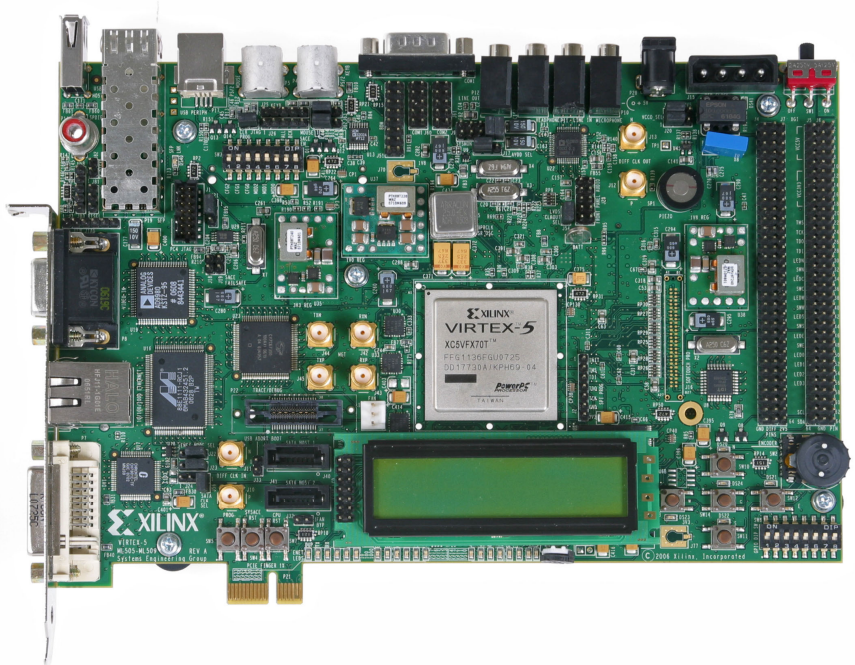
ML507 QuickStart

October 2008



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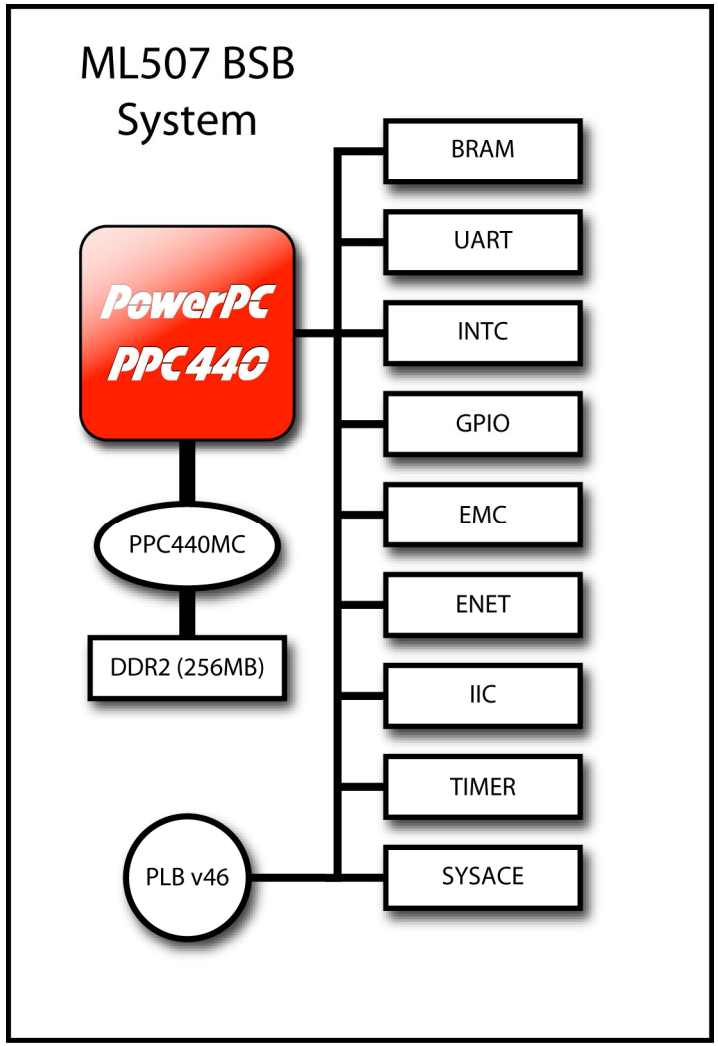
Overview

- Setup
- Boot with ACE-loader ACE File
- Observe LCD and Terminal messages
- Load new Configuration
- Re-load ACE-loader

