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# eZ80F91 Modular Development Kit

An  IXYS Company

Quick Start Guide

QS004611-0810

## Introduction

This quick start guide provides instructions and configuration information for Zilog's eZ80F91 Mini Ethernet module, eZ80Acclaim!® Modular Development System (MDS) adapter board, and associated components. The eZ80F910100KIT and eZ80F910200KITG modular development kits are covered in this quick start guide.

## Kit Contents

For a complete list of material shipped with the eZ80F91 Modular Development Kit (eZ80F910200KITG), refer to *eZ80F910200KITG eZ80F91 Series Development Kit Packing List* (PAK0015).

## System Requirements

Table 1 lists the system requirements for running ZDS II.

**Table 1. ZDS II System Requirements**

Recommended Configuration	Minimum Configuration
<ul style="list-style-type: none"><li>• PC running MS Windows XP Professional</li></ul>	<ul style="list-style-type: none"><li>• PC running MS Win2000–SP4/WinXP Professional</li></ul>
<ul style="list-style-type: none"><li>• Pentium III/500 MHz or higher processor</li></ul>	<ul style="list-style-type: none"><li>• Pentium II/233 MHz processor</li></ul>
<ul style="list-style-type: none"><li>• 128 MB RAM</li></ul>	<ul style="list-style-type: none"><li>• 96 MB RAM</li></ul>
<ul style="list-style-type: none"><li>• 110 MB hard disk space</li></ul>	<ul style="list-style-type: none"><li>• 25 MB hard disk space (documentation not installed)</li></ul>
<ul style="list-style-type: none"><li>• Super VGA video adapter</li></ul>	<ul style="list-style-type: none"><li>• Super VGA video adapter</li></ul>
<ul style="list-style-type: none"><li>• CD-ROM drive</li></ul>	<ul style="list-style-type: none"><li>• CD-ROM drive</li></ul>
<ul style="list-style-type: none"><li>• One or more RS-232 communication port</li></ul>	<ul style="list-style-type: none"><li>• One or more RS-232 communication port</li><li>• </li></ul>
<ul style="list-style-type: none"><li>• USB high-speed port</li></ul>	<ul style="list-style-type: none"><li>• USB high-speed port</li></ul>

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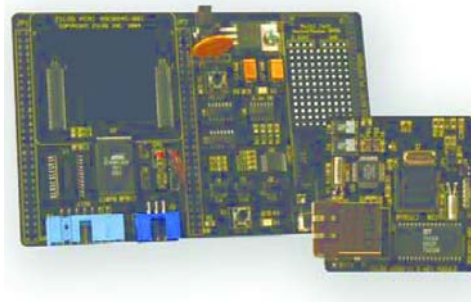
## Installation Overview

The eZ80F91 Mini Ethernet module is preinstalled on the eZ80Acclaim!<sup>®</sup> MDS adapter board. To set up the development kit, install the ZDS II software. Connect the kit to PC, using the USB Smart Cable or Serial Smart Cable, as appropriate. Connect power to the adapter board. [Figure 1](#) displays the eZ80F91 Modular Development Kit.

► **Note:** *Previous versions of the development kit used the Serial Smart Cable. New kits as of June 2006 uses the USB Smart Cable.*

Follow the steps below to install the cable available with your kit:

1. Install the ZDS II software as described in [Installing the ZDS II Software and Kit Documentation](#) on page 3.



**Figure 1. The eZ80F91 Modular Development Kit**

2. Connect your PC to the eZ80Acclaim! MDS adapter board as follows:
  - (a) If you are using the Serial Smart Cable, follow the instructions in [Connecting the Serial Smart Cable to Your Computer](#) on page 3.
  - (b) If you are using the USB Smart Cable (not included with this kit), follow the instructions in [Installing the USB Smart Cable](#) on page 3.
3. Connect the 5 V DC power supply to the adapter board.
4. Connect the development kit to your PC and run the supplied sample project as described in [Running Sample Projects](#) on page 6.

For complete details on developing an application for the development kit, refer to *Zilog Developer Studio II–eZ80Acclaim!<sup>®</sup> User Manual (UM0144)*, and *eZ80F91 Modular Development Kit User Manual (UM0170)*.

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## Installing the ZDS II Software and Kit Documentation

Follow the steps below to install ZDS II and eZ80F91 development kit documentation:

1. Insert the ZDS II CD into the CD-ROM drive. **DemoShield** launches automatically. If **DemoShield** does not launch automatically, open the Windows Explorer, browse to your CD-ROM drive, and double-click `launch.exe` to launch the installer.
2. Click the **Install Products** button from the main installer menu. From the product installer list you can choose to install only ZDS II, or ZDS II and associated documentation. You can also copy the documentation directly from your CD-ROM drive to your hard disk using Windows Explorer.

