From USB Tree View v3.1.4

# USB 2.1 HUB

**=========================== USB Port7 ===========================**

**Connection Status : 0x01 (Device is connected)**

**Port Chain : 2-7**

**Properties : 0x01**

**IsUserConnectable : yes**

**PortIsDebugCapable : no**

**PortHasMultiCompanions : no**

**PortConnectorIsTypeC : no**

**ConnectionIndex : 7**

**CompanionIndex : 0**

**CompanionHubSymLnk : USB#ROOT\_HUB30#4&121546c5&0&0#{f18a0e88-c30c-11d0-8815-00a0c906bed8}**

**CompanionPortNumber : 21**

**========================== USB Hub =========================**

**------------------- USB Hub Descriptor -----------------**

**bDescriptorLength : 0x09 (9 bytes)**

**bDescriptorType : 0x29 (Hub Descriptor)**

**bNumberOfPorts : 0x06 (6 Ports)**

**wHubCharacteristics : 0x000D**

**Power switching : Individual**

**Compound device : Yes**

**Over-current protection : Individual**

**TT Think Time : At most 8 FS bit times**

**Port Indicators : Not supported**

**bPowerOnToPowerGood : 0x32 (100 ms)**

**bHubControlCurrent : 0x00 (0 mA)**

**DeviceRemovable : 0x60**

**Bit 0 : 0 (reserved, any value)**

**Bit 1 : 0 (Device at Port 1 is removable)**

**Bit 2 : 0 (Device at Port 2 is removable)**

**Bit 3 : 0 (Device at Port 3 is removable)**

**Bit 4 : 0 (Device at Port 4 is removable)**

**Bit 5 : 1 (Device at Port 5 is non-removable)**

**Bit 6 : 1 (Device at Port 6 is non-removable)**

**Bit 7 : 0 (unused, must be 0)**

**PowerControlMask : 0xFF**

**HubIsBusPowered : 0x00 (Self Powered)**

**-------------- Extended USB Hub Descriptor -------------**

**HubType : USB 2.0 Hub**

**HighestPortNumber : 6**

**------------------- USB Hub Descriptor -----------------**

**bDescriptorLength : 0x09 (9 bytes)**

**bDescriptorType : 0x29 (Hub Descriptor)**

**bNumberOfPorts : 0x06 (6 Ports)**

**wHubCharacteristics : 0x000D**

**Power switching : Individual**

**Compound device : Yes**

**Over-current protection : Individual**

**TT Think Time : At most 8 FS bit times**

**Port Indicators : Not supported**

**bPowerOnToPowerGood : 0x32 (100 ms)**

**bHubControlCurrent : 0x00 (0 mA)**

**DeviceRemovable : 0x60**

**Bit 0 : 0 (reserved, any value)**

**Bit 1 : 0 (Device at Port 1 is removable)**

**Bit 2 : 0 (Device at Port 2 is removable)**

**Bit 3 : 0 (Device at Port 3 is removable)**

**Bit 4 : 0 (Device at Port 4 is removable)**

**Bit 5 : 1 (Device at Port 5 is non-removable)**

**Bit 6 : 1 (Device at Port 6 is non-removable)**

**Bit 7 : 0 (unused, must be 0)**

**PowerControlMask : 0xFF**

**----------------- USB Hub Capabilities ----------------**

**HighSpeedCapable : Yes**

**HighSpeed : Yes**

**MultiTtCapable : Yes**

**HubIsMultiTt : Yes**

**ArmedWakeOnConnect : No**

**IsBusPowered : No**

**IsRoot : No**

**+++++++++++++++++ Device Information ++++++++++++++++++**

**Device Description : Generic USB Hub**

**Device Path : \\.\usb#vid\_0451&pid\_8442#msft201111222233334444#{f18a0e88-c30c-11d0-8815-00a0c906bed8}**

**Device ID : USB\VID\_0451&PID\_8442\MSFT201111222233334444**

**Hardware IDs : USB\VID\_0451&PID\_8442&REV\_0100 USB\VID\_0451&PID\_8442**

**Driver KeyName : {36fc9e60-c465-11cf-8056-444553540000}\0179 (GUID\_DEVCLASS\_USB)**

**Driver : \SystemRoot\System32\drivers\UsbHub3.sys (Version: 10.0.16299.64 Date: 2017-10-25)**

**Driver Inf : C:\Windows\inf\usbhub3.inf**

**Legacy BusType : PNPBus**

**Class : USB**

**Class GUID : {36fc9e60-c465-11cf-8056-444553540000} (GUID\_DEVCLASS\_USB)**

**Interface GUID : {f18a0e88-c30c-11d0-8815-00a0c906bed8} (GUID\_DEVINTERFACE\_USB\_HUB)**

**Service : USBHUB3**

**Enumerator : USB**

**Location Info : Port\_#0007.Hub\_#0001**

**Location IDs : PCIROOT(0)#PCI(1400)#USBROOT(0)#USB(7), ACPI(\_SB\_)#ACPI(PCI0)#ACPI(XHCI)#ACPI(RHUB)#ACPI(HS07)**

**Container ID : {cc158000-0d89-e442-4016-8fc2b6c9d000}**

**Manufacturer Info : (Standard USB HUBs)**

**Capabilities : 0x94 (Removable, UniqueID, SurpriseRemovalOK)**

**Status : 0x0180600A (DN\_DRIVER\_LOADED, DN\_STARTED, DN\_DISABLEABLE, DN\_REMOVABLE, DN\_NT\_ENUMERATOR, DN\_NT\_DRIVER)**