Note: This Presentation applies to the ML507

ML507 BSB Hardware

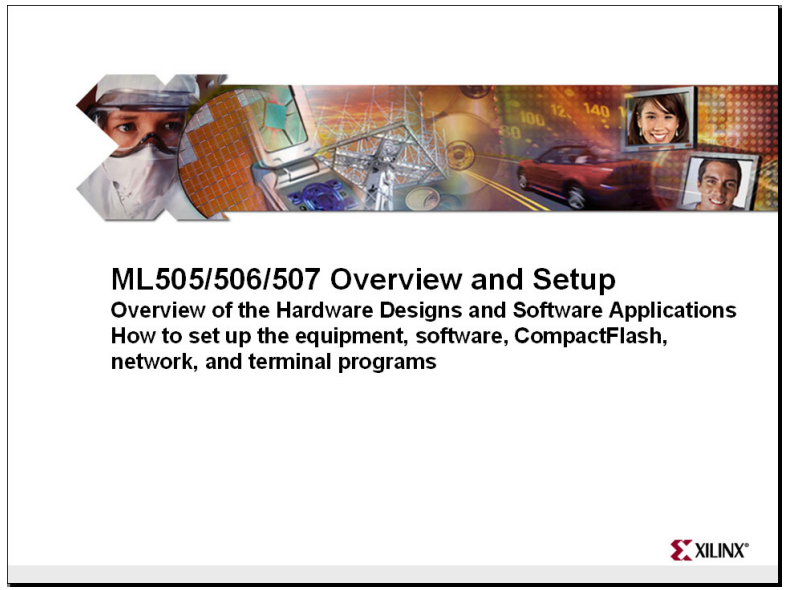
- The ML507 PPC440 design hardware includes:
  - PPC440MC DDR2 Interface
  - External Memory Controller (EMC)
    - **ZBT SRAM**
  - BRAM
  - Networking
  - UART
  - Interrupt Controller
  - System ACE CF Interface
  - GPIO (IIC, LEDs and LCD)
  - PLB Arbiter



Note: Presentation applies to the ML507

Additional Setup Details

- Refer to ml505_overview_setup document for details on:
  - Software Requirements
  - ML507 Board Setup
    - **Equipment and Cables**
    - **Software**
    - **Network**
  - Terminal Programs
    - **This presentation requires the 9600-8-N-1 Baud terminal setup**



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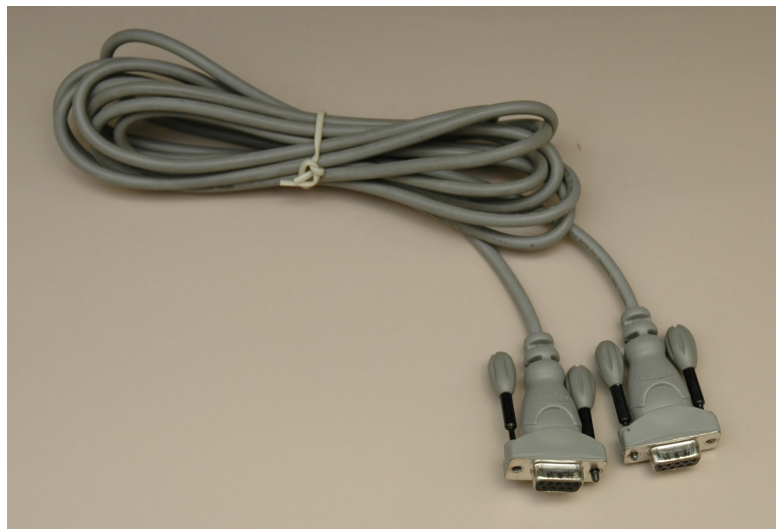
Hardware Setup

- Connect the Xilinx Platform Cable USB to the ML507 board

- Connect the RS232 null modem cable to the ML507 board



Hardware Setup

- The ML507 uses a DVI video interface
- Connect a DVI monitor

  or

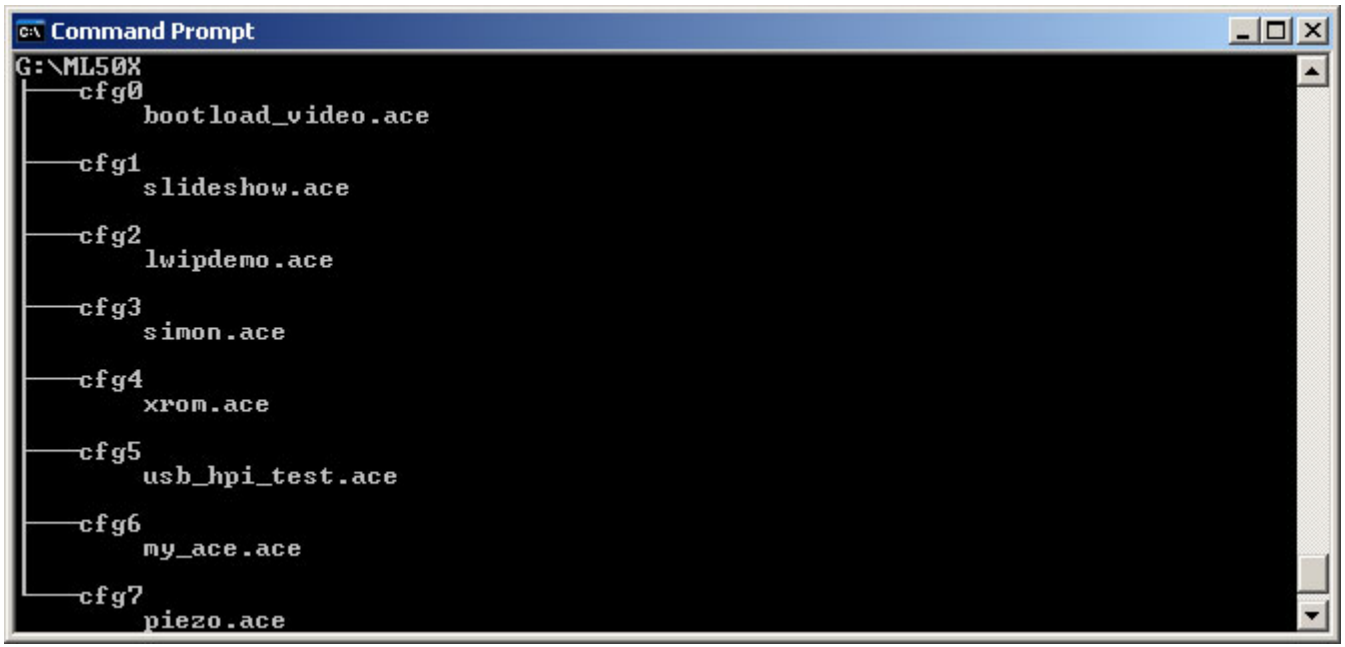
- Use a DVI/VGA adapter to connect a VGA monitor
  - http://www.belkin.com

