ML501 Overview and Setup
Overview of the Hardware Designs and Software Applications
How to set up the equipment, software, CompactFlash, network, and terminal programs

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ML501 Overview

- ML501 Overview
- Equipment Overview
- Equipment Setup
- Software Setup
- CompactFlash Setup
- Network Setup
- Appendix

Note: This Presentation applies to the ML501
### ML501 Overview

- The ML501 embedded development platform provides several reference designs and a versatile hardware platform for rapid prototyping and system verification

#### Hardware Designs
- `ml501_bsb_design`
- `ml501_bsb_std_ip`
- `ml501_std_ip_pcores`

#### Software Applications
- Standalone non-OS applications

*Note: Presentation applies to the ML501*
The ML501 MicroBlaze design hardware includes:

- DDR2 Interface (256 MB)
- BRAM
- External Memory Controller (EMC)
  - ZBT SRAM
- Networking
- UART
- Interrupt Controller
- System ACE CF Interface
- GPIO (IIC, LEDs and LCD)
- Timer
- PLB Arbiter

Note: Presentation applies to the ML501
Also Available From Xilinx

- These items are not included with the ML501, but are available for purchase from Xilinx:
  - Xilinx IDS (ISE Design Suite)
    - Includes ISE and XPS
  - Platform Cable USB

- These items are required to run the ML501 presentations

Note: Presentation applies to the ML501
ISE Software Requirement

- Xilinx ISE 12.1 software

Note: Presentation applies to the ML501
EDK Software Requirement

- Xilinx EDK 12.1 software

Note: Presentation applies to the ML501
ChipScope Software Requirements

- Xilinx ChipScope Pro 12.1 software

Note: Presentation applies to the ML501
ML501 Board

- Features the Xilinx Virtex™-5 XC5VLX50 FPGA
ML501 Board

Digital Video Connector
Differential Clock Connectors
SPDIF Out
Piezo Speaker
USB Host
User Clock
Virtex-5 XC5VLX50 FPGA
Programming Interface
Clock Chip, 25 MHz OSC
LCD Interface Header
System ACE CF Controller

Xilinx Platform Flash

PS/2 Mouse and Keyboard
Power Connector
Power-On Switch, SW1
Ethernet Port
Ethernet PHY
USB Peripheral USB Host
Microphone In
Line In
Amplified Line Out
Line Out
DDR2 SODIMM Memory
Serial Port

GPIO LEDs
SYSACE Reset, PROG, CPU Reset Status & Error LEDs
GPIO DIP SW
SysACE Config, Mode Pins DIP SW
XC95144XL CPLD (under Compact Flash)
CompactFlash Slot
Equipment Overview

- **SiliconDrive™ 32 MB CompactFlash™**
  - Comes preloaded with hardware and software demonstration systems for ML501

*Note: Presentation applies to the ML501*
Equipment Overview

- **DVI monitor**
  
  or

- **DVI to VGA adapter**
  - To connect from the ML501 DVI port to a standard VGA monitor
  - [http://www.belkin.com](http://www.belkin.com)

- **Pancake Fan (optional)**
  - Recommended for cooling the Virtex-5 device on the ML501 board

Note: Presentation applies to the ML501
Equipment Setup

- Set Front DIP Switches to 00010101 (1)
ML501 Setup

- **Set ML501 Jumper for GMII**
  - Set both J40 to positions 1-2 (as shown)

*Note: Presentation applies to the ML501*
Equipment Setup

- User supplied – null modem serial cable
Equipment Setup

- Connect Ethernet, DVI, and a USB Keyboard to ML501

Note: Presentation applies to the ML501
Software Setup

- Install a terminal program, such as Tera Term Pro
  - Required to input the commands, and view the results
- See the appendix for details on terminal programs and setup

Note: Presentation applies to the ML501
CompactFlash Setup

- Insert the CompactFlash provided with the ML501 fully into the CompactFlash slot on the ML501 board

Note: Presentation applies to the ML501
Network Setup

- From the Windows Control Panel, open Network Connections
- Right-click on the Gigabit Ethernet Adapter and select Properties

Note: Presentation applies to the ML501
Network Setup

- Click Configure
  - Set the Media Type to Auto for 1 Gbps then click OK

Note: ML501 QuickStart uses 100Mb Full
Network Setup

- Reopen the properties after the last step
- Set your host (PC) to this IP Address:

Note: Some presentations use other IP addresses; change as directed
Browser Setup

- Depending on your local network, the browser used for the LwIP demo may need the proxy disabled (Internet Explorer shown).

Note: Presentation applies to the ML501
Appendix

- Terminal Program
- Creating Desktop Shortcuts

Note: Presentation applies to the ML501
Terminal Programs

- Terminal programs are used to communicate with the processor.
- Terminal programs in this setup use a serial interface.
- Free programs are available
  - Tera Term Pro (recommended)
    - [http://hp.vector.co.jp/authors/VA002416/teraterm.html](http://hp.vector.co.jp/authors/VA002416/teraterm.html)

Note: Presentation applies to the ML501
After installation, open Tera Term Pro and select the serial port desired.

Note: Presentation applies to the ML501
Tera Term Pro

- Select Setup → Serial Port...

Note: Presentation applies to the ML501
Tera Term Pro

- **Set the serial port parameters**
  - 9600 baud
  - 8 Data Bits
  - No Parity
  - One Stop Bit
  - No Flow Control

![Tera Term: Serial port setup window](image)

**Note:** Presentation applies to the ML501
Tera Term Pro

- **Select Setup → Window…**
  - Increase the Scroll Buffer to 10,000 lines

Note: Presentation applies to the ML501
Tera Term Pro

- **Select Setup → Save Setup…**
  - Save init file as COM1_9600.INI

*Note: Presentation applies to the ML501*
Repeat these steps for your second COM port
– Save init file as COM2_9600.INI

Note: Presentation applies to the ML501
Tera Term Pro

- To automatically restore the command line options
  - Use "/F=<file name>.ini"
- To automatically open a log file
  - Use "/L=<log file>.log"

Note: Presentation applies to the ML501
Tera Term Pro

- You can add shortcuts to your desktop for Tera Term Pro
  - Allows the command line options to be added here
- Right-click on your desktop and select New → Shortcut
- Browse for the terminal program folder

Note: Presentation applies to the ML501
For Tera Term Pro, link to the ttermpro.exe program file:
- C:\Program Files\TTERMPRO\ttermpro.exe
Tera Term Pro

- Add the command line options

/F=COM1_9600.INI /L=COM1.LOG

Note: Presentation applies to the ML501
Finish creating the shortcut

- Name the shortcut
- Click Finish
Documentation
Documentation

- **ML501 Documentation**
  - ML501 Overview
  - ML501 Getting Started Tutorial – UG228