 1 (HEADER)
bcdUVC 1.50
wTotalLength 105
dwClockFrequency 150.000000MHz
bInCollection 2
baInterfaceNr(0) 1
baInterfaceNr(1) 2
VideoControl Interface Descriptor:
bLength 18
bDescriptorType 36
bDescriptorSubtype 2 (INPUT_TERMINAL)
bTerminalID 1
wTerminalType 0x0201 Camera Sensor
bAssocTerminal 0
iTerminal 0
wObjectiveFocalLengthMin 0
wObjectiveFocalLengthMax 0
wOcularFocalLength 0
bControlSize 3
bmControls 0x00000a0e
Auto-Exposure Mode
Auto-Exposure Priority
Exposure Time (Absolute)
Zoom (Absolute)
PanTilt (Absolute)
VideoControl Interface Descriptor:
bLength 13
bDescriptorType 36
bDescriptorSubtype 5 (PROCESSING_UNIT)
bUnitID 2
bSourceID 1
wMaxMultiplier 0
bControlSize 3
bmControls 0x0000155b
Brightness
Contrast
Saturation
Sharpness
White Balance Temperature
Backlight Compensation
Power Line Frequency

White Balance Temperature, Auto
iProcessing 0
bmVideoStandards 0x 0
VideoControl Interface Descriptor:
bLength 29
bDescriptorType 36
bDescriptorSubtype 6 (EXTENSION_UNIT)
bUnitID 4
guidExtensionCode {29a787c9-d359-6945-8467-ff0849fc19e8}
bNumControl 22
bNrPins 1
baSourceID(0) 2
bControlSize 4
bmControls(0) 0xbf
bmControls(1) 0xfb
bmControls(2) 0xff
bmControls(3) 0x00
iExtension 0
VideoControl Interface Descriptor:
bLength 13
bDescriptorType 36
bDescriptorSubtype 7 (unknown)
Invalid desc subtype: 0b 04 00 03 cd 3e 00 cd 3e 00
VideoControl Interface Descriptor:
bLength 9
bDescriptorType 36
bDescriptorSubtype 3 (OUTPUT_TERMINAL)
bTerminalID 8
wTerminalType 0x0101 USB Streaming
bAssocTerminal 0
bSourceID 4
iTerminal 0
VideoControl Interface Descriptor:
bLength 9
bDescriptorType 36
bDescriptorSubtype 3 (OUTPUT_TERMINAL)
bTerminalID 9
wTerminalType 0x0101 USB Streaming
bAssocTerminal 0
bSourceID 11
iTerminal 0
Endpoint Descriptor:
bLength 7
bDescriptorType 5
bEndpointAddress 0x81 EP 1 IN
bmAttributes 3
Transfer Type Interrupt
Synch Type None

Usage Type Data
wMaxPacketSize 0x0040 1x 64 bytes
bInterval 6
Interface Descriptor:
bLength 9
bDescriptorType 4
bInterfaceNumber 1
bAlternateSetting 0
bNumEndpoints 0
bInterfaceClass 14 Video
bInterfaceSubClass 2 Video Streaming
bInterfaceProtocol 1
iInterface 0
VideoStreaming Interface Descriptor:
bLength 15
bDescriptorType 36
bDescriptorSubtype 1 (INPUT_HEADER)
bNumFormats 2
wTotalLength 563
bEndPointAddress 130
bmInfo 0
bTerminalLink 8
bStillCaptureMethod 1
bTriggerSupport 0
bTriggerUsage 0
bControlSize 1
bmaControls(0) 27
bmaControls(1) 27
VideoStreaming Interface Descriptor:
bLength 27
bDescriptorType 36
bDescriptorSubtype 4 (FORMAT_UNCOMPRESSED)
bFormatIndex 1
bNumFrameDescriptors 9
guidFormat {59555932-0000-1000-8000-00aa00389b71}
bBitsPerPixel 16
bDefaultFrameIndex 1
bAspectRatioX 0
bAspectRatioY 0
bmInterlaceFlags 0x00
Interlaced stream or variable: No
Fields per frame: 2 fields
Field 1 first: No
Field pattern: Field 1 only
bCopyProtect 0
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36

bDescriptorSubtype 5 (FRAME_UNCOMPRESSED)
bFrameIndex 1
bmCapabilities 0x01
Still image supported
wWidth 640
wHeight 360
dwMinBitRate 55296000
dwMaxBitRate 110592000
dwMaxVideoFrameBufferSize 460800
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 5 (FRAME_UNCOMPRESSED)
bFrameIndex 2
bmCapabilities 0x01
Still image supported
wWidth 640
wHeight 480
dwMinBitRate 73728000
dwMaxBitRate 147456000
dwMaxVideoFrameBufferSize 614400
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 5 (FRAME_UNCOMPRESSED)
bFrameIndex 3
bmCapabilities 0x01
Still image supported
wWidth 480
wHeight 270
dwMinBitRate 31104000
dwMaxBitRate 62208000
dwMaxVideoFrameBufferSize 259200
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36

bDescriptorSubtype 5 (FRAME_UNCOMPRESSED)
bFrameIndex 4
bmCapabilities 0x01
Still image supported
wWidth 424
wHeight 240
dwMinBitRate 24422400
dwMaxBitRate 48844800
dwMaxVideoFrameBufferSize 203520
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 5 (FRAME_UNCOMPRESSED)
bFrameIndex 5
bmCapabilities 0x01
Still image supported
wWidth 320
wHeight 240
dwMinBitRate 18432000
dwMaxBitRate 36864000
dwMaxVideoFrameBufferSize 153600
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 5 (FRAME_UNCOMPRESSED)
bFrameIndex 6
bmCapabilities 0x01
Still image supported
wWidth 320
wHeight 180
dwMinBitRate 13824000
dwMaxBitRate 27648000
dwMaxVideoFrameBufferSize 115200
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36

bDescriptorSubtype 5 (FRAME_UNCOMPRESSED)
bFrameIndex 7
bmCapabilities 0x01
Still image supported
wWidth 160
wHeight 120
dwMinBitRate 4608000
dwMaxBitRate 9216000
dwMaxVideoFrameBufferSize 38400
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 30
bDescriptorType 36
bDescriptorSubtype 5 (FRAME_UNCOMPRESSED)
bFrameIndex 8
bmCapabilities 0x01
Still image supported
wWidth 2592
wHeight 1944
dwMinBitRate 161243136
dwMaxBitRate 161243136
dwMaxVideoFrameBufferSize 10077696
dwDefaultFrameInterval 5000000
bFrameIntervalType 1
dwFrameInterval(0) 5000000
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 5 (FRAME_UNCOMPRESSED)
bFrameIndex 9
bmCapabilities 0x01
Still image supported
wWidth 848
wHeight 480
dwMinBitRate 97689600
dwMaxBitRate 195379200
dwMaxVideoFrameBufferSize 814080
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 6
bDescriptorType 36
bDescriptorSubtype 13 (COLORFORMAT)

bColorPrimaries 1 (BT.709,sRGB)
bTransferCharacteristics 1 (BT.709)
bMatrixCoefficients 4 (SMPTE 170M (BT.601))
VideoStreaming Interface Descriptor:
bLength 11
bDescriptorType 36
bDescriptorSubtype 6 (FORMAT_MJPEG)
bFormatIndex 2
bNumFrameDescriptors 6
bFlags 1
Fixed-size samples: Yes
bDefaultFrameIndex 1
bAspectRatioX 0
bAspectRatioY 0
bmInterlaceFlags 0x00
Interlaced stream or variable: No
Fields per frame: 1 fields
Field 1 first: No
Field pattern: Field 1 only
bCopyProtect 0
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 7 (FRAME_MJPEG)
bFrameIndex 1
bmCapabilities 0x01
Still image supported
wWidth 1920
wHeight 1080
dwMinBitRate 248832000
dwMaxBitRate 497664000
dwMaxVideoFrameBufferSize 4147200
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 7 (FRAME_MJPEG)
bFrameIndex 2
bmCapabilities 0x01
Still image supported
wWidth 1280
wHeight 720
dwMinBitRate 110592000
dwMaxBitRate 221184000
dwMaxVideoFrameBufferSize 1843200

dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 7 (FRAME_MJPEG)
bFrameIndex 3
bmCapabilities 0x01
Still image supported
wWidth 960
wHeight 540
dwMinBitRate 62208000
dwMaxBitRate 124416000
dwMaxVideoFrameBufferSize 1036800
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 30
bDescriptorType 36
bDescriptorSubtype 7 (FRAME_MJPEG)
bFrameIndex 4
bmCapabilities 0x01
Still image supported
wWidth 2592
wHeight 1944
dwMinBitRate 604661760
dwMaxBitRate 604661760
dwMaxVideoFrameBufferSize 10077696
dwDefaultFrameInterval 666666
bFrameIntervalType 1
dwFrameInterval(0) 666666
VideoStreaming Interface Descriptor:
bLength 30
bDescriptorType 36
bDescriptorSubtype 7 (FRAME_MJPEG)
bFrameIndex 5
bmCapabilities 0x01
Still image supported
wWidth 2592
wHeight 1728
dwMinBitRate 537477120
dwMaxBitRate 537477120
dwMaxVideoFrameBufferSize 8957952
dwDefaultFrameInterval 666666

bFrameIntervalType 1
dwFrameInterval(0) 666666
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 7 (FRAME_MJPEG)
bFrameIndex 6
bmCapabilities 0x01
Still image supported
wWidth 1296
wHeight 864
dwMinBitRate 134369280
dwMaxBitRate 268738560
dwMaxVideoFrameBufferSize 2239488
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 6
bDescriptorType 36
bDescriptorSubtype 13 (COLORFORMAT)
bColorPrimaries 1 (BT.709,sRGB)
bTransferCharacteristics 1 (BT.709)
bMatrixCoefficients 4 (SMPTE 170M (BT.601))
Interface Descriptor:
bLength 9
bDescriptorType 4
bInterfaceNumber 1
bAlternateSetting 1
bNumEndpoints 1
bInterfaceClass 14 Video
bInterfaceSubClass 2 Video Streaming
bInterfaceProtocol 1
iInterface 0
Endpoint Descriptor:
bLength 7
bDescriptorType 5
bEndpointAddress 0x82 EP 2 IN
bmAttributes 5
Transfer Type Isochronous
Synch Type Asynchronous
Usage Type Data
wMaxPacketSize 0x1400 3x 1024 bytes
bInterval 1
Interface Descriptor:
bLength 9
bDescriptorType 4

