Z8 Encore! XP F042A 8-Pin Development Kit

Quick Start Guide

QS005506-0111

Introduction

This Quick Start Guide describes how to set up Zilog's Z8 Encore! XP 8-Pin Development Kit and start using it to build designs and applications that will employ the F042A Series of 8-pin MCUs.

Kit Contents

Hardware

Hardware requirements include:

- Z8 Encore! XP F042A Series 8-Pin Development Board, Z8F04A08100KITG
- USB Smart Cable for connecting the PC to Z8 Encore! XP F042A Series Development Board
- 5 V DC Universal Power Supply

Software (on CD-ROM)

Software requirements include:

- Zilog Developer Studio II (Zilog Developer Studio II) – Z8 Encore!® Integrated Development Environment (IDE)
- Full ANSI C-Compiler included
- Sample Code
- Acrobat Reader
- Document Browser

Documentation

The Z8 Encore! XP Technical Documentation (on CD-ROM) include:

- Development Kit User Manual
- Zilog Developer Studio II–IDE User Manual (UM0130)
- eZ8 CPU User Manual (UM0128)
- Product Specification

– Product Brief
– Product Line Card

Requirements

Table 1 lists the system requirements for running Zilog Developer Studio II.

Table 1. Zilog Developer Studio II System Requirements

Recommended Configuration	Minimum Configuration
• Windows XP Professional SP3 or later • Pentium IV 2.2GHz processor or Higher • 1024MB RAM or Higher • 135 MB hard disk space (includes Application and Documentation) • Super VGA Video Adapter • CD-ROM for installation • USB High-Speed port (when using USB Smart Cable) • Ethernet port (when using Ethernet Smart Cable) • RS-232 communication port with hardware flow control • Internet browser (Internet Explorer or Netscape)	• Windows XP Professional • Pentium IV 1.2GHZ processor • 512 MB RAM • 50 MB hard disk space (only includes Application) • Super VGA Video Adapter • CD-ROM for installation • USB Full-Speed port (when using USB Smart Cable) • RS-232 communication port with hardware flow control • Internet browser (Internet Explorer or Netscape)

Configuring the 5V DC Universal Power Supply

The universal power supply kit features several different plug adapters in one box and the power supply itself in another. The power supply ships with a slide-out plate that must be removed to insert the location-specific plug adapter.

1. Remove the slide-out plate.
2. Select the AC plug adapter appropriate for your locale and insert it into the slot that remains after removing the slide-out plate.
3. Slide the new plug adapter into the slot until it snaps into place.

You can leave the adapter slot cover in place and plug in a standard computer equipment AC power cord (purchased separately) between the AC cord receptacle on the end of the power supply and an electrical outlet.

Setting Up the Development Board

The USB Smart Cable connects the target Z8 Encore! XP development board to a high-speed or full-speed USB port on your ZDSII host system.

Caution: Always use a grounding strap to prevent damage resulting from electrostatic discharge (ESD).

Figure 1 displays a simplified development board.

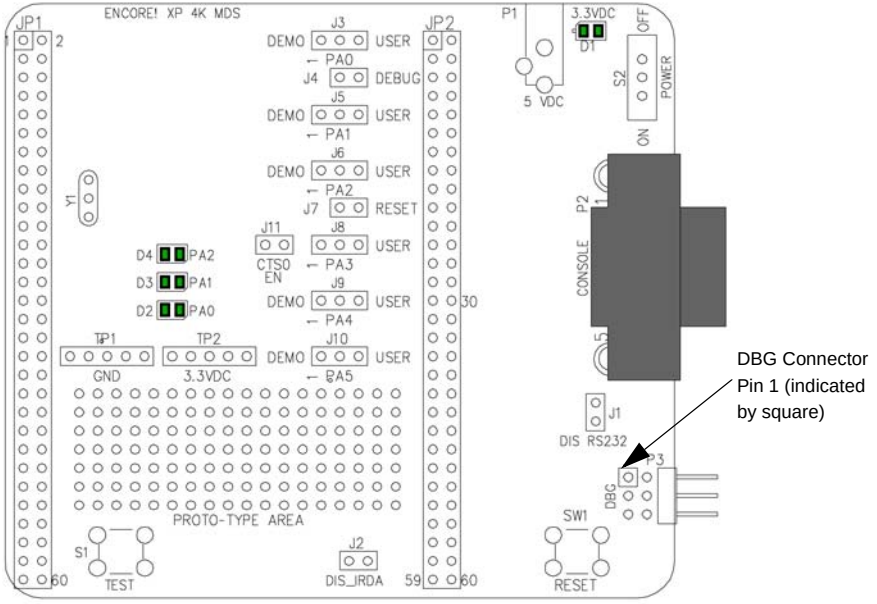

Figure 1. Z8 Encore! XP 8-Pin Development Board

Observe the following steps to setup the development board:

