KwikBlue Module Development Kit Installation Guide

Revision 1.04

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socket ™

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Regulatory Compliance

The KwikBlue-1 Class 1 Module using *Bluetooth* wireless technology complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.

This equipment generates and radiates radio-frequency energy. To comply with FCC RF exposure compliance requirements, the following antenna installation and device operation configurations must be satisfied: (1) Users are not permitted to make changes or modify the system in any way, and (2) connecting external antennas to the card is prohibited. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: For end-users of the KwikBlue-1 Class 1 Module, the FCC ID# LUBBTM-2 must be displayed on the outside of the host, i.e., "Contains FCC ID: LUBBTM-2."

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1.   Overview

Socket offers the fully-supported KwikBlue Module Development Kit to aid developers incorporating *Bluetooth*® wireless technology into their product designs. This is a development and interface kit, providing a reference for Socket's small form factor KwikBlue Module which is mounted on a versatile adapter board, allowing the module to communicate via an RS-232 serial interface. There is also an optional CODEC board which supports the development of *Bluetooth* audio solutions. The Module Dev Kit is compatible with the Windows CE operating system.

The KwikBlue Module utilizes the Cambridge Silicon Radio (CSR) BC02 chipset and comes in a standard carrier module format which is a highly-integrated small footprint board-to-board connectible package. The Module is also available as a Surface Mount Device (SMD) for custom applications.

The term "KwikBlue-1" refers to the Class 1 version of Socket's carrier module using *Bluetooth* wireless technology which transmits data up to 100 meter/300 feet. The term "KwikBlue-2" refers to the Class 2 version of Socket's carrier module using *Bluetooth* wireless technology which transmits data up to 10 meter/30 feet.

NOTE: The SMD module version is described in the "KwikBlue SMD Module Specification" (Socket document P/N 6410-00195), located on the *KwikBlue Dev Kit 008D CD* (Socket P/N 6230-00008-D).

2.   Hardware Description

2.1.   KwikBlue-1 (Class 1) Module – Top View

Figure 1: Top View of the KwikBlue-1 Module

The KwikBlue-1 Module contains CSR's BC2-EXT (BC02) chipset which has a complete transceiver radio and baseband controller section: 16 bit RISC processor, RAM and Flash memory. Also built in are a high- accuracy reference oscillator and a subclock for managing power to extremely low levels. Protocol software is already downloaded into the integrated Flash memory and it interfaces to the HCI layer of the upper layer protocol stack on an appropriate host system.

Features	Values
Carrier Module Dimensions	35.0 x 12.0 x 2.8 mm (height above PCB)
Power Level	+16 dBm Max.
Program Memory	4 Mbits (256k bytes x 16 bits) Flash
RAM	32k bytes x 16 bits
Reference Oscillator	Built-in
Sub Clock Oscillator	Built-in
Audio Interface	PCM A-Law, μ-Law (CVSD)
Serial Data Interface	UART (BCSP)
Physical Connection	Board-to-board connector: Matsushita Electric Works AXK6F20345

Table 1: KwikBlue-2 Module Features List

2.2.   KwikBlue-2 (Class 2) Module – Top View

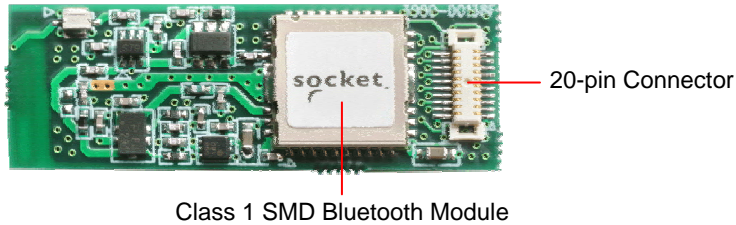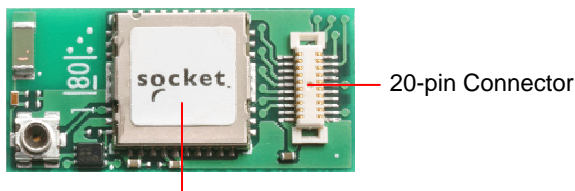20-pin Connector

Class 2 SMD Bluetooth Module

Figure 2: Top View of the KwikBlue-2 Module

The KwikBlue-2 Module contains CSR's BC2-EXT (BC02) chipset which has a complete transceiver radio and baseband controller section: 16 bit RISC processor, RAM and Flash memory. Also built in are a high- accuracy reference oscillator and a subclock for managing power to extremely low levels. Protocol software is already downloaded into the integrated Flash memory and it interfaces to the HCI layer of the upper layer protocol stack on an appropriate host system.

Features	Values
Carrier Module Dimensions	25.0 x 12.0 x 2.9 mm
Power Level	+4 dBm Max.
Program Memory	4 Mbits (256k bytes x 16 bits) Flash
RAM	32k bytes x 16 bits
Reference Oscillator	Built-in
Sub Clock Oscillator	Built-in
Audio Interface	PCM A-Law, µ-Law (CVSD)
Serial Data Interface	UART (BCSP)
Physical Connection	Board-to-board connector: Matsushita Electric Works AXK6F20345

Table 2: KwikBlue-2 Module Features List

2.3.   Bottom View of KwikBlue Module

socket
FCC ID: LUBBTM-1
P/N 8520-XXXXX   XXX XX.X
0311XXXXXX

Socket part number; firmware version
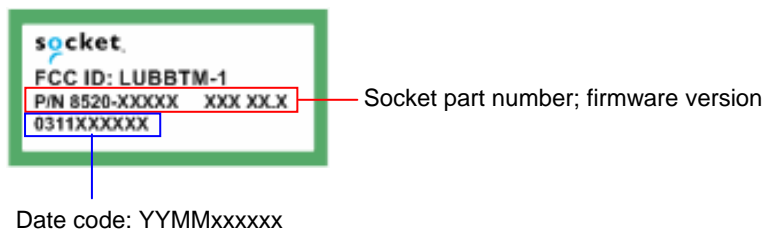
Date code: YYMMxxxxxx