**Problem Code : 0**

**Address : 7**

**Power State : D0 (supported: D0, D1, D2, D3, wake from D0, wake from D1, wake from D2)**

**Child Device 1 : USB Input Device**

**Device ID : USB\VID\_0451&PID\_82FF\1111222233334444**

**Class : HIDClass**

**---------------- Connection Information ---------------**

**Connection Index : 0x07 (7)**

**Connection Status : 0x01 (DeviceConnected)**

**Current Config Value : 0x01**

**Device Address : 0x0F (15)**

**Is Hub : 0x01 (yes)**

**Number Of Open Pipes : 0x01 (1)**

**Device Bus Speed : 0x02 (High-Speed)**

**Pipe0ScheduleOffset : 0x00 (0)**

**--------------- Connection Information V2 -------------**

**Connection Index : 0x07 (7)**

**Length : 0x10 (16 bytes)**

**SupportedUsbProtocols : 0x03**

**Usb110 : 1 (yes)**

**Usb200 : 1 (yes)**

**Usb300 : 0 (no)**

**ReservedMBZ : 0x00**

**Flags : 0x02**

**DevIsOpAtSsOrHigher : 0 (Is not operating at SuperSpeed or higher)**

**DevIsSsCapOrHigher : 1 (Is SuperSpeed capable or higher)**

**DevIsOpAtSsPlusOrHigher : 0 (Is not operating at SuperSpeedPlus or higher)**

**DevIsSsPlusCapOrHigher : 0 (Is not SuperSpeedPlus capable or higher)**

**ReservedMBZ : 0x00**

**---------------------- Device Descriptor ----------------------**

**bLength : 0x12 (18 bytes)**

**bDescriptorType : 0x01 (Device Descriptor)**

**bcdUSB : 0x210 (USB Version 2.10)**

**bDeviceClass : 0x09 (Hub)**

**bDeviceSubClass : 0x00**

**bDeviceProtocol : 0x02 (Hi-speed hub with multiple TTs)**

**bMaxPacketSize0 : 0x40 (64 bytes)**

**idVendor : 0x0451 (Texas Instruments)**

**idProduct : 0x8442**

**bcdDevice : 0x0100**

**iManufacturer : 0x00 (No String Descriptor)**

**iProduct : 0x00 (No String Descriptor)**

**iSerialNumber : 0x01 (String Descriptor 1)**

**Language 0x0409 : "1111222233334444"**

**bNumConfigurations : 0x01 (1 Configuration)**

**------------------ Configuration Descriptor -------------------**

**bLength : 0x09 (9 bytes)**

**bDescriptorType : 0x02 (Configuration Descriptor)**

**wTotalLength : 0x0029 (41 bytes)**

**bNumInterfaces : 0x01 (1 Interface)**

**bConfigurationValue : 0x01 (Configuration 1)**

**iConfiguration : 0x00 (No String Descriptor)**

**bmAttributes : 0xE0**

**D7: Reserved, set 1 : 0x01**

**D6: Self Powered : 0x01 (yes)**

**D5: Remote Wakeup : 0x01 (yes)**

**D4..0: Reserved, set 0 : 0x00**

**MaxPower : 0x00 (0 mA)**

**---------------- Interface Descriptor -----------------**

**bLength : 0x09 (9 bytes)**

**bDescriptorType : 0x04 (Interface Descriptor)**

**bInterfaceNumber : 0x00**

**bAlternateSetting : 0x00**

**bNumEndpoints : 0x01 (1 Endpoint)**

**bInterfaceClass : 0x09 (Hub)**

**bInterfaceSubClass : 0x00**

**bInterfaceProtocol : 0x01**

**iInterface : 0x00 (No String Descriptor)**

**----------------- Endpoint Descriptor -----------------**

**bLength : 0x07 (7 bytes)**

**bDescriptorType : 0x05 (Endpoint Descriptor)**

**bEndpointAddress : 0x81 (Direction=IN EndpointID=1)**

**bmAttributes : 0x03 (TransferType=Interrupt)**

**wMaxPacketSize : 0x0001**

**Bits 15..13 : 0x00 (reserved, must be zero)**

**Bits 12..11 : 0x00 (0 additional transactions per microframe -> allows 1..1024 bytes per packet)**

**Bits 10..0 : 0x01 (1 byte per packet)**

**bInterval : 0x0C (12 ms)**

**---------------- Interface Descriptor -----------------**

**bLength : 0x09 (9 bytes)**

**bDescriptorType : 0x04 (Interface Descriptor)**

**bInterfaceNumber : 0x00**

**bAlternateSetting : 0x01**

**bNumEndpoints : 0x01 (1 Endpoint)**

**bInterfaceClass : 0x09 (Hub)**

**bInterfaceSubClass : 0x00**

**bInterfaceProtocol : 0x02**

**iInterface : 0x00 (No String Descriptor)**

**----------------- Endpoint Descriptor -----------------**

**bLength : 0x07 (7 bytes)**

**bDescriptorType : 0x05 (Endpoint Descriptor)**

**bEndpointAddress : 0x81 (Direction=IN EndpointID=1)**

**bmAttributes : 0x03 (TransferType=Interrupt)**