bInterfaceNumber 2
bAlternateSetting 0
bNumEndpoints 0
bInterfaceClass 14 Video
bInterfaceSubClass 2 Video Streaming
bInterfaceProtocol 1
iInterface 0
VideoStreaming Interface Descriptor:
bLength 14
bDescriptorType 36
bDescriptorSubtype 1 (INPUT_HEADER)
bNumFormats 1
wTotalLength 1210
bEndPointAddress 131
bmInfo 0
bTerminalLink 9
bStillCaptureMethod 1
bTriggerSupport 0
bTriggerUsage 0
bControlSize 1
bmaControls(0) 52
VideoStreaming Interface Descriptor:
bLength 52
bDescriptorType 36
bDescriptorSubtype 19 Invalid desc subtype: 01 16 02 03 00 43 03 00 0d f5 00 00 00 00 00 00
00 f5 00
00 00
VideoStreaming Interface Descriptor:
bLength 52
bDescriptorType 36
bDescriptorSubtype 20 Invalid desc subtype: 01 80 07 38 04 01 00 01 00 40 42 29 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 00 01 00 00 00 80 b1 4f 01 15 16 05 00 02 15 16 05 00 2a 2c
0a 00
VideoStreaming Interface Descriptor:
bLength 52
bDescriptorType 36
bDescriptorSubtype 20 Invalid desc subtype: 02 80 07 38 04 01 00 01 00 0c 64 29 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 00 01 00 00 00 80 b1 4f 01 15 16 05 00 02 15 16 05 00 2a 2c
0a 00
VideoStreaming Interface Descriptor:
bLength 52
bDescriptorType 36
bDescriptorSubtype 20 Invalid desc subtype: 03 00 05 d0 02 01 00 01 00 40 42 20 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 00 01 00 00 00 c0 e1 e4 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00
VideoStreaming Interface Descriptor:
bLength 52
bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 04 00 05 d0 02 01 00 01 00 0c 64 20 00 00 03 00 01 00 2b 00 01 00 00 00 00 00 00 01 00 00 00 c0 e1 e4 00 15 16 05 00 02 15 16 05 00 2a 2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 05 c0 03 1c 02 01 00 01 00 40 42 1f 00 00 03 00 01 00 21 00 01 00 00 00 00 00 00 01 00 00 00 80 9f d5 00 15 16 05 00 02 15 16 05 00 2a 2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 06 c0 03 1c 02 01 00 01 00 0c 64 1f 00 00 03 00 01 00 2b 00 01 00 00 00 00 00 00 01 00 00 00 80 9f d5 00 15 16 05 00 02 15 16 05 00 2a 2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 07 50 03 e0 01 01 00 01 00 40 42 1f 00 00 03 00 01 00 21 00 01 00 00 00 00 00 00 01 00 00 00 80 9f d5 00 15 16 05 00 02 15 16 05 00 2a 2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 08 50 03 e0 01 01 00 01 00 0c 64 1f 00 00 03 00 01 00 2b 00 01 00 00 00 00 00 00 01 00 00 00 80 9f d5 00 15 16 05 00 02 15 16 05 00 2a 2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 09 80 02 e0 01 01 00 01 00 40 42 1e 00 00 03 00 01 00 21 00 01 00 00 00 00 00 00 01 00 00 00 80 96 98 00 15 16 05 00 02 15 16 05 00 2a 2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 0a 80 02 e0 01 01 00 01 00 0c 64 1e 00 00 03 00 01 00 2b 00 01 00 00 00 00 00 00 01 00 00 00 80 96 98 00 15 16 05 00 02 15 16 05 00 2a 2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 0b 80 02 68 01 01 00 01 00 40 42 1e 00 00 03 00 01 00 21 00 01 00 00 00 00 00 00 01 00 00 00 80 96 98 00 15 16 05 00 02 15 16 05 00 2a 2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 0c 80 02 68 01 01 00 01 00 0c 64 1e 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 01 00 00 00 80 96 98 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 0d e0 01 0e 01 01 00 01 00 40 42 15 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 01 00 00 00 00 09 3d 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 0e e0 01 0e 01 01 00 01 00 0c 64 15 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 01 00 00 00 00 09 3d 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 0f a8 01 f0 00 01 00 01 00 40 42 15 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 01 00 00 00 00 09 3d 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 10 a8 01 f0 00 01 00 01 00 0c 64 15 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 01 00 00 00 00 09 3d 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 11 40 01 f0 00 01 00 01 00 40 42 14 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 01 00 00 00 80 84 1e 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 12 40 01 f0 00 01 00 01 00 0c 64 14 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 01 00 00 00 80 84 1e 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 13 40 01 b4 00 01 00 01 00 40 42 14 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 01 00 00 00 80 84 1e 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 14 40 01 b4 00 01 00 01 00 0c 64 14 00 00 03 00 01 00 2b 00 01 00 00 00 00 00 00 01 00 00 00 80 84 1e 00 15 16 05 00 02 15 16 05 00 2a 2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 15 a0 00 78 00 01 00 01 00 40 42 14 00 00 03 00 01 00 21 00 01 00 00 00 00 00 00 01 00 00 00 80 84 1e 00 15 16 05 00 02 15 16 05 00 2a 2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 16 a0 00 78 00 01 00 01 00 0c 64 14 00 00 03 00 01 00 2b 00 01 00 00 00 00 00 00 01 00 00 00 80 84 1e 00 15 16 05 00 02 15 16 05 00 2a 2c 0a 00

Interface Descriptor:

bLength 9

bDescriptorType 4

bInterfaceNumber 2

bAlternateSetting 1

bNumEndpoints 1

bInterfaceClass 14 Video

bInterfaceSubClass 2 Video Streaming

bInterfaceProtocol 1

iInterface 0

Endpoint Descriptor:

bLength 7

bDescriptorType 5

bEndpointAddress 0x83 EP 3 IN

bmAttributes 5

Transfer Type Isochronous

Synch Type Asynchronous

Usage Type Data

wMaxPacketSize 0x0400 1x 1024 bytes

bInterval 1

Interface Descriptor:

bLength 9

bDescriptorType 4

bInterfaceNumber 2

bAlternateSetting 2

bNumEndpoints 1

bInterfaceClass 14 Video

bInterfaceSubClass 2 Video Streaming

bInterfaceProtocol 1

iInterface 0

Endpoint Descriptor:

bLength 7

bDescriptorType 5

bEndpointAddress 0x83 EP 3 IN
bmAttributes 5
Transfer Type Isochronous
Synch Type Asynchronous
Usage Type Data
wMaxPacketSize 0x0100 1x 256 bytes
bInterval 1
Device Qualifier (for other device speed):
bLength 10
bDescriptorType 6
bcdUSB 2.00
bDeviceClass 239 Miscellaneous Device
bDeviceSubClass 2 ?
bDeviceProtocol 1 Interface Association
bMaxPacketSize0 64
bNumConfigurations 1
Device Status: 0x0000
(Bus Powered)

Bus 001 Device 006: ID 046d:c52b Logitech, Inc. Unifying Receiver

Device Descriptor:

bLength 18
bDescriptorType 1
bcdUSB 2.00
bDeviceClass 0 (Defined at Interface level)
bDeviceSubClass 0
bDeviceProtocol 0
bMaxPacketSize0 8
idVendor 0x046d Logitech, Inc.
idProduct 0xc52b Unifying Receiver
bcdDevice 12.01
iManufacturer 1 Logitech
iProduct 2 USB Receiver
iSerial 0
bNumConfigurations 1
Configuration Descriptor:
bLength 9
bDescriptorType 2
wTotalLength 84
bNumInterfaces 3
bConfigurationValue 1
iConfiguration 4 RQR12.01_B0019
bmAttributes 0xa0
(Bus Powered)
Remote Wakeup
MaxPower 98mA
Interface Descriptor:
bLength 9

bDescriptorType 4
bInterfaceNumber 0
bAlternateSetting 0
bNumEndpoints 1
bInterfaceClass 3 Human Interface Device
bInterfaceSubClass 1 Boot Interface Subclass
bInterfaceProtocol 1 Keyboard
iInterface 0
HID Device Descriptor:
bLength 9
bDescriptorType 33
bcdHID 1.11
bCountryCode 0 Not supported
bNumDescriptors 1
bDescriptorType 34 Report
wDescriptorLength 59
Report Descriptors:
** UNAVAILABLE **
Endpoint Descriptor:
bLength 7
bDescriptorType 5
bEndpointAddress 0x81 EP 1 IN
bmAttributes 3
Transfer Type Interrupt
Synch Type None
Usage Type Data
wMaxPacketSize 0x0008 1x 8 bytes
bInterval 8
Interface Descriptor:
bLength 9
bDescriptorType 4
bInterfaceNumber 1
bAlternateSetting 0
bNumEndpoints 1
bInterfaceClass 3 Human Interface Device
bInterfaceSubClass 1 Boot Interface Subclass
bInterfaceProtocol 2 Mouse
iInterface 0
HID Device Descriptor:
bLength 9
bDescriptorType 33
bcdHID 1.11
bCountryCode 0 Not supported
bNumDescriptors 1
bDescriptorType 34 Report
wDescriptorLength 148
Report Descriptors:
** UNAVAILABLE **