Figure 3: Bottom View of the KwikBlue Module

2.4.   KwikBlue Module Development Board
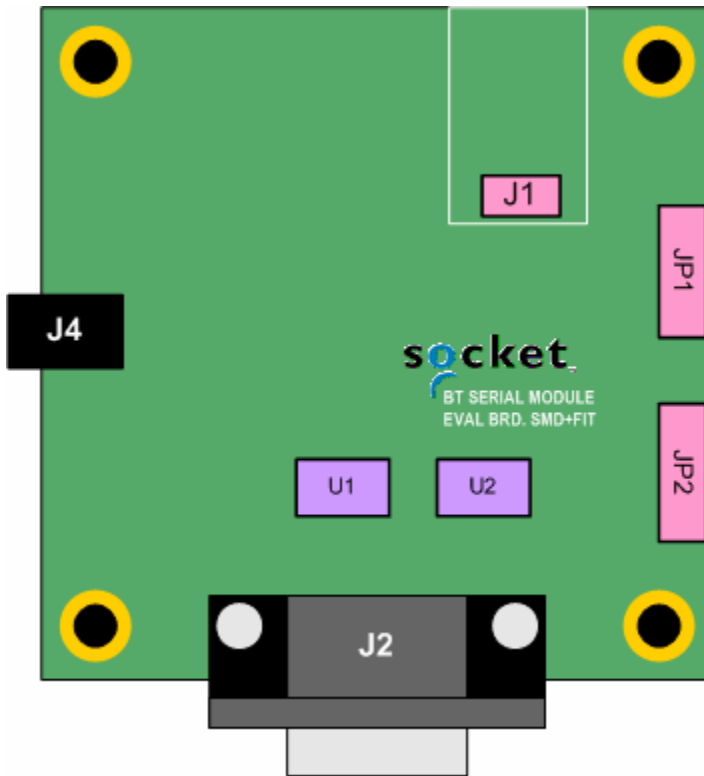
Figure 4: KwikBlue Development Board

The KwikBlue Module Development Board includes the following features:

- Connector J1 support for KwikBlue-1 or KwikBlue-2 Modules.
- RS 232 serial port with 9-pin right angle D-type male connector (J2)
- Power jack connector for 5 VDC power adapter (J4)

2.5.   Optional CODEC Board
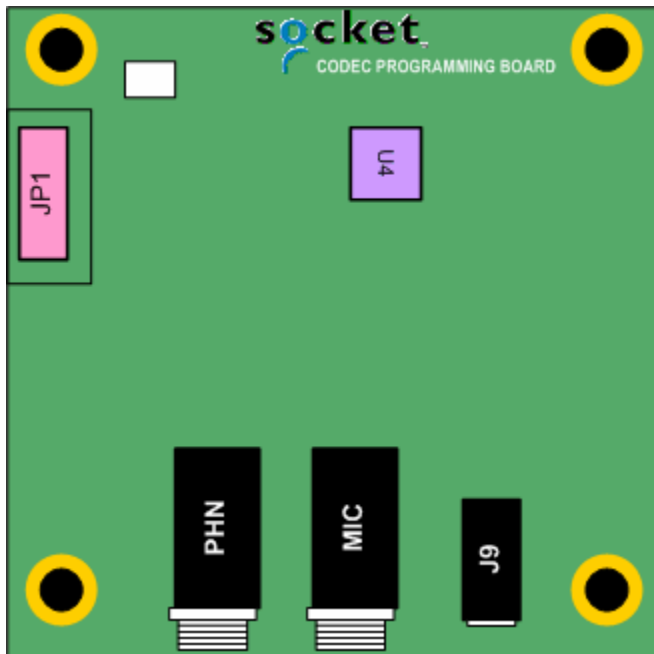
Figure 5: Optional CODEC Board

This optional board provides an interface to the industry standard Motorola MC145483 telephone quality CODEC. The CODEC board has the following features:

- 2.5 mm jack for microphone/line-in (MIC)
- 2.5 mm jack for speaker/line-out (PHN)
- 3.5 mm combination microphone speaker jack (J9)

Note: the speaker output is designed to drive a 700 ohm or greater load.

Please refer to the MC145483 data sheet for more information.

3.   System Requirements

3.1.   KwikBlue-1 Development Hardware Requirements

KwikBlue-1 Module to Module Development Kit   (9010-00459)

    (2) KwikBlue development boards   (7010-00120)

    (2) KwikBlue-1 Modules   (8520-00080)

    (2) Socket's CF Ruggedized Serial I/O cards   (8510-00115)

    (2) PC Card to CF card adapters   (8520-00031)

    (2) 5 VDC power adapters   (8530-00015)

    (2) Null modem adapters   (8520-00081)

Local hosts with PC Card/CF Slot

3.2.   KwikBlue-2 Development Hardware Requirements

KwikBlue-2 Module to Module Development Kit   (9010-00460)

    (2) KwikBlue development boards   (7010-00120)

    (2) KwikBlue-2 Modules   (8520-00069)

    (2) Socket's CF Ruggedized Serial I/O cards   (8510-00115)

    (2) PC Card to CF card adapters   (8520-00031)

    (2) 5 VDC power adapters   (8530-00015)

    (2) Null modem adapters   (8520-00081)

Local hosts with PC Card/CF Slot

3.3.   Optional CODEC Audio Board

    CODEC Board   (7010-00133)

    Dev Board to CODEC cable   (8100-00200)

3.4.   WinCE or Local Host Software Requirements

- Socket's *Bluetooth* stack – WinCE
- Socket's test applications, PrintDemo – WinCE
- CSR's BlueSuite/BlueChat – WinCE and desktop
- CSR's BlueSuite/PSTool – desktop
- CSR's BlueSuite/BlueTest – desktop

3.5.   User-Supplied Local Host Software Requirements

- User-supplied *Bluetooth* stack
- User-supplied function test applications
- User-supplied radio test applications

4.   Desktop Test Set-up

1) Install the Serial I/O high speed drivers from the *Serial I/O High Speed Installation Disc* to your Windows 98/2K/XP system.

2) Install the BlueSuite software. This software must be installed on a system with a Compact Flash or PC Card slot, such as a laptop. Run "BlueSuiteCasira_v1.18.exe" located on the *KwikBlue Dev Kit 008D CD* under "Utilities\CSR\BlueSuite." Follow the installation instructions; the default install location is "C:\Program Files\CSR\BlueSuite." Read the information in"PSTool.txt" for further instructions.

3) Reboot your system.