**wMaxPacketSize : 0x0001**

**Bits 15..13 : 0x00 (reserved, must be zero)**

**Bits 12..11 : 0x00 (0 additional transactions per microframe -> allows 1..1024 bytes per packet)**

**Bits 10..0 : 0x01 (1 byte per packet)**

**bInterval : 0x0C (12 ms)**

**----------------- Device Qualifier Descriptor -----------------**

**bLength : 0x0A (10 bytes)**

**bDescriptorType : 0x06 (Device\_qualifier Descriptor)**

**bcdUSB : 0x210 (USB Version 2.10)**

**bDeviceClass : 0x09 (Hub)**

**bDeviceSubClass : 0x00**

**bDeviceProtocol : 0x00 (Hi-speed hub without TT)**

**bMaxPacketSize0 : 0x40 (64 Bytes)**

**bNumConfigurations : 0x01 (1 other-speed configuration)**

**bReserved : 0x00**

**------------ Other Speed Configuration Descriptor -------------**

**bLength : 0x09 (9 bytes)**

**bDescriptorType : 0x07 (Other\_speed\_configuration Descriptor)**

**wTotalLength : 0x0019 (25 bytes)**

**bNumInterfaces : 0x01 (1 Interface)**

**bConfigurationValue : 0x01 (Configuration 1)**

**iConfiguration : 0x00 (No String Descriptor)**

**bmAttributes : 0xE0**

**D7: Reserved, set 1 : 0x01**

**D6: Self Powered : 0x01 (yes)**

**D5: Remote Wakeup : 0x01 (yes)**

**D4..0: Reserved, set 0 : 0x00**

**MaxPower : 0x00 (0 mA)**

**---------------- Interface Descriptor -----------------**

**bLength : 0x09 (9 bytes)**

**bDescriptorType : 0x04 (Interface Descriptor)**

**bInterfaceNumber : 0x00**

**bAlternateSetting : 0x00**

**bNumEndpoints : 0x01 (1 Endpoint)**

**bInterfaceClass : 0x09 (Hub)**

**bInterfaceSubClass : 0x00**

**bInterfaceProtocol : 0x00**

**iInterface : 0x00 (No String Descriptor)**

**----------------- Endpoint Descriptor -----------------**

**bLength : 0x07 (7 bytes)**

**bDescriptorType : 0x05 (Endpoint Descriptor)**

**bEndpointAddress : 0x81 (Direction=IN EndpointID=1)**

**bmAttributes : 0x03 (TransferType=Interrupt)**

**wMaxPacketSize : 0x0001**

**Bits 15..13 : 0x00 (reserved, must be zero)**

**Bits 12..11 : 0x00 (0 additional transactions per microframe -> allows 1..1024 bytes per packet)**

**Bits 10..0 : 0x01 (1 byte per packet)**

**bInterval : 0xFF (255 ms)**

**---------- Binary Object Store (BOS) Descriptor -----------**

**bLength : 0x05 (5 bytes)**

**bDescriptorType : 0x0F (Binary Object Store)**

**wTotalLength : 0x002A (42 bytes)**

**bNumDeviceCaps : 0x03**

**------------- USB 2.0 Extension Descriptor ------------**

**bLength : 0x07 (7 bytes)**

**bDescriptorType : 0x10 (Device Capability Descriptor)**

**bDevCapabilityType : 0x02 (USB 2.0 Extension)**

**bmAttributes : 0x06**

**LPMCapable : 1 (Link Power Management protocol is supported)**

**BESLAndAlternateHIRD : 1 (BESL & Alternate HIRD definitions are supported)**

**BaselineBESLValid : 0 (not valid)**

**DeepBESLValid : 0 (not valid)**

**BaselineBESL : 0**

**DeepBESL : 0**

**----- SuperSpeed USB Device Capability Descriptor -----**

**bLength : 0x0A (10 bytes)**

**bDescriptorType : 0x10 (Device Capability Descriptor)**

**bDevCapabilityType : 0x03 (SuperSpeed USB Device Capability)**

**bmAttributes : 0x00**

**Bit 0 Reserved : 0x00**

**Bit 1 LTM Capable : 0x00 (no)**

**Bit 7:2 Reserved : 0x00**

**wSpeedsSupported : 0x0E (Full-Speed, High-Speed, SuperSpeed)**

**bFunctionalitySupport : 0x01 (lowest speed with all the functionality is 'Full-Speed')**

**bU1DevExitLat : 0x0A (less than 10 µs)**

**wU2DevExitLat : 0x000A (less than 10 µs)**

**--------- Container ID Capability Descriptor ----------**

**bLength : 0x14 (20 bytes)**

**bDescriptorType : 0x10 (Container ID Capability)**

**bDevCapabilityType : 0x04**

**bReserved : 0x00**

**Container ID (UUID) : CC158000-0D89-E442-4016-8FC2B6C9D000**

**-------------------- String Descriptors -------------------**

**------ String Descriptor 0 ------**

**bLength : 0x04 (4 bytes)**

**bDescriptorType : 0x03 (String Descriptor)**

**Language ID[0] : 0x0409 (English - United States)**

**------ String Descriptor 1 ------**

**bLength : 0x22 (34 bytes)**

**bDescriptorType : 0x03 (String Descriptor)**

**Language 0x0409 : "1111222233334444"**

**=========================== USB Port1 ===========================**

**Connection Status : 0x00 (No device is connected)**

**Port Chain : 2-7-1**

**Properties : 0x01**

**IsUserConnectable : yes**

**PortIsDebugCapable : no**

**PortHasMultiCompanions : no**

**PortConnectorIsTypeC : no**

**ConnectionIndex : 1**

**CompanionIndex : 0**

**CompanionHubSymLnk : USB#VID\_0451&PID\_8440#5&109d12e&0&21#{f18a0e88-c30c-11d0-8815-00a0c906bed8}**

**CompanionPortNumber : 1**

**SupportedUsbProtocols : 0x03**

**Usb110 : 1 (yes)**

**Usb200 : 1 (yes)**

**Usb300 : 0 (no)**

**=========================== USB Port2 ===========================**

**Connection Status : 0x00 (No device is connected)**

**Port Chain : 2-7-2**

**Properties : 0x01**

**IsUserConnectable : yes**

**PortIsDebugCapable : no**

**PortHasMultiCompanions : no**

**PortConnectorIsTypeC : no**

**ConnectionIndex : 2**

**CompanionIndex : 0**

**CompanionHubSymLnk : USB#VID\_0451&PID\_8440#5&109d12e&0&21#{f18a0e88-c30c-11d0-8815-00a0c906bed8}**

**CompanionPortNumber : 2**

**SupportedUsbProtocols : 0x03**

**Usb110 : 1 (yes)**

**Usb200 : 1 (yes)**

**Usb300 : 0 (no)**

**=========================== USB Port3 ===========================**

**Connection Status : 0x00 (No device is connected)**

**Port Chain : 2-7-3**

**Properties : 0x01**

**IsUserConnectable : yes**

**PortIsDebugCapable : no**

**PortHasMultiCompanions : no**

**PortConnectorIsTypeC : no**

**ConnectionIndex : 3**

**CompanionIndex : 0**

**CompanionHubSymLnk : USB#VID\_0451&PID\_8440#5&109d12e&0&21#{f18a0e88-c30c-11d0-8815-00a0c906bed8}**

**CompanionPortNumber : 3**

**SupportedUsbProtocols : 0x03**

**Usb110 : 1 (yes)**

**Usb200 : 1 (yes)**

**Usb300 : 0 (no)**

**=========================== USB Port4 ===========================**

**Connection Status : 0x00 (No device is connected)**

**Port Chain : 2-7-4**

**Properties : 0x01**

**IsUserConnectable : yes**

**PortIsDebugCapable : no**

**PortHasMultiCompanions : no**

**PortConnectorIsTypeC : no**

**ConnectionIndex : 4**

**CompanionIndex : 0**

**CompanionHubSymLnk : USB#VID\_0451&PID\_8440#5&109d12e&0&21#{f18a0e88-c30c-11d0-8815-00a0c906bed8}**

**CompanionPortNumber : 4**

**SupportedUsbProtocols : 0x03**

**Usb110 : 1 (yes)**

**Usb200 : 1 (yes)**

**Usb300 : 0 (no)**

**=========================== USB Port5 ===========================**

**Connection Status : 0x01 (Device is connected)**

**Port Chain : 2-7-5**

**Properties : 0x00**

**IsUserConnectable : no**

**PortIsDebugCapable : no**

**PortHasMultiCompanions : no**

**PortConnectorIsTypeC : no**

**======================== USB Device ========================**

**+++++++++++++++++ Device Information ++++++++++++++++++**

**Device Description : USB Input Device**

**Device Path : \\.\usb#vid\_0451&pid\_82ff#1111222233334444#{a5dcbf10-6530-11d2-901f-00c04fb951ed}**

**Device ID : USB\VID\_0451&PID\_82FF\1111222233334444**

**Hardware IDs : USB\VID\_0451&PID\_82FF&REV\_0100 USB\VID\_0451&PID\_82FF**

**Driver KeyName : {745a17a0-74d3-11d0-b6fe-00a0c90f57da}\0021 (GUID\_DEVCLASS\_HIDCLASS)**

**Driver : \SystemRoot\System32\drivers\hidusb.sys (Version: 10.0.16299.15 Date: 2017-09-29)**

**Driver Inf : C:\Windows\inf\input.inf**

**Legacy BusType : PNPBus**

**Class : HIDClass**

**Class GUID : {745a17a0-74d3-11d0-b6fe-00a0c90f57da} (GUID\_DEVCLASS\_HIDCLASS)**

**Interface GUID : {a5dcbf10-6530-11d2-901f-00c04fb951ed} (GUID\_DEVINTERFACE\_USB\_DEVICE)**

**Service : HidUsb**

**Enumerator : USB**

**Location Info : Port\_#0005.Hub\_#0007**

**Location IDs : PCIROOT(0)#PCI(1400)#USBROOT(0)#USB(7)#USB(5), ACPI(\_SB\_)#ACPI(PCI0)#ACPI(XHCI)#ACPI(RHUB)#ACPI(HS07)#USB(5)**