1. For initial setup, ensure that jumper J2, DIS IRDA, is IN (shunt installed). For detailed jumper descriptions, refer to the Z8 Encore! XP F042A Series 8-Pin Development Kit User Manual (UM0187).
2. Your development kit can run either in Standalone Demo mode or in DEBUG mode. Standalone Demo mode runs the preloaded code for demonstration purposes and is a simple way to verify that the board is working properly.

   To run the kit in Standalone Demo mode, ensure that the jumpers are set as follows:
   - J3 1-2
   - J4 OUT
   - J5 1-2
   - J6 1-2
   - J7 OUT
   - J8 1-2
   - J9 1-2
   - J10 1-2
   - J11 OUT

   To run the kit in DEBUG mode, follow the steps as described in Getting Started Using ZDSII on page 8. For complete details on jumper settings for Z8 Encore! XP MCU 8-pin development kits, refer to the Z8 Encore! XP F042A Series 8-Pin Development Kit User Manual (UM0187).
3. Install the included USB Smart Cable as described below for the appropriate operating system.

Caution: Do not connect the power supply to the development board before connecting a USB Smart Cable to both the host PC and development board.

32- and 64-Bit Windows 7

Observe the following steps to install the USB Smart Cable and its associated driver software on a Windows 7 system.

1. Connect the USB Smart Cable to the host PC. **The Found New Hardware** dialog box should activate automatically.
2. Select **Locate and install driver software (recommended)**. The **User Account Control** window is displayed; click **Continue**. The **Driver Software Installation** window appears, followed by the **Found New Hardware-USB Smart Cable** dialog box.
3. Select **I don't have the disc. Show me other options.**
4. Select **Browse my computer for driver software (advanced)**.
5. Browse to one of the following driver directories:

   For 32-bit versions of Windows 7:

   ```
   <ZDS II Installation Directory>\device drivers\USB\x32
   ```

   ```
   <ZDS II Installation CD>\device drivers\USB\x32
   ```

   For 64-bit versions of Windows 7:

   ```
   <ZDS II Installation Directory>\device drivers\USB\x64
   ```

   ```
   <ZDS II Installation CD>\device drivers\USB\x64
   ```

6. Click **Next**.The **Windows Security** dialog box appears.
7. Select **Install this driver software anyway**.
8. When the software has been installed successfully, click **Close**.

32- and 64-Bit Windows Vista

Observe the following steps to install the USB Smart Cable and its associated driver software on a Windows Vista system.

1. Connect the USB Smart Cable to the host PC. **The Found New Hardware** dialog box should activate automatically.
2. Select **Locate and install driver software (recommended)**. The **User Account Control** window is displayed; click **Continue**. The **Driver Software Installation** window appears, followed by the **Found New Hardware-USB Smart Cable** dialog box.
3. Select **I don't have the disc. Show me other options.**
4. Select **Browse my computer for driver software (advanced)**.
5. Browse to one of the following driver directories:

For 32-bit Vista systems:

```
<ZDS II Installation Directory>\device drivers\USB\x32
<ZDS II Installation CD>\device drivers\USB\x32
```

For 64-bit Vista systems:

```
<ZDS II Installation Directory>\device drivers\USB\x64
<ZDS II Installation CD>\device drivers\USB\x64
```

6. Click **Next**.The **Windows Security** dialog box appears.
7. Select **Install this driver software anyway**.
8. When the software has been installed successfully, click **Close**.

Windows XP

Observe the following steps to install the USB Smart Cable on a Windows XP system.

1. Connect the Zilog USB device to the Host PC. The **Found New Hardware** Wizard should activate automatically after connecting the Zilog USB device for the first time; select **No, not at this time** if asked to connect to Windows Update.
2. Select **Install from a list or specific location (Advanced)**; then click **Next**.

Note: If the Windows Logo testing dialog appears, select **Continue Anyway**.

3. Select **Search for the best driver in these locations** and **Include this location in search:**.
4. Browse to the following driver directory and click **Next**.
   ```
   <ZDS installation>\device drivers\USB\x32
   ```
5. Upon finding the appropriate driver, click **Next**.
6. Click **Finish** to complete the installation.