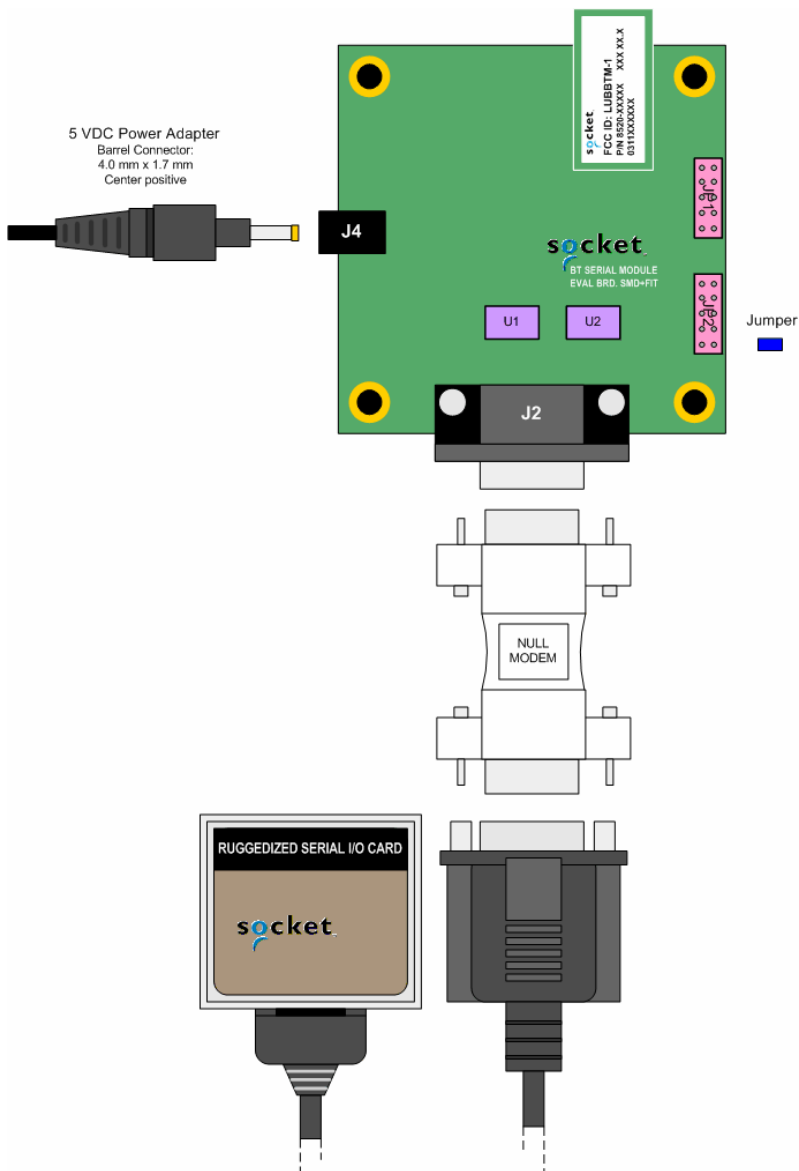4) Assemble KwikBlue Development Board components (without optional CODEC board):

Figure 6: Desktop Test - KwikBlue Development Board Set-up

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    a.   Insert jumper on JP2; default configuration is pins 1 to 2 for the KwikBlue Module. See *Chapter 11, KwikBlue Development Board* Jumpers for all jumper configurations.

    b.   Connect the null modem adapter to KwikBlue Dev Board connector J2.

    c.   Connect the CF Ruggedized Serial I/O (CF RIO) Card to the null modem adapter.

    d.   Connect the 5 VDC power supply to KwikBlue Dev Board connector J4.

5)   Insert the CF RIO card into the CF/PC card slot of your system. A tray icon should appear indicating the card is in use. Click on this once to show the COM number the CF RIO card is operating on (or use My Computer, Device Manager).

6)   Run the PSTOOL.exe utility (C:\Program Files\CSR\BlueSuite). Select BCSP and the COM port number where the serial card is located. Click on BdAddr to verify the KwikBlue Module is being read from. You should see a non-zero 16 byte hex number. The PSTOOL.exe utility can be used to program the module parameters.

7)   BlueChat2.exe: this program is available in both desktop and WinCE versions. The desktop version is in the folder "C:\Program Files\CSR\BlueSuite" from the above install. The WinCE software can be found on the *KwikBlue Dev Kit 008D CD* in the "\Utilities\CSR\BlueSuite\BlueSuite 118 CE" folder.

Desktop to Desktop: you must have two desktop systems and two development board assemblies set up as described above running BlueChat2.exe. Select BCSP, the COM the serial card is on, and the baud rate. Select the "Role" for one system as the Slave and the Role for the other system as the Master.

Desktop to WinCE: copy and install the CSR WinCE BlueSuite software from the *KwikBlue Dev Kit 008D CD* folder "\Utilities\CSR\BlueSuite\BlueSuite 118 CE" to your WinCE device.

    a.   Using the CF RIO connected to KwikBlue Module:

       ▪ If you have not completed the WinCE Test Set-up section, you can install the Socket high-speed Serial Drivers from the *Serial I/O High Speed Driver Installation Disc* to your WinCE device.

       ▪ If you have completed the WinCE Test Set-up section, you need to disable the Socket Bluetooth stack from loading. This can be done by renaming the BCSPStack.dll in the \Windows directory.

       ▪ After setting up the KwikBlue Dev Board, insert the CF RIO card into the CF/PC card slot of your WinCE device. You can now run the BlueChat2.exe on the WinCE side. Select the "Role" for one system as the Slave and the Role for the other system as the Master.

    b.   KwikBlue Module (or Dev Board) is hard-wired to serial port:

       ▪ If you wish to embed the module with a high-speed-baud rate (greater than 115 Kbps), you must have a UART (such as Socket's CF or PC serial cards) that supports the higher baud rates. Refer to *Chapter 5.1, Module Baud Rate Configuration* for setting the baud rate of the module.

       ▪ BlueChat2.exe will communicate through the Serial driver on the COM that the KwikBlue Module is connected to.

       ▪ If you have completed the WinCE Test Set-up section, you need to disable the Socket *Bluetooth* stack from loading. This can be done by renaming the BCSPStack.dll in the \Windows directory.

- You can now run the BlueChat2.exe on the WinCE side. Select the "Role" for one system as the Slave and the Role for the other system as the Master.

- WinCE to WinCE test: you must have two WinCE systems set up as described above. Select BCSP, the COM the serial card is on, and the baud rate. Select the "Role" for one system as the Slave and the Role for the other system as the Master.

8) BlueTest.exe: BlueTest.exe is used to test various module functions. Select BCSP, the COM the serial card is on, and the baud rate. Click on one of the "RF Test Mode" items such as TXSTART. This will display a list of parameters in the "Test Arguments" window. This utility is used for *Bluetooth* SIG and FCC conformance testing.

5.   Hardware Configuration

5.1.   Module Baud Rate Configuration

The default KwikBlue Module speed is 115200 bps. To use the high-speed driver (921600 bps), you must have a high-speed UART (such as Socket's CF or PC serial cards) that supports this speed and the baud rate of the module must be re-programmed. Follow the software install instructions in the "Desktop Test Set-up" section:

1. Click on the BdAddr to verify that the KwikBlue module is being read from. You should see a non-zero 16 byte hex number.

2. Select UART_Baud_Rate - change the key to the value you wish to use. Select "Set" to write the new value into firmware.

3. Power cycle the module for the new firmware changes to take effect.

5.2.   Firmware Upgrade

If firmware upgrades become available, Socket support will assist you in updating your system if necessary.

