USBFS HID Code Example
v3.0

Features

- HID implementation
- 3-button mouse

General Description

This code example demonstrates USB HID interface class operation by implementing a 3-button mouse. When the code is run, the mouse cursor moves from the right to the left, and vice-versa.

Development Kit Configuration

The example project runs on the CY8CKIT-046 kit from Cypress Semiconductor. A description of the kit, along with more code examples and ordering information, is at http://www.cypress.com/go/cy8ckit-046.

The project requires configuration settings changes to run on other kits from Cypress Semiconductor. Table 1 is the list of the supported kits. To switch from CY8CKIT-046 to any other kit, change the project's device with the help of Device Selector called from the project's context menu.

Table 1. Development Kits vs Parts

Development Kit	Device
CY8CKIT-001	CY8C3866AXI-040/ CY8C5868AXI_LP035
CY8CKIT-046	CY8C4248BZI-L489
CY8CKIT-030	CY8C3866AXI-040
CY8CKIT-050	CY8C5868AXI_LP035

The pins assignment for the supported kits is in Table 2.

Table 2. Pins Assignment

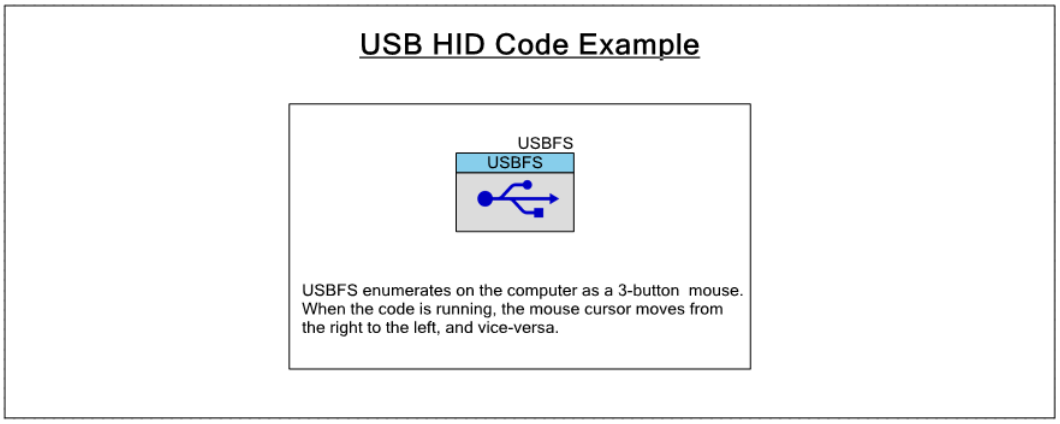
Pin Name	Development Kit			
	CY8CKIT-001	CY8CKIT-046	CY8CKIT-030	CY8CKIT-050
\USBFS:Dm\	P15[7]	P13[1]	P15[7]	P15[7]
\USBFS:Dp\	P15[6]	P13[0]	P15[6]	P15[6]

Note The project control file handles the pins placement automatically according to a selected PSoC.

Project Configuration

The example project consists of the USBFS component. The project schematic is in Figure 1.

Figure 1. Example Project Design Schematic PSoC 4200



The important USBFS component configuration Tabs are in the figures below.