**Container ID : {cc158000-0d89-e442-4016-8fc2b6c9d000}**

**Manufacturer Info : (Standard system devices)**

**Capabilities : 0x90 (UniqueID, SurpriseRemovalOK)**

**Status : 0x0180200A (DN\_DRIVER\_LOADED, DN\_STARTED, DN\_DISABLEABLE, DN\_NT\_ENUMERATOR, DN\_NT\_DRIVER)**

**Problem Code : 0**

**Power State : D0 (supported: D0, D3, wake from D0)**

**Child Device 1 : HID-compliant vendor-defined device**

**Device ID : HID\VID\_0451&PID\_82FF\7&328C8A6A&0&0000**

**Class : HIDClass**

**---------------- Connection Information ---------------**

**Connection Index : 0x05 (5)**

**Connection Status : 0x01 (DeviceConnected)**

**Current Config Value : 0x01**

**Device Address : 0x0E (14)**

**Is Hub : 0x00 (no)**

**Number Of Open Pipes : 0x01 (1)**

**Device Bus Speed : 0x02 (High-Speed)**

**Pipe0ScheduleOffset : 0x00 (0)**

**--------------- Connection Information V2 -------------**

**Connection Index : 0x05 (5)**

**Length : 0x10 (16 bytes)**

**SupportedUsbProtocols : 0x03**

**Usb110 : 1 (yes)**

**Usb200 : 1 (yes)**

**Usb300 : 0 (no)**

**ReservedMBZ : 0x00**

**Flags : 0x00**

**DevIsOpAtSsOrHigher : 0 (Is not operating at SuperSpeed or higher)**

**DevIsSsCapOrHigher : 0 (Is not SuperSpeed capable or higher)**

**DevIsOpAtSsPlusOrHigher : 0 (Is not operating at SuperSpeedPlus or higher)**

**DevIsSsPlusCapOrHigher : 0 (Is not SuperSpeedPlus capable or higher)**

**ReservedMBZ : 0x00**

**---------------------- Device Descriptor ----------------------**

**bLength : 0x12 (18 bytes)**

**bDescriptorType : 0x01 (Device Descriptor)**

**bcdUSB : 0x201 (USB Version 2.01)**

**bDeviceClass : 0x00 (defined by the interface descriptors)**

**bDeviceSubClass : 0x00**

**bDeviceProtocol : 0x00**

**bMaxPacketSize0 : 0x40 (64 bytes)**

**idVendor : 0x0451 (Texas Instruments)**

**idProduct : 0x82FF**

**bcdDevice : 0x0100**

**iManufacturer : 0x00 (No String Descriptor)**

**iProduct : 0x00 (No String Descriptor)**

**iSerialNumber : 0x01 (String Descriptor 1)**

**Language 0x0409 : "1111222233334444"**

**bNumConfigurations : 0x01 (1 Configuration)**

**------------------ Configuration Descriptor -------------------**

**bLength : 0x09 (9 bytes)**

**bDescriptorType : 0x02 (Configuration Descriptor)**

**wTotalLength : 0x0022 (34 bytes)**

**bNumInterfaces : 0x01 (1 Interface)**

**bConfigurationValue : 0x01 (Configuration 1)**

**iConfiguration : 0x00 (No String Descriptor)**

**bmAttributes : 0xC0**

**D7: Reserved, set 1 : 0x01**

**D6: Self Powered : 0x01 (yes)**

**D5: Remote Wakeup : 0x00 (no)**

**D4..0: Reserved, set 0 : 0x00**

**MaxPower : 0x00 (0 mA)**

**---------------- Interface Descriptor -----------------**

**bLength : 0x09 (9 bytes)**

**bDescriptorType : 0x04 (Interface Descriptor)**

**bInterfaceNumber : 0x00**

**bAlternateSetting : 0x00**

**bNumEndpoints : 0x01 (1 Endpoint)**

**bInterfaceClass : 0x03 (HID - Human Interface Device)**

**bInterfaceSubClass : 0x00 (None)**

**bInterfaceProtocol : 0x00 (None)**

**iInterface : 0x00 (No String Descriptor)**

**------------------- HID Descriptor --------------------**

**bLength : 0x09 (9 bytes)**

**bDescriptorType : 0x21 (HID Descriptor)**

**bcdHID : 0x0111 (HID Version 1.11)**

**bCountryCode : 0x00 (00 = not localized)**

**bNumDescriptors : 0x01**

**Descriptor 1:**

**bDescriptorType : 0x22 (Class=Report)**

**wDescriptorLength : 0x0031 (49 bytes)**

**Error reading descriptor : ERROR\_GEN\_FAILURE**

**----------------- Endpoint Descriptor -----------------**

**bLength : 0x07 (7 bytes)**

**bDescriptorType : 0x05 (Endpoint Descriptor)**

**bEndpointAddress : 0x81 (Direction=IN EndpointID=1)**

**bmAttributes : 0x03 (TransferType=Interrupt)**

**wMaxPacketSize : 0x0040**

**Bits 15..13 : 0x00 (reserved, must be zero)**

**Bits 12..11 : 0x00 (0 additional transactions per microframe -> allows 1..1024 bytes per packet)**

**Bits 10..0 : 0x40 (64 bytes per packet)**

**bInterval : 0x04 (4 ms)**

**----------------- Device Qualifier