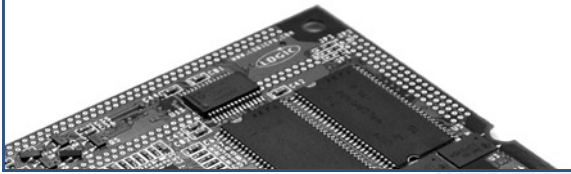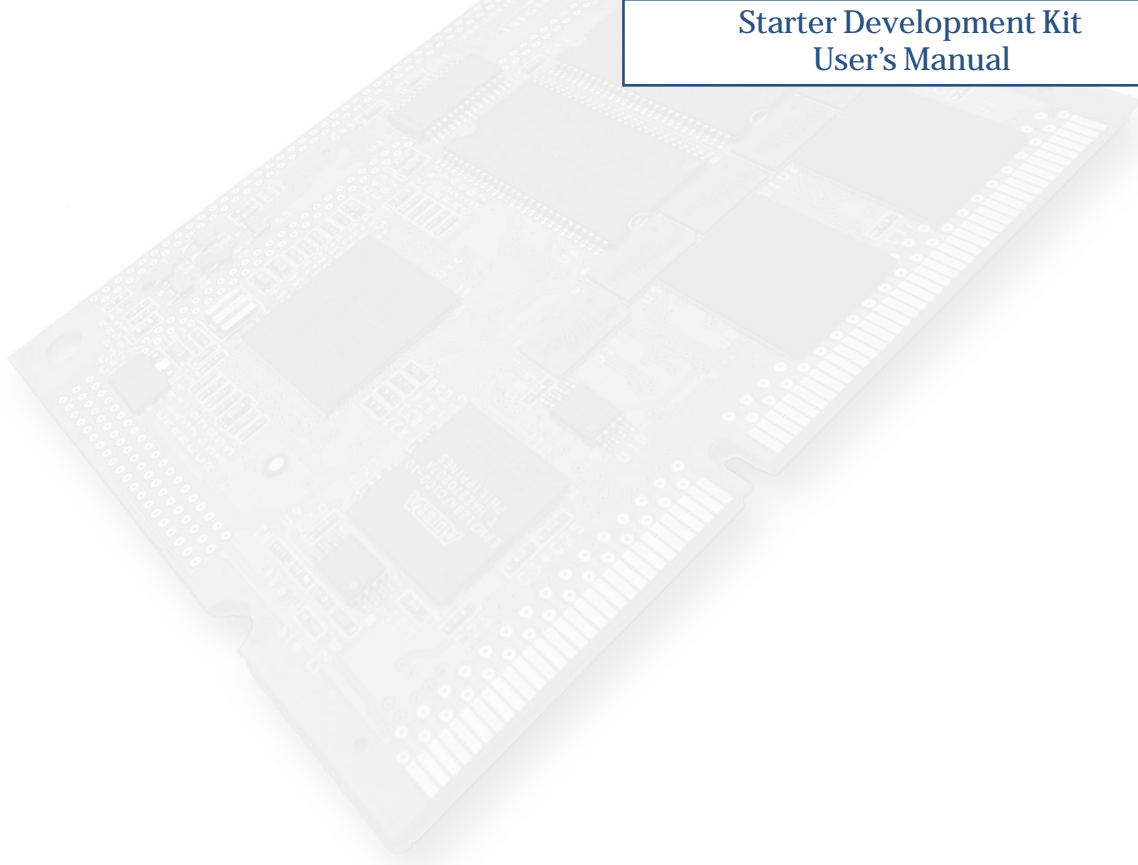**LOGIC** LOGIC PRODUCT DEVELOPMENT   WWW.LOGICPD.COM

Zoom™
Starter Development Kit

Starter Development Kit
User's Manual

REVISION HISTORY

REV	EDITOR	REVISION DESCRIPTION	APPROVAL	DATE
A	Andrew Wawra	Release	A.W.	1-28-03
B	Andrew Wawra	Figure Updates	A.W.	4-18-03
C	Andrew Wawra	Accommodate LH7A400-10 and SH7727-20 Release	A.W.	7-18-03
D	Andrew Wawra	Wake-up button description	A.W.	8-04-03
E	James Wicks	Cross-over Cable; Edit	A.W.	1-02-04
F	Robin Bhattacharya, James Wicks	GNU Cross Dev.Toolchain, Section 8.5 update; Important Notice added, Section 2.4	J.W.	2-20-04

Please check www.logicpd.com for the latest revision of this manual and additional applications.

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Table of Figures

Congratulations on your purchase of the Zoom™ Starter Development Kit. The Zoom Starter Development Kit is a complete development system with everything you need to evaluate the functionality of Logic's Card Engine and immediately begin application development. This results in a product development cycle with **less time, less cost, less risk… more innovation**.

1 Introduction

1.1 Zoom Starter Development Kit Features

- **Common Features**
  - ❑ **LCD Display Interface** Integrated LCD, touch & backlight connector
  - ❑ **Network Support** RJ45 Ethernet jack with magnetics
  - ❑ **Audio** Stereo input and output jacks (refer to specific Card Engine for support)
  - ❑ **PC Card Expansion** CompactFlash Type 1 card (memory mode only)
  - ❑ **Serial Port** 115.2kbps RS-232 debug serial port
  - ❑ **Expansion Headers**
    - ▪ Access to all Card Engine signals
    - ▪ Standard 100 mil pitch
  - ❑ **Cables**
    - ▪ Serial cable (null-modem)
    - ▪ Power supply
    - ▪ Power adapters
    - ▪ Ethernet cross-over cable (dependent upon the Zoom Starter Development Kit purchased)
- **Card Engine Specific MCU and System-on-Chip (SoC) Features**
- **Software**
  - ❑ Linux and Windows® CE binary Board Support Packages (BSP's) available for download, dependent upon the Zoom Card Engine development kit purchased
  - ❑ LogicLoader™ (bootloader/monitor) installed in the Card Engine flash
- **Application Development Tools**
  - ❑ GNU cross development tools (compiler, linker, assembler, debugger)
  - Card Engine specific Software Development Kit (SDK) for use with Microsoft® Embedded Visual Tools on Windows CE Development Kits available for download

2   Getting Started

2.1   Unpacking the System

The Zoom Starter Development Kit is comprised of the following items:

- Application Board
- Card Engine
- CD-ROM
  - o   See CD-ROM contents section
- Ethernet cross-over cable (**dependent upon the Zoom Starter Development Kit purchased)
- End-User License Agreement
- Null-modem serial cable (*use only the null-modem cable provided with the kit)
- Power adapters (Europe, Japan, UK, and US)
- Regulated 5V power supply
- QuickStart Guide