► **Note:** *Zilog recommends registering your new ZDS II software. By registering ZDS II, you have access to free technical support, software components, and other tools that only registered Zilog customers have. To register online, go to <http://support.zilog.com/CustomerPortal/>.*

## Connecting the Serial Smart Cable to Your Computer

Connect the Serial Smart Cable 9-pin DB9 serial connector to a COM port on your computer.

## Connecting the Serial Smart Cable to the MDS Adapter Board

Attach one end of the six-conductor ribbon cable to the Smart Cable 6-pin DBG connector. See [Figure 2](#) on page 5. Attach the free end of the ribbon cable to the connector on the eZ80Acclaim!<sup>®</sup> MDS adapter board. The connectors are keyed to ensure proper alignment.

## Installing the USB Smart Cable

You can install the USB Smart Cable for the following operating systems:

### Windows Vista-32

Follow the steps below to install the USB Smart Cable for Windows Vista-32:

1. Connect the USB Smart Cable to the host PC. The **Found New Hardware** dialog box is displayed.
2. Select **Locate and install driver software (recommended)**. The **Driver Software Installation** window is displayed, and then the **Found New Hardware-USB Smart Cable** dialog box is displayed.

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 directory:  
    <ZDS II Installation Directory>\device drivers\USB  
    <ZDS II Installation CD>\Device Drivers\USB

The **Windows Security** dialog box is displayed.

6. Select **Install this driver software anyway.**
7. When the software has been installed, click **Closed.**

### Windows XP

Follow the steps below to install the USB Smart Cable for Windows XP:

1. Connect the USB Smart Cable to the host PC. The **Found New Hardware** Wizard should activate automatically.
2. In the Wizard, 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 one of the following driver directory:  
    <ZDS II Installation Directory>\device drivers\USB  
    <ZDS II Installation CD>\Device Drivers\USB

5. Click **Next** to locate the appropriate driver.
6. Click **Next** and then Click **Finish** to complete the installation.

### Windows 2000

Follow the steps below to install the USB Smart Cable for Windows 2000:

1. Connect the USB Smart Cable to the host PC for the first time.  
    The **Found New Hardware** Wizard should activate automatically.
2. In the Wizard, click **Next.**
3. Select **Search for a suitable driver for my device (Recommended)**; then click **Next.**
4. Select **Specify a location**; then click **Next.**

5. Browse to the driver directory, one of the following:  
`<ZDS II Installation Directory>\device drivers\USB`  
`<ZDS II Installation CD>\Device Drivers\USB`
6. Click **OK**, and then click **Next** after the appropriate driver is found.
7. Click **Finish** to complete the installation.

## Connecting the USB Smart Cable to the eZ80Acclaim!® MDS Adapter Board

Attach one end of the six-conductor ribbon cable (included) to the USB Smart Cable 6-pin DBG connector. See [Figure 2](#) on page 5. Attach the free end of the ribbon cable to the DBG connector on the eZ80Acclaim! MDS adapter board. Ensure that pin 1 on the ribbon cable (indicated by the dark stripe) is aligned with pin 1 on the target connector.



**Caution:** *Disconnect or turn OFF the power to the eZ80Acclaim! MDS adapter board, before connecting or disconnecting the USB Smart Cable.*

## Applying Power to the Development Board

After installing the USB Smart Cable, connect the power supply to the development board at connector J7, and then to an electrical outlet. The Green 3.3 V DC LED illuminates indicating that power is supplied to the board.



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

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## Running Sample Projects

After installing the ZDS II software and setting up the hardware, you can open and test the sample software projects for the eZ80Acclaim!<sup>®</sup> product line. Sample projects are located in the following ZDS II sample directories:

```
C:\Program Files\Zilog\ZDSII_eZ80Acclaim!_<version>\samples\  
<processor type>_<demo_name>
```

where <processor type> represents the eZ80Acclaim! device that powers the target module and <demo\_name> represents the type of sample. (The LedDemo samples are for the legacy eZ80Acclaim! Development Kit that preceded the eZ80F91 Modular Development Kit).

## Running the Sample Starter Project

A sample starter program is provided in the ZDS II CD-ROM. It demonstrates how to write proper code for the eZ80F91 modular development kit. The program writes a few character strings either to RS-232 PortP2 on the eZ80Acclaim! MDS adapter board, or to the Simulated Universal Asynchronous Receiver/Transmitter (UART) Output window (when running the Simulator Debug Tool).

Once you have created your own application program, use ZDS II to download that code into the eZ80F91 for testing and debugging.

The starter project is written, such that, it defaults to the RS-232 port version. Connect port 2 on the eZ80Acclaim!<sup>®</sup> MDS adapter board to your PC before running the sample program.