Descriptor -----------------**

**bLength : 0x0A (10 bytes)**

**bDescriptorType : 0x06 (Device\_qualifier Descriptor)**

**bcdUSB : 0x201 (USB Version 2.01)**

**bDeviceClass : 0x00 (defined by the interface descriptors)**

**bDeviceSubClass : 0x00**

**bDeviceProtocol : 0x00**

**bMaxPacketSize0 : 0x40 (64 Bytes)**

**bNumConfigurations : 0x01 (1 other-speed configuration)**

**bReserved : 0x00**

**------------ Other Speed Configuration Descriptor -------------**

**bLength : 0x09 (9 bytes)**

**bDescriptorType : 0x07 (Other\_speed\_configuration Descriptor)**

**wTotalLength : 0x0022 (34 bytes)**

**bNumInterfaces : 0x01 (1 Interface)**

**bConfigurationValue : 0x01 (Configuration 1)**

**iConfiguration : 0x00 (No String Descriptor)**

**bmAttributes : 0xC0**

**D7: Reserved, set 1 : 0x01**

**D6: Self Powered : 0x01 (yes)**

**D5: Remote Wakeup : 0x00 (no)**

**D4..0: Reserved, set 0 : 0x00**

**MaxPower : 0x00 (0 mA)**

**---------------- Interface Descriptor -----------------**

**bLength : 0x09 (9 bytes)**

**bDescriptorType : 0x04 (Interface Descriptor)**

**bInterfaceNumber : 0x00**

**bAlternateSetting : 0x00**

**bNumEndpoints : 0x01 (1 Endpoint)**

**bInterfaceClass : 0x03 (HID - Human Interface Device)**

**bInterfaceSubClass : 0x00 (None)**

**bInterfaceProtocol : 0x00 (None)**

**iInterface : 0x00 (No String Descriptor)**

**------------------- HID Descriptor --------------------**

**bLength : 0x09 (9 bytes)**

**bDescriptorType : 0x21 (HID Descriptor)**

**bcdHID : 0x0111 (HID Version 1.11)**

**bCountryCode : 0x00 (00 = not localized)**

**bNumDescriptors : 0x01**

**Descriptor 1:**

**bDescriptorType : 0x22 (Class=Report)**

**wDescriptorLength : 0x0031 (49 bytes)**

**Error reading descriptor : ERROR\_GEN\_FAILURE**

**----------------- Endpoint Descriptor -----------------**

**bLength : 0x07 (7 bytes)**

**bDescriptorType : 0x05 (Endpoint Descriptor)**

**bEndpointAddress : 0x81 (Direction=IN EndpointID=1)**

**bmAttributes : 0x03 (TransferType=Interrupt)**

**wMaxPacketSize : 0x0040**

**Bits 15..13 : 0x00 (reserved, must be zero)**

**Bits 12..11 : 0x00 (0 additional transactions per microframe -> allows 1..1024 bytes per packet)**

**Bits 10..0 : 0x40 (64 bytes per packet)**

**bInterval : 0x01 (1 ms)**

**---------- Binary Object Store (BOS) Descriptor -----------**

**bLength : 0x05 (5 bytes)**

**bDescriptorType : 0x0F (Binary Object Store)**

**wTotalLength : 0x0020 (32 bytes)**

**bNumDeviceCaps : 0x02**

**------------- USB 2.0 Extension Descriptor ------------**

**bLength : 0x07 (7 bytes)**

**bDescriptorType : 0x10 (Device Capability Descriptor)**

**bDevCapabilityType : 0x02 (USB 2.0 Extension)**

**bmAttributes : 0x06**

**LPMCapable : 1 (Link Power Management protocol is supported)**

**BESLAndAlternateHIRD : 1 (BESL & Alternate HIRD definitions are supported)**

**BaselineBESLValid : 0 (not valid)**

**DeepBESLValid : 0 (not valid)**

**BaselineBESL : 0**

**DeepBESL : 0**

**--------- Container ID Capability Descriptor ----------**

**bLength : 0x14 (20 bytes)**

**bDescriptorType : 0x10 (Container ID Capability)**

**bDevCapabilityType : 0x04**

**bReserved : 0x00**

**Container ID (UUID) : CC158000-0D89-E442-4016-8FC2B6C9D000**

**-------------------- String Descriptors -------------------**

**------ String Descriptor 0 ------**

**bLength : 0x04 (4 bytes)**

**bDescriptorType : 0x03 (String Descriptor)**

**Language ID[0] : 0x0409 (English - United States)**

**------ String Descriptor 1 ------**

**bLength : 0x22 (34 bytes)**

**bDescriptorType : 0x03 (String Descriptor)**

**Language 0x0409 : "1111222233334444"**

**=========================== USB Port6 ===========================**

**Connection Status : 0x00 (No device is connected)**

**Port Chain : 2-7-6**

**Properties : 0x00**

**IsUserConnectable : no**

**PortIsDebugCapable : no**

**PortHasMultiCompanions : no**

**PortConnectorIsTypeC : no**

**SupportedUsbProtocols : 0x03**

**Usb110 : 1 (yes)**