Figure 2.1: Kit Contents
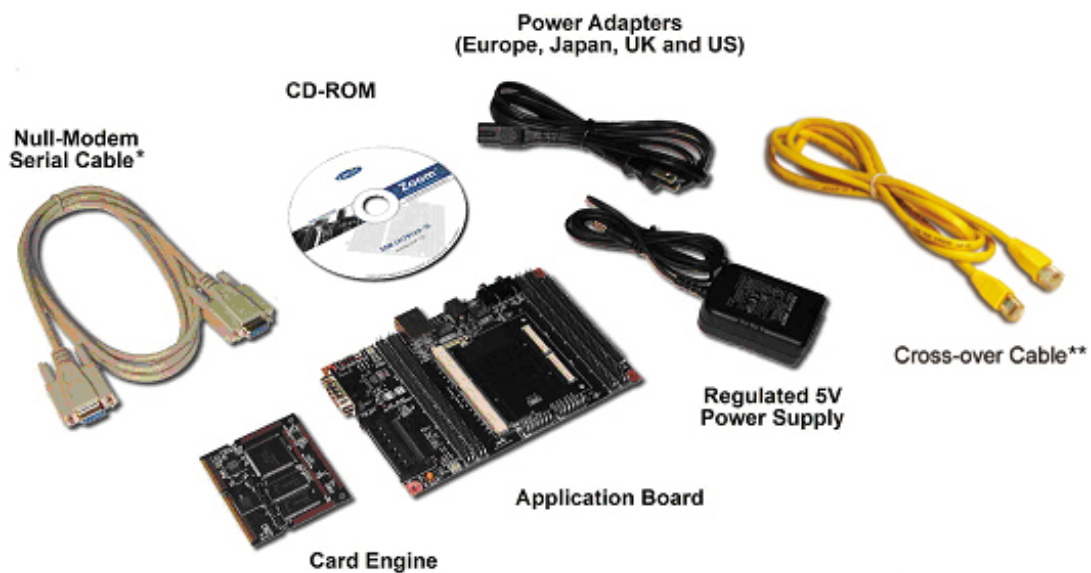
2.2   CD-ROM Contents

- Product Documentation
    - Card Engine, Application Board, and Development Kit product briefs
    - Bill of Materials (.pdf format) for Card Engine and Application Board
    - Schematics (.pdf format) for Card Engine and Application Board
    - Card Engine Hardware Specification
    - Card Engine I/O Controller Specification
    - Starter Development Kit User's Manual
    - LogicLoader™ User's Manual
    - LogicLoader User's Manual Addendum: Memory Map Diagrams
    - Component data sheets for Card Engine and Application Board
- Software Development Tools* (Refer to readme file on CD for instructions)
    - Tera Term
    - Cygwin
    - GNU cross development toolchain
    - Sample Application
    * May vary across Development Kits
- References, Resources, and Support
    - FAQ, Technical Discussion Group
    - How to get technical support (Ask a Question)
    - Support Packages
- Product Registration & Software Downloads

2.3   Development PC Requirements

- General
    - Pentium® processor or equivalent
    - 64 MB RAM minimum
    - 1 Gigabyte free hard disk space
    - 115200 baud capable RS-232 port (COM port)
    - Tera Term serial emulation program (or equivalent)
- For Windows CE development (sold separately, contact Microsoft)
    - Host PC running Windows 2000 or Windows XP
    - Windows CE Platform Builder for creating Windows CE images
    - Microsoft Embedded Visual Tools for application development.
    - Ethernet Cross-over Cable
- For Linux development
    - Host PC running Windows 2000 or Windows XP/Cygwin or Linux
    - GNU cross development toolchain

2.4   Application Board Connection Diagram

Figure 2.2: Connection Diagram for the Application Board
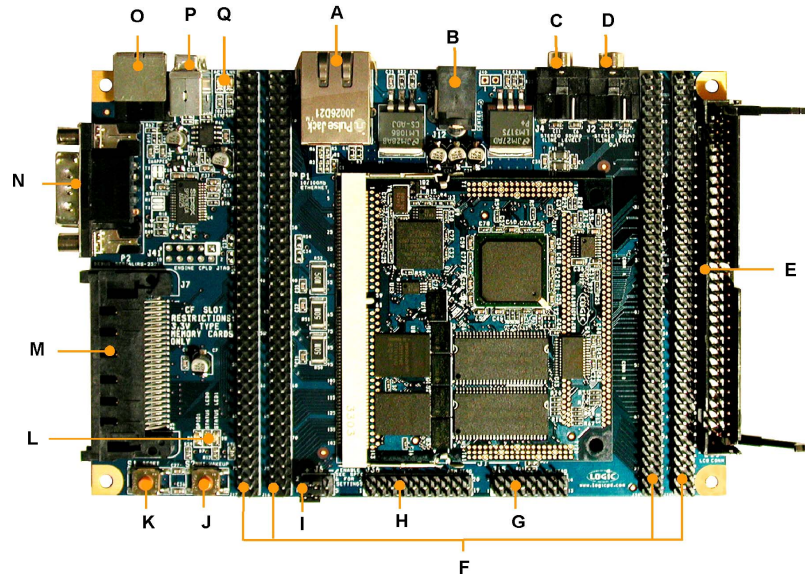
Connection Diagram Descriptions:
- A)   RJ45 Ethernet jack with magnetics
- B)   Power in from 5V regulated power supply – use appropriate power adapter
- C)   Stereo line in - 3.5mm diameter jack.*
- D)   Stereo line out - 3.5mm diameter jack
- E)   60 pin integrated LCD, touch, and backlight connector power
- F)   Expansion headers - access to all the Card Engine signals via 100 mil pitch header
- G)   SH processor JTAG header*
- H)   ARM processor JTAG header*
- I)   JTAG Jumper Configuration
- J)   Processor Wake-Up (Sharp LH7A400 & LH7A404 Development Kits only)*
- K)   System reset
- L)   User LED's (See definition of LED's in Starter Development Kit User's Manual)
- M)   CompactFlash Type 1 card (memory mode only)
- N)   Serial port - 115.2 kbps RS-232 debug serial port
- O)   USB Function*
- P)   USB Host*
- Q)   Ethernet LED's (Activity LED on the left and link LED on the right, in this view)

*Important Note: The application board is a common assembly board for all Starter Development Kits and may contain peripheral connectors that are not supported by the card engine purchased.

3　QuickStart

3.1　Inserting the Card Engine into the Application Board

Insert the Card Engine connector into the SODIMM connector on the application board.

1) Firmly press the Card Engine into the SODIMM connector until it is fully seated.

2) Press the Card Engine down onto the application board expansion connectors.

3) *Verify that the expansion connectors on the Card Engine and Application Board have mated correctly and the SODIMM connector locks have locked with the Card Engine down*. To remove the Card Engine, first pull up on expansion connectors to release them and then release the connector locks on both sides of the SODIMM connector and lift up on the non-SODIMM edge of the Card Engine.

Figure 3.1: Inserting the Card Engine into the Application Board
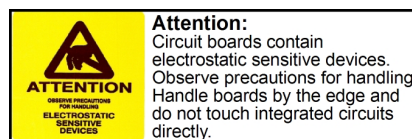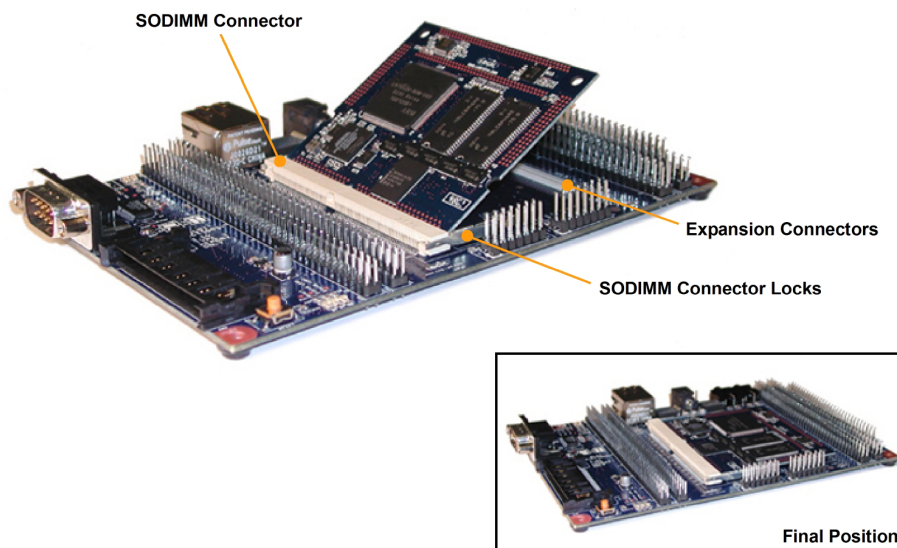
3.2   Connecting the Application Board to your PC