Hardware Setup

- USB Keyboard
  - www.dell.com

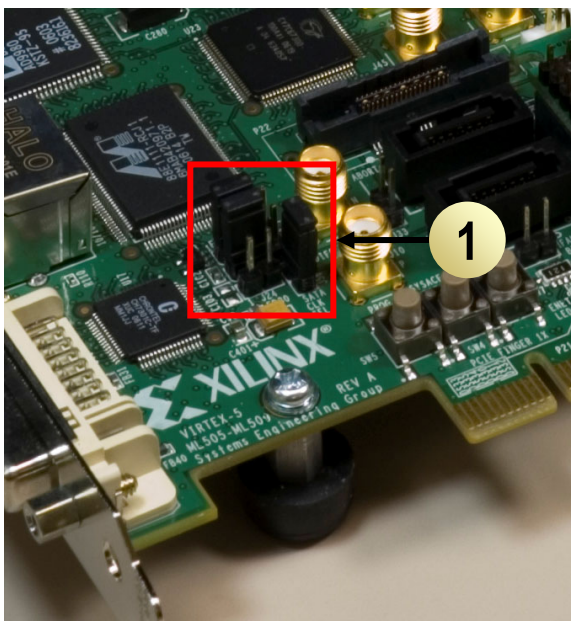
Factory CompactFlash

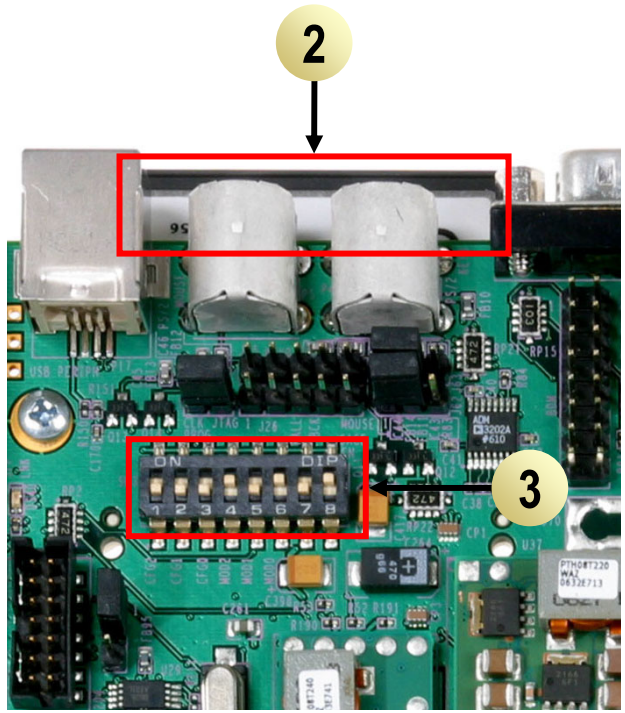
- The CompactFlash shipped with the ML507 board has the following ace files preloaded:



Verify Factory Default Settings

- Set the Ethernet PHY jumpers, J22, J23 to positions 1-2 (1)
- Insert the Factory CompactFlash into the ML507 board (2)
- Set the Front DIP switches (SW3) to 00010101 (1 = ON) (3)
- Set the Rear DIP switches (SW6) to 11001010 (4)
- Power-up the ML507 board