**Usb200 : 1 (yes)**

**Usb300 : 0 (no)**

# Superspeed Hub

**=========================== USB Port21 ===========================**

**Connection Status : 0x01 (Device is connected)**

**Port Chain : 2-21**

**Properties : 0x03**

**IsUserConnectable : yes**

**PortIsDebugCapable : yes**

**PortHasMultiCompanions : no**

**PortConnectorIsTypeC : no**

**ConnectionIndex : 21**

**CompanionIndex : 0**

**CompanionHubSymLnk : USB#ROOT\_HUB30#4&121546c5&0&0#{f18a0e88-c30c-11d0-8815-00a0c906bed8}**

**CompanionPortNumber : 7**

**========================== USB Hub =========================**

**------------------- USB Hub Descriptor -----------------**

**bDescriptorLength : 0x09 (9 bytes)**

**bDescriptorType : 0x29 (Hub Descriptor)**

**bNumberOfPorts : 0x04 (4 Ports)**

**wHubCharacteristics : 0x0009**

**Power switching : Individual**

**Compound device : No**

**Over-current protection : Individual**

**TT Think Time : At most 8 FS bit times**

**Port Indicators : Not supported**

**bPowerOnToPowerGood : 0x32 (100 ms)**

**bHubControlCurrent : 0x00 (0 mA)**

**DeviceRemovable : 0x00**

**Bit 0 : 0 (reserved, any value)**

**Bit 1 : 0 (Device at Port 1 is removable)**

**Bit 2 : 0 (Device at Port 2 is removable)**

**Bit 3 : 0 (Device at Port 3 is removable)**

**Bit 4 : 0 (Device at Port 4 is removable)**

**Bit 5 : 0 (unused, must be 0)**

**Bit 6 : 0 (unused, must be 0)**

**Bit 7 : 0 (unused, must be 0)**

**HubIsBusPowered : 0x00 (Self Powered)**

**-------------- Extended USB Hub Descriptor -------------**

**HubType : USB 3.0 Hub**

**HighestPortNumber : 4**

**---------------- USB 3.0 Hub Descriptor ---------------**

**bLength : 0x0C (12 bytes)**

**bDescriptorType : 0x2A**

**bNumberOfPorts : 0x04 (4 Ports)**

**wHubCharacteristics : 0x0009**

**Power switching : Individual**

**Compound device : No**

**Over-current protection : Individual**

**TT Think Time : At most 8 FS bit times**

**Port Indicators : Not supported**

**bPowerOnToPowerGood : 0x32 (100 ms)**

**bHubControlCurrent : 0x00**

**bHubHdrDecLat : 0x20 (0.3 µs)**

**wHubDelay : 0xBE (190 ns)**

**DeviceRemovable : 0x00**

**Bit 0 : 0 (reserved, any value)**

**Bit 1 : 0 (Device at Port 1 is removable)**

**Bit 2 : 0 (Device at Port 2 is removable)**

**Bit 3 : 0 (Device at Port 3 is removable)**

**Bit 4 : 0 (Device at Port 4 is removable)**

**Bit 5 : 0 (unused, must be 0)**

**Bit 6 : 0 (unused, must be 0)**

**Bit 7 : 0 (unused, must be 0)**

**----------------- USB Hub Capabilities ----------------**

**HighSpeedCapable : No**

**HighSpeed : No**

**MultiTtCapable : No**

**HubIsMultiTt : No**

**ArmedWakeOnConnect : No**

**IsBusPowered : No**

**IsRoot : No**

**+++++++++++++++++ Device Information ++++++++++++++++++**

**Device Description : Generic SuperSpeed USB Hub**

**Device Path : \\.\usb#vid\_0451&pid\_8440#5&109d12e&0&21#{f18a0e88-c30c-11d0-8815-00a0c906bed8}**

**Device ID : USB\VID\_0451&PID\_8440\5&109D12E&0&21**

**Hardware IDs : USB\VID\_0451&PID\_8440&REV\_0100 USB\VID\_0451&PID\_8440**

**Driver KeyName : {36fc9e60-c465-11cf-8056-444553540000}\0171 (GUID\_DEVCLASS\_USB)**

**Driver : \SystemRoot\System32\drivers\UsbHub3.sys (Version: 10.0.16299.64 Date: 2017-10-25)**

**Driver Inf : C:\Windows\inf\usbhub3.inf**

**Legacy BusType : PNPBus**

**Class : USB**

**Class GUID : {36fc9e60-c465-11cf-8056-444553540000} (GUID\_DEVCLASS\_USB)**

**Interface GUID : {f18a0e88-c30c-11d0-8815-00a0c906bed8} (GUID\_DEVINTERFACE\_USB\_HUB)**

**Service : USBHUB3**

**Enumerator : USB**

**Location Info : Port\_#0021.Hub\_#0001**

**Location IDs : PCIROOT(0)#PCI(1400)#USBROOT(0)#USB(21), ACPI(\_SB\_)#ACPI(PCI0)#ACPI(XHCI)#ACPI(RHUB)#ACPI(SSP6)**

**Container ID : {cc158000-0d89-e442-4016-8fc2b6c9d000}**

**Manufacturer Info : (Standard USB HUBs)**

**Capabilities : 0x84 (Removable, SurpriseRemovalOK)**

**Status : 0x0180600A (DN\_DRIVER\_LOADED, DN\_STARTED, DN\_DISABLEABLE, DN\_REMOVABLE, DN\_NT\_ENUMERATOR, DN\_NT\_DRIVER)**