Figure 3.2: Connecting the Application Board to your PC
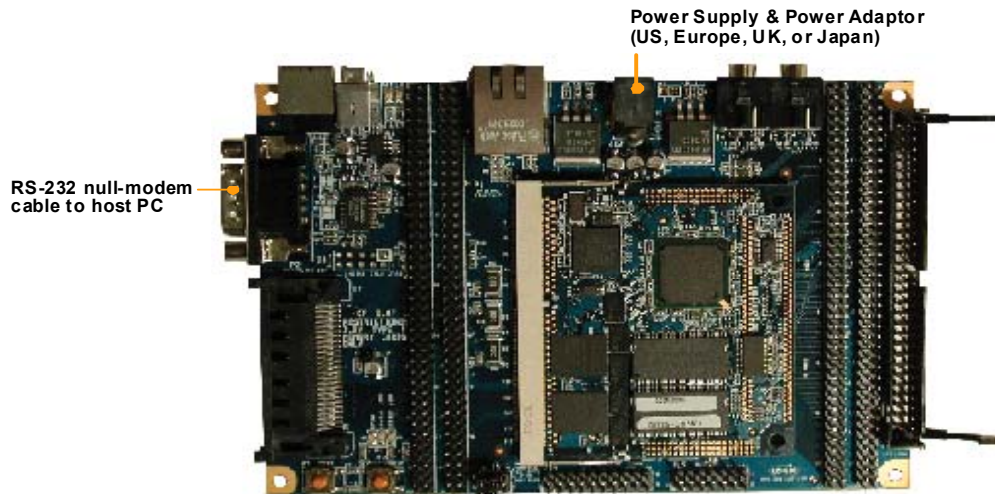
1. Connect the null-modem serial cable (**supplied in the kit)** to the serial port connector on the application board to a COM port on the Host PC as shown in Figure 3.2 above.

2. Confirm JTAG setting for use with your specific Card Engine as shown in Figure 3.3 on the following page.

Note: Do not enable the JTAG unless you intend to use the JTAG with an emulation tool.

3. Connect the regulated 5V power supply to the appropriate power adapter. Plug the power adapter into the power outlet and the 5V line output connector into the power connector on the Application Board as shown above in Figure 3.2.

Note: The Japan power adapter is labeled; the US adapter is not.

Figure 3.3: J6 JTAG settings

JTAG Operation Settings

Mfg.	ENGINE TYPE	J6.1.3.5	J6.2.4.6
Sharp	LH79520-10	+	-
	LH75401-10/11	+	-
	LH7A400-10	+	-
	LH7A404-10	+	-
Renesas	SH7727-20	na	na
	SH7750R-10	na	na
	SH7760-10	na	na

Figure 3.4-Example JTAG settings for Sharp LH79520
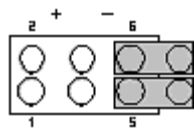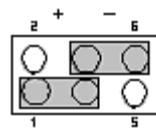
Normal Operation   JTAG Operation

4   Test Drive the Zoom Starter Development Kit

4.1   Software Installation

The Zoom Starter Developer Kit is designed to communicate with terminal emulation programs via the null-modem serial cable included, using the following settings: 115200 baud, 8-data-bits, 1-stop-bit, no-parity, and no-flow-control. The terminal emulation program must support binary transfers in order to download software to the kit. Although Logic Product Development does not support any particular terminal emulation program, we suggest using Tera Term Pro for Windows 2000 or Windows XP. Tera Term Pro is provided on the CD-ROM or can be downloaded for free from Logic's website at the following location: http://www.logicpd.com/support/downloads/. Tera Term Pro is not available for Linux users. Logic Product Development does not guarantee or support any terminal emulation programs under Linux or Windows platforms.

Once the terminal emulation program has been installed, open a new serial port connection using the port where the null-modem serial cable is connected. For example, using Tera Term, set the 'baud-rate' to 115200, 'data' to 8-bit, 'stop' to 1-bit ,'parity' to none, and 'flow control' to none.

Figure 4.1: Tera Term: Serial port setup window
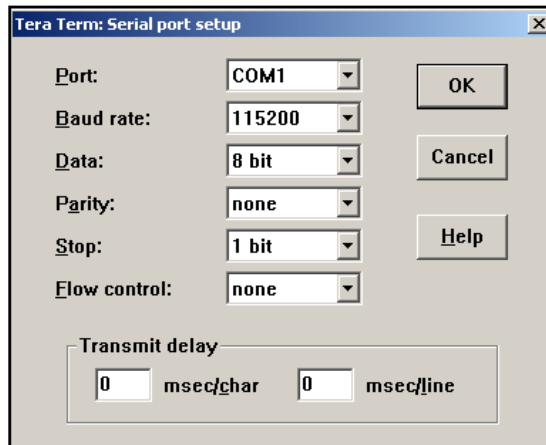
4.2   Power-up the Development Kit

Connect the power to the application board. The LogicLoader (bootloader/monitor) menu screen will appear.

Figure 4.2: LogicLoader (Bootloader/Monitor) Menu

Congratulations, you have successfully booted the Zoom Starter Development Kit!

The LogicLoader provides the capability for loading operating systems and applications. In addition, it provides a full suite of commands for interfacing to the Card Engine, these commands: load operating systems, configure hardware platforms, bring-up hardware, customize applications, perform tests, and manage in-field devices.

Note: If the LogicLoader menu screen does not appear, please check Tera Term serial settings, all cable connections, board connections, and press system reset.

4.3   Downloading Board Support Packages (BSP's) and SDK's

Logic offers product-ready Board Support Packages (BSP's) in binary format for Zoom Starter Development Kits. BSP's are available for various operating systems (Windows CE, Linux, etc.) dependent on Card Engine Development Kit purchased. The BSP's include device drivers for specific Card Engine peripherals.

To download BSP's or Software Development Kits (SDK) you must have Internet access and a recent version of Internet Explorer or Netscape. Go to the Downloads section of the Logic website at http://www.logicpd.com/support/downloads/ and enter the requested information. You will be granted access to download the applicable binary BSP for your Zoom Starter Development Kit. If you have any questions or problems, visit the support section of Logic's website.

Refer to the End-User License Agreement for definition and use of licensed materials available on the CD-ROM and the Logic website.

For instructions on loading and running BSP's or applications on the Development Kit, see the Zoom Starter Development Kit User's Manual. For instructions on using LogicLoader, see the LogicLoader User's Manual.

4.4   Software Development Tools

Refer to the readme files and User's Manual on the Zoom CD-ROM for installation instructions and directions for using the software development tools.

4.5   Sample Application

The Zoom SDK comes with a sample application that can be found on the CD and the website. For instructions on loading and running the sample app on the Dev. Kit, see the Sample Application readme file under Software Development Tools.

5   Product Notices

Evaluation Purposes Only

The Zoom Starter Development Kit being sold by Logic is intended for **ENGINEERING DEVELOPMENT OR EVALUATION PURPOSES ONLY** and is not considered by Logic to be fit for commercial use. As such, the goods being provided may not be complete in terms of required design, marketing, and/or manufacturing related protective considerations, including product safety measures typically found in the end product incorporating the goods. The user assumes all responsibility and liability for proper and safe handling of the Zoom Starter Development Kit.