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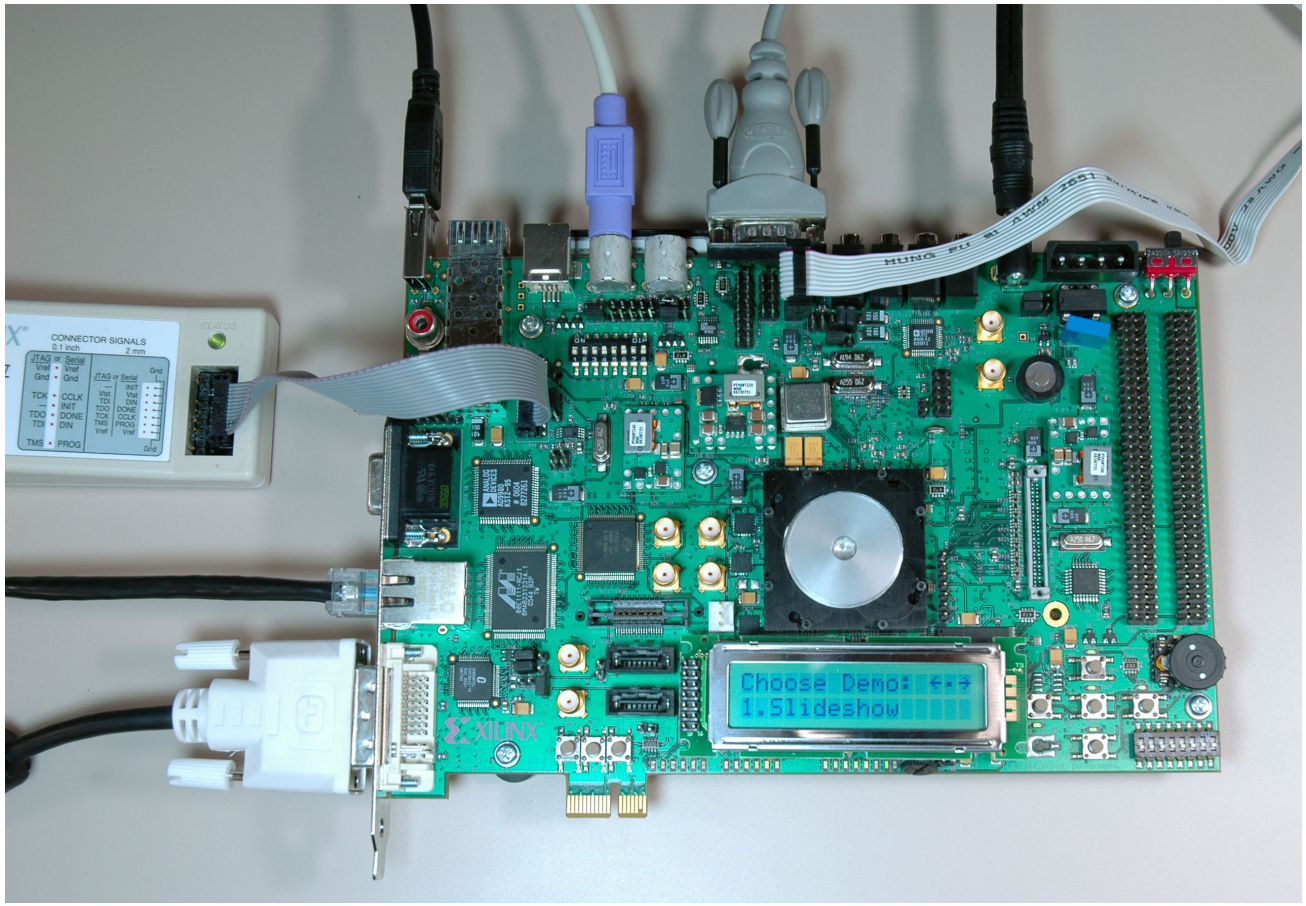
Bootload

- The bootload_video.ace loads:



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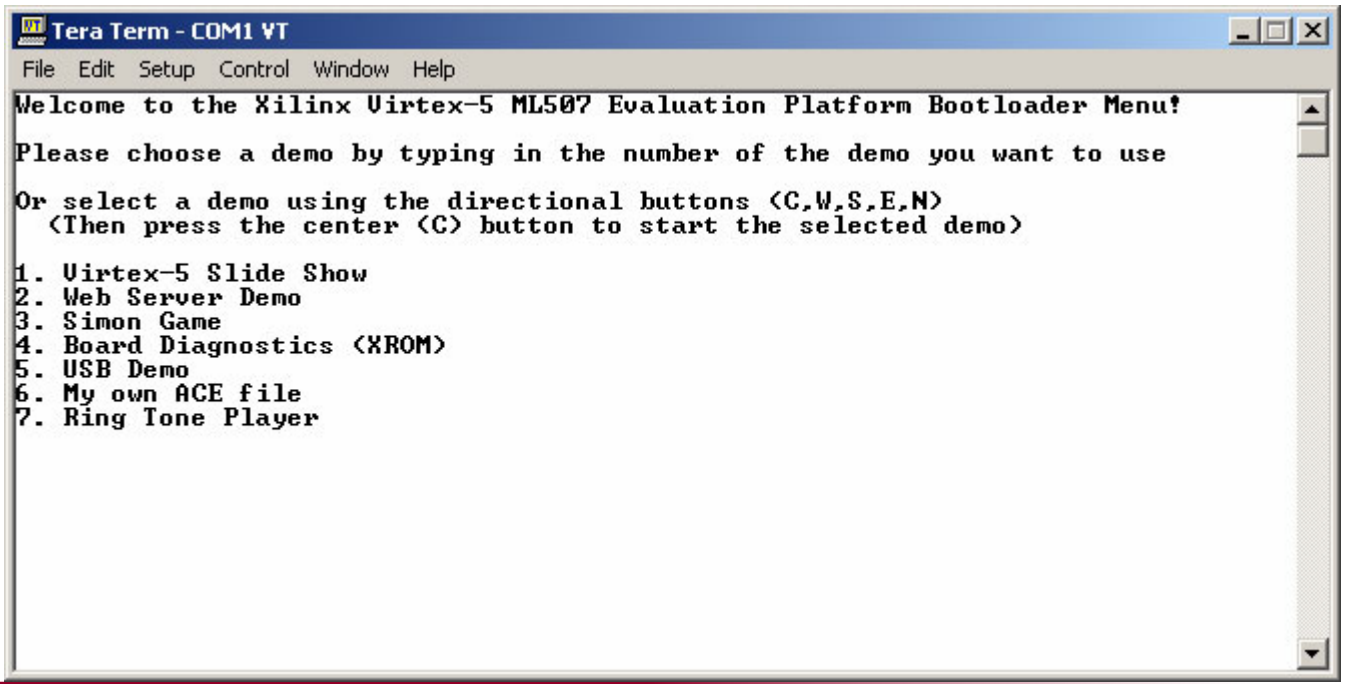
Bootload

- The terminal window also reflects the bootload application
- Use the left/center/right buttons to choose an application or type a number in the terminal window
- After each demo, push the SysACE reset to return to bootload



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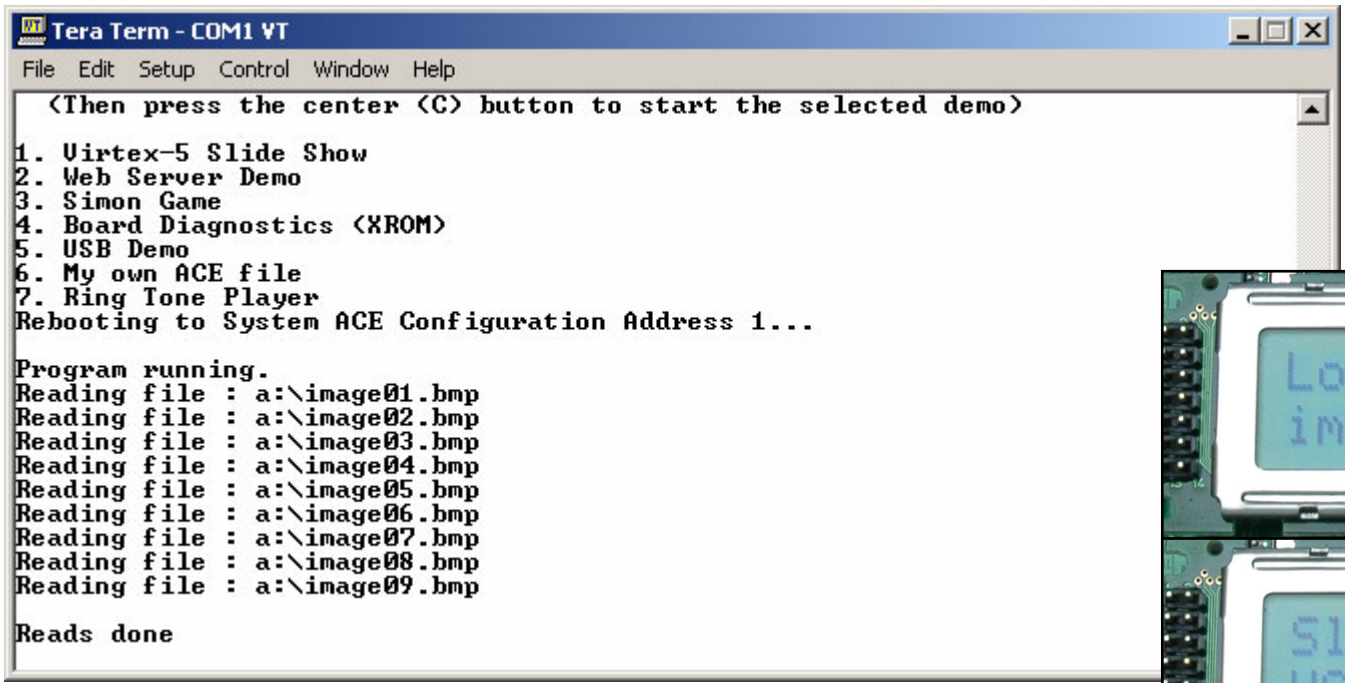
Slideshow

- Type 1, to launch the slideshow application in Configuration 1
- The slideshow loads the presentation into memory then presents it