Follow the steps below to build and run the sample program for viewing in HyperTerminal on your PC:

1. Connect the DB9 RS-232 port on the eZ80Acclaim! MDS adapter board to an open serial port on your PC.
2. Open **HyperTerminal**.
3. On the **File** menu, click **New Connection**.
4. In the **Name** field, enter a name that describes the connection.
5. In the **Icon** box, click the appropriate icon, and then click **OK**.
6. In the **Connect To** dialog box, choose the COM port you connected to the RS-232 port on the eZ80F91 MDS adapter board in the **Connect using** drop-down box.
7. In the **Port Settings** dialog box, set the following options:

- Bits per second: 57600
  - Data bits: 8
  - Parity: None
  - Stop bits: 1
  - Flow control: None
8. Click **OK**. HyperTerminal connects to your kit.
  9. Launch ZDS II by navigating **Start** → **Programs** → **Zilog ZDS II - eZ80Acclaim! <Version>** → **ZDS II - eZ80Acclaim! <Version>**.
  10. From the **File** menu in ZDS II, choose **Open Project**, and navigate to the following file path:

```
c:\Program Files\Zilog\ZDSII_eZ80Acclaim!_<Version>\samples\StarterProject
```
  11. Select the `starter.zdsproj` project within the above file path and click **Open**. A list of source files appears in the **Workspace** panel.
  12. Double-click the file `main.c` in the **Workspace** panel to open the file in the ZDS II editor window. Refer to the header of `main.c` for details about the project.
  13. Open the **Build** menu and select **Set Active Configuration**.
  14. In the **Select Configuration** dialog box, select **Debug**.
  15. Click **OK** to close the **Select Configuration** dialog box.
  16. From the **Project** menu in ZDS II, select **Settings**. The **Project Settings** dialog box appears. In the **Project Settings** dialog box, select the **Debugger** page.
  17. In the **Debugger** page, select **eZ80F91ModDevKit\_RAM** in the **Target** list.
  18. In the **Debugger** page, select **SerialSmartCable** or **USBSmartCable** from the **Debug Tool** drop-down menu.
  19. Click **OK** to close the **Project Settings** dialog box.
  20. If closing prompts you to rebuild the affected files, click **Yes**. Otherwise, select **Build** from the menu bar and click **Rebuild All**.
  21. To run the application, select **Debug** → **Go**. Until the default settings are changed, the following output is viewed in the **Hyperterminal** window:

```
Zilog Developers Studio  
i = 5
```



```
d = 25
f = 1.260000
eZ80F91 5 25 1.260000
```

## Viewing the Starter Project Output via the ZDS II Cycle-Accurate Simulator (Optional)

Follow the steps below to view the output of the `starter.zdsproj` project in the ZDS II cycle-accurate simulator:

1. In ZDS II, open the `starter.zdsproj` project.
2. Select **Settings** from the **Project** menu in ZDS II. The **Project Settings** dialog box appears. In the **Project Settings** dialog box, select the **Debugger** page.
3. In the **Debugger** page, select **eZ80F91ModDevKit\_RAM** in the **Target** window by checking the box next to the specific **Target Name**.
4. In the **Debugger** page, select **Simulator** from the **Debug Tool** drop-down menu.
5. Click **OK** to close the **Project Settings** dialog box.
6. If closing prompts you to rebuild the affected files, click **Yes**. Otherwise, select **Build** from the menu bar and click **Rebuild All**.
7. When the build is complete, explore the Debug toolbar for the various debugger features. To connect to the simulator, select **Debug** → **Reset**.
8. Open the **Simulated UART Output** window to view the output of the program. Select **View** → **Debug Windows** → **Simulated UART Output**.
9. To run the application, select **Debug** → **Go**.
10. Until the default settings are changed, the following output is viewed in the **Simulated UART Output** window:

```
Zilog Developers Studio
i = 5
d = 25
f = 1.260000
eZ80F91 5 25 1.260000
```

11. Using the cycle-accurate simulator, you can view the sample code to study how it works.

► **Note:** *You can obtain a sample Zilog ZTP web application and an embedded security SSL application by following the instructions on your kit registration card.*

## **Related Documentation**

For complete details on developing an application for the modular development kit, refer to the following documents:

- Zilog Developer Studio II–eZ80Acclaim!<sup>®</sup> User Manual (UM0144)
- eZ80F91 Modular Development Kit User Manual (UM0170)
- Zilog TCP/IP Software Suite Quick Start Guide (QS0049)
- ZTP Network Security Plug-In (SSL) Quick Start Guide (QS0059)
- eZ80F91 MCU Product Specification (PS0192)



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