ESD

Due to the open construction of the product, it is the user's responsibility to take any and all appropriate precautions with regard to electrostatic discharge. The various debug header pins are tied to actual lines on the Card Engine and application board. Some of them will reset the board if they are touched directly. Be aware of this situation. Logic's warranty does not cover product damaged by ESD.

Speakers

A normal pair of desktop computer speakers plugged into the audio jack will work fine. Use a set with an amplifier and volume control for best results.

Approvals

This product is compliant with emissions standard EN55022 level A, and may be operated in industrial areas as defined by national regulations. This product may require a special permit for operation at other locations. Cases of interference at such locations need to be handled according to the requirements of the national EMC legislation.

6   Support

The Zoom Starter Development Kit is a low cost Development Kit. As a result, Logic has created a self-service (FAQ, Technical Discussion Groups, Ask A Question) technical support process to make it easier for our customers to find answers to their questions, and enables Logic to provide low cost Development Kits. For additional technical support, please see support packages below.

What support comes with the Zoom Starter Development Kit?
- Unlimited access to our technical discussion group and FAQ's available at http://www.logicpd.com/support/
- One incident up to one hour of engineering support via e-mail (Ask A Question) at http://www.logicpd.com/support/

What is supported in the Starter Development Kit?
- Zoom Starter Development Kit hardware
- LogicLoader (Bootloader/Monitor)
- BSP's developed by Logic Product Development

What does Logic Product Development NOT support?
- See respective third party solutions for technical support.
  - GNU cross development toolchain (http://www.gnu.org/)
  - Tera Term
  - Cygwin (http://www.cygwin.com/)
  - Microsoft Embedded Visual Tools & Platform Builder (contact Microsoft)
  - IC Components (contact appropriate IC vendor)

Additional Support Services Available for Purchase
- **Product Development Services**
  - Industrial Design
  - Mechanical Engineering
  - Electrical Engineering
  - Systems & Software Engineering
  - PCB Design & Layout
  - FPGA/DSP Design

- **Support Packages**
  Visit http://www.logicpd.com/support/ for complete descriptions, price, and purchase.
  - Gold Support Package
  - Silver Support Package
  - Bronze Support Package
  - Hotline Incident

6.1   Frequently Asked Questions

Visit http://www.logicpd.com/support/ for a complete list of FAQ's for the Zoom Starter Development Kit.

## 6.2   Technical Discussion Group

Visit http://www.logicpd.com/support/ to join our technical discussion group and share valuable information with other designers.

7   Zoom Display Kits

Display Kits are ideal for embedded solutions requiring a graphical user interface. Logic offers a variety of display sizes (3.5", 6.4", 10.4", 12.1", etc.), resolutions (QVGA, VGA, SVGA), and types (TFT, etc.). Zoom Display Kits are sold separately.

Visit Logic's website at http://www.logicpd.com/eps/ for a complete listing of Display Kits and accessories for the Starter Development Kits.

Figure 7.1: Zoom Display Kit plugged into a Zoom Starter Development Kit

Zoom Starter Development Kit

Zoom Display Kit
(shown with 6.4" display)
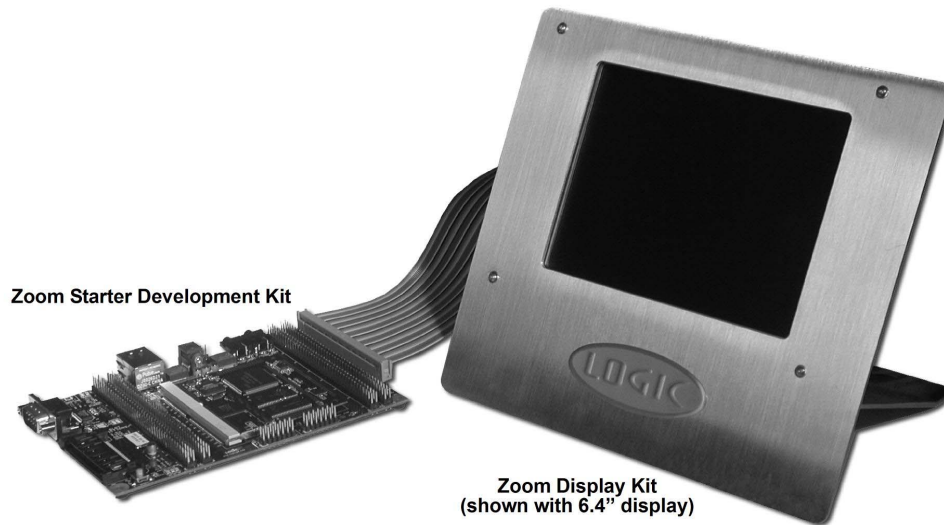
7.1   Zoom Display Kits Specification Table

Logic offers the following Display Kits for use with the Application Development Kits. Visit our website for current information on Zoom Display Kits.

Figure 7.2: Zoom Display Kits Specification Table

Logic Model	Sharp LCD P/N	Display size diagonal	Display format	Type	Key Features
LCD-3.5-QVGA-10 [1]	LQ035Q7DB02	3.5 in	QVGA (240 x 320)	AD TFT	Color, transreflective
LCD-3.5-QVGA-20	LQ035Q7DB02	3.5 in	QVGA (240 x 320)	Color TFT	Color, transreflective
LCD-6.4-VGA-10	LQ64D343	6.4 in.	VGA (640 x 480)	Color TFT	Color, transmissive
LCD-10.4-VGA-10	LQ10D368	10.4 in.	VGA (640 x 480)	Color TFT	Color, transmissive
LCD-12.1-SVGA-10	LQ121S1DG31	12.1 in.	SVGA (800 x 600)	Color TFT	Color, transmissive

[1] LCD-3.5-QVGA-10 is compatible with Card Engines that support AD-TFT display

Important Notice: Please verify the selected processor supports the display kits.

Please contact Logic for other display requirements.

8   Install Software Tools

8.1   Objective

The objective of this chapter is to provide step-by-step instructions for installing:

■   Tera Term   Section 8.3
■   Cygwin   Section 8.4
■   GNU Toolchain   Section 8.5

8.2   Prerequisites

■   Zoom Starter Development Kit CD
■   Windows 2000 Host PC
■   Pentium® processor or equivalent
■   64 MB RAM
■   1 GB free hard disk space
■   115200 baud-capable RS-232 port (COM port)

8.3   Installing Tera Term

Tera Term is a software terminal emulator for MS Windows that can send and receive both binary and ASCII characters over system COM ports.

1. To begin installation, start Macromedia Flash by inserting Logic's Zoom Starter CD into your CD ROM drive, or double click the Macromedia Flash .exe file in your CD contents folder. (Alternatively, access the 'Software Development Tools' directory included on Logic's Zoom Starter CD, open the 'Tera Term' folder, double click the setup.exe file, and then proceed to step 4, below.)

    Macromedia Flash will bring up the following screen.