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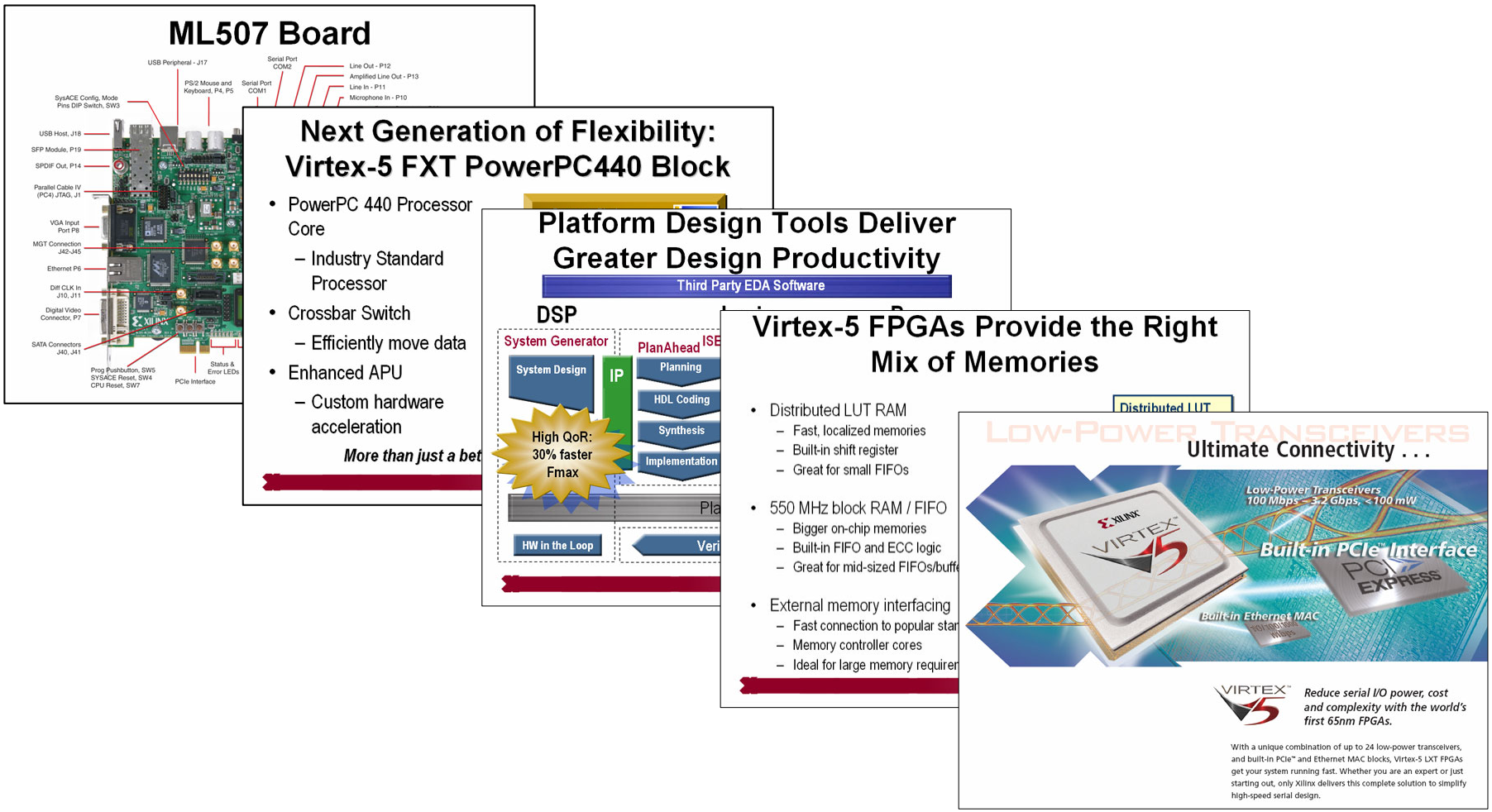
Slideshow

- The slideshow app will present a series of slides on the Monitor:



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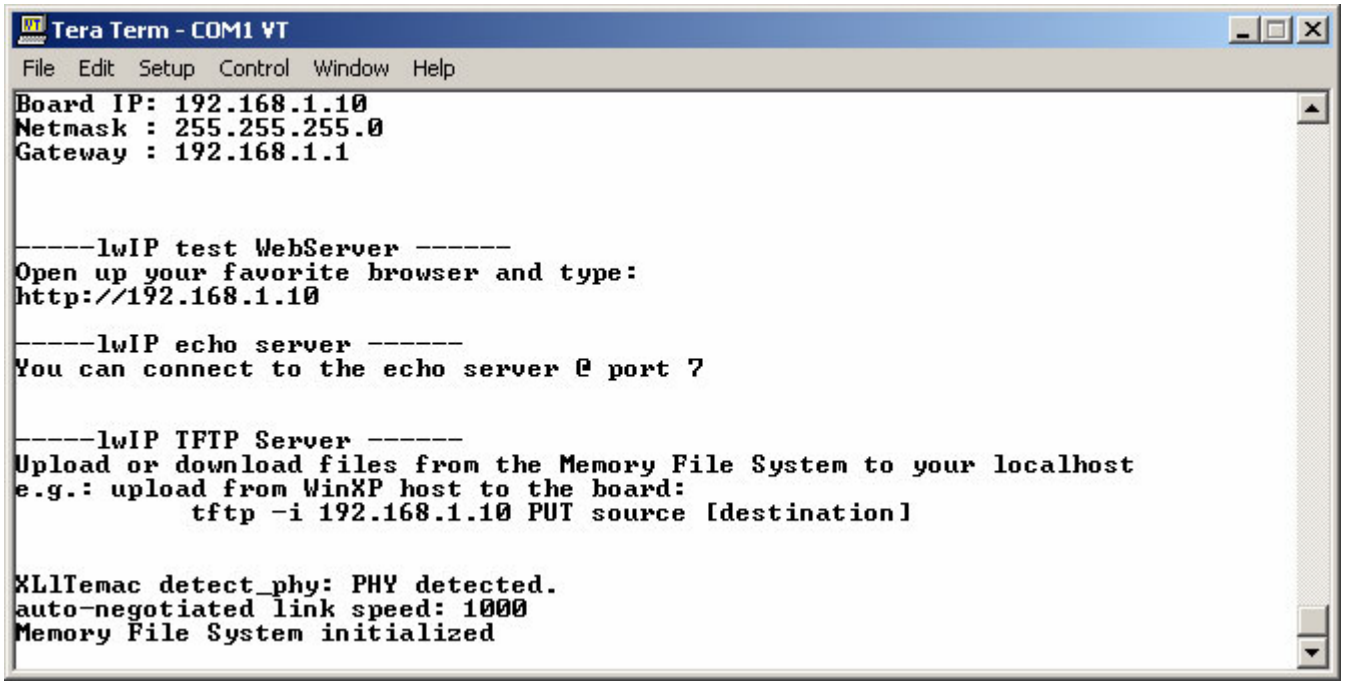
Web Server

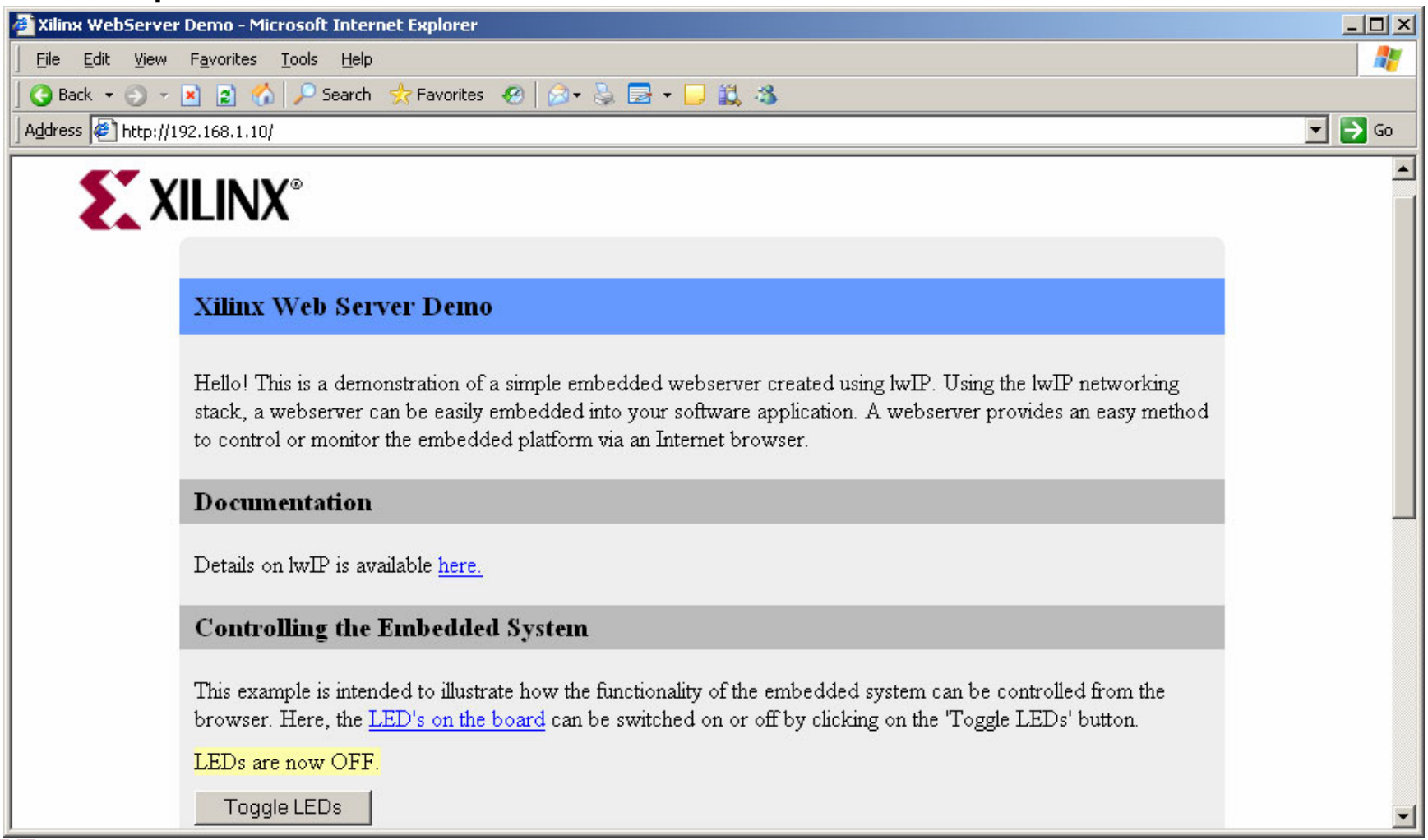
- Type 2, to launch the web server application in Configuration 2
  - **Note:** You may need to turn off your browser's proxy and specify a direct connection to the Internet in your browser options



