

Introduction

This document describes how to setup and use ZiLOG's Z8 Encore! Smart Cable with your Z8 Encore! development kit. This can also be used for Z8 Encore! XP development kit. The Z8 Encore! Smart Cable converts the RS-232 signals into the 3.3 V bidirectional open-drain signals required to communicate using the DBG pin to the ZiLOG on-chip debugger of the Z8 Encore!. The Smart Cable features a 9-pin DB serial connector on one end and a box with a 6-pin DBG Interface Connector on the other end.

The kit includes the following items (see [Figure 1](#)):

- Smart Cable
- User Manual



Figure 1. Z8 Encore! Smart Cable

Voltage and Current Requirements

The Z8 Encore! Serial Smart Cable has the following voltage and current requirements:

- System Clock: 153.6 kHz minimum, 20 MHz maximum.
- Power Supply: 3.0 V minimum, 3.6 V maximum.
- Current: 35 mA at 3.3 V.

Connecting the Z8 Encore! Smart Cable to Your Computer

Connect the Z8 Encore! Smart Cable to a COM port on your computer using the 9-pin DB serial connector. See [Figure 2](#).

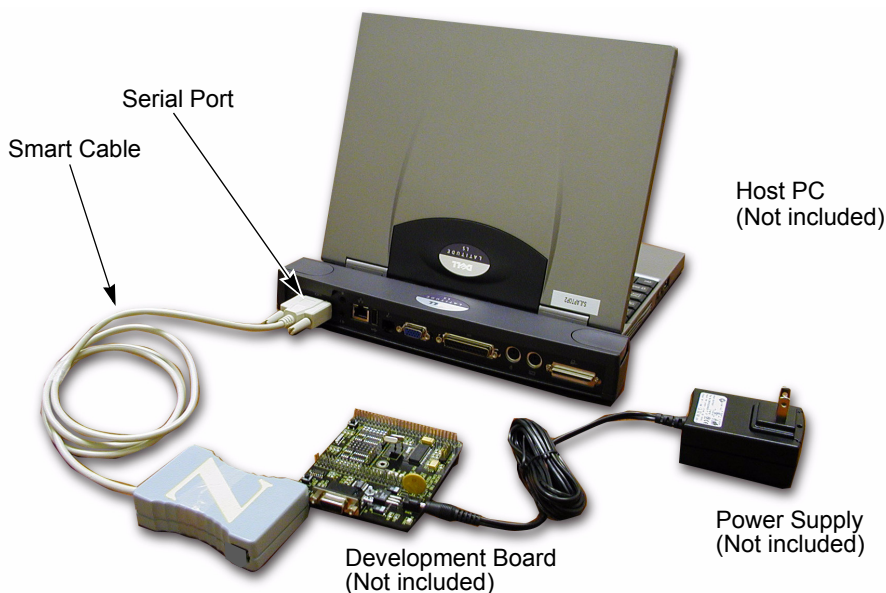


Figure 2. Connecting the Z8 Encore! Smart Cable to Your Computer

Connecting the Smart Cable to Your Development Board

To use the Z8 Encore! Smart Cable, attach your application board to the Smart Cable 6-pin DBG connector. Ensure that Pin 1 of your application lines up with Pin 1 of the DBG connector, indicated by the horizontal/vertical groove over the Pin 1 placement (see [Figure 3](#) on page 3). For more information on interfacing the Smart Cable to your target board, refer to *Z8 Encore! Design for Debug Technical Note (TN0036)*.



Caution:

The power to your design/application board must be turned OFF when connecting or disconnecting the Smart Cable.



Note: The Smart Cable receives power from the target design/application board.