Figure 8.1: Macromedia Flash Start Page

2.   On the Macromedia Flash Start Page, select 'Software Development Tools.'
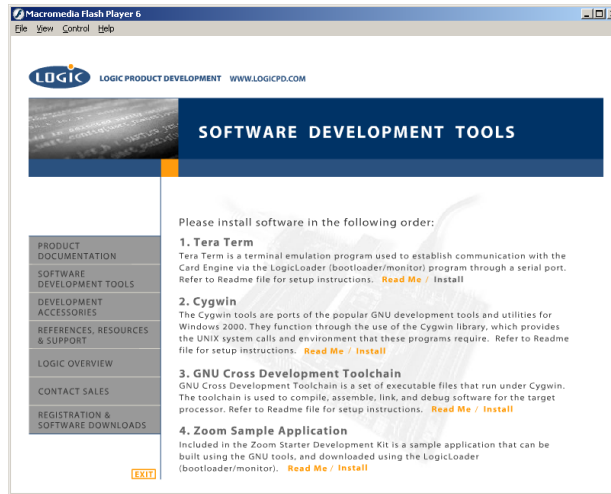

Figure 8.2: Software Development Tools Page

3.   Option number one on the 'Software Development Tools' page is Tera Term. Click 'Install.'
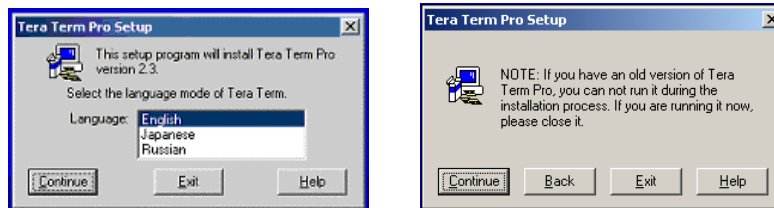4.   Tera Term Pro Setup will begin. Follow these steps through the installation windows:

Figure 8.3: Tera Term Setup Windows 1-2

☐   1. Select a language, then click 'Continue.'
☐   2. If an existing version of Tera Term is running, close it, then click 'Continue.'
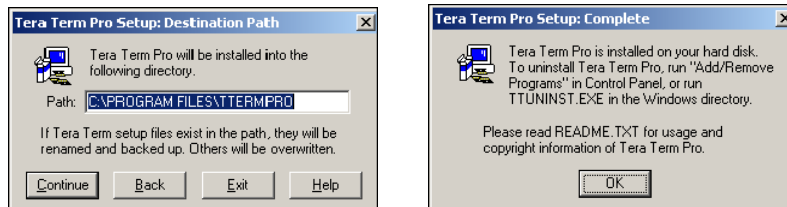

Figure 8.4: Tera Term Setup Windows 3-4

☐   3. Select a root directory for Tera Term. You can accept the default installation directory or enter an alternate path name in the 'Path' text field, then click 'Continue.'
☐   4. Tera Term will install. Click the 'OK' button. Setup is now complete.

8.4 Installing Cygwin

Cygwin is a UNIX® environment for Windows. It is a collection of tools that provides a Unix API emulator to allow compilation of sample source code.

1. To begin installation, start Macromedia Flash by inserting Logic's Zoom Starter CD into your CD ROM drive, or double click the Macromedia Flash .exe file in your CD contents folder. (Alternatively, access the 'Software Development Tools' directory included on Logic's Zoom Starter CD, open the 'Cygwin' folder, double click the setup.exe file, and then proceed to step 4, below.)

   Macromedia Flash will bring up the following screen.

Figure 8.5: Macromedia Flash Start Page

2. On the Macromedia Flash Start Page, select 'Software Development Tools.'
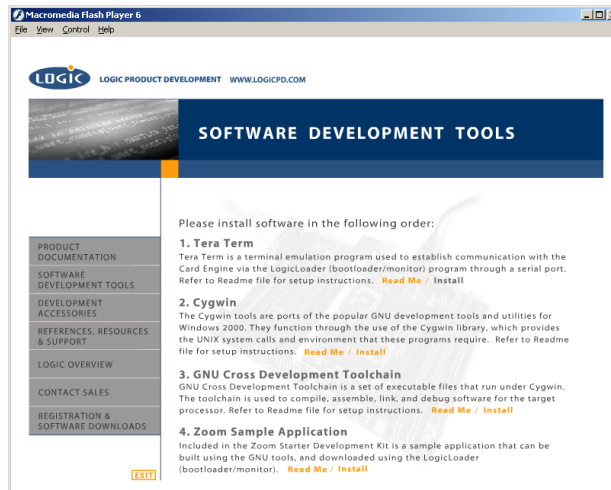

Figure 8.6: Software Development Tools Page

3. Option number two on the 'Software Development Tools' page is Cygwin. Click 'Install.'

4. Cygwin Setup will begin. Follow these steps through the installation windows:
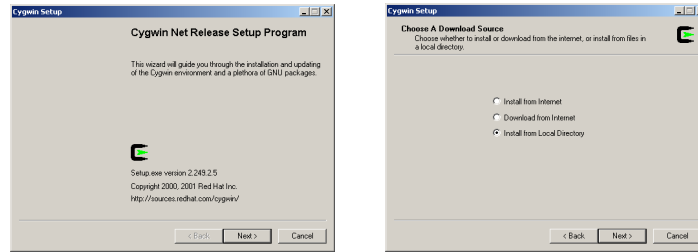

Figure 8.7: Cygwin Setup Windows 1-2

☐ 1. 'Cygwin Net Release Setup Program' window: click 'Next.'
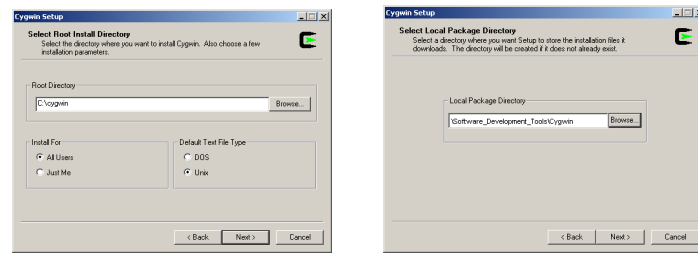☐ 2. 'Choose A Download Source' window: select 'Install from Local Directory,' click 'Next.'

Figure 8.8: Cygwin Setup Windows 3-4

☐ 3. 'Select Root Install Directory' window: select a root directory for Cygwin. You can accept the default installation directory or enter an alternate path name in the 'Root Directory' text field. Next, allow 'Install For' to default to 'All Users' unless you must restrict access. Also, allow 'Default Text File Type' to default to 'Unix.' Then click 'Next.'
☐ 4. 'Select Local Package Directory' window: Type: '$:\Software_Development_ Tools\Cygwin' in the 'Local Package Directory' dialog box. ('$' designates your CD ROM drive letter. You must include The CD ROM drive letter.) Click 'Next.'
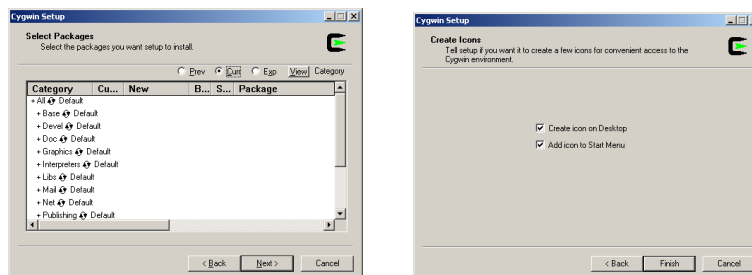

Figure 8.9: Cygwin Setup Windows 5-6

☐ 5. 'Select Packages' window: verify that 'Default' is selected for each category. Click 'Next.'
☐ 6. Setup.exe will begin copying files. This may take several minutes. After the files have completed copying, the 'Create Icons' window will appear. Select your icon preference and click 'Finish.'

□   7. Cygwin will install. When the 'Installation Complete' window appears, click 'OK.' Setup is now complete.
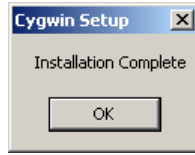

Figure 8.10: Cygwin Setup: Installation Complete Window

8.5   Installing the GNU Cross Development Toolchain

The GNU Cross Development Toolchain is a collection of tools that allows for software source code compilation and linking to create object code for your target hardware.