Endpoint Descriptor:

bLength 7
bDescriptorType 5
bEndpointAddress 0x82 EP 2 IN
bmAttributes 3
Transfer Type Interrupt
Synch Type None
Usage Type Data
wMaxPacketSize 0x0008 1x 8 bytes
bInterval 2

Interface Descriptor:

bLength 9
bDescriptorType 4
bInterfaceNumber 2
bAlternateSetting 0
bNumEndpoints 1
bInterfaceClass 3 Human Interface Device
bInterfaceSubClass 0 No Subclass
bInterfaceProtocol 0 None
iInterface 0

HID Device Descriptor:

bLength 9
bDescriptorType 33
bcdHID 1.11
bCountryCode 0 Not supported
bNumDescriptors 1

bDescriptorType 34 Report
wDescriptorLength 98

Report Descriptors:

** UNAVAILABLE **

Endpoint Descriptor:

bLength 7
bDescriptorType 5
bEndpointAddress 0x83 EP 3 IN
bmAttributes 3
Transfer Type Interrupt
Synch Type None
Usage Type Data
wMaxPacketSize 0x0020 1x 32 bytes
bInterval 2
Device Status: 0x0000
(Bus Powered)

Bus 001 Device 005: ID 13fe:5100 Kingston Technology Company Inc. Flash Drive

Device Descriptor:

bLength 18
bDescriptorType 1
bcdUSB 2.10

bDeviceClass 0 (Defined at Interface level)
bDeviceSubClass 0
bDeviceProtocol 0
bMaxPacketSize0 64
idVendor 0x13fe Kingston Technology Company Inc.
idProduct 0x5100 Flash Drive
bcdDevice 1.00
iManufacturer 1
iProduct 2 USB DISK 3.0
iSerial 3 070727088FD7E002
bNumConfigurations 1
Configuration Descriptor:
bLength 9
bDescriptorType 2
wTotalLength 32
bNumInterfaces 1
bConfigurationValue 1
iConfiguration 0
bmAttributes 0x80
(Bus Powered)
MaxPower 498mA
Interface Descriptor:
bLength 9
bDescriptorType 4
bInterfaceNumber 0
bAlternateSetting 0
bNumEndpoints 2
bInterfaceClass 8 Mass Storage
bInterfaceSubClass 6 SCSI
bInterfaceProtocol 80 Bulk-Only
iInterface 0
Endpoint Descriptor:
bLength 7
bDescriptorType 5
bEndpointAddress 0x81 EP 1 IN
bmAttributes 2
Transfer Type Bulk
Synch Type None
Usage Type Data
wMaxPacketSize 0x0200 1x 512 bytes
bInterval 0
Endpoint Descriptor:
bLength 7
bDescriptorType 5
bEndpointAddress 0x02 EP 2 OUT
bmAttributes 2
Transfer Type Bulk
Synch Type None

Usage Type Data
wMaxPacketSize 0x0200 1x 512 bytes
bInterval 0
Binary Object Store Descriptor:
bLength 5
bDescriptorType 15
wTotalLength 22
bNumDeviceCaps 2
USB 2.0 Extension Device Capability:
bLength 7
bDescriptorType 16
bDevCapabilityType 2
bmAttributes 0x00000002
Link Power Management (LPM) Supported
SuperSpeed USB Device Capability:
bLength 10
bDescriptorType 16
bDevCapabilityType 3
bmAttributes 0x00
wSpeedsSupported 0x000e
Device can operate at Full Speed (12Mbps)
Device can operate at High Speed (480Mbps)
Device can operate at SuperSpeed (5Gbps)
bFunctionalitySupport 2
Lowest fully-functional device speed is High Speed (480Mbps)
bU1DevExitLat 10 micro seconds
bU2DevExitLat 2047 micro seconds
Device Status: 0x0000
(Bus Powered)

Bus 001 Device 002: ID 05e3:0608 Genesys Logic, Inc. USB-2.0 4-Port HUB
Device Descriptor:
bLength 18
bDescriptorType 1
bcdUSB 2.00
bDeviceClass 9 Hub
bDeviceSubClass 0 Unused
bDeviceProtocol 1 Single TT
bMaxPacketSize0 64
idVendor 0x05e3 Genesys Logic, Inc.
idProduct 0x0608 USB-2.0 4-Port HUB
bcdDevice 9.01
iManufacturer 0
iProduct 1 USB2.0 Hub
iSerial 0
bNumConfigurations 1
Configuration Descriptor:
bLength 9

bDescriptorType 2
wTotalLength 25
bNumInterfaces 1
bConfigurationValue 1
iConfiguration 0
bmAttributes 0xe0
Self Powered
Remote Wakeup
MaxPower 100mA
Interface Descriptor:
bLength 9
bDescriptorType 4
bInterfaceNumber 0
bAlternateSetting 0
bNumEndpoints 1
bInterfaceClass 9 Hub
bInterfaceSubClass 0 Unused
bInterfaceProtocol 0 Full speed (or root) hub
iInterface 0
Endpoint Descriptor:
bLength 7
bDescriptorType 5
bEndpointAddress 0x81 EP 1 IN
bmAttributes 3
Transfer Type Interrupt
Synch Type None
Usage Type Data
wMaxPacketSize 0x0001 1x 1 bytes
bInterval 12
Hub Descriptor:
bLength 9
bDescriptorType 41
nNbrPorts 4
wHubCharacteristic 0x00e0
Ganged power switching
Ganged overcurrent protection
TT think time 32 FS bits
Port indicators
bPwrOn2PwrGood 50 * 2 milli seconds
bHubContrCurrent 100 milli Ampere
DeviceRemovable 0x00
PortPwrCtrlMask 0xff
Hub Port Status:
Port 1: 0000.0503 highspeed power enable connect
Port 2: 0000.0100 power
Port 3: 0000.0100 power
Port 4: 0000.0103 power enable connect
Device Qualifier (for other device speed):

bLength 10
bDescriptorType 6
bcdUSB 2.00
bDeviceClass 9 Hub
bDeviceSubClass 0 Unused
bDeviceProtocol 0 Full speed (or root) hub
bMaxPacketSize0 64
bNumConfigurations 1
Device Status: 0x0001
Self Powered

Bus 001 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub

Device Descriptor:

bLength 18
bDescriptorType 1
bcdUSB 2.00
bDeviceClass 9 Hub
bDeviceSubClass 0 Unused
bDeviceProtocol 1 Single TT
bMaxPacketSize0 64
idVendor 0x1d6b Linux Foundation
idProduct 0x0002 2.0 root hub
bcdDevice 3.16
iManufacturer 3 Linux 3.16.0-23-generic xhci_hcd
iProduct 2 xHCI Host Controller
iSerial 1 0000:00:14.0
bNumConfigurations 1
Configuration Descriptor:
bLength 9
bDescriptorType 2
wTotalLength 25
bNumInterfaces 1
bConfigurationValue 1
iConfiguration 0
bmAttributes 0xe0
Self Powered
Remote Wakeup
MaxPower 0mA
Interface Descriptor:
bLength 9
bDescriptorType 4
bInterfaceNumber 0
bAlternateSetting 0
bNumEndpoints 1
bInterfaceClass 9 Hub
bInterfaceSubClass 0 Unused
bInterfaceProtocol 0 Full speed (or root) hub
iInterface 0

Endpoint Descriptor:

bLength 7
bDescriptorType 5
bEndpointAddress 0x81 EP 1 IN
bmAttributes 3
Transfer Type Interrupt
Synch Type None
Usage Type Data
wMaxPacketSize 0x0004 1x 4 bytes
bInterval 12

Hub Descriptor:

bLength 11
bDescriptorType 41
nNbrPorts 9
wHubCharacteristic 0x000a
No power switching (usb 1.0)
Per-port overcurrent protection
TT think time 8 FS bits
bPwrOn2PwrGood 10 * 2 milli seconds
bHubContrCurrent 0 milli Ampere
DeviceRemovable 0xc4 0x01
PortPwrCtrlMask 0xff 0xff

Hub Port Status:

Port 1: 0000.0503 highspeed power enable connect
Port 2: 0000.0100 power
Port 3: 0000.0100 power
Port 4: 0000.0100 power
Port 5: 0000.0100 power
Port 6: 0000.0100 power
Port 7: 0000.0503 highspeed power enable connect
Port 8: 0000.0503 highspeed power enable connect
Port 9: 0000.0100 power
Device Status: 0x0001
Self Powered

```
ubuntu@ubuntu:~$ sudo lsusb -v no cord
```

Bus 002 Device 001: ID 1d6b:0003 Linux Foundation 3.0 root hub

Device Descriptor:

bLength 18

bDescriptorType 1

bcdUSB 3.00

bDeviceClass 9 Hub

bDeviceSubClass 0 Unused

bDeviceProtocol 3

bMaxPacketSize0 9

idVendor 0x1d6b Linux Foundation

idProduct 0x0003 3.0 root hub

bcdDevice 3.16

iManufacturer 3 Linux 3.16.0-23-generic xhci_hcd

iProduct 2 xHCI Host Controller

iSerial 1 0000:00:14.0

bNumConfigurations 1

Configuration Descriptor:

bLength 9

bDescriptorType 2

wTotalLength 31

bNumInterfaces 1

bConfigurationValue 1

iConfiguration 0

bmAttributes 0xe0

Self Powered

Remote Wakeup

MaxPower 0mA

Interface Descriptor:

bLength 9

bDescriptorType 4

bInterfaceNumber 0

bAlternateSetting 0

bNumEndpoints 1

bInterfaceClass 9 Hub

bInterfaceSubClass 0 Unused

bInterfaceProtocol 0 Full speed (or root) hub

iInterface 0

Endpoint Descriptor:

bLength 7

bDescriptorType 5

bEndpointAddress 0x81 EP 1 IN

bmAttributes 3

Transfer Type Interrupt

Synch Type None

Usage Type Data

wMaxPacketSize 0x0004 1x 4 bytes
bInterval 12
bMaxBurst 0
Hub Descriptor:
bLength 12
bDescriptorType 42
nNbrPorts 4
wHubCharacteristic 0x000a
No power switching (usb 1.0)
Per-port overcurrent protection
bPwrOn2PwrGood 10 * 2 milli seconds
bHubContrCurrent 0 milli Ampere
bHubDecLat 0.0 micro seconds
wHubDelay 0 nano seconds
DeviceRemovable 0x14
Hub Port Status:
Port 1: 0000.02a0 5Gbps power Rx.Detect
Port 2: 0000.02a0 5Gbps power Rx.Detect
Port 3: 0000.02a0 5Gbps power Rx.Detect
Port 4: 0000.02a0 5Gbps power Rx.Detect
Binary Object Store Descriptor:
bLength 5
bDescriptorType 15
wTotalLength 15
bNumDeviceCaps 1
SuperSpeed USB Device Capability:
bLength 10
bDescriptorType 16
bDevCapabilityType 3
bmAttributes 0x02
Latency Tolerance Messages (LTM) Supported
wSpeedsSupported 0x0008
Device can operate at SuperSpeed (5Gbps)
bFunctionalitySupport 3
Lowest fully-functional device speed is SuperSpeed (5Gbps)
bU1DevExitLat 10 micro seconds
bU2DevExitLat 512 micro seconds
Device Status: 0x0001
Self Powered