Note: Host IP is 192.168.1.1, subnet mask is 255.255.255.0

Running the LWIP Demo

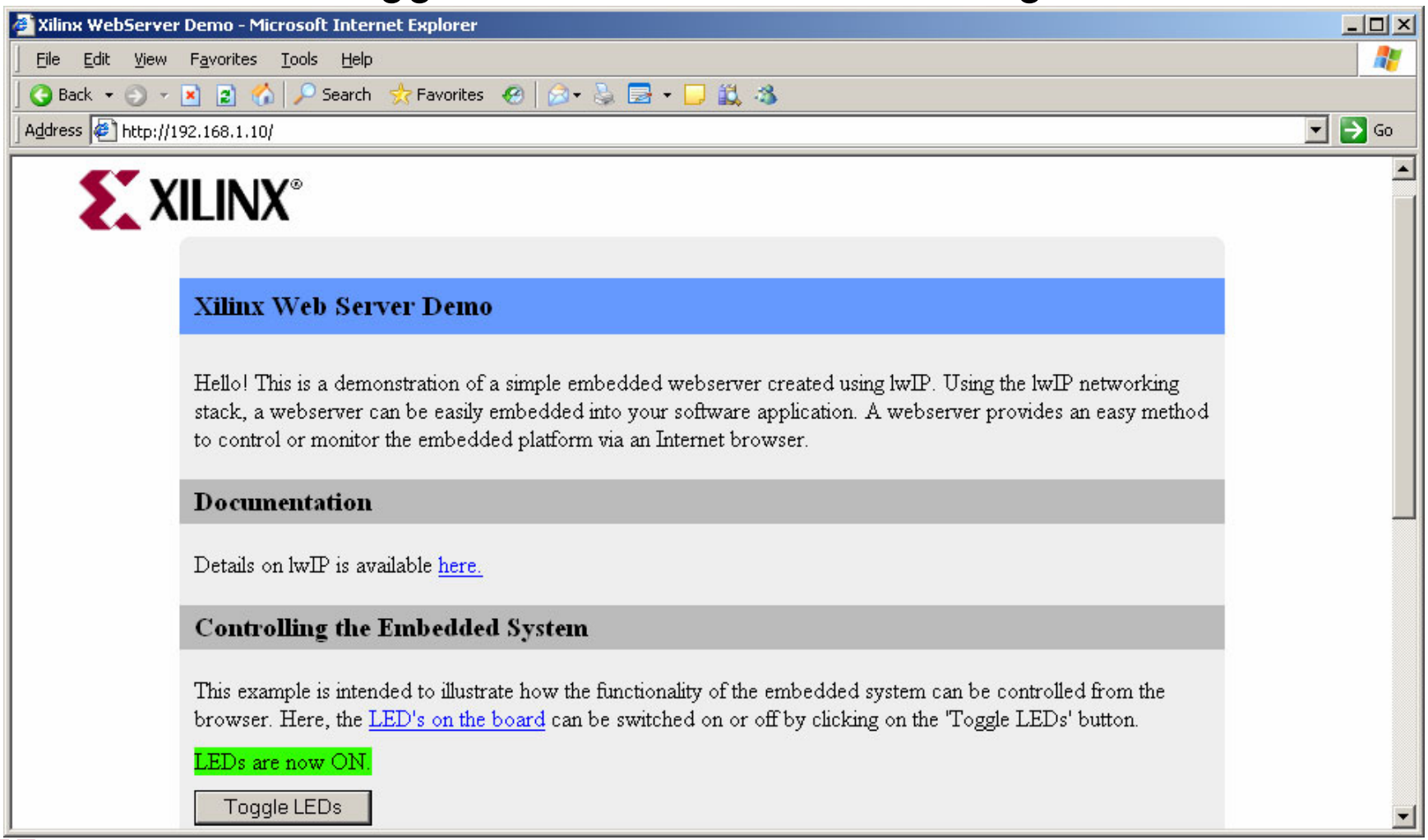
- Open a web browser to address 192.168.1.10



Note: Presentation applies to the ML507

Running the LWIP Demo

- Click the Toggle LEDs button; view change on ML507



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