Prerequisite
■   You will need a complete installation of Cygwin at the root of any local drive. For example: C:\cygwin or D:\cygwin.

Note
■   This installation is for host PC's running Windows 2000/Cygwin. For host PC's running Linux, see the readme file in the \Software Development Tools\Linux Tools directory (included on the Zoom Starter Development Kit CD) for installation instructions.

1.   To begin installation, start Macromedia Flash by inserting Logic's Zoom Starter CD into your CD ROM drive, or double click the Macromedia Flash .exe file in your CD contents folder. (Alternatively, access the 'Software Development Tools' directory included on Logic's Zoom Starter CD, open the 'GNU Cross Development Toolchain' folder, double click the gnutools_install.exe file, and then proceed to Step 4, below.)

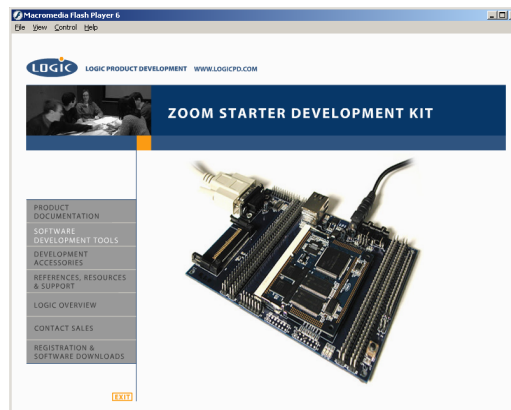Macromedia Flash will bring up the following screen.

Figure 8.11: Macromedia Flash Start Page

2.   On the Macromedia Flash Start Page, select 'Software Development Tools.'
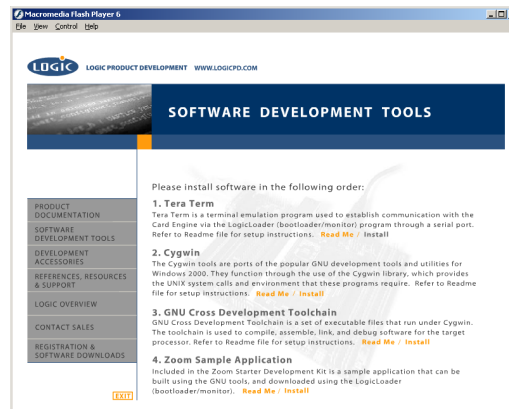

Figure 8.12: Software Development Tools Page

3.   Option number three on the 'Software Development Tools' page is GNU Cross Development Toolchain. Click 'Install.'
4.   GNU Cross Development Toolchain Setup will begin. Follow these steps through the installation windows:
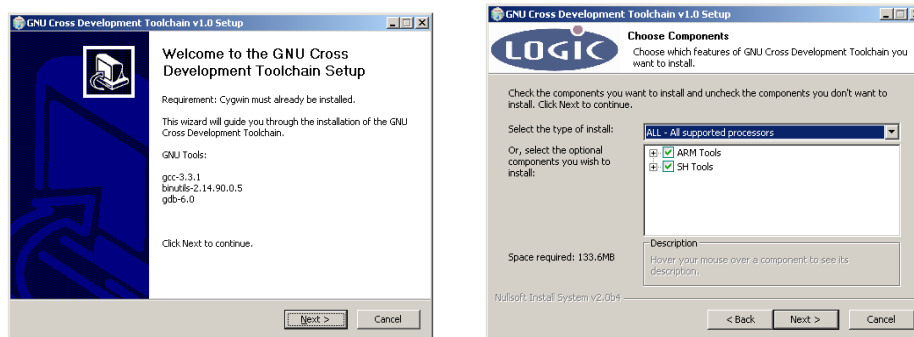

Figure 8.13: GNU Cross Development Toolchain Setup Windows 1-2

☐   1. 'GNU Cross Development Toolchain v1.0 Setup' window: click 'Next.'
☐   2. 'Choose Components' window: select the type of install as 'ALL - All Supported Processors,' then click 'Next.'
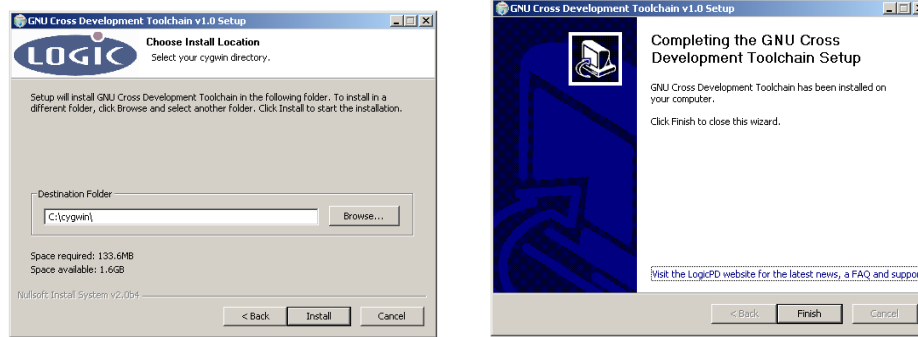
Figure 8.14: GNU Cross Development Toolchain Setup Windows 3-4

□   3. Select a root directory for the GNU Cross Development Toolchain. You can accept the default installation directory or enter an alternate path name in the 'Destination Folder' field. (The installer automatically fills in the 'Destination Folder' field with the path to the first Cygwin installation found on your system.) Click 'Install' to begin installing files.

□   4. Please wait while an 'Installing' window appears and the necessary files are copied to your Cygwin directory. When installation is complete, click 'Finish.' Upon completion, the installer automatically appends /gnutools/bin to the Cygwin PATH variable. Setup is now complete.

8.5.1   GNU Tools Documentation

A complete set of manuals for the GNU tools is contained in the Zoom Starter Development CD in the following directory: $:\Software Development Tools\Documentation\GNU_DOCS.

9　Build a Sample Application

9.1　Objective

The objective of this section is to explain how to build a sample application for the Zoom Starter Development Kit.

Background Information:
■ This application is very simple and is only intended to serve as a starting point for software developers. The main function of this sample application is to verify that the development tools (compiler, linker, etc.) have been correctly installed and are working properly. The source code for this sample application is contained on the Zoom Starter Development CD.
■ 'make' utility:
The build procedure in this section utilizes the 'make' utility in Cygwin-- 'make' is a utility common in Unix environments. Note that the files in the 'sample_zoom_app' directory tree are called makefiles. Makefiles contain rules that the 'make' utility follows when building an application. For additional info. regarding 'make,' refer to the documentation on the Zoom SDK CD at: Software Development Tools/Documentation/GNU_Docs/Using_make/make.pdf.
■ 'target' argument:
For the sample application the user supplies a 'target' argument on the 'make' command line. For example: 'make sample_RAM' instructs 'make' to build a new target called 'sample_RAM.'

9.2　Prerequisites

■ Base directory in which source code can be placed
■ Cygwin with GNU Cross Development Tools installed
■ Tera Term installed

9.3　Procedure

1. To begin installation, start Macromedia Flash by inserting Logic's Zoom Starter CD into your CD ROM drive, or double click the Macromedia Flash .exe file in your CD contents folder. (Alternatively, access the 'Software Development Tools' directory included on Logic's Zoom Starter CD, locate the 'sample_zoom_app' folder and copy this folder to your Cygwin/home/logic directory on your hard drive, *not* the CD-ROM drive. If you do not have a 'Cygwin/home/logic' directory, please create one. Then proceed to Step 4, below.)