Bus 001 Device 004: ID 045e:07bf Microsoft Corp.
Device Descriptor:
bLength 18
bDescriptorType 1
bcdUSB 2.00
bDeviceClass 239 Miscellaneous Device
bDeviceSubClass 2 ?
bDeviceProtocol 1 Interface Association

bMaxPacketSize0 64
idVendor 0x045e Microsoft Corp.
idProduct 0x07bf
bcdDevice 21.52
iManufacturer 1 QCM
iProduct 2 Microsoft LifeCam Rear
iSerial 0
bNumConfigurations 1
Configuration Descriptor:
bLength 9
bDescriptorType 2
wTotalLength 1982
bNumInterfaces 3
bConfigurationValue 1
iConfiguration 2 Microsoft LifeCam Rear
bmAttributes 0x80
(Bus Powered)
MaxPower 250mA
Interface Association:
bLength 8
bDescriptorType 11
bFirstInterface 0
bInterfaceCount 3
bFunctionClass 14 Video
bFunctionSubClass 3 Video Interface Collection
bFunctionProtocol 0
iFunction 2 Microsoft LifeCam Rear
Interface Descriptor:
bLength 9
bDescriptorType 4
bInterfaceNumber 0
bAlternateSetting 0
bNumEndpoints 1
bInterfaceClass 14 Video
bInterfaceSubClass 1 Video Control
bInterfaceProtocol 1
iInterface 2 Microsoft LifeCam Rear
VideoControl Interface Descriptor:
bLength 14
bDescriptorType 36
bDescriptorSubtype 1 (HEADER)
bcdUVC 1.50
wTotalLength 105
dwClockFrequency 150.000000MHz
bInCollection 2
baInterfaceNr(0) 1
baInterfaceNr(1) 2
VideoControl Interface Descriptor:

bLength 18
bDescriptorType 36
bDescriptorSubtype 2 (INPUT_TERMINAL)
bTerminalID 1
wTerminalType 0x0201 Camera Sensor
bAssocTerminal 0
iTerminal 0
wObjectiveFocalLengthMin 0
wObjectiveFocalLengthMax 0
wOcularFocalLength 0
bControlSize 3
bmControls 0x00000a0e
Auto-Exposure Mode
Auto-Exposure Priority
Exposure Time (Absolute)
Zoom (Absolute)
PanTilt (Absolute)
VideoControl Interface Descriptor:
bLength 13
bDescriptorType 36
bDescriptorSubtype 5 (PROCESSING_UNIT)
bUnitID 2
bSourceID 1
wMaxMultiplier 0
bControlSize 3
bmControls 0x0000155b
Brightness
Contrast
Saturation
Sharpness
White Balance Temperature
Backlight Compensation
Power Line Frequency
White Balance Temperature, Auto
iProcessing 0
bmVideoStandards 0x 0
VideoControl Interface Descriptor:
bLength 29
bDescriptorType 36
bDescriptorSubtype 6 (EXTENSION_UNIT)
bUnitID 4
guidExtensionCode {29a787c9-d359-6945-8467-ff0849fc19e8}
bNumControl 22
bNrPins 1
baSourceID(0) 2
bControlSize 4
bmControls(0) 0xbf
bmControls(1) 0xfb

bmControls(2) 0xff
bmControls(3) 0x00
iExtension 0
VideoControl Interface Descriptor:
bLength 13
bDescriptorType 36
bDescriptorSubtype 7 (unknown)
Invalid desc subtype: 0b 04 00 03 cd 3e 00 cd 3e 00
VideoControl Interface Descriptor:
bLength 9
bDescriptorType 36
bDescriptorSubtype 3 (OUTPUT_TERMINAL)
bTerminalID 8
wTerminalType 0x0101 USB Streaming
bAssocTerminal 0
bSourceID 4
iTerminal 0
VideoControl Interface Descriptor:
bLength 9
bDescriptorType 36
bDescriptorSubtype 3 (OUTPUT_TERMINAL)
bTerminalID 9
wTerminalType 0x0101 USB Streaming
bAssocTerminal 0
bSourceID 11
iTerminal 0
Endpoint Descriptor:
bLength 7
bDescriptorType 5
bEndpointAddress 0x81 EP 1 IN
bmAttributes 3
Transfer Type Interrupt
Synch Type None
Usage Type Data
wMaxPacketSize 0x0040 1x 64 bytes
bInterval 6
Interface Descriptor:
bLength 9
bDescriptorType 4
bInterfaceNumber 1
bAlternateSetting 0
bNumEndpoints 0
bInterfaceClass 14 Video
bInterfaceSubClass 2 Video Streaming
bInterfaceProtocol 1
iInterface 0
VideoStreaming Interface Descriptor:
bLength 15

bDescriptorType 36
bDescriptorSubtype 1 (INPUT_HEADER)
bNumFormats 2
wTotalLength 563
bEndPointAddress 130
bmInfo 0
bTerminalLink 8
bStillCaptureMethod 1
bTriggerSupport 0
bTriggerUsage 0
bControlSize 1
bmaControls(0) 27
bmaControls(1) 27
VideoStreaming Interface Descriptor:
bLength 27
bDescriptorType 36
bDescriptorSubtype 4 (FORMAT_UNCOMPRESSED)
bFormatIndex 1
bNumFrameDescriptors 9
guidFormat {59555932-0000-1000-8000-00aa00389b71}
bBitsPerPixel 16
bDefaultFrameIndex 1
bAspectRatioX 0
bAspectRatioY 0
bmInterlaceFlags 0x00
Interlaced stream or variable: No
Fields per frame: 2 fields
Field 1 first: No
Field pattern: Field 1 only
bCopyProtect 0
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 5 (FRAME_UNCOMPRESSED)
bFrameIndex 1
bmCapabilities 0x01
Still image supported
wWidth 640
wHeight 360
dwMinBitRate 55296000
dwMaxBitRate 110592000
dwMaxVideoFrameBufferSize 460800
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 34

bDescriptorType 36
bDescriptorSubtype 5 (FRAME_UNCOMPRESSED)
bFrameIndex 2
bmCapabilities 0x01
Still image supported
wWidth 640
wHeight 480
dwMinBitRate 73728000
dwMaxBitRate 147456000
dwMaxVideoFrameBufferSize 614400
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 5 (FRAME_UNCOMPRESSED)
bFrameIndex 3
bmCapabilities 0x01
Still image supported
wWidth 480
wHeight 270
dwMinBitRate 31104000
dwMaxBitRate 62208000
dwMaxVideoFrameBufferSize 259200
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 5 (FRAME_UNCOMPRESSED)
bFrameIndex 4
bmCapabilities 0x01
Still image supported
wWidth 424
wHeight 240
dwMinBitRate 24422400
dwMaxBitRate 48844800
dwMaxVideoFrameBufferSize 203520
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 34

bDescriptorType 36
bDescriptorSubtype 5 (FRAME_UNCOMPRESSED)
bFrameIndex 5
bmCapabilities 0x01
Still image supported
wWidth 320
wHeight 240
dwMinBitRate 18432000
dwMaxBitRate 36864000
dwMaxVideoFrameBufferSize 153600
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 5 (FRAME_UNCOMPRESSED)
bFrameIndex 6
bmCapabilities 0x01
Still image supported
wWidth 320
wHeight 180
dwMinBitRate 13824000
dwMaxBitRate 27648000
dwMaxVideoFrameBufferSize 115200
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 5 (FRAME_UNCOMPRESSED)
bFrameIndex 7
bmCapabilities 0x01
Still image supported
wWidth 160
wHeight 120
dwMinBitRate 4608000
dwMaxBitRate 9216000
dwMaxVideoFrameBufferSize 38400
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 30

bDescriptorType 36
bDescriptorSubtype 5 (FRAME_UNCOMPRESSED)
bFrameIndex 8
bmCapabilities 0x01
Still image supported
wWidth 2592
wHeight 1944
dwMinBitRate 161243136
dwMaxBitRate 161243136
dwMaxVideoFrameBufferSize 10077696
dwDefaultFrameInterval 5000000
bFrameIntervalType 1
dwFrameInterval(0) 5000000
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 5 (FRAME_UNCOMPRESSED)
bFrameIndex 9
bmCapabilities 0x01
Still image supported
wWidth 848
wHeight 480
dwMinBitRate 97689600
dwMaxBitRate 195379200
dwMaxVideoFrameBufferSize 814080
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 6
bDescriptorType 36
bDescriptorSubtype 13 (COLORFORMAT)
bColorPrimaries 1 (BT.709,sRGB)
bTransferCharacteristics 1 (BT.709)
bMatrixCoefficients 4 (SMPTE 170M (BT.601))
VideoStreaming Interface Descriptor:
bLength 11
bDescriptorType 36
bDescriptorSubtype 6 (FORMAT_MJPEG)
bFormatIndex 2
bNumFrameDescriptors 6
bFlags 1
Fixed-size samples: Yes
bDefaultFrameIndex 1
bAspectRatioX 0
bAspectRatioY 0
bmInterlaceFlags 0x00