Figure 2. USBFS Descriptor Root

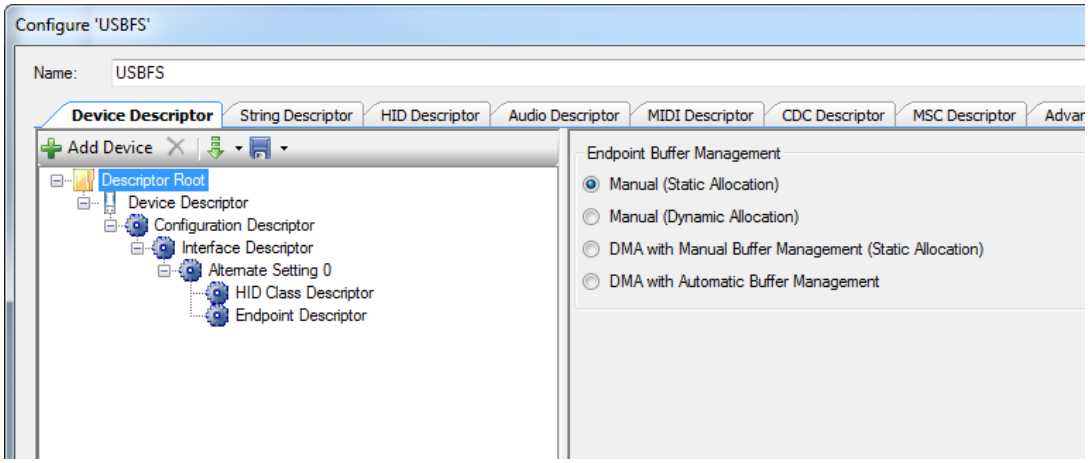


Figure 3. USBFS Device Descriptor

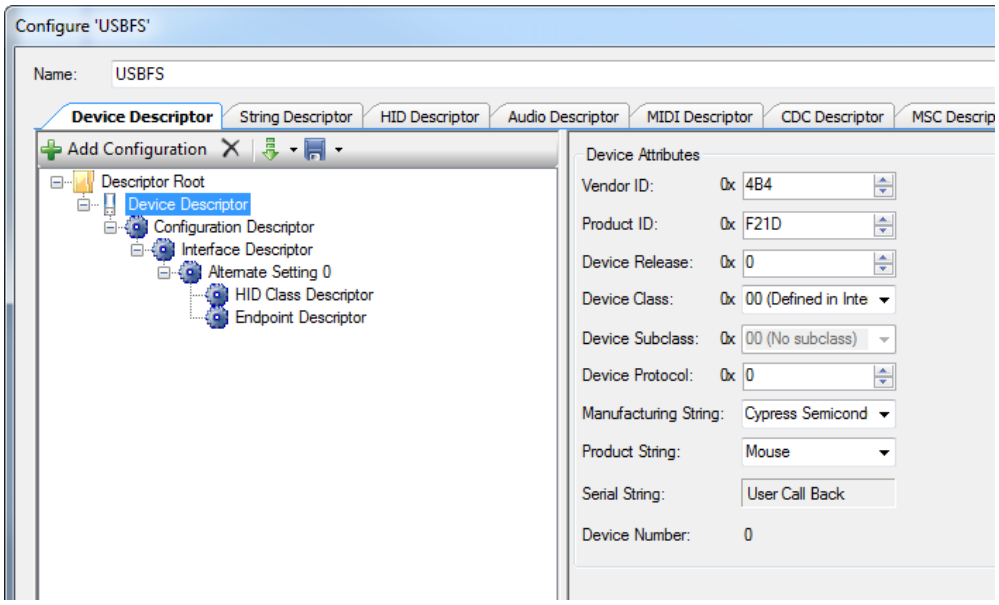


Figure 4. USBFS Configuration Descriptor

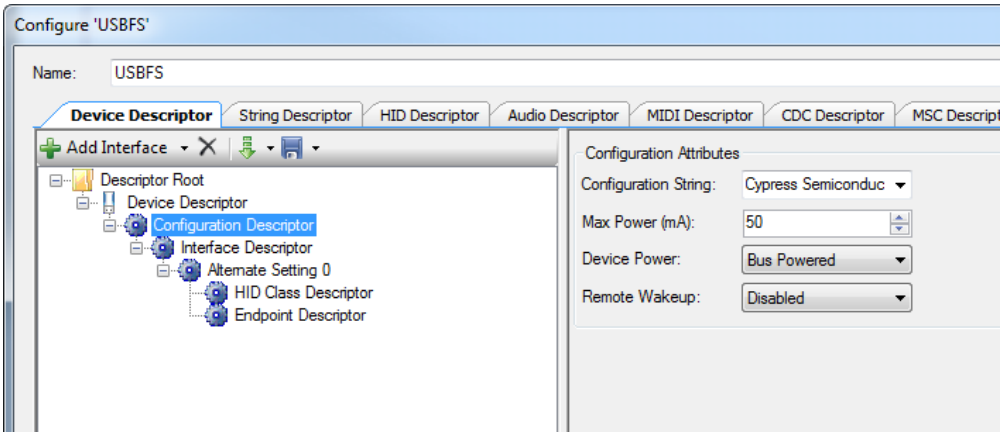


Figure 5. USBFS Interface Descriptor

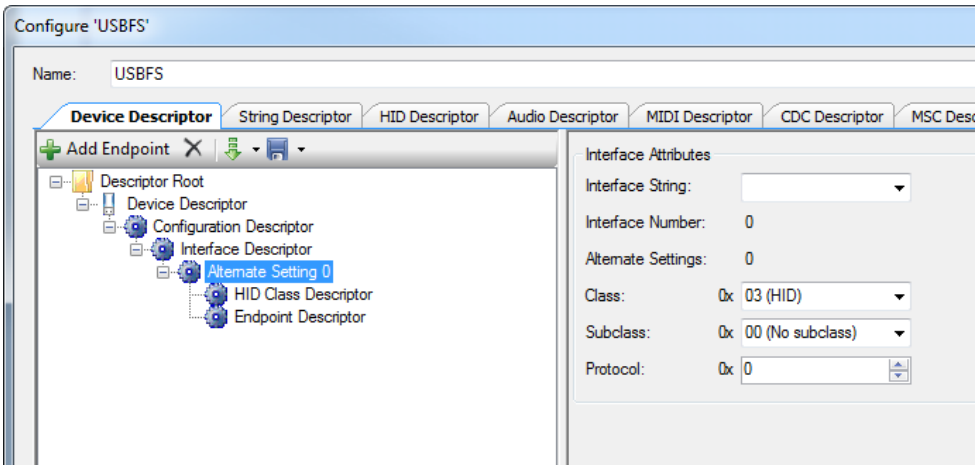


Figure 6. USBFS HID Class Descriptor

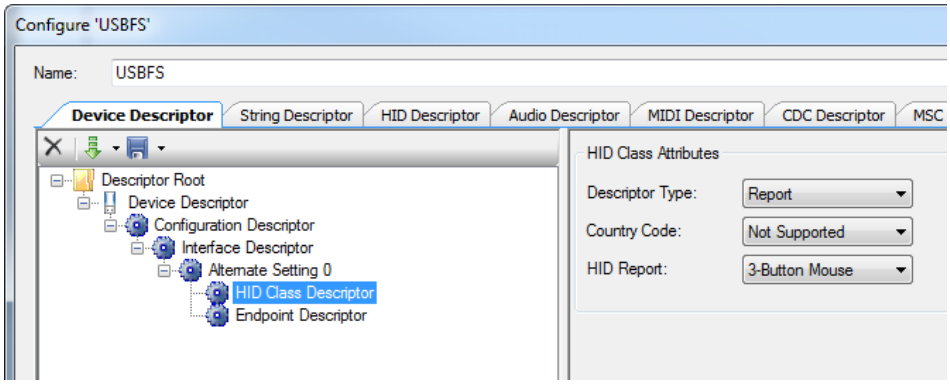
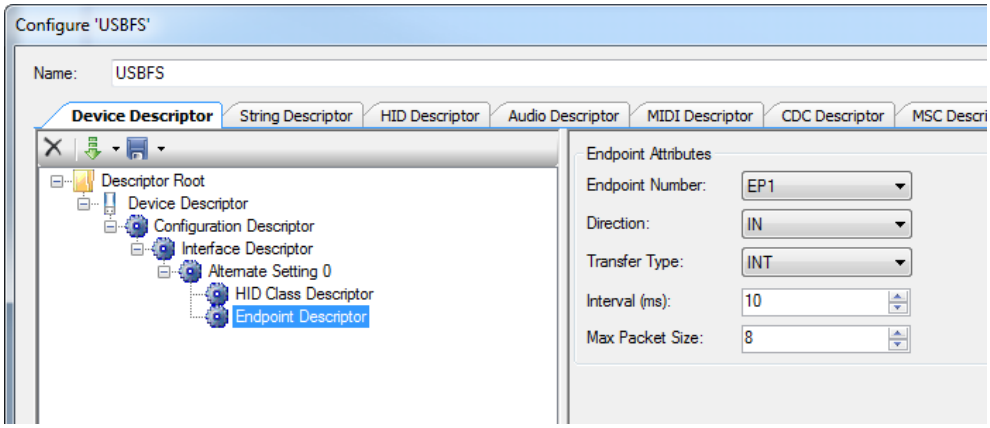


Figure 7. USBFS EP Descriptor



Project Description

The main firmware routine configures the USBFS component for operation and starts it. The code waits for the USBFS device enumeration. The project enumerates in the PC as a 3-button mouse. When the code is running, the mouse cursor moves from the right to the left, and vice-versa.

Example Project Execution Flow

To execute the USBFS component code example you need the following equipment:

- PSoC 3/4200AL/5LP Kit (CY8CKIT-001/030/046/050)

Follow the procedure below:

1. Configure the development kit to operate as bus-powered (the power is supplied from USB connector VBUS pad). This power scheme supposes that the device operates from 5V.

Note The CY8CKIT-046 kit supports only the bus power mode.

2. Build the project and program the hex file into the target device.
3. Connect the computer USB cable to the development kit.
4. Power cycle the device.

Expected Results

You should see that the device is recognized as a 3-button mouse. The mouse is continuously moving back and forth horizontally.

Figure 8. PSoC 4200L Pioneer Kit