   Macromedia Flash will bring up the following screen.

Figure 9.1: Macromedia Flash Start Page

2. On the Macromedia Flash Start Page, select 'Software Development Tools.'
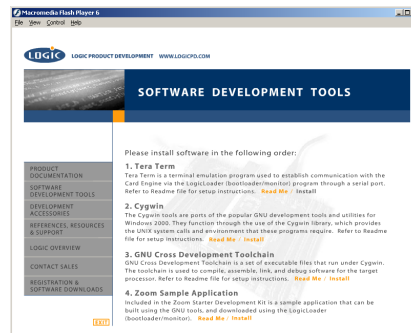

Figure 9.2: Software Development Tools Page

3. Option number four on the 'Software Development Tools' page is Zoom Sample Application. Click 'Install.'
4. Next, open Cygwin. (Open **Start/ Programs** to locate Cygwin, or double-click the Cygwin shortcut icon on your desktop-- depending on where you saved the icon.) A Cygwin window will appear.
5. In your Cygwin window, type the following command: 'cd home/logic/sample_zoom_app/src' This will change the working directory to your src folder.
6. Next, type 'make distclean' in your Cygwin window. This cleans previously built files (if any).
7. Next, type 'make' in order to get the list of build file options. See Figure 9.3 below.

Figure 9.3: Building A Sample Application

8. Then type 'make' followed by the appropriate file name (matching the card engine type that you are building on) and memory destination (RAM, flash, etc.). For example, 'make sample-LH79520-10_RAM' will build a file for the LH79520 card engine that will be run out of RAM memory.

    When complete, your sample application will be located in the current directory: home/logic/sample_zoom_app/src.

10   Download a Sample Application

10.1   Objective

The objective of this section is to download the sample application which you built in "Section 9: Build a Sample Application' to your Zoom Starter Development Kit. This example demonstrates how to download the sample application with LogicLoader (bootloader/monitor).

Background Information:
- The application 'sample_RAM' is designed to download to and execute out of RAM. The application is linked to run directly from RAM.
- LogicLoader is the name given to the Zoom Starter Development Kits bootloader/monitor code module. Refer to the 'LogicLoader User's Manual' for further documentation.

10.2   Prerequisites

- A successfully built sample application from 'Section 9: Build a Sample Application,' above
- Cygwin and GNU Cross Development Tools installed
- Tera Term installed and running
- Zoom Starter Development Kit up and running
- Zoom Starter Development Kit connected to development computer via null modem serial cable

10.3   Procedure

1. Open a Tera Term shell. Select 'Setup' and click 'Serial port' in order to verify that Tera Term is configured correctly.
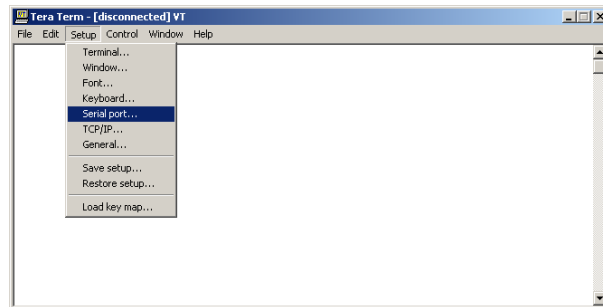

Figure 10.1: Select 'Setup' and click 'Serial port'

2. Verify the following settings: 'port' is the active port, 'baud-rate' is 115200, 'data' is 8-bit, 'parity' is none, 'stop' is 1-bit, and 'flow control' is none.
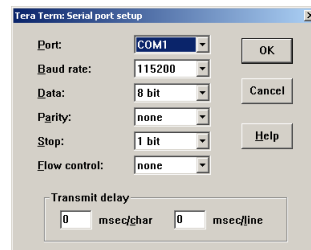

Figure 10.2: 'Serial port' Settings

3. Next, press the Reset switch on the Zoom Starter Development Kit application board (with your card engine properly inserted) in order to reboot the kit. LogicLoader will appear in Tera Term.

4. Prepare LogicLoader to receive the sample application by typing 'load elf' after the 'losh>' prompt, then press 'Enter'. See Figure 10.3 below.

Figure 10.3: Prepare LogicLoader to Receive the Sample Application

5. Then select 'File' and click 'Send file' to send the sample application to the development kit.

Figure 10.4: Select 'File' and Click 'Send file'

6. A 'Tera Term: Send file' window will open. Verify that the 'Binary' option is selected.

7. Locate the sample application file you built in Section 9, above. The default location is: Cygwin/home/logic/sample_zoom_app/src. See figure 10.5, below.
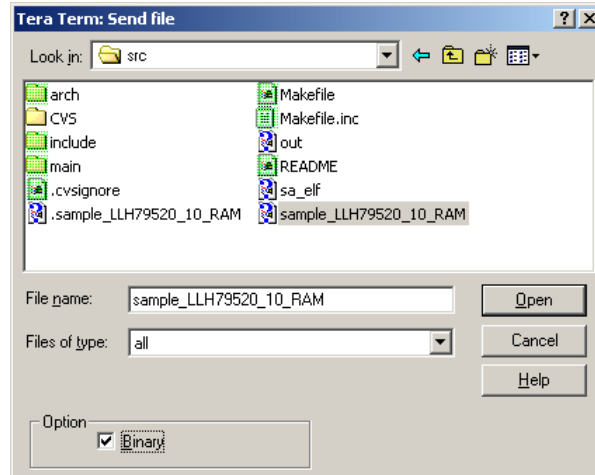
Figure 10.5: Locate the Sample Application

8. Select your sample application file and click 'Open.' The image will download to the Zoom Starter Development Kit.
9. If you designed your sample application to be burned into flash, type 'burn' after the 'losh>' prompt. This will burn the sample application image into flash. (If you *do not* intend to burn the sample application into flash, skip this step and proceed to Step 10.)
10. Now the sample application is ready to run. At the 'losh>' prompt, type 'jump' to run the application. See figure 10.6, below.
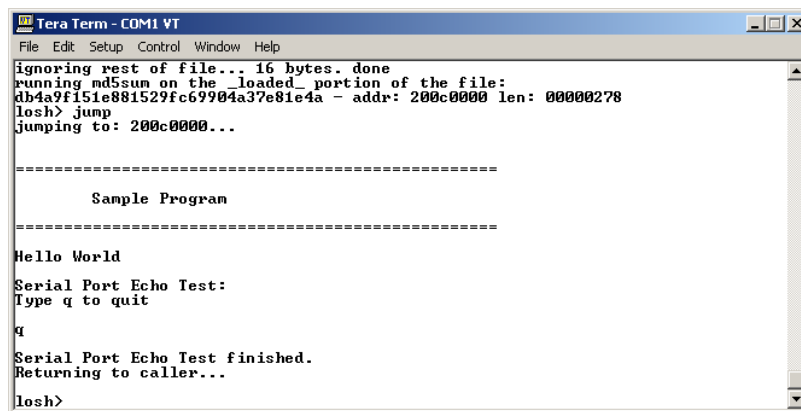
Figure 10.6: 'Hello World' Sample Program Screen

The sample application will run on the Zoom Starter Development Kit. The application should echo typed characters onto the screen.

Type 'q' to exit the application and return to the 'losh>' prompt.

11   Download a New LogicLoader (Bootloader/monitor)

11.1   Objective

The objective of this section is to download a new version of the LogicLoader (bootloader/monitor) to the Zoom Starter Development Kit.