Interlaced stream or variable: No
Fields per frame: 1 fields
Field 1 first: No
Field pattern: Field 1 only
bCopyProtect 0
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 7 (FRAME_MJPEG)
bFrameIndex 1
bmCapabilities 0x01
Still image supported
wWidth 1920
wHeight 1080
dwMinBitRate 248832000
dwMaxBitRate 497664000
dwMaxVideoFrameBufferSize 4147200
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 7 (FRAME_MJPEG)
bFrameIndex 2
bmCapabilities 0x01
Still image supported
wWidth 1280
wHeight 720
dwMinBitRate 110592000
dwMaxBitRate 221184000
dwMaxVideoFrameBufferSize 1843200
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 7 (FRAME_MJPEG)
bFrameIndex 3
bmCapabilities 0x01
Still image supported
wWidth 960
wHeight 540
dwMinBitRate 62208000
dwMaxBitRate 124416000

dwMaxVideoFrameBufferSize 1036800
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 30
bDescriptorType 36
bDescriptorSubtype 7 (FRAME_MJPEG)
bFrameIndex 4
bmCapabilities 0x01
Still image supported
wWidth 2592
wHeight 1944
dwMinBitRate 604661760
dwMaxBitRate 604661760
dwMaxVideoFrameBufferSize 10077696
dwDefaultFrameInterval 666666
bFrameIntervalType 1
dwFrameInterval(0) 666666
VideoStreaming Interface Descriptor:
bLength 30
bDescriptorType 36
bDescriptorSubtype 7 (FRAME_MJPEG)
bFrameIndex 5
bmCapabilities 0x01
Still image supported
wWidth 2592
wHeight 1728
dwMinBitRate 537477120
dwMaxBitRate 537477120
dwMaxVideoFrameBufferSize 8957952
dwDefaultFrameInterval 666666
bFrameIntervalType 1
dwFrameInterval(0) 666666
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 7 (FRAME_MJPEG)
bFrameIndex 6
bmCapabilities 0x01
Still image supported
wWidth 1296
wHeight 864
dwMinBitRate 134369280
dwMaxBitRate 268738560
dwMaxVideoFrameBufferSize 2239488
dwDefaultFrameInterval 333333

bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 6
bDescriptorType 36
bDescriptorSubtype 13 (COLORFORMAT)
bColorPrimaries 1 (BT.709,sRGB)
bTransferCharacteristics 1 (BT.709)
bMatrixCoefficients 4 (SMPTE 170M (BT.601))
Interface Descriptor:
bLength 9
bDescriptorType 4
bInterfaceNumber 1
bAlternateSetting 1
bNumEndpoints 1
bInterfaceClass 14 Video
bInterfaceSubClass 2 Video Streaming
bInterfaceProtocol 1
iInterface 0
Endpoint Descriptor:
bLength 7
bDescriptorType 5
bEndpointAddress 0x82 EP 2 IN
bmAttributes 5
Transfer Type Isochronous
Synch Type Asynchronous
Usage Type Data
wMaxPacketSize 0x1400 3x 1024 bytes
bInterval 1
Interface Descriptor:
bLength 9
bDescriptorType 4
bInterfaceNumber 2
bAlternateSetting 0
bNumEndpoints 0
bInterfaceClass 14 Video
bInterfaceSubClass 2 Video Streaming
bInterfaceProtocol 1
iInterface 0
VideoStreaming Interface Descriptor:
bLength 14
bDescriptorType 36
bDescriptorSubtype 1 (INPUT_HEADER)
bNumFormats 1
wTotalLength 1210
bEndPointAddress 131
bmInfo 0

bTerminalLink 9
bStillCaptureMethod 1
bTriggerSupport 0
bTriggerUsage 0
bControlSize 1
bmaControls(0) 52
VideoStreaming Interface Descriptor:
bLength 52
bDescriptorType 36
bDescriptorSubtype 19 Invalid desc subtype: 01 16 02 03 00 43 03 00 0d f5 00 00 00 00 00 00
00 f5 00
00 00
VideoStreaming Interface Descriptor:
bLength 52
bDescriptorType 36
bDescriptorSubtype 20 Invalid desc subtype: 01 80 07 38 04 01 00 01 00 40 42 29 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 00 01 00 00 00 80 b1 4f 01 15 16 05 00 02 15 16 05 00 2a 2c
0a 00
VideoStreaming Interface Descriptor:
bLength 52
bDescriptorType 36
bDescriptorSubtype 20 Invalid desc subtype: 02 80 07 38 04 01 00 01 00 0c 64 29 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 00 01 00 00 00 80 b1 4f 01 15 16 05 00 02 15 16 05 00 2a 2c
0a 00
VideoStreaming Interface Descriptor:
bLength 52
bDescriptorType 36
bDescriptorSubtype 20 Invalid desc subtype: 03 00 05 d0 02 01 00 01 00 40 42 20 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 00 01 00 00 00 c0 e1 e4 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00
VideoStreaming Interface Descriptor:
bLength 52
bDescriptorType 36
bDescriptorSubtype 20 Invalid desc subtype: 04 00 05 d0 02 01 00 01 00 0c 64 20 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 00 01 00 00 00 c0 e1 e4 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00
VideoStreaming Interface Descriptor:
bLength 52
bDescriptorType 36
bDescriptorSubtype 20 Invalid desc subtype: 05 c0 03 1c 02 01 00 01 00 40 42 1f 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 00 01 00 00 00 80 9f d5 00 15 16 05 00 02 15 16 05 00 2a 2c
0a 00
VideoStreaming Interface Descriptor:
bLength 52
bDescriptorType 36
bDescriptorSubtype 20 Invalid desc subtype: 06 c0 03 1c 02 01 00 01 00 0c 64 1f 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 00 01 00 00 00 80 9f d5 00 15 16 05 00 02 15 16 05 00 2a 2c
0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 07 50 03 e0 01 01 00 01 00 40 42 1f 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 01 00 00 00 80 9f d5 00 15 16 05 00 02 15 16 05 00 2a 2c
0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 08 50 03 e0 01 01 00 01 00 0c 64 1f 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 01 00 00 00 80 9f d5 00 15 16 05 00 02 15 16 05 00 2a 2c
0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 09 80 02 e0 01 01 00 01 00 40 42 1e 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 01 00 00 00 80 96 98 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 0a 80 02 e0 01 01 00 01 00 0c 64 1e 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 01 00 00 00 80 96 98 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 0b 80 02 68 01 01 00 01 00 40 42 1e 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 01 00 00 00 80 96 98 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 0c 80 02 68 01 01 00 01 00 0c 64 1e 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 01 00 00 00 80 96 98 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 0d e0 01 0e 01 01 00 01 00 40 42 15 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 01 00 00 00 00 09 3d 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 0e e0 01 0e 01 01 00 01 00 0c 64 15 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 01 00 00 00 00 09 3d 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 0f a8 01 f0 00 01 00 01 00 40 42 15 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 00 01 00 00 00 00 09 3d 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 10 a8 01 f0 00 01 00 01 00 0c 64 15 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 00 01 00 00 00 00 09 3d 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 11 40 01 f0 00 01 00 01 00 40 42 14 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 00 01 00 00 00 80 84 1e 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 12 40 01 f0 00 01 00 01 00 0c 64 14 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 00 01 00 00 00 80 84 1e 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 13 40 01 b4 00 01 00 01 00 40 42 14 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 00 01 00 00 00 80 84 1e 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 14 40 01 b4 00 01 00 01 00 0c 64 14 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 00 01 00 00 00 80 84 1e 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 15 a0 00 78 00 01 00 01 00 40 42 14 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 00 01 00 00 00 80 84 1e 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 16 a0 00 78 00 01 00 01 00 0c 64 14 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 00 01 00 00 00 80 84 1e 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

Interface Descriptor:

bLength 9
bDescriptorType 4
bInterfaceNumber 2
bAlternateSetting 1
bNumEndpoints 1
bInterfaceClass 14 Video
bInterfaceSubClass 2 Video Streaming
bInterfaceProtocol 1
iInterface 0

Endpoint Descriptor:

bLength 7
bDescriptorType 5
bEndpointAddress 0x83 EP 3 IN
bmAttributes 5
Transfer Type Isochronous
Synch Type Asynchronous
Usage Type Data
wMaxPacketSize 0x0400 1x 1024 bytes
bInterval 1

Interface Descriptor:

bLength 9
bDescriptorType 4
bInterfaceNumber 2
bAlternateSetting 2
bNumEndpoints 1
bInterfaceClass 14 Video
bInterfaceSubClass 2 Video Streaming
bInterfaceProtocol 1
iInterface 0

Endpoint Descriptor:

bLength 7
bDescriptorType 5
bEndpointAddress 0x83 EP 3 IN
bmAttributes 5
Transfer Type Isochronous
Synch Type Asynchronous
Usage Type Data
wMaxPacketSize 0x0100 1x 256 bytes
bInterval 1

Device Qualifier (for other device speed):

bLength 10
bDescriptorType 6
bcdUSB 2.00
bDeviceClass 239 Miscellaneous Device
bDeviceSubClass 2 ?
bDeviceProtocol 1 Interface Association
bMaxPacketSize0 64

bNumConfigurations 1
Device Status: 0x0000
(Bus Powered)

Bus 001 Device 003: ID 045e:07be Microsoft Corp.