**Problem Code : 0**

**Address : 21**

**Power State : D0 (supported: D0, D1, D2, D3, wake from D0, wake from D1, wake from D2)**

**---------------- Connection Information ---------------**

**Connection Index : 0x15 (21)**

**Connection Status : 0x01 (DeviceConnected)**

**Current Config Value : 0x01**

**Device Address : 0x19 (25)**

**Is Hub : 0x01 (yes)**

**Number Of Open Pipes : 0x01 (1)**

**Device Bus Speed : 0x02 (High-Speed) -> not true, see below in Connection Information V2**

**Pipe0ScheduleOffset : 0x00 (0)**

**--------------- Connection Information V2 -------------**

**Connection Index : 0x15 (21)**

**Length : 0x10 (16 bytes)**

**SupportedUsbProtocols : 0x04**

**Usb110 : 0 (no)**

**Usb200 : 0 (no)**

**Usb300 : 1 (yes)**

**ReservedMBZ : 0x00**

**Flags : 0x03**

**DevIsOpAtSsOrHigher : 1 (Is operating at SuperSpeed or higher)**

**DevIsSsCapOrHigher : 1 (Is SuperSpeed capable or higher)**

**DevIsOpAtSsPlusOrHigher : 0 (Is not operating at SuperSpeedPlus or higher)**

**DevIsSsPlusCapOrHigher : 0 (Is not SuperSpeedPlus capable or higher)**

**ReservedMBZ : 0x00**

**---------------------- Device Descriptor ----------------------**

**bLength : 0x12 (18 bytes)**

**bDescriptorType : 0x01 (Device Descriptor)**

**bcdUSB : 0x310 (USB Version 3.10)**

**bDeviceClass : 0x09 (Hub)**

**bDeviceSubClass : 0x00**

**bDeviceProtocol : 0x03 (SuperSpeed hub)**

**bMaxPacketSize0 : 0x09 (9 bytes)**

**idVendor : 0x0451 (Texas Instruments)**

**idProduct : 0x8440**

**bcdDevice : 0x0100**

**iManufacturer : 0x00 (No String Descriptor)**

**iProduct : 0x00 (No String Descriptor)**

**iSerialNumber : 0x00 (No String Descriptor)**

**bNumConfigurations : 0x01 (1 Configuration)**

**------------------ Configuration Descriptor -------------------**

**bLength : 0x09 (9 bytes)**

**bDescriptorType : 0x02 (Configuration Descriptor)**

**wTotalLength : 0x001F (31 bytes)**

**bNumInterfaces : 0x01 (1 Interface)**

**bConfigurationValue : 0x01 (Configuration 1)**

**iConfiguration : 0x00 (No String Descriptor)**

**bmAttributes : 0xE0**

**D7: Reserved, set 1 : 0x01**

**D6: Self Powered : 0x01 (yes)**

**D5: Remote Wakeup : 0x01 (yes)**

**D4..0: Reserved, set 0 : 0x00**

**MaxPower : 0x00 (0 mA)**

**---------------- Interface Descriptor -----------------**

**bLength : 0x09 (9 bytes)**

**bDescriptorType : 0x04 (Interface Descriptor)**

**bInterfaceNumber : 0x00**

**bAlternateSetting : 0x00**

**bNumEndpoints : 0x01 (1 Endpoint)**

**bInterfaceClass : 0x09 (Hub)**

**bInterfaceSubClass : 0x00**

**bInterfaceProtocol : 0x00**

**iInterface : 0x00 (No String Descriptor)**

**----------------- Endpoint Descriptor -----------------**

**bLength : 0x07 (7 bytes)**

**bDescriptorType : 0x05 (Endpoint Descriptor)**

**bEndpointAddress : 0x81 (Direction=IN EndpointID=1)**

**bmAttributes : 0x13 (TransferType=InterruptNotification)**

**wMaxPacketSize : 0x0002**

**bInterval : 0x08 (8 ms)**

**------ SuperSpeed Endpoint Companion Descriptor -------**

**bLength : 0x06 (6 bytes)**

**bDescriptorType : 0x30 (SuperSpeed Endpoint Companion Descriptor)**

**bMaxBurst : 0x00 (up to 1 packets per burst)**

**bmAttributes : 0x00**

**wBytesPerInterval : 0x0002 (2 bytes)**

**---------- Binary Object Store (BOS) Descriptor -----------**

**bLength : 0x05 (5 bytes)**

**bDescriptorType : 0x0F (Binary Object Store)**

**wTotalLength : 0x002A (42 bytes)**

**bNumDeviceCaps : 0x03**

**------------- USB 2.0 Extension Descriptor ------------**

**bLength : 0x07 (7 bytes)**

**bDescriptorType : 0x10 (Device Capability Descriptor)**

**bDevCapabilityType : 0x02 (USB 2.0 Extension)**

**bmAttributes : 0x06**

**LPMCapable : 1 (Link Power Management protocol is supported)**

**BESLAndAlternateHIRD : 1 (BESL & Alternate HIRD definitions are supported)**

**BaselineBESLValid : 0 (not valid)**

**DeepBESLValid : 0 (not valid)**

**BaselineBESL : 0**

**DeepBESL : 0**

**----- SuperSpeed USB Device Capability Descriptor -----**

**bLength : 0x0A (10 bytes)**

**bDescriptorType : 0x10 (Device Capability Descriptor)**

**bDevCapabilityType : 0x03 (SuperSpeed USB Device Capability)**

**bmAttributes : 0x00**

**Bit 0 Reserved : 0x00**

**Bit 1 LTM Capable : 0x00 (no)**

**Bit 7:2 Reserved : 0x00**

**wSpeedsSupported : 0x0E (Full-Speed, High-Speed, SuperSpeed)**

**bFunctionalitySupport : 0x01 (lowest speed with all the functionality is 'Full-Speed')**

**bU1DevExitLat : 0x0A (less than 10 µs)**

**wU2DevExitLat : 0x07FF (less than 2047 µs)**

**--------- Container ID Capability Descriptor ----------**

**bLength : 0x14 (20 bytes)**

**bDescriptorType : 0x10 (Container ID Capability)**

**bDevCapabilityType : 0x04**

**bReserved : 0x00**

**Container ID (UUID) : CC158000-0D89-E442-4016-8FC2B6C9D000**

**-------------------- String Descriptors -------------------**

**none**

**=========================== USB Port1 ===========================**

**Connection Status : 0x00 (No device is connected)**

**Port Chain : 2-21-1**

**Properties : 0x01**

**IsUserConnectable : yes**

**PortIsDebugCapable : no**

**PortHasMultiCompanions : no**

**PortConnectorIsTypeC : no**

**SupportedUsbProtocols : 0x04**

**Usb110 : 0 (no)**

**Usb200 : 0 (no)**

**Usb300 : 1 (yes)**

**=========================== USB Port2 ===========================**

**Connection Status : 0x00 (No device is connected)**

**Port Chain : 2-21-2**

**Properties : 0x01**

**IsUserConnectable : yes**

**PortIsDebugCapable : no**

**PortHasMultiCompanions : no**

**PortConnectorIsTypeC : no**

**SupportedUsbProtocols : 0x04**

**Usb110 : 0 (no)**

**Usb200 : 0 (no)**

**Usb300 : 1 (yes)**

**=========================== USB Port3 ===========================**

**Connection Status : 0x00 (No device is connected)**

**Port Chain : 2-21-3**

**Properties : 0x01**

**IsUserConnectable : yes**

**PortIsDebugCapable : no**

**PortHasMultiCompanions : no**

**PortConnectorIsTypeC : no**

**SupportedUsbProtocols : 0x04**

**Usb110 : 0 (no)**

**Usb200 : 0 (no)**

**Usb300 : 1 (yes)**

**=========================== USB Port4 ===========================**

**Connection Status : 0x00 (No device is connected)**

**Port Chain : 2-21-4**

**Properties : 0x01**

**IsUserConnectable : yes**

**PortIsDebugCapable : no**

**PortHasMultiCompanions : no**

**PortConnectorIsTypeC : no**

**SupportedUsbProtocols : 0x04**

**Usb110 : 0 (no)**

**Usb200 : 0 (no)**

**Usb300 : 1 (yes)**