Background Information:
■   In order to download a new version of LogicLoader, you must first bring up the Zoom Starter Development Kit in 'Bolo,' the block zero version of LogicLoader. This will allow you to 1) download a new LogicLoader to your SDK, and 2) burn it into block one of flash.
■   For further documentation, please refer to the LogicLoader User's Manual.

11.2   Prerequisites

■   A recent version of Internet Explorer, Netscape, or an FTP program
■   Tera Term installed and running
■   Zoom Starter Development Kit up and running
■   Zoom Starter Development Kit connected to development computer via null modem serial cable

11.3   Procedure

1.   Access Logic's download site at http://downloads.logicpd.com/eps/products/ and enter your username and password. (If you have not registered your product-- or do not have your registration information-- please register at http://www.logicpd.com/support/downloads/. You will receive an e-mail with your new username and password. Use this information to complete this step.)
2.   Locate the most recent version of LogicLoader (under the "LogicLoader/ BootLoader" heading) and download it to your hard drive.
3.   Next, open a Tera Term shell. Select 'Setup and click 'Serial port' in order to verify that Tera Term is configured correctly.
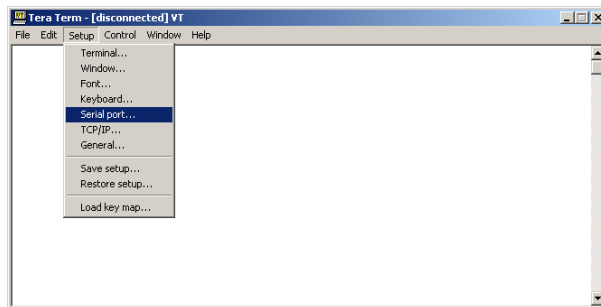
Figure 11.1: Click on 'Serial port'

4.   Verify the following serial port settings: 'port' is the current active port, 'baud-rate' is 115200, 'data' is 8-bit, 'parity' is none, 'stop' is 1-bit, and 'flow control' is none. See figure 11.2, below.
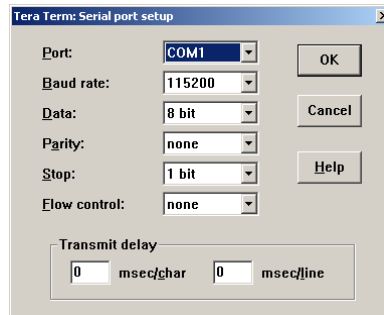
Figure 11.2: Serial Port Settings

5. Reboot the system (power-on or system reset) and press the 'q' key on your keyboard within two seconds of rebooting. This will boot the development kit into the Block Zero Loader, "BoLo." The prompt for BoLo will appear. (If BoLo does not appear, press the 'q' key until it begins auto-repeating, press the reset switch, and perform this step again.)
6. Type 'load elf' after the 'losh>' prompt and then press 'Enter' in order to prepare BoLo to receive the new LogicLoader. See figure 11.3, below.

Figure 11.3: Type 'load elf' after the 'losh>' Prompt

7. Select 'File' and click 'Send file' to send the new LogicLoader to your development kit

Figure 11.4: Select 'File' and Click 'Send file'

8. A 'Tera Term: Send file' window will open. Locate and select the LogicLoader file you downloaded to your hard drive from Logic's website in Step 2. Also, verify that the 'Binary' option is selected. Then click 'Open' to download the new LogicLoader.
9. At the next 'losh>' prompt type 'burn' to burn the new LogicLoader image into system flash memory.
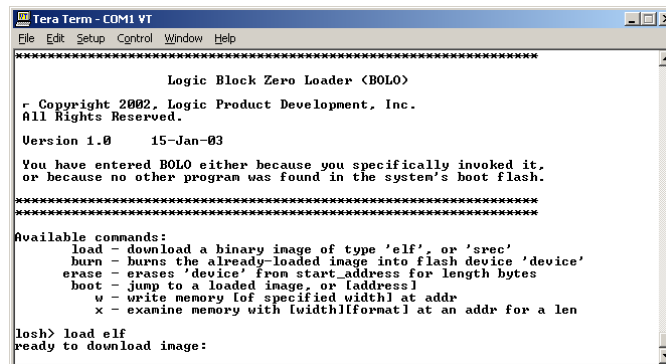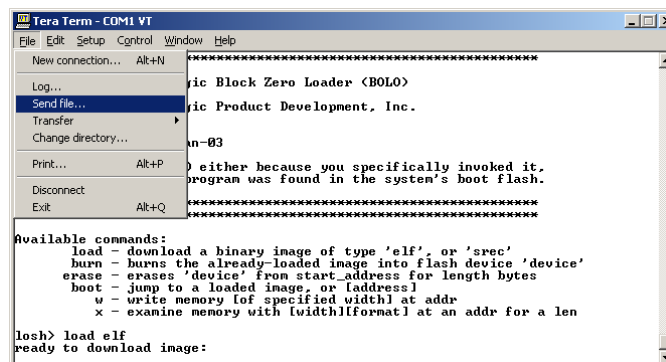10. Reboot the system to bring up the new LogicLoader. The new LogicLoader will load on your Zoom Starter Development Kit.

12   Restore BoLo™ and LoLo™: Preliminary Steps

12.1   Objective

The intention of this section is to present the preliminary steps necessary to restore BoLo and LoLo if your Zoom Starter Development Kit will not boot up at the Tera Term window.

Background Information:
■   This section is only applicable if your Zoom SDK will not boot up at the Tera Term window.
■   In order to restore BoLo and LoLo to your system, you must have the most recent version of BoLo and LoLo downloaded to your hard drive. You also must have a JTAG emulator which functions with your particular Zoom SDK.

12.2   Prerequisites

■   A recent version of Internet Explorer, Netscape, or a FTP program
■   Tera Term installed and running
■   Zoom Starter Development Kit
■   Zoom Starter Development Kit connected to development computer via null modem serial cable
■   JTAG debugger

12.3   Procedure

1. Access Logic's download site at http://downloads.logicpd.com/eps/products/ and enter your username and password. (If you have not registered your product-- or do not have your registration information-- please register at http://www.logicpd.com/support/downloads/. You will receive an e-mail with your new username and password. Use this information to complete this step.)
2. Locate the most recent versions of BootLoader (BoLo) and LogicLoader (LoLo); complete the steps for these files as outlined in Section 11, above.
3. Use a JTAG emulator that functions with your card engine to restore BoLo and LoLo to your Zoom Starter Development Kit. Contact Logic's Support Services if you need further information.

13   Download a New BSP: Preliminary Steps

13.1   Objective

The intention of this section is to present the preliminary steps necessary to download a new BSP (Board Support Package) to your Zoom Starter Development Kit.

Background Information:
■   Each BSP release includes directions for installation.

13.2   Prerequisites

■   A recent version of Internet Explorer, Netscape, or an FTP program
■   Tera Term installed and running
■   Zoom Starter Development Kit up and running
■   Zoom Starter Development Kit connected to development computer via null modem serial cable

13.3   Procedure

To download a new BSP from the 'support' section of Logic Product Development's website follow the instructions below.

1.   Access Logic's download site at http://downloads.logicpd.com/eps/products/ and enter your username and password. (If you have not registered your product-- or do not have your registration information-- please register at http://www.logicpd.com/support/downloads/. You will receive an e-mail with your new username and password. Use this information to complete this step.)
2.   Locate the new BSP and its accompanying directions, then begin installation.

14   Using a Cross-over Cable With Logic's SDK Kit

Please refer to Logic's Application Note 161: "Using a Cross-over Cable With Logic's SDK Kit" for information. It is located on our downloads site at: http://downloads.logicpd.com/eps/products/.

15   Warranty Statement

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