Device Descriptor:

bLength 18
bDescriptorType 1
bcdUSB 2.00
bDeviceClass 239 Miscellaneous Device
bDeviceSubClass 2 ?
bDeviceProtocol 1 Interface Association
bMaxPacketSize0 64
idVendor 0x045e Microsoft Corp.
idProduct 0x07be
bcdDevice 21.52
iManufacturer 1 QCM
iProduct 2 Microsoft LifeCam Front
iSerial 0

bNumConfigurations 1

Configuration Descriptor:

bLength 9
bDescriptorType 2
wTotalLength 1982
bNumInterfaces 3
bConfigurationValue 1
iConfiguration 2 Microsoft LifeCam Front
bmAttributes 0x80
(Bus Powered)

MaxPower 250mA

Interface Association:

bLength 8
bDescriptorType 11
bFirstInterface 0
bInterfaceCount 3
bFunctionClass 14 Video
bFunctionSubClass 3 Video Interface Collection
bFunctionProtocol 0
iFunction 2 Microsoft LifeCam Front

Interface Descriptor:

bLength 9
bDescriptorType 4
bInterfaceNumber 0
bAlternateSetting 0
bNumEndpoints 1
bInterfaceClass 14 Video
bInterfaceSubClass 1 Video Control
bInterfaceProtocol 1

Interface 2 Microsoft LifeCam Front
VideoControl Interface Descriptor:
bLength 14
bDescriptorType 36
bDescriptorSubtype 1 (HEADER)
bcdUVC 1.50
wTotalLength 105
dwClockFrequency 150.000000MHz
bInCollection 2
baInterfaceNr(0) 1
baInterfaceNr(1) 2
VideoControl Interface Descriptor:
bLength 18
bDescriptorType 36
bDescriptorSubtype 2 (INPUT_TERMINAL)
bTerminalID 1
wTerminalType 0x0201 Camera Sensor
bAssocTerminal 0
iTerminal 0
wObjectiveFocalLengthMin 0
wObjectiveFocalLengthMax 0
wOcularFocalLength 0
bControlSize 3
bmControls 0x00000a0e
Auto-Exposure Mode
Auto-Exposure Priority
Exposure Time (Absolute)
Zoom (Absolute)
PanTilt (Absolute)
VideoControl Interface Descriptor:
bLength 13
bDescriptorType 36
bDescriptorSubtype 5 (PROCESSING_UNIT)
bUnitID 2
bSourceID 1
wMaxMultiplier 0
bControlSize 3
bmControls 0x0000155b
Brightness
Contrast
Saturation
Sharpness
White Balance Temperature
Backlight Compensation
Power Line Frequency
White Balance Temperature, Auto
iProcessing 0
bmVideoStandards 0x 0

VideoControl Interface Descriptor:

bLength 29

bDescriptorType 36

bDescriptorSubtype 6 (EXTENSION_UNIT)

bUnitID 4

guidExtensionCode {29a787c9-d359-6945-8467-ff0849fc19e8}

bNumControl 22

bNrPins 1

baSourceID(0) 2

bControlSize 4

bmControls(0) 0xbf

bmControls(1) 0xfb

bmControls(2) 0xff

bmControls(3) 0x00

iExtension 0

VideoControl Interface Descriptor:

bLength 13

bDescriptorType 36

bDescriptorSubtype 7 (unknown)

Invalid desc subtype: 0b 04 00 03 cd 3e 00 cd 3e 00

VideoControl Interface Descriptor:

bLength 9

bDescriptorType 36

bDescriptorSubtype 3 (OUTPUT_TERMINAL)

bTerminalID 8

wTerminalType 0x0101 USB Streaming

bAssocTerminal 0

bSourceID 4

iTerminal 0

VideoControl Interface Descriptor:

bLength 9

bDescriptorType 36

bDescriptorSubtype 3 (OUTPUT_TERMINAL)

bTerminalID 9

wTerminalType 0x0101 USB Streaming

bAssocTerminal 0

bSourceID 11

iTerminal 0

Endpoint Descriptor:

bLength 7

bDescriptorType 5

bEndpointAddress 0x81 EP 1 IN

bmAttributes 3

Transfer Type Interrupt

Synch Type None

Usage Type Data

wMaxPacketSize 0x0040 1x 64 bytes

bInterval 6

Interface Descriptor:

bLength 9
bDescriptorType 4
bInterfaceNumber 1
bAlternateSetting 0
bNumEndpoints 0
bInterfaceClass 14 Video
bInterfaceSubClass 2 Video Streaming
bInterfaceProtocol 1
iInterface 0

VideoStreaming Interface Descriptor:

bLength 15
bDescriptorType 36
bDescriptorSubtype 1 (INPUT_HEADER)
bNumFormats 2
wTotalLength 563
bEndPointAddress 130
bmInfo 0
bTerminalLink 8
bStillCaptureMethod 1
bTriggerSupport 0
bTriggerUsage 0
bControlSize 1
bmaControls(0) 27
bmaControls(1) 27

VideoStreaming Interface Descriptor:

bLength 27
bDescriptorType 36
bDescriptorSubtype 4 (FORMAT_UNCOMPRESSED)
bFormatIndex 1
bNumFrameDescriptors 9
guidFormat {59555932-0000-1000-8000-00aa00389b71}
bBitsPerPixel 16
bDefaultFrameIndex 1
bAspectRatioX 0
bAspectRatioY 0
bmInterlaceFlags 0x00
Interlaced stream or variable: No
Fields per frame: 2 fields
Field 1 first: No
Field pattern: Field 1 only
bCopyProtect 0

VideoStreaming Interface Descriptor:

bLength 34
bDescriptorType 36
bDescriptorSubtype 5 (FRAME_UNCOMPRESSED)
bFrameIndex 1
bmCapabilities 0x01

Still image supported
wWidth 640
wHeight 360
dwMinBitRate 55296000
dwMaxBitRate 110592000
dwMaxVideoFrameBufferSize 460800
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 5 (FRAME_UNCOMPRESSED)
bFrameIndex 2
bmCapabilities 0x01
Still image supported
wWidth 640
wHeight 480
dwMinBitRate 73728000
dwMaxBitRate 147456000
dwMaxVideoFrameBufferSize 614400
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 5 (FRAME_UNCOMPRESSED)
bFrameIndex 3
bmCapabilities 0x01
Still image supported
wWidth 480
wHeight 270
dwMinBitRate 31104000
dwMaxBitRate 62208000
dwMaxVideoFrameBufferSize 259200
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 5 (FRAME_UNCOMPRESSED)
bFrameIndex 4
bmCapabilities 0x01

Still image supported
wWidth 424
wHeight 240
dwMinBitRate 24422400
dwMaxBitRate 48844800
dwMaxVideoFrameBufferSize 203520
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 5 (FRAME_UNCOMPRESSED)
bFrameIndex 5
bmCapabilities 0x01
Still image supported
wWidth 320
wHeight 240
dwMinBitRate 18432000
dwMaxBitRate 36864000
dwMaxVideoFrameBufferSize 153600
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 5 (FRAME_UNCOMPRESSED)
bFrameIndex 6
bmCapabilities 0x01
Still image supported
wWidth 320
wHeight 180
dwMinBitRate 13824000
dwMaxBitRate 27648000
dwMaxVideoFrameBufferSize 115200
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 5 (FRAME_UNCOMPRESSED)
bFrameIndex 7
bmCapabilities 0x01

Still image supported
wWidth 160
wHeight 120
dwMinBitRate 4608000
dwMaxBitRate 9216000
dwMaxVideoFrameBufferSize 38400
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 30
bDescriptorType 36
bDescriptorSubtype 5 (FRAME_UNCOMPRESSED)
bFrameIndex 8
bmCapabilities 0x01
Still image supported
wWidth 2592
wHeight 1944
dwMinBitRate 161243136
dwMaxBitRate 161243136
dwMaxVideoFrameBufferSize 10077696
dwDefaultFrameInterval 5000000
bFrameIntervalType 1
dwFrameInterval(0) 5000000
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 5 (FRAME_UNCOMPRESSED)
bFrameIndex 9
bmCapabilities 0x01
Still image supported
wWidth 848
wHeight 480
dwMinBitRate 97689600
dwMaxBitRate 195379200
dwMaxVideoFrameBufferSize 814080
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 6
bDescriptorType 36
bDescriptorSubtype 13 (COLORFORMAT)
bColorPrimaries 1 (BT.709,sRGB)
bTransferCharacteristics 1 (BT.709)
bMatrixCoefficients 4 (SMPTE 170M (BT.601))