6.   WinCE Test Setup

The information below pertains to Socket's Bluetooth WinCE driver Versions - Drakar Stack Version 1.4.3.38 and previous. It does not apply to Drakar Stack Dev Version 1.4.4.0 and higher. The KwikBlue module is available in two configurations: HCI and Virtual Machine (VM). The default factory delivery is with a HCI stack interface. Please contact Socket for information on VM configurations since they are typically custom configurations.

- HCI (Host Controller Interface): the Bluetooth stack drivers are run under an OS (currently the drivers are for the Windows CE OS).

- Virtual Machine (VM): in this mode, a scaled-down version of the *Bluetooth* stack runs on the KwikBlue module itself. The module can be programmed to run a small application. The module does not need any other drivers.

7.   HCI Test Setup

The following tests are set up for KwikBlue Modules to be used in an HCI configuration. In this configuration, the Bluetooth stack drivers are run on a Windows CE device. The KwikBlue Module Dev Kit provides support for Pocket PC 2000/2002/2003, HPC 2000 and CE .NET devices (CE .NET devices are custom builds and may require factory support. Please contact Socket regarding these platforms). The following processors are supported: ARM, ARMV4, ARMV4T, ARMV4i, MIPS and SH3.

7.1.   Test 1 - Devices with Compact Flash or PC Card Slots

This test connects the CF Ruggedized Serial I/O (CF RIO) card with the KwikBlue Module Dev Board and runs the *Bluetooth* drivers on a Windows CE device.

a) Bluetooth SDK Install: run Setup.exe from the *Bluetooth_Stack_Dev_Tools_CR4.3.38 CD*. This will install the *Bluetooth* SDK files to your desktop in the folder 'C:\Drakar Stack Dev Files'. This includes the WinCE *Bluetooth* stack and sample applications.

b) Bluetooth Driver Install: the *Bluetooth* driver is contained in a *.cab and can be copied to your device via ActiveSync or through a storage card.

   i)   ActiveSync: once your device is ActiveSync'd to your desktop, run Setup.exe from:

        C:\Drakar Stack Dev Files\Installs\Main Stack Release\Disk1\Setup.exe

        Follow the on-screen instructions to install the *Bluetooth* drivers to your device.

   ii) Storage Card: if your device does not support ActiveSync, you can manually copy the Bluetooth *.cab to a storage card and install it to your device. The *Bluetooth* *.cab is contained in the folder:

        C:\Drakar Stack Dev Files\Installs\Main Stack Release\CABs

        The *.cab name is in the form "BtStack.PlatformProcessor.Cab":

        BtStack.CENETARMV4.CAB   (CENET, ARMV4 processor, wide (HPC) screen layout)
        BtStack.CENETPPCARMV4.CAB   (CENET, ARMV4 processor, Pocket PC screen layout)
        BtStack.CENETPPCARMV4T.CAB (CENET, ARMV4T processor, Pocket PC screen layout)
        BtStack.HPC2000ARM.CAB
        BtStack.HPC2000MIPS.CAB
        BtStack.PPC2003ARMV4.CAB
        BtStack.PPCARM.CAB
        BtStack.PPCMIPS.CAB
        BtStack.PPCSH3.CAB

        Once you have copied the *.cab to your device, click on the *.cab to install the drivers.

c) Serial Card Setup: to configure the CF RIO card for use with the KwikBlue module and drivers, a serial card configuration utility must be run. The KwikBlue Serial Card Wizard is installed from a *.cab. The *.cab must be copied to your device either through ActiveSync or a storage card. The *.cab is located on the *KwikBlue Dev Kit 008D CD* under the folder "\KwikBlue Serial Card Wizard" directory. Copy the *.cab that matches your OS and processor to your device and click to install.

d) The KwikBlue Serial Card Wizard, KwikBlueWizard.exe, is installed to the "C:\Program Files\Socket KwikBlue" directory. A shortcut should be available from the **Start, Programs** menu of your device. Run the KwikBlue Serial Card Wizard. From the drop-down menu, select "Serial Card KwikBlue at 115K":

- Serial Card KwikBlue at 115 Kbps - This is the default module configuration and sets the *Bluetooth* drivers to work with a module programmed at 115200 bps.

- Serial Card KwikBlue at 921 Kbps - This configures the *Bluetooth* drivers to work with a module programmed at 921600 bps.

NOTE: Do not install the Serial drivers from the *Serial I/O High Speed Driver Installation Disc*. This will overwrite the Serial card *Bluetooth* configuration settings.

e) Reset your device.

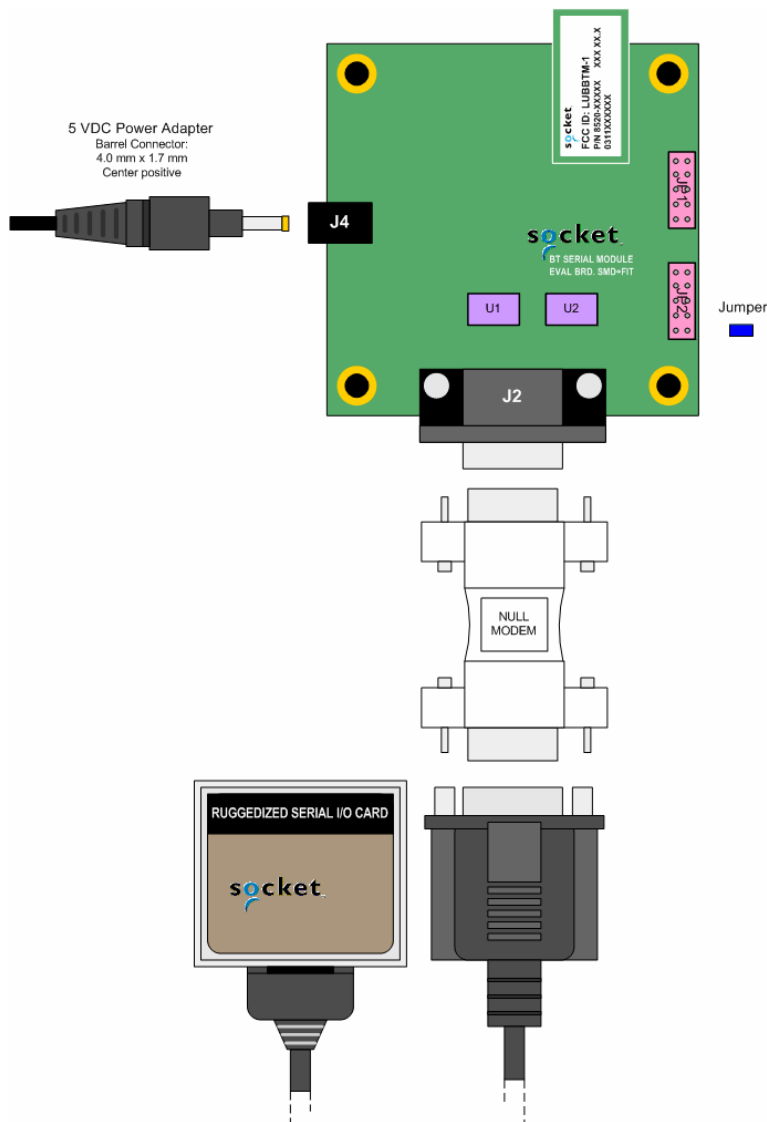f) Assemble KwikBlue Development Board components:

Figure 7: HCI Test - KwikBlue Development Board Set-up

g) Insert jumper on JP2; default configuration is pins 1 to 2 for the KwikBlue Module. See *Chapter 11, KwikBlue Development Board* Jumpers for all jumper configurations.

h) Connect the null modem adapter to KwikBlue Dev Board connector J2.

i) Connect the CF Ruggedized Serial I/O (CF RIO) Card to the null modem adapter.

j) Connect the 5 VDC power supply to KwikBlue Dev Board connector J4.

k) You should see the *Bluetooth* stack load. A *Bluetooth* icon will appear in the task bar tray on your screen. At this point, you can configure the *Bluetooth* UI options. You can then copy over and run some of the *Bluetooth* sample applications from the *Bluetooth_Stack_Dev_Tools_CR4.3.38 CD* such as BlueRfcDemo.exe, etc. Refer to the "C:\Drakar Stack Dev Files\Demos" folder. There is also a small sample source program in the *KwikBlue Dev Kit 008D CD* "Utilies\PrintDemo" folder. This program has a Print File menu selection that can be used to send a file.

7.2.   Test 2 - KwikBlue Module (or Dev Board) Hard-Wired to Serial Port

The Bluetooth drivers are run on a Windows CE device. If you wish to embed the KwikBlue Module with its default settings (HCI mode, drivers running on a Windows CE device), the standard speed is 115200 bps. To use the high-speed driver (921600 bps), you must have a high-speed UART that supports this speed and the baud rate of the module must be re-programmed.

To program the module parameters, follow the software install instructions in the "Desktop Test Set-up" section. Follow the steps in *Chapter 5.1, Module Baud Rate Configuration*. Communication between the module and *Bluetooth* drivers is through the Serial driver on the COM port the module is connected to.

a) Follow Steps 1 and 2 as outlined in *Test 1 - Devices with Compact Flash or PC Card Slots* to install the *Bluetooth* drivers.

b) Modify the following registries to configure the *Bluetooth* drivers for use with the module:

i) Identify the Serial port the module is connected to. As an example, if the module is connected to HKLM\BuiltIn\Serial2, the registry entry would be:

HKEY_LOCAL_MACHINE\SOFTWARE\Socket Communications\Bluetooth\BT Device\ComKey="Drivers\BuiltIn\Serial2"

ii) Specify the baud for communication between the module and *Bluetooth* drivers, i.e,

HKEY_LOCAL_MACHINE\SOFTWARE\Socket Communications\Bluetooth\BT Device\config="921600 8 E 1 1 1 0"

HKEY_LOCAL_MACHINE\SOFTWARE\Socket Communications\Bluetooth\BT Device\config="115200 8 E 1 1 1 0"

c)   There is a program on the *KwikBlue Dev Kit 008D CD* that can be used to open a COM port on your device and verify the module is connected correctly. The program is called PrintDemo.exe and is under the "\Utilities\Print Demo" folder.

   i)   The KwikBlue Module sends out a repeating sequence of connection bytes "C0 00 41 00 BE DA DC ED ED C0" every 250 ms. These bytes indicate to the *Bluetooth* drivers running on the WinCE device that the module is ready to be used. When the COM port that the module is connected to is opened, the bytes can be displayed. This indicates that the module is connected correctly and ready to be used by the *Bluetooth* drivers. The baud rate for opening the port is specified in Port.c and must be set:

   PortDCB.BaudRate   = 921600;

   PortDCB.BaudRate   = 115200; (default module baud)

   ii)   The PrintDemo.exe has a menu selection called 'Load Stack'. This is a one line ActivateDevice() call to the registry to which loads the stack. The code is provided below for reference. The ActivateDevice() call loads BCSPStack.dll.

```
HANDLE g_hBCSP;
 case IDC_LOAD_BCSP:
  g_hBCSP = ActivateDevice (TEXT("SOFTWARE\\Socket
Communications\\Bluetooth\\Bt Device"), 0);
  if(g_hBCSP == NULL)
  { MessageBox(hDlg, TEXT("ActivateDevice (BCSP) Failed"), TEXT("Error
BCSP Load"), MB_OK);
  }
 break;
```

d)   BCSPStack.dll in turn loads BtDevMan.exe. BtDevMan.exe appears as a *Bluetooth* icon running in the screen tray task bar.

e)   Virtual COM Port configurations: BtDevMan.exe loads BTVCOMM.dll. All *Bluetooth* COM ports that are used by the stack come from BTVCOMM.dll. *Bluetooth* needs at least one default COM port to function. For industrial type applications where the remote device being connected to expects to be a printer or GPS device, the default COM port is usually configured to be the "Bluetooth COM Port" (Serial Profile). For more commercial applications where the remote device is expected to be a phone, the default COM port is configured to be the "Bluetooth Phone Port" (this is the standard retail release configuration). The following registries enable a Virtual COM port for use.

f)   HKEY_LOCAL_MACHINE\SOFTWARE\Socket Communications\BtDevMan\1.0

```
[TYPE_DWORD] COMEnabled=1 (Bluetooth COM Port (Serial Profile))
[TYPE_DWORD] FaxEnabled=0
[TYPE_DWORD] DesktopEnabled=0
[TYPE_DWORD] LapEnabled=0
[TYPE_DWORD] PrinterEnabled=0
[TYPE_DWORD] PhoneEnabled=0
```

g) HKEY_LOCAL_MACHINE\SOFTWARE\Socket
Communications\Bluetooth\BtDevMan\1.0\BuiltInPort

BuiltInPort (DWORD) displays the check-box that appears on the COM Ports tab in the UI. It has one of the following values:

0 = Phone (Enabled by default if BuiltInPort key is not present)
1 = Lap
2 = Desktop
3 = Printer
4 = Fax
5 = Bt COM Port

(BTVCOMM.dll could also be loaded by an ActivateDevice() call).

