# USB-SERIAL DEVELOPMENT KIT



## Step 1: Software Installation

- Download and unzip the ISO file from www.cypress.com/go/CYUSBS234
- Run cyautorun.exe and follow the steps in the installer window
- Install Tera Term from the following location: <Install directory>/Cypress/CYUSBS234 DVK/ 1.0/teraterm



#### Step 3: Enumeration

 The device appears as a USB Serial Port (COM#) in the Device Manager. (To launch the Device Manager in Windows 7, click Start and type Device Manager in 'Search programs and files' box)



## Step 2: Powering the Board\*

- Connect the board to the PC using the USB cable
- LEDs D2 and D4 glow to indicate that the board is powered



## Step 4: Testing Basic UART Functionality

- Connect J15.3 (TXD) to J15.2 (RXD) with the provided jumper wire as shown above
- Run Tera Term (Start > All Programs > Tera Term)
- Click **Serial** and select **Port (COM#)** in the 'Tera Term: New Connection' window, and then click **OK**
- Enable local echo option (go to **Setup > Terminal** and check the local echo box)
- Type 'HELLO WORLD'. The text appears on the same terminal and each character appears twice -'HHEELLLOO WWOORRLLDD'
- Note: \* Connect the board to the PC only after software installation. For the latest software updates on Windows, Linux, MAC, and Android, visit www.cypress.com/go/usbserial

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#### Step 5: 10-MB File Transfer at 1 Mbps, with no Data Loss

- Connect J15.3 (TXD) to J15.2 (RXD) and J15.7 (RTS) to J15.8 (CTS), with the provided jumper wires
- Go to Setup > Serial Port in the Tera Term window, and enter 1000000 in the baud rate box. Select Hardware in the Flow control drop-down menu; go to Setup > Terminal > Receive and select CR+LF. Click OK
- Enable file capture: go to File > Log; uncheck Append and select <file name> to save the received data
- Go to File > Send File and select the Test.txt file from <Install directory>\Cypress\CYUSBS234 DVK\1.0
- The 'Tera Term: Send file' window shows effective data throughput; multiply by 2X to get uni-directional throughput
- Compare Test.txt and received file, using any file compare utility to verify data integrity



### Step 7: USB-I2C Bridge Configuration

- Click the SCB tab. Select I2C from the drop-down menu and click the Program button. The 'Program succeeded' message appears. Click OK to continue
- Click the **Disconnect** button to disconnect the board from the configuration utility
- Press the reset switch, SW3 (refer to the figure in step 13). The board enumerates as an I2C bridge
- Set jumpers J17 and J20 as shown in the figure above to connect I2C EEPROM to the CY7C65211 device

	e
art Page Select Target	
Select device: (1) USB-Seria	al (Single Channel) Vendor MFG  Connect
Device Information	
Vendor ID (VID):	0x04B4
Product ID (PID):	0x0002
Device name:	USB-Serial (Single Channel) Vendor MFG
Manufacturer:	Cypress Semiconductor
Product:	USB-Serial (Single Channel)
Serial number:	
Version:	1.0.0.59
Windows device instance ID:	USB\VID_04B4&PID_0002&MI_02\7&1091A645&0&0002

#### Step 6: Device Connection to Configuration Utility

- Run the configuration utility from Start > All Programs
   > Cypress > CYUSBS234 DVK > USB Serial Configuration Utility
- Click the Select Target tab. Select the device USB-Serial (Single Channel) Vendor MFG from the drop down menu and click Connect

¥					HEFH	
Enter VendorID and Produc	tID			×		
Vendor ID: 0484	Product ID: 2004			OK		
Device id	Device class	Device type	Serial	Device friendly name		
USB Port: 7- Dev Id:0	VENDOR	12C		USB-Serial (Single Channel) Ve		
USB Port: 7- Dev Id: 1	VENDOR	MFG		USB-Serial (Single Channel) Ve		
			_			
				, , , , , , , , , , , , , , , , , , ,		
NOTE: Test utilty suppor	ts data transfer wit	h EEPROM conne	ected to SPI 8	k I2C on DVK.		
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#### Step 8: USB-I2C Test Utility

- Run the USB Serial Test Utility from Start > All Programs > Cypress > CYUSBS234 DVK > USBSerialTestUtility
- Change the Product ID to 0004 to match the default Cypress PID. The test utility lists the I2C interface on the board. Click **OK** to continue

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#### Step 9: USB-I2C Bridge Testing

- Click the Write data button. Data gets written at the default EEPROM page address
- Click the Read & verify data button. When the received and transmitted data is identical, the 'Data verification successful' message appears at the bottom of the window. The test proves successful data transfer with the I2C interface

0					N	<b>* * *</b>
	Enter VendorID and Produc	ID				
	Device list with specified VID	& PID:			Cancel	
	Device id	Device class	Device type	Serial	Device friendly name	
	USB Port: 7- Dev Id:0	VENDOR	SPI		USB-Serial (Single Channel) Ve	
	USB Port: 7- Dev Id: 1	VENDOR	MFG		USB-Serial (Single Channel) Ve	
- 11						
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#### Step 11: USB-SPI Test Utility