VideoStreaming Interface Descriptor:

bLength 11

bDescriptorType 36

bDescriptorSubtype 6 (FORMAT_MJPEG)

bFormatIndex 2

bNumFrameDescriptors 6

bFlags 1

Fixed-size samples: Yes

bDefaultFrameIndex 1

bAspectRatioX 0

bAspectRatioY 0

bmInterlaceFlags 0x00

Interlaced stream or variable: No

Fields per frame: 1 fields

Field 1 first: No

Field pattern: Field 1 only

bCopyProtect 0

VideoStreaming Interface Descriptor:

bLength 34

bDescriptorType 36

bDescriptorSubtype 7 (FRAME_MJPEG)

bFrameIndex 1

bmCapabilities 0x01

Still image supported

wWidth 1920

wHeight 1080

dwMinBitRate 248832000

dwMaxBitRate 497664000

dwMaxVideoFrameBufferSize 4147200

dwDefaultFrameInterval 333333

bFrameIntervalType 2

dwFrameInterval(0) 333333

dwFrameInterval(1) 666666

VideoStreaming Interface Descriptor:

bLength 34

bDescriptorType 36

bDescriptorSubtype 7 (FRAME_MJPEG)

bFrameIndex 2

bmCapabilities 0x01

Still image supported

wWidth 1280

wHeight 720

dwMinBitRate 110592000

dwMaxBitRate 221184000

dwMaxVideoFrameBufferSize 1843200

dwDefaultFrameInterval 333333

bFrameIntervalType 2

dwFrameInterval(0) 333333

dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 34
bDescriptorType 36
bDescriptorSubtype 7 (FRAME_MJPEG)
bFrameIndex 3
bmCapabilities 0x01
Still image supported
wWidth 960
wHeight 540
dwMinBitRate 62208000
dwMaxBitRate 124416000
dwMaxVideoFrameBufferSize 1036800
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 30
bDescriptorType 36
bDescriptorSubtype 7 (FRAME_MJPEG)
bFrameIndex 4
bmCapabilities 0x01
Still image supported
wWidth 2592
wHeight 1944
dwMinBitRate 604661760
dwMaxBitRate 604661760
dwMaxVideoFrameBufferSize 10077696
dwDefaultFrameInterval 666666
bFrameIntervalType 1
dwFrameInterval(0) 666666
VideoStreaming Interface Descriptor:
bLength 30
bDescriptorType 36
bDescriptorSubtype 7 (FRAME_MJPEG)
bFrameIndex 5
bmCapabilities 0x01
Still image supported
wWidth 2592
wHeight 1728
dwMinBitRate 537477120
dwMaxBitRate 537477120
dwMaxVideoFrameBufferSize 8957952
dwDefaultFrameInterval 666666
bFrameIntervalType 1
dwFrameInterval(0) 666666
VideoStreaming Interface Descriptor:

bLength 34
bDescriptorType 36
bDescriptorSubtype 7 (FRAME_MJPEG)
bFrameIndex 6
bmCapabilities 0x01
Still image supported
wWidth 1296
wHeight 864
dwMinBitRate 134369280
dwMaxBitRate 268738560
dwMaxVideoFrameBufferSize 2239488
dwDefaultFrameInterval 333333
bFrameIntervalType 2
dwFrameInterval(0) 333333
dwFrameInterval(1) 666666
VideoStreaming Interface Descriptor:
bLength 6
bDescriptorType 36
bDescriptorSubtype 13 (COLORFORMAT)
bColorPrimaries 1 (BT.709,sRGB)
bTransferCharacteristics 1 (BT.709)
bMatrixCoefficients 4 (SMPTE 170M (BT.601))
Interface Descriptor:
bLength 9
bDescriptorType 4
bInterfaceNumber 1
bAlternateSetting 1
bNumEndpoints 1
bInterfaceClass 14 Video
bInterfaceSubClass 2 Video Streaming
bInterfaceProtocol 1
iInterface 0
Endpoint Descriptor:
bLength 7
bDescriptorType 5
bEndpointAddress 0x82 EP 2 IN
bmAttributes 5
Transfer Type Isochronous
Synch Type Asynchronous
Usage Type Data
wMaxPacketSize 0x1400 3x 1024 bytes
bInterval 1
Interface Descriptor:
bLength 9
bDescriptorType 4
bInterfaceNumber 2
bAlternateSetting 0
bNumEndpoints 0

bInterfaceClass 14 Video
bInterfaceSubClass 2 Video Streaming
bInterfaceProtocol 1
iInterface 0
VideoStreaming Interface Descriptor:
bLength 14
bDescriptorType 36
bDescriptorSubtype 1 (INPUT_HEADER)
bNumFormats 1
wTotalLength 1210
bEndPointAddress 131
bmInfo 0
bTerminalLink 9
bStillCaptureMethod 1
bTriggerSupport 0
bTriggerUsage 0
bControlSize 1
bmaControls(0) 52
VideoStreaming Interface Descriptor:
bLength 52
bDescriptorType 36
bDescriptorSubtype 19 Invalid desc subtype: 01 16 02 03 00 43 03 00 0d f5 00 00 00 00 00 00
00 f5 00
00 00
VideoStreaming Interface Descriptor:
bLength 52
bDescriptorType 36
bDescriptorSubtype 20 Invalid desc subtype: 01 80 07 38 04 01 00 01 00 40 42 29 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 00 00 01 00 00 00 80 b1 4f 01 15 16 05 00 02 15 16 05 00 2a 2c
0a 00
VideoStreaming Interface Descriptor:
bLength 52
bDescriptorType 36
bDescriptorSubtype 20 Invalid desc subtype: 02 80 07 38 04 01 00 01 00 0c 64 29 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 00 00 01 00 00 00 80 b1 4f 01 15 16 05 00 02 15 16 05 00 2a 2c
0a 00
VideoStreaming Interface Descriptor:
bLength 52
bDescriptorType 36
bDescriptorSubtype 20 Invalid desc subtype: 03 00 05 d0 02 01 00 01 00 40 42 20 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 00 00 01 00 00 00 c0 e1 e4 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00
VideoStreaming Interface Descriptor:
bLength 52
bDescriptorType 36
bDescriptorSubtype 20 Invalid desc subtype: 04 00 05 d0 02 01 00 01 00 0c 64 20 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 00 00 01 00 00 00 c0 e1 e4 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 05 c0 03 1c 02 01 00 01 00 40 42 1f 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 00 01 00 00 00 80 9f d5 00 15 16 05 00 02 15 16 05 00 2a 2c
0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 06 c0 03 1c 02 01 00 01 00 0c 64 1f 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 00 01 00 00 00 80 9f d5 00 15 16 05 00 02 15 16 05 00 2a 2c
0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 07 50 03 e0 01 01 00 01 00 40 42 1f 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 00 01 00 00 00 80 9f d5 00 15 16 05 00 02 15 16 05 00 2a 2c
0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 08 50 03 e0 01 01 00 01 00 0c 64 1f 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 00 01 00 00 00 80 9f d5 00 15 16 05 00 02 15 16 05 00 2a 2c
0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 09 80 02 e0 01 01 00 01 00 40 42 1e 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 00 01 00 00 00 80 96 98 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 0a 80 02 e0 01 01 00 01 00 0c 64 1e 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 00 01 00 00 00 80 96 98 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 0b 80 02 68 01 01 00 01 00 40 42 1e 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 00 01 00 00 00 80 96 98 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 0c 80 02 68 01 01 00 01 00 0c 64 1e 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 00 01 00 00 00 80 96 98 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 0d e0 01 0e 01 01 00 01 00 40 42 15 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 00 01 00 00 00 00 09 3d 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 0e e0 01 0e 01 01 00 01 00 0c 64 15 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 00 01 00 00 00 00 09 3d 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 0f a8 01 f0 00 01 00 01 00 40 42 15 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 00 01 00 00 00 00 09 3d 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 10 a8 01 f0 00 01 00 01 00 0c 64 15 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 00 01 00 00 00 00 09 3d 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 11 40 01 f0 00 01 00 01 00 40 42 14 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 00 01 00 00 00 80 84 1e 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 12 40 01 f0 00 01 00 01 00 0c 64 14 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 00 01 00 00 00 80 84 1e 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 13 40 01 b4 00 01 00 01 00 40 42 14 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 00 01 00 00 00 80 84 1e 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 14 40 01 b4 00 01 00 01 00 0c 64 14 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 00 01 00 00 00 80 84 1e 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 15 a0 00 78 00 01 00 01 00 40 42 14 00 00 03 00
01 00 21 00 01 00 00 00 00 00 00 01 00 00 00 80 84 1e 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

VideoStreaming Interface Descriptor:

bLength 52

bDescriptorType 36

bDescriptorSubtype 20 Invalid desc subtype: 16 a0 00 78 00 01 00 01 00 0c 64 14 00 00 03 00
01 00 2b 00 01 00 00 00 00 00 00 01 00 00 00 80 84 1e 00 15 16 05 00 02 15 16 05 00 2a
2c 0a 00

Interface Descriptor:

bLength 9

bDescriptorType 4

bInterfaceNumber 2

bAlternateSetting 1

bNumEndpoints 1

bInterfaceClass 14 Video

bInterfaceSubClass 2 Video Streaming

bInterfaceProtocol 1

iInterface 0

Endpoint Descriptor:

bLength 7

bDescriptorType 5

bEndpointAddress 0x83 EP 3 IN

bmAttributes 5

Transfer Type Isochronous

Synch Type Asynchronous

Usage Type Data

wMaxPacketSize 0x0400 1x 1024 bytes

bInterval 1

Interface Descriptor:

bLength 9

bDescriptorType 4

bInterfaceNumber 2

bAlternateSetting 2

bNumEndpoints 1

bInterfaceClass 14 Video

bInterfaceSubClass 2 Video Streaming

bInterfaceProtocol 1

iInterface 0

Endpoint Descriptor:

bLength 7

bDescriptorType 5

bEndpointAddress 0x83 EP 3 IN

bmAttributes 5

Transfer Type Isochronous

Synch Type Asynchronous
Usage Type Data
wMaxPacketSize 0x0100 1x 256 bytes
bInterval 1
Device Qualifier (for other device speed):
bLength 10
bDescriptorType 6
bcdUSB 2.00
bDeviceClass 239 Miscellaneous Device
bDeviceSubClass 2 ?
bDeviceProtocol 1 Interface Association
bMaxPacketSize0 64
bNumConfigurations 1
Device Status: 0x0000
(Bus Powered)

Bus 001 Device 006: ID 046d:c52b Logitech, Inc. Unifying Receiver

Device Descriptor:

bLength 18
bDescriptorType 1
bcdUSB 2.00
bDeviceClass 0 (Defined at Interface level)
bDeviceSubClass 0
bDeviceProtocol 0
bMaxPacketSize0 8
idVendor 0x046d Logitech, Inc.
idProduct 0xc52b Unifying Receiver
bcdDevice 12.01
iManufacturer 1 Logitech
iProduct 2 USB Receiver
iSerial 0

bNumConfigurations 1
Configuration Descriptor:

bLength 9
bDescriptorType 2
wTotalLength 84
bNumInterfaces 3
bConfigurationValue 1
iConfiguration 4 RQR12.01_B0019
bmAttributes 0xa0

(Bus Powered)