BtDevWin.exe launches the Device Discovery window. This is also launched by selecting Advanced Features, Bluetooth Devices from the tray icon menu.

h) After completing the ActivateDevice() on BCSPStack.dll, the *Bluetooth* stack should load. A *Bluetooth* icon will appear in the task bar tray on your screen; at this point, the Bluetooth UI options can be configured. *Bluetooth* sample applications, such as BlueRfcDemo.exec, can be copied over and run from the *KwikBlue Dev Kit 008D CD* "\Drakar Stack Dev Files\Demos" folder. The PrintDemo sample source program in the *KwikBlue Dev Kit 008D CD* "\Utilities\PrintDemo" folder contains a Print File menu selection that can be used to send a file.

8.   Suspend\Resume

Keeping the *Bluetooth* hardware active during a suspend still has some issues which is why the module should be powered down during a suspend:

1) On Suspend, the KwikBlue Module should be powered down. The mechanism for power-down is customer implementation dependent.

2) On Resume, the KwikBlue Module should be powered back up. The mechanism for power-up is customer implementation dependent. On power-up, the KwikBlue module running at 921 Kbps requires approximately 800 ms to become connectable.

3) On Resume, BCSPStack.dll must be shutdown. A DeActivateDevice() call must be made on 'HKLM\Software\Socket Communications\Bluetooth\Bt Device\' with the handle obtained earlier from the ActivateDevice() call. This will cause BCSPStack.dll to shutdown the rest of the stack (\Windows\BtDevMan.exe).

4) The stack must then be loaded with an ActivateDevice() call on 'HKLM\Software\Socket Communications\Bluetooth\Bt Device\'.

9.   Bluetooth Driver List

The following binaries comprise the *Bluetooth* drivers for the module case. They are placed in the \Windows directory of the device.

- ▪ BlueSocket.dll
- ▪ BtDevMan.exe
- ▪ BtDevWin.exe
- ▪ BTExchange.dll
- ▪ Btvcomm.dll
- ▪ ToothSocket.dll
- ▪ ConnectWiz.exe
- ▪ Drakar.dll
- ▪ DkUiUtils.dll
- ▪ BCSPStack.dll (used by embedded modules and Rev G (and higher) CF Cards With *Bluetooth* Wireless Technology)
- ▪ ScktIrda.cpl (IrDa Control Panel configuration utility - optional)

Binaries that occur in the retail release but are not included in a module build:

- ▪ WendyStack.dll (only used by older Rev F CF Cards With *Bluetooth* Wireless Technology - not in production any more)
- ▪ SDBTASckt.dll (SDIO driver - SDIO slot devices only)
- ▪ SIO_BT.DLL (high speed serial driver - Rev G and above cards only)
- ▪ BtCustomSetup.dll (set-up wizard for *.cab install, not part of stack)

10.   Certification Testing Utilities

The CSR software provides some utilities such as BlueTest.exe (see Desktop Test Set-up) which can be used in certification testing. At the time of this release, there are not CSR utilities that can be run under Windows CE, CE .NET or Windows Mobile for certification testing. Check the CSR website for the latest information http://www.csr.com/home.htm.

If it is desired to use BlueTest.exe on the desktop, a WinCE utility is needed to pass data between BlueTest.exe and the module. When running this WinCE utility, the *Bluetooth* drivers must be disabled so the utility can communicate directly with the KwikBlue Module. The utility opens two COM ports; the first COM port is to the module, the second COM port is to the incoming connection from BlueTest.exe on the desktop side. Once this bi-directional communication has been established, BlueTest.exe can be used for certification testing.

11.   KwikBlue Development Board Jumpers

JP2	Description
Pin 1 to 2	Install only for BC02 module
Pin 3 to 4	Install only for BC01 module
Pin 5 to 6	Install to light LED when power is on
Pin 6 to 8	Install to connect LED to PIO_1
Pin 7 to 8	Install to connect RS232 signal RI to PIO_1
Pin 9 to 10	Install to connect INVALID# RS232 to PIO_1
Factory default jumpers	

Table 3: KwikBlue Development Board Jumpers
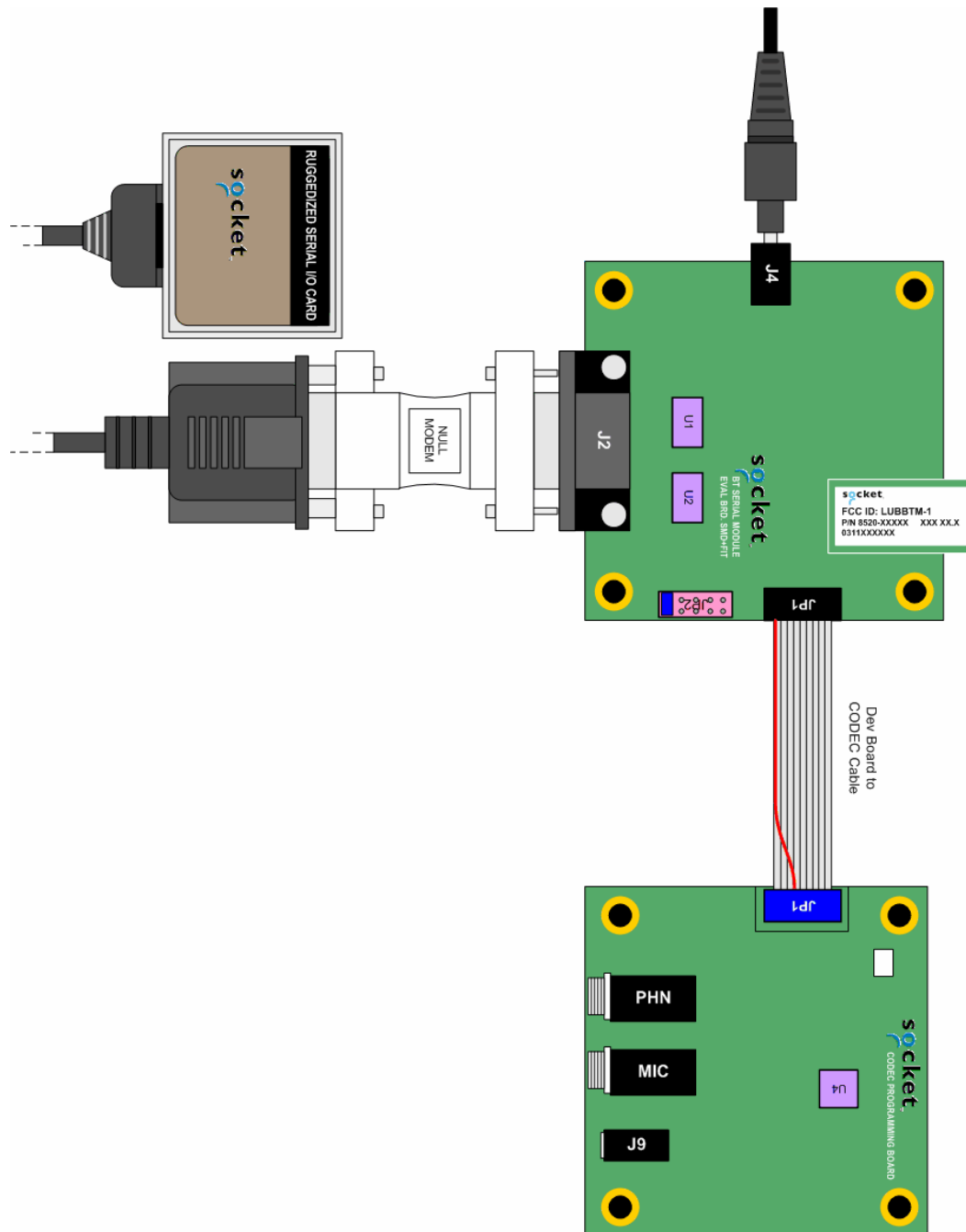
12.   Audio CODEC Setup (Optional)