Windows 2000

Observe the following steps to install the USB Smart Cable on a Windows 2000 system.

1. Connect the Zilog USB device to the Host PC. The **Found New Hardware** Wizard should activate automatically after connecting the Zilog USB device for the first time.

2. Click **Next**.
3. Select **Search for a suitable driver for my device (Recommended)** and click **Next**.
4. Select **Specify a location** and click **Next**.
5. Browse to the following driver directory and click **OK**.
   `<ZDS installation>\device drivers\USB\x32`
6. Upon finding the appropriate driver, click **Next**.
7. Click **Finish** to complete the installation.

Connecting the USB Smart Cable to the Target Board

Attach one end of the six-conductor ribbon cable (included) to the USB Smart Cable six-pin DBG connector, as displayed in Figure 2. Attach the free end of the ribbon cable to the DBG connector on the target board. Ensure that pin 1 on the ribbon cable (indicated by the dark stripe) is aligned with pin 1 on the target connector (see Figure 1 on page 3 for the location of pin 1 on the Z8 Encore! XP 8-pin development board).

Figure 2. Connecting the Six-Conductor Ribbon Cable to the USB Smart Cable

Applying Power to the Development Board

Observe the following steps to apply power to the development board:

1. After installing the USB Smart Cable, connect the power supply to the development board at connector P1, then to an electrical outlet.

2. Slide Power switch S2 to the ON position. The Green 3.3V DC LED illuminates, indicating that power is being supplied to the board. LEDs D2, D3 and D4 should blink in sequence, indicating that your board is running the preloaded demonstration software. As a result, your board is functional and ready for prototyping.

Installing the ZDSII–Z8 Encore! Software

Observe the following steps to install the software tools.

1. Insert the ZDSII CD into your computer's CD-ROM drive. *DemoShield* launches automatically. If *DemoShield* does not launch automatically, open Windows Explorer, browse to your CD-ROM drive, and double-click the `launch.exe` file to launch the installer.
2. *DemoShield* provides several installation options. Select **Install Zilog Developer Studio** to install now. You can install other software and accompanying documentation later.
3. Follow the on-screen instructions to complete the installation.

Getting Started Using ZDSII

Observe the following steps to open and use the `ledBlink.zdsproj` sample project.

Note: These procedures reference the `ledBlink.zdsproj` file located in `c:\Program Files\Zilog\ZDSII_Z8Encore_<version_number>\Samples\Z8xxxx_ledBlink\src`, where `<version_number>` is the ZDSII version number and `Z8xxxx` is the CPU family. For example:

For ZDSII v4.10.1 or lower:
```
c:\Program Files\ZiLOG\ZDSII_Z8Encore_4.10.1\samples\
Z8F04XP_8Pin_ledBlink\src
```

For ZDSII v4.11.0 and later:
```
c:\Program Files\ZiLOG\ZDSII_Z8Encore_4.11.0\samples\
XP_F082A\XP_F042A_8Pin_ledBlink\src
```

1. To run the sample project with the ZDSII debugger enabled, set the jumpers on the development board as follows:
   - J1 OUT
   - J2 IN
   - J3 OUT
   - J4 IN (must be installed to run in DEBUG mode)
   - J5 1-2
   - J6 1-2
   - J7 IN (must be installed to run in DEBUG mode)
   - J8 1-2
   - J9 1-2
   - J10 1-2
   - J11 OUT
2. Connect and apply power to the development board as described in Setting Up the Development Board on page 3.

Caution: Do not apply power to the development board unless the USB Smart Cable is connected both to the host PC and to the development board's DBG port P3.

3. Run the Zilog Developer Studio II software. By default, the Zilog Developer Studio II program is located in the **Start** menu under**:**

   Programs → Zilog ZDSII Z8 Encore! <version_number> → ZDSII Z8 Encore! <version_number>
4. Select **Open Project** from the **File** menu. The **Open Project** dialog box appears.

Note: The sample used in the following steps is in the C programming language. An assembler version of the `ledBlink` sample is located in the `Z8F04XP_8Pin_ledBlink_asm\src` folder.

5. Browse to the `Samples` folder for the `ledBlink.zdsproj` file, located by default in:

   ```
   c:\Program Files\Zilog\ZDSII_Z8Encore_<version_number>\Samples\
   Z8F04XP_8Pin_ledBlink\src
   ```

6. Select the `ledblink.zdsproj` file and click **Open**. The initial Zilog Developer Studio II program screen appears (see Figure 3).