Remote Wakeup

MaxPower 98mA

Interface Descriptor:

bLength 9
bDescriptorType 4
bInterfaceNumber 0
bAlternateSetting 0

bNumEndpoints 1
bInterfaceClass 3 Human Interface Device
bInterfaceSubClass 1 Boot Interface Subclass
bInterfaceProtocol 1 Keyboard
iInterface 0
HID Device Descriptor:
bLength 9
bDescriptorType 33
bcdHID 1.11
bCountryCode 0 Not supported
bNumDescriptors 1
bDescriptorType 34 Report
wDescriptorLength 59
Report Descriptors:
** UNAVAILABLE **
Endpoint Descriptor:
bLength 7
bDescriptorType 5
bEndpointAddress 0x81 EP 1 IN
bmAttributes 3
Transfer Type Interrupt
Synch Type None
Usage Type Data
wMaxPacketSize 0x0008 1x 8 bytes
bInterval 8
Interface Descriptor:
bLength 9
bDescriptorType 4
bInterfaceNumber 1
bAlternateSetting 0
bNumEndpoints 1
bInterfaceClass 3 Human Interface Device
bInterfaceSubClass 1 Boot Interface Subclass
bInterfaceProtocol 2 Mouse
iInterface 0
HID Device Descriptor:
bLength 9
bDescriptorType 33
bcdHID 1.11
bCountryCode 0 Not supported
bNumDescriptors 1
bDescriptorType 34 Report
wDescriptorLength 148
Report Descriptors:
** UNAVAILABLE **
Endpoint Descriptor:
bLength 7
bDescriptorType 5

bEndpointAddress 0x82 EP 2 IN
bmAttributes 3
Transfer Type Interrupt
Synch Type None
Usage Type Data
wMaxPacketSize 0x0008 1x 8 bytes
bInterval 2
Interface Descriptor:
bLength 9
bDescriptorType 4
bInterfaceNumber 2
bAlternateSetting 0
bNumEndpoints 1
bInterfaceClass 3 Human Interface Device
bInterfaceSubClass 0 No Subclass
bInterfaceProtocol 0 None
iInterface 0
HID Device Descriptor:
bLength 9
bDescriptorType 33
bcdHID 1.11
bCountryCode 0 Not supported
bNumDescriptors 1
bDescriptorType 34 Report
wDescriptorLength 98
Report Descriptors:
** UNAVAILABLE **
Endpoint Descriptor:
bLength 7
bDescriptorType 5
bEndpointAddress 0x83 EP 3 IN
bmAttributes 3
Transfer Type Interrupt
Synch Type None
Usage Type Data
wMaxPacketSize 0x0020 1x 32 bytes
bInterval 2
Device Status: 0x0000
(Bus Powered)

Bus 001 Device 005: ID 13fe:5100 Kingston Technology Company Inc. Flash Drive
Device Descriptor:
bLength 18
bDescriptorType 1
bcdUSB 2.10
bDeviceClass 0 (Defined at Interface level)
bDeviceSubClass 0
bDeviceProtocol 0

bMaxPacketSize0 64
idVendor 0x13fe Kingston Technology Company Inc.
idProduct 0x5100 Flash Drive
bcdDevice 1.00
iManufacturer 1
iProduct 2 USB DISK 3.0
iSerial 3 070727088FD7E002
bNumConfigurations 1
Configuration Descriptor:
bLength 9
bDescriptorType 2
wTotalLength 32
bNumInterfaces 1
bConfigurationValue 1
iConfiguration 0
bmAttributes 0x80
(Bus Powered)
MaxPower 498mA
Interface Descriptor:
bLength 9
bDescriptorType 4
bInterfaceNumber 0
bAlternateSetting 0
bNumEndpoints 2
bInterfaceClass 8 Mass Storage
bInterfaceSubClass 6 SCSI
bInterfaceProtocol 80 Bulk-Only
iInterface 0
Endpoint Descriptor:
bLength 7
bDescriptorType 5
bEndpointAddress 0x81 EP 1 IN
bmAttributes 2
Transfer Type Bulk
Synch Type None
Usage Type Data
wMaxPacketSize 0x0200 1x 512 bytes
bInterval 0
Endpoint Descriptor:
bLength 7
bDescriptorType 5
bEndpointAddress 0x02 EP 2 OUT
bmAttributes 2
Transfer Type Bulk
Synch Type None
Usage Type Data
wMaxPacketSize 0x0200 1x 512 bytes
bInterval 0

Binary Object Store Descriptor:

bLength 5

bDescriptorType 15

wTotalLength 22

bNumDeviceCaps 2

USB 2.0 Extension Device Capability:

bLength 7

bDescriptorType 16

bDevCapabilityType 2

bmAttributes 0x00000002

Link Power Management (LPM) Supported

SuperSpeed USB Device Capability:

bLength 10

bDescriptorType 16

bDevCapabilityType 3

bmAttributes 0x00

wSpeedsSupported 0x000e

Device can operate at Full Speed (12Mbps)

Device can operate at High Speed (480Mbps)

Device can operate at SuperSpeed (5Gbps)

bFunctionalitySupport 2

Lowest fully-functional device speed is High Speed (480Mbps)

bU1DevExitLat 10 micro seconds

bU2DevExitLat 2047 micro seconds

Device Status: 0x0000

(Bus Powered)

Bus 001 Device 002: ID 05e3:0608 Genesys Logic, Inc. USB-2.0 4-Port HUB

Device Descriptor:

bLength 18

bDescriptorType 1

bcdUSB 2.00

bDeviceClass 9 Hub

bDeviceSubClass 0 Unused

bDeviceProtocol 1 Single TT

bMaxPacketSize0 64

idVendor 0x05e3 Genesys Logic, Inc.

idProduct 0x0608 USB-2.0 4-Port HUB

bcdDevice 9.01

iManufacturer 0

iProduct 1 USB2.0 Hub

iSerial 0

bNumConfigurations 1

Configuration Descriptor:

bLength 9

bDescriptorType 2

wTotalLength 25

bNumInterfaces 1

bConfigurationValue 1
iConfiguration 0
bmAttributes 0xe0
Self Powered
Remote Wakeup
MaxPower 100mA
Interface Descriptor:
bLength 9
bDescriptorType 4
bInterfaceNumber 0
bAlternateSetting 0
bNumEndpoints 1
bInterfaceClass 9 Hub
bInterfaceSubClass 0 Unused
bInterfaceProtocol 0 Full speed (or root) hub
iInterface 0
Endpoint Descriptor:
bLength 7
bDescriptorType 5
bEndpointAddress 0x81 EP 1 IN
bmAttributes 3
Transfer Type Interrupt
Synch Type None
Usage Type Data
wMaxPacketSize 0x0001 1x 1 bytes
bInterval 12
Hub Descriptor:
bLength 9
bDescriptorType 41
nNbrPorts 4
wHubCharacteristic 0x00e0
Ganged power switching
Ganged overcurrent protection
TT think time 32 FS bits
Port indicators
bPwrOn2PwrGood 50 * 2 milli seconds
bHubContrCurrent 100 milli Ampere
DeviceRemovable 0x00
PortPwrCtrlMask 0xff
Hub Port Status:
Port 1: 0000.0503 highspeed power enable connect
Port 2: 0000.0100 power
Port 3: 0000.0100 power
Port 4: 0000.0103 power enable connect
Device Qualifier (for other device speed):
bLength 10
bDescriptorType 6
bcdUSB 2.00

bDeviceClass 9 Hub
bDeviceSubClass 0 Unused
bDeviceProtocol 0 Full speed (or root) hub
bMaxPacketSize0 64
bNumConfigurations 1
Device Status: 0x0001
Self Powered

Bus 001 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub

Device Descriptor:

bLength 18
bDescriptorType 1
bcdUSB 2.00
bDeviceClass 9 Hub
bDeviceSubClass 0 Unused
bDeviceProtocol 1 Single TT
bMaxPacketSize0 64
idVendor 0x1d6b Linux Foundation
idProduct 0x0002 2.0 root hub
bcdDevice 3.16
iManufacturer 3 Linux 3.16.0-23-generic xhci_hcd
iProduct 2 xHCI Host Controller
iSerial 1 0000:00:14.0
bNumConfigurations 1
Configuration Descriptor:
bLength 9
bDescriptorType 2
wTotalLength 25
bNumInterfaces 1
bConfigurationValue 1
iConfiguration 0
bmAttributes 0xe0
Self Powered
Remote Wakeup
MaxPower 0mA
Interface Descriptor:
bLength 9
bDescriptorType 4
bInterfaceNumber 0
bAlternateSetting 0
bNumEndpoints 1
bInterfaceClass 9 Hub
bInterfaceSubClass 0 Unused
bInterfaceProtocol 0 Full speed (or root) hub
iInterface 0
Endpoint Descriptor:
bLength 7
bDescriptorType 5

bEndpointAddress 0x81 EP 1 IN
bmAttributes 3
Transfer Type Interrupt
Synch Type None
Usage Type Data
wMaxPacketSize 0x0004 1x 4 bytes
bInterval 12
Hub Descriptor:
bLength 11
bDescriptorType 41
nNbrPorts 9
wHubCharacteristic 0x000a
No power switching (usb 1.0)
Per-port overcurrent protection
TT think time 8 FS bits
bPwrOn2PwrGood 10 * 2 milli seconds
bHubContrCurrent 0 milli Ampere
DeviceRemovable 0xc4 0x01
PortPwrCtrlMask 0xff 0xff
Hub Port Status:
Port 1: 0000.0503 highspeed power enable connect
Port 2: 0000.0100 power
Port 3: 0000.0100 power
Port 4: 0000.0100 power
Port 5: 0000.0100 power
Port 6: 0000.0100 power
Port 7: 0000.0503 highspeed power enable connect
Port 8: 0000.0503 highspeed power enable connect
Port 9: 0000.0100 power
Device Status: 0x0001
Self Powered