- Run the USB Serial Test Utility from Start > All Programs > Cypress > CYUSBS234 DVK > USBSerialTestUtility
- Change the Product ID to 0004 to match the default Cypress PID. The test utility lists the SPI interface available on the board. Click **OK** to continue





#### Step 10: USB-SPI Bridge Configuration

- Repeat step 6
- Click the SCB tab. Select SPI from the drop-down menu and click the Program button. The 'Program succeeded' message appears. Click OK to continue
- Click the **Disconnect** button. Press the reset switch, SW3 (refer to the figure in step 13). The board enumerates as an SPI bridge
- Set jumpers J17, J19, J20, and J21 as shown above

0						
SPI[USB Port:7- Dev Id:0]					H 4	ÞH
Data operations(EEP EEPROM page in he Test data: 29 23 8E 94 E1 6 83 A6 D8 3C 870 83 12 40 C8 47 8 50 D4 C8 736 85 D0 4C 87 36 20 9A 50 EC 756 70 9A 51 14F 24 44 76 22 91 90 E1 8 20 80 76 C5 99 0	ROM) x (range: 0x0 - 0x3FF): Generate random hex C 06 AE 52 00 49 F1 F1 88 C 05 AE 52 00 49 F1 F1 88 B 88 A6 1F 03 5A 70 09 38 B 88 A6 1F 03 5A 70 09 38 05 45 43 31 30 08 09 A1 C0 8 3 36 F0 12 49 32 F6 9E 70 6 60 06 66 - 03 87 32 38 B # F0 AB 0C A 99 02 B9 72 55 98 08 2E AC 9C C5 33 FF 59 80 82 EA C5 C5 33 F	000 data 47 DE 25 JF AE 32 47 DE 25 JF AE 32 47 DE 25 JF AI 22 90 49 67 D5	Write data           Read data:           29 23 BE 84 E1 6C I           B3 A6 DB 3C 87 0C           B3 12 4D C8 43 BB           SD 14 CB 7C 96 F5           SD 42 CB 7C 44 40           F6 22 91 9D E1 8B           C8 07 BC 59 P5	Read & verify data D6 AE 52 90 49 F1 F1 BB 36 99 24 55 00 1C 06 F7 38 A6 1F 03 5A 70 08 90 A1 CD 36 FD 12 49 32 F6 9E 70 50 D6 8C 43 08 73 23 83 IF DA B0 CA 99 02 P9 72 59 80 82 EA CS CC 53 BF	E9 E8 47 DE 25 IF 14E 32 49 DC 41 22 90 49 67 D6	E
BF 14 D6 7E 2D C 61 CD D1 1E 90 9 02 D7 E8 39 2C 5 D4 9F D4 A4 59 7 48 D3 8F 75 E6 D 0E 5F 50 00 D4 6 18 70 92 DA 64 5	C 8E 66 83 EF 57 49 61 FF C 16 72 72 E6 1D F0 84 4F 3 CB C9 12 1E 3D 74 9E 0C 53 CF 29 12 1E 37 49 E 0C 53 CF 32 22 F4 CC CF 03 9 1D 2A E5 C0 F7 28 78 81 1 8D 8E 78 05 15 07 38 33 4 CE 81 85 3E 69 15 F8 46	69 8F 4A 77 F4D5 90 2D 87 44 32 1F 5A 04	BF 14 D6 7E 20 DC 61 CD D1 1E 9D 9C 02 D7 E8 39 2C 53 D4 9F D4 A4 59 7E 48 D3 8F 75 E6 D9 0E 5F 50 00 D4 61 1 18 70 92 DA 64 54	8E 66 83 EF 57 49 61 FF 16 72 72 E6 1D F0 84 4F C8 09 12 1E 33 74 9E 0C 35 CF 32 22 F4 CC CF D2 10 2A E5 C0 F7 2B 78 81 30 8E 78 05 15 07 38 33 CE B1 85 3E 69 15 F8 46	69 8F 4A 77 F4 D5 90 2D 87 44 82 1F 6A 04	

#### Step 12: USB-SPI Bridge Testing

- Click the **Write data** button. Data gets written at the default EEPROM page address
- Click the **Read & verify data** button. When the received and transmitted data is identical, the 'Data verification successful' message appears. The test proves successful data transfer with the SPI interface

#### Step 13: CapSense Button

- Touch the CapSense<sup>®</sup> button B1, as shown in the figure. The D7 LED glows to indicate that the button is sensed
- Remove the finger from the B1 CapSense button and the LED turns OFF to indicate that the button is released

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Note: By default, the SCB configuration jumpers are set for the USB-UART bridge as shown above. Refer to the Table 3-1 in the kit guide for additional information on default jumper settings.

Kit operation: The CY7C65211, USB-Serial bridge controller can be configured as an USB-UART bridge, an USB-I2C bridge, or an USB-SPI bridge. As an USB-UART bridge, data is transmitted from USB to UART (TXD). TXD-RXD loop back connection enables the data to be fed back to the UART (RXD) to USB and is displayed on the Tera Term window. The CY7C65211 controller also supports battery charger detection and configurable CapSense functionality, providing best-in-class signal-to-noise ratio (SNR) and water-tolerance

For the latest information about this kit and to download kit software and hardware files, visit www.cypress.com/CYUSBS234