   If you want to view the project source files, double-click the **Project Files** folder on left side of the IDE interface. Double-click an individual file to open that file in the ZDSII file editor.

Note: The following figures are for reference only. You may have a newer version of the software.

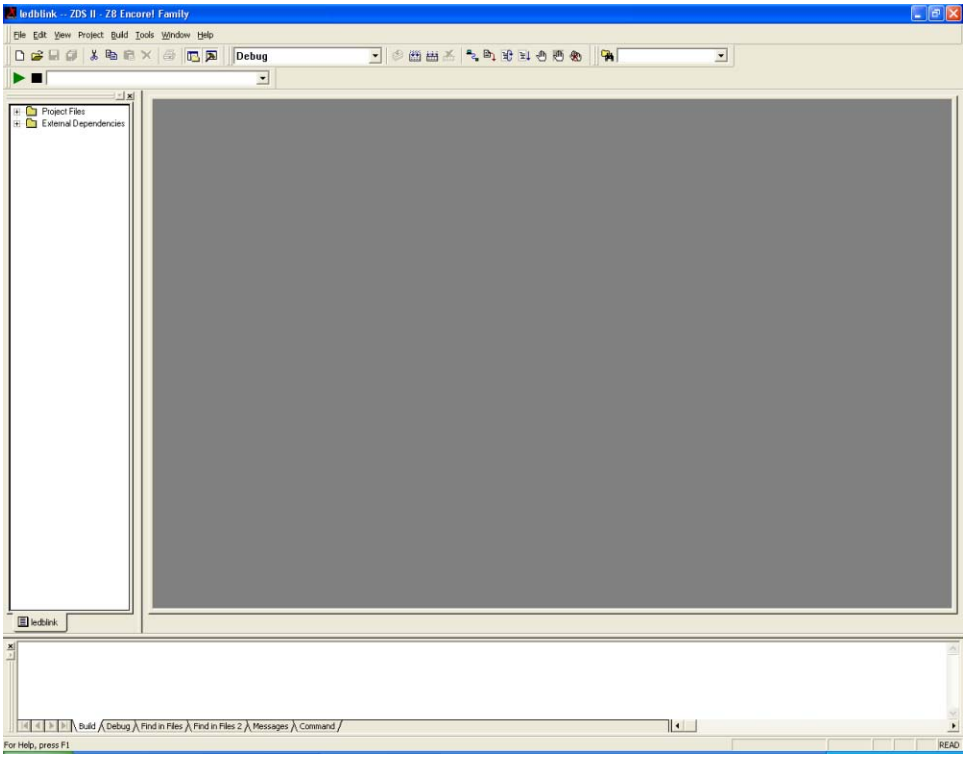

Figure 3. Zilog Developer Studio II Opening Screen

7. Select the correct debug tool using **Project** → **Settings** → **Debugger** → **Debug Tool**. For example, select **USBSmartCable** when using the USB Smart Cable. Click **F1** for additional information on how to setup the debugger.
8. Click **OK**.
9. Click the **Rebuild All** icon  to build the project. Wait for the build to complete as indicated by the `Build Complete` confirmation in the status window at the bottom of the screen.
10. Click the **Reset** icon  to connect and download the code to the development board.
11. Click **Go** icon  to start the program. The screen changes as displayed in Figure 4.