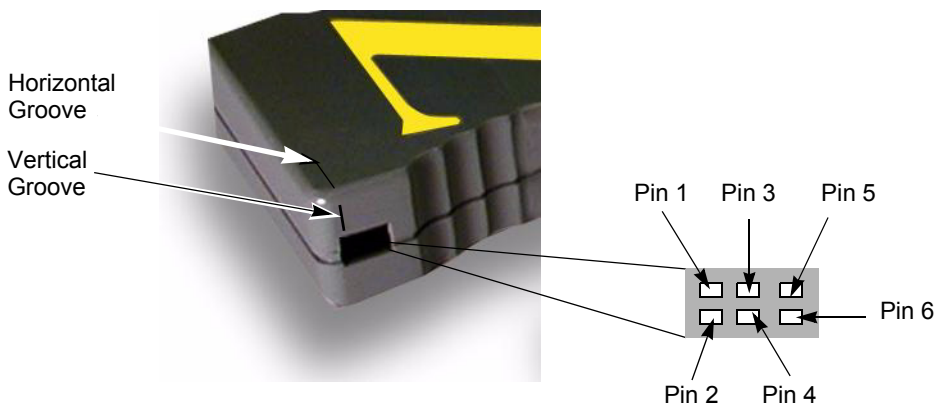


Figure 3. DBG Interface Connector Pin 1 Location

Consider the following points when connecting the Smart Cable to your development board:

- The DBG interface connector requires the V_{DD} , V_{SS} , and the DBG signals from the Z8 Encore! on your design/application board.
- The minimum signal connections required to connect the Z8 Encore! to the Smart Cable are the AV_{DD} , V_{DD} , AV_{SS} , V_{SS} , and the DBG pin signals.
- The AV_{DD} must be externally connected to the V_{DD} . The AV_{SS} must also be externally connected to the V_{SS} .
- The Z8 Encore! must be clocked to generate the DBG timing signals. For the recommended crystal oscillator circuit, see [Figure 4](#) on page 4.
- For the X1, C1, C2, R1 and R2 values, refer to *On-Chip Oscillator section of Z8F640x Product Specification (PS0176)* and for latest documentation updates, refer to www.zilog.com.
- C3 and C4 are 0.1 μF filter capacitors. R3 is a 10 k Ω pull-up resistor.

► **Note:** You must enter the crystal frequency running the Z8 Encore! device when creating a new project in ZDS II.

Follow the steps below to provide the crystal frequency:

1. Select **Settings** from the **Project** menu.
2. Select **Debug** in the drop-down **List** box in the upper left corner of the **Settings** dialog box.
3. Select **Debugger**→ **Driver**→ **Z8 Encore! OCD Driver**→ **Configure Driver**.
4. Select either **Z8F64200100KIT** or **Z8F08200100KIT**.
5. Select either **Clock Frequency** or **Other**. If you select **Other**, enter the X1 crystal frequency in units of MHz.

Figure 4 illustrates how the Smart Cable connects to the Z8 Encore! device.

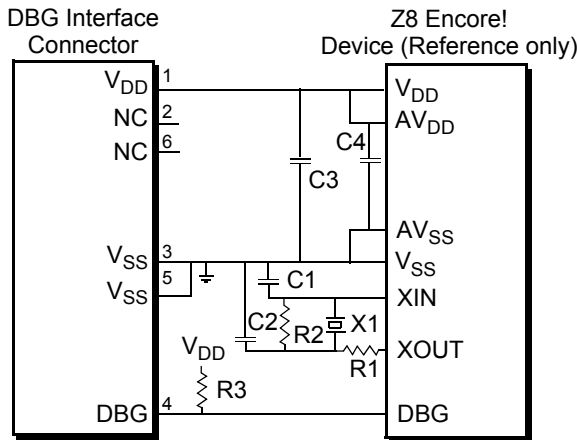


Figure 4. Smart Cable to Z8 Encore! Device Schematic

Compatibility with Laptop PC's with USB Interface

If your PC does not have a serial interface, it is possible to use the Smart Cable with a USB-to-Serial converter. ZiLOG recommends the StarTech ICUSB232. This device is used as part of the validation process for the Smart Cable. For additional information, refer to www.startech.com.



Compatibility with Microsoft Operating Systems

The Z8 Encore! Smart Cable is compatible with the following Microsoft operating systems when connected directly to the serial port of the PC:

- WIN98E
- WIN NT
- WIN2000
- WIN XP



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