Figure 8: Optional Audio CODEC Board Setup

Setting up the CODEC board:

- Using 10-pin ribbon cable, connect CODEC JP1 to KwikBlue Development Board connector JP1.

- Connect headphone/microphone to CODEC connector J9.

- Connect 5 VDC power supply to KwikBlue development board connector J4

13. KwikBlue Development Board Bill of Materials (BOM)

(refer to the schematic "0200-00120-03.pdf" on the *KwikBlue Dev Kit 008D CD*)

Qty	Reference	Description	Mfr	Part Number
4	C1, C2, C3, C4	CAP, 0.1UF, 16V, Y5V, +80/-20%, CERAMIC	Panasonic	ECJ-0EF1C104Z
1	C11	CAP, 1UF, 16V, TE, 20%, TANTALUM	Panasonic	ECS-T1CY105R
1	C12	CAP, 4.7UF, 16V, 20%, TANTALUM	Panasonic	ECS-T1CY475R
1	C13	CAP, 0.1UF, 10V, 10%, CERAMIC	Panasonic	ECJ-0EB1A104K
1	C14	CAP, 470PF, 50V, 10%, CERAMIC	Panasonic	ECJ-0EB1H471K
1	C15	CAP, 0.1UF, 10V, 10%, CERAMIC	Panasonic	ECJ-0EB1A104K
2	C16, C17	CAP, 0.01UF, 16V, X7R, 10%, CERAMIC	Panasonic	ECJ-0EB1C103K
1	C8	CAP, 4.7UF, 16V, 20%, TANTALUM	Panasonic	ECS-T1CY475R
1	CR2	DIO, MA8068, 6.8V, 150MW, ZENER	Panasonic	MA8068
2	CR3, CR1	DIO, BAT54C, 30V, 200MA, SILICON SCHOTTKY BARRIER	Diodes	BAT54C
1	CR4	DIO, MA8056, 5.6V, 150MW, ZENER	Panasonic	MA8056
1	CR5	LED, LED-BLUE-CLEAR, 3.7V, 20MA, CLEAR	Liteon	LTST-C191CBKT
1	J1	CON, CON20-SMT, VERT, FEM, SKT, GOLD PLATED	Matsushi	AXK5F20545J
1	J2	CON, DB9-M-RT, METAL HOUSING	AMP	747840-4
1	J4	CON, PJACK-1.65MM-RT, PLASTIC HOUSING	CUI	PJ-016
2	JP2, JP1	HDR, HDR10-DIP, VERT, STAMPED PIN GOLD	Samtec	TSW-105-07-S-D
1	Q1	REG, MIC5205-3.3BM5, 3.3V, 1%	Micrel	MIC5205-3.3BM5
2	R2, R3	RES, 2.7K, 200V, 1/8W, 5%, THICK FILM	Panasonic	ERJ-6GEYJ272V
2	R4, R5	RES, 330K, 50V, 1/16W, 5%, THICK FILM	Panasonic	ERJ-2GEJ334X
1	R6	RES, 100K, 100V, 1/16W, 5%, THICK FILM	Panasonic	ERJ-2GEJ104
1	R7	RES, 470K, 100V, 1/16W, 5%, THICK FILM	Panasonic	ERJ-2GEJ470
1	R8	RES, 560, 50V, 1/16W, 5%, THICK FILM	Panasonic	ERJ-2GEJ561
1	U1	ANA, MAX3243	Maxim	MAX3243CAI
1	U2	ANA, PI5A100, 2V/6V	Pericom	PI5A100W
2	U7, U6	LOG, SN74LVCG17, 1.65V-5.5V	TI	SN74LVC1G17DCKR
4	HDW- 4-40 HEXNUT	HDW, HEXNUT-4-40, 4-40	BF	H216
4	HDW- M/F 4-40 HEX STANDOFFS	HDW, SPACER-HEX-M-F, 4-40, 0.500, ALUMINUM	Keystone	8401

Table 4: KwikBlue Development Board Bill of Materials

14.   CODEC Board Bill of Materials (BOM)

(refer to the schematic "0200-00133-01.pdf" on the *KwikBlue Dev Kit 008D CD*)

Qty	Reference	Description	Mfr	Part Number
1	C12	CAP, 68UF, 10V, TC, 10%, CERAMIC	Matsuo	267E1002686K-720
1	C13	CAP, 0.01UF, 50V, Y5V, +80/-20, CERAMIC	Samsung	CL10F103ZBNC
2	C14, C23	CAP, 470PF, 50V, X7R, 10%, CERAMIC	Panasonic	ECU-V1H471KBV
1	C15	CAP, 10UF, 10V, Y5V, +80/-20, CERAMIC	Murata	GRM230Y5V106Z010AL
4	C16, C17, C22, C25	CAP, 0.1UF, 25V, Y5V, +80/-20%, CERAMIC	Panasonic	ECJ-1VF1H104Z
4	C18, C19, C20, C21	CAP, 1000PF, 25V, X7R, 10%, CERAMIC	AVX	06033C102KATRA
2	J7, J6	CON, PHNO-ST-3.5MM, RT, PLASTIC HOUSING	SWTCRAFT	35RAPC4BV4
1	J9	CON, PHNO-ST-2.5MM, PLASTIC HOUSING	DGS	2502
1	JP1	HDR, HDR10-DIP, VERT, STAMPED PIN GOLD	Samtec	TSW-105-07-S-D
1	L3	IND, 5.6UH, 120MA, 5%	Panasonic	ELJ-FC5R6JF
1	POT1	POT, 50K, 300VDC, 1/4W, 10%	Bourns	3214W-1-503E
4	R44, R45, R49, R52	RES, 1K, 50V, 1/16W, 5%, THICK FILM	Panasonic	ERJ-3GSYJ1.0K
6	R46, R50, R54, R58, R70, R72	RES, 0.0, 100V, 1/16W, 5%, THICK FILM	Panasonic	ERJ-3GSYJ0.0
2	R47, R53	RES, 75K, 50V, 1/16W, 5%, THICK FILM	Panasonic	ERJ-3GSYJ753
1	R48	RES, 20K, 50V, 1/10W, 5%, THICK FILM	Panasonic	ERJ-3GEYJ20K
2	R71, R64	RES, 100K, 50V, 1/16W, 5%, THICK FILM	Panasonic	ERJ-3GSYJ100K
2	TP3, TP4	HDR, HDR1-SIP, VERT, STAMPED PIN GOLD	Sullins	PZC01SAAN
1	U4	PER, MC145483, 3V	Motorola	MC145483SD
1	HDW-RIBBON CABLE	HDW, 10PIN-CBL, 6"	AMP	A3AAG-1006G
4	HDW- 4-40 HEXNUT	HDW, HEXNUT-4-40, 4-40	BF	H216
4	HDW- M/F 4-40 HEX STANDOFFS	HDW, SPACER-HEX-M-F, 4-40, 0.500, ALUMINUM	Keystone	8401

Table 5: CODEC Board Bill of Materials

15.   Errata

Pins 1 and 3 on the CODEC board were reversed so the CODEC-to-dev-kit cable has corrected this condition. The next revision of the board and cable will reflect the proper board layout.

16.   Appendix A: BC01 vs. BC02 Pin Assignments

BC01 vs. BC02 Pin Assignments				
BC01 – Class 1	**BC02 – Class 2**	**BC02 – Class 1**	**Changed between Class 1 & 2**	**Pin #**
GROUND	GROUND	GROUND		1
PCM_OUT	PCM_OUT	PCM_OUT		2
PCM_IN	PCM_IN	PCM_IN		3
PCM_PWR_DWN	PIO_1	PIO_5	YES	4
VBUS_IN	PIO_4	PIO_4		5
UART_RXD	UART_RXD	UART_RXD		6
UART_TXD	UART_TXD	UART_TXD		7
RESET	RESET	RESET		8
USB_WAKE	PIO_3	PIO_3		9
VCC	SPI_CSB	SPI_CSB	YES	10
GROUND	GROUND	GROUND		11
UART_RTS	UART_RTS	UART_RTS		12
USB_DETACH	SPI_CLK	SPI_CLK	YES	13
UART_CTS	UART_CTS	UART_CTS		14
PCM_SYNC	PCM_SYNC	PCM_SYNC		15
USB_D+	PIO_2	PIO_2	YES	16
USP_D-	SPI_MOSI	SPI_MOSI	YES	17
PCM_CLK	PCM_CLK	PCM_CLK		18
NC	SPI_MISO	SPI_MISO	YES	19
VCC_PA	VCC_3.3V	VCC_3.3V		20

Table 6: BC01 vs. BC02 Pin Assignments

BC01 Class 1 Module Pin Assignments			
Signal Name	**Function**	**Direction**	**Pin #**
GROUND	Ground		1
PCM_OUT	PCM data stream output	OUT	2
PCM_IN	PCM data stream input	IN	3
PCM_PWR_DWN	PCM power down control output	OUT	4
VBUS_IN	For self-power mode, sense if VBUS is ON	IN	5
UART_RXD	UART/RxD from DTE	IN	6
UART_TXD	UART/TxD to DTE	OUT	7
RESET	System reset	IN	8
USB_WAKE	Wake up host when events occur during Suspend/Resume	OUT	9
VCC	Power supply		10
GROUND	Ground		11
UART_RTS	UART/Ready to send to DTE	OUT	12
USB_DETACH	Disconnect D+/D- from host	IN	13
UART_CTS	UART/Clear to send from DTE	IN	14
PCM_SYNC	PCM frame sync input/output (8 KHz)	OUT	15
USB_D+	Positive USB differential data bus	IN/OUT	16
USP_D-	Negative USB differential data bus	IN/OUT	17
PCM_CLK	PCM reference clock input/output (256 KHz)	OUT	18
NC	For internal test use	NC	19
VCC_PA	Power supply		20

Table 7: BC01 Class 1 Module Pin Assigments

BC02 Class 2 Module Pin Assignments			
Signal Name	**Function**	**Direction**	**Pin #**
GROUND	Power supply return		1
PCM_OUT	Serial data from audio CODEC	IN	2
PCM_IN	Serial data to audio CODEC	OUT	3
PIO_1	Generic I/O local host	OUT	4
PIO_4	Generic I/O local host RS232 (DTR)	OUT	5
UART_RXD	Serial data from local host RS232 (RXD)	IN	6
UART_TXD	Serial data to local host RS232 (TXD)	OUT	7
RESET	Reset module when HIGH	IN	8
PIO_3	Generic I/O local host RS232 (DSR)	IN	9
SPI_CSB	SPI chip select	IN	10
GROUND	Power supply return		11
UART_RTS	Local host must not send when HIGH	OUT	12
SPI_CLK	SPI Clock	IN	13
UART_CTS	Module must not send when HIGH	IN	14
PCM_SYNC	Audio CODEC signal	OUT	15
PIO_2	Generic I/O local host RS232 (DCD)	IN	16
SPI_MOSI	SPI master out slave in	IN	17
PCM_CLK	Audio CODEC signal	OUT	18
SPI_MISO	SPI master in slave out	OUT	19
VCC_3.3V	Power supply		20

Table 8: BC02 Class 2 Module Pin Assignments

BC02 Class 1 Module Pin Assignments			
Signal Name	**Function**	**Direction**	**Pin #**
GROUND	Power supply return		1
PCM_OUT	Serial data from audio CODEC	IN	2
PCM_IN	Serial data to audio CODEC	OUT	3
PIO_5	Generic I/O local host	OUT	4
PIO_4	Generic I/O local host RS232 (DTR)	OUT	5
UART_RXD	Serial data from local host RS232 (RXD)	IN	6
UART_TXD	Serial data to local host RS232 (TXD)	OUT	7
RESET	Reset module when HIGH	IN	8
PIO_3	Generic I/O local host RS232 (DSR)	IN	9
SPI_CSB	SPI chip select	IN	10
GROUND	Power supply return		11
UART_RTS	Local host must not send when HIGH	OUT	12
SPI_CLK	SPI Clock	IN	13
UART_CTS	Module must not send when HIGH	IN	14
PCM_SYNC	Audio CODEC signal	OUT	15
PIO_2	Generic I/O local host RS232 (DCD)	IN	16
SPI_MOSI	SPI master out slave in	IN	17
PCM_CLK	Audio CODEC signal	OUT	18
SPI_MISO	SPI master in slave out	OUT	19
VCC_3.3V	Power supply		20

Table 9: BC02 Class 1 Module Pin Assignments