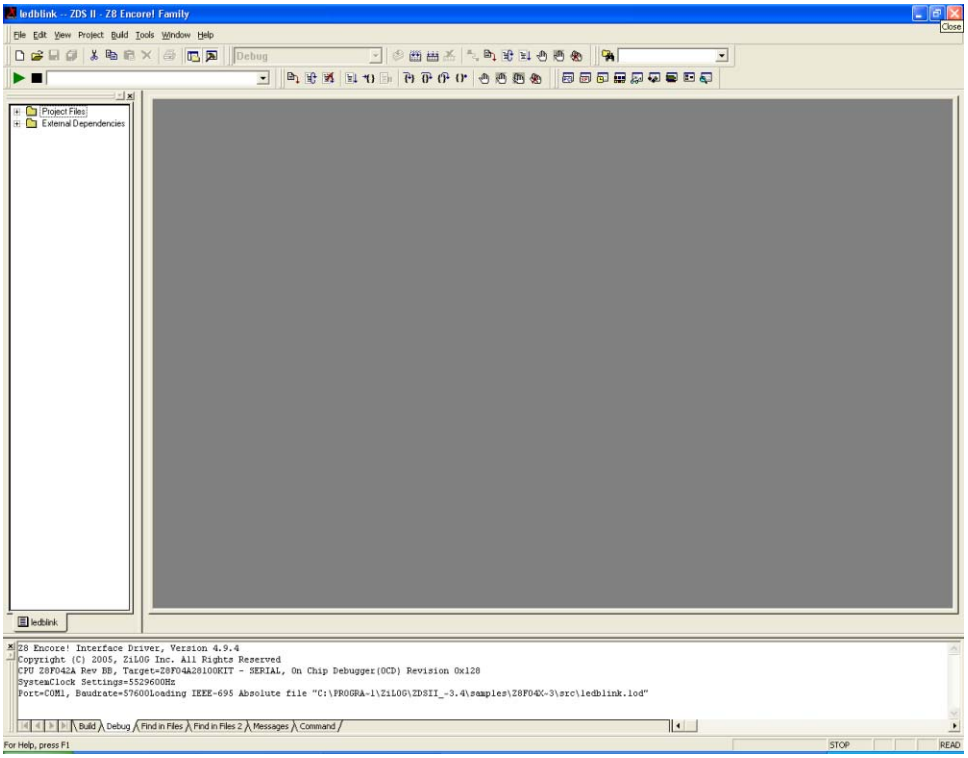

Figure 4. Zilog Developer Studio II Active Screen

12. Two LEDs on the development board begin blinking in sequence. If the LEDs do not blink, repeat Step 3.

Note: LED D2/PA0 is shared with the DBG pin. Zilog does not recommend having the LED connected while connecting to the target or while in debug mode (J3 should be OUT).

13. Press the **TEST** push button to change the sequence of the LEDs to blink in the opposite direction.

For more information about using Zilog Developer Studio II and building projects for your Z8 Encore! XP development kit, refer to the ZDS II – Z8 Encore! User Manual (UM0130).

Note: You can also use the Z8 Encore! XP F042A Series 8-pin Development Kit and its sample project to evaluate the development environment for the Z8 Encore! XP F08xA and F0823 Series 8-pin MCUs. The Z8 Encore! XP Series 8-pin development board may also be used with a ZDSII project that targets the Z8 Encore! XP F08xA or F0823 8-pin devices. However, the device's feature limitations, such as reduced program space, will exist. The Z8 Encore! XP F042A 8-pin device on the development board may also be replaced with a Z8 Encore! XP F08xA or F0823 8-pin device for a more detailed chip evaluation.

Troubleshooting Tips

If you experience trouble running the demo program with the Z8 Encore! XP development board, check the following before contacting Zilog Technical Support for assistance:

- Verify that you are using ZDSII version 5.0.0 or later.
- Ensure that you are using the unmodified sample project code as described in Getting Started Using ZDSII on page 8.
- Verify that you have properly connected the USB Smart Cable to the host PC and the 8-pin development board as described in Setting Up the Development Board on page 3. Ensure that pin 1 of the cable is properly aligned with DBG connector pin 1 of the development board.
- Apply power to the development board using S2 slide switch. The green 3.3V DC LED should be ON. If it is not illuminated, verify if power is properly connected to the board as described in Configuring the 5V DC Universal Power Supply on page 2.
- In ZDSII, verify select the **Project** → **Settings** → **Debugger** → **Communication** menu item and verify that the serial number for the USB Smart Cable interface is present and selected. If the serial number is missing, reinstall the USB Smart Cable driver software.
- In ZDSII, verify that **Z8F04A08100KITG** is selected as the target.
- In ZDSII, click the **Rebuild All**  button. Verify that the project rebuilds with no errors.
- Verify that the development board is not currently running any code – no LEDs should be blinking.
- In ZDSII, click the **IDE Reset**  button. ZDSII will connect to the development board and download code to it.

- Open the HyperTerminal application (located in your Windows Accessories program group) and connect a DB9-to-DB9 cable between your host PC and console port P2 of the development board. Set the communication settings in HyperTerminal to 57600 baud, 8 bits, no parity and one stop bit. These settings are also noted in the `main.c` file.
- Click the **Go**  button. The Red and Yellow LEDs should blink in sequence. HyperTerminal should display the `LED Lights...` message.

If the demo code still does not run, contact Zilog Technical Support at support.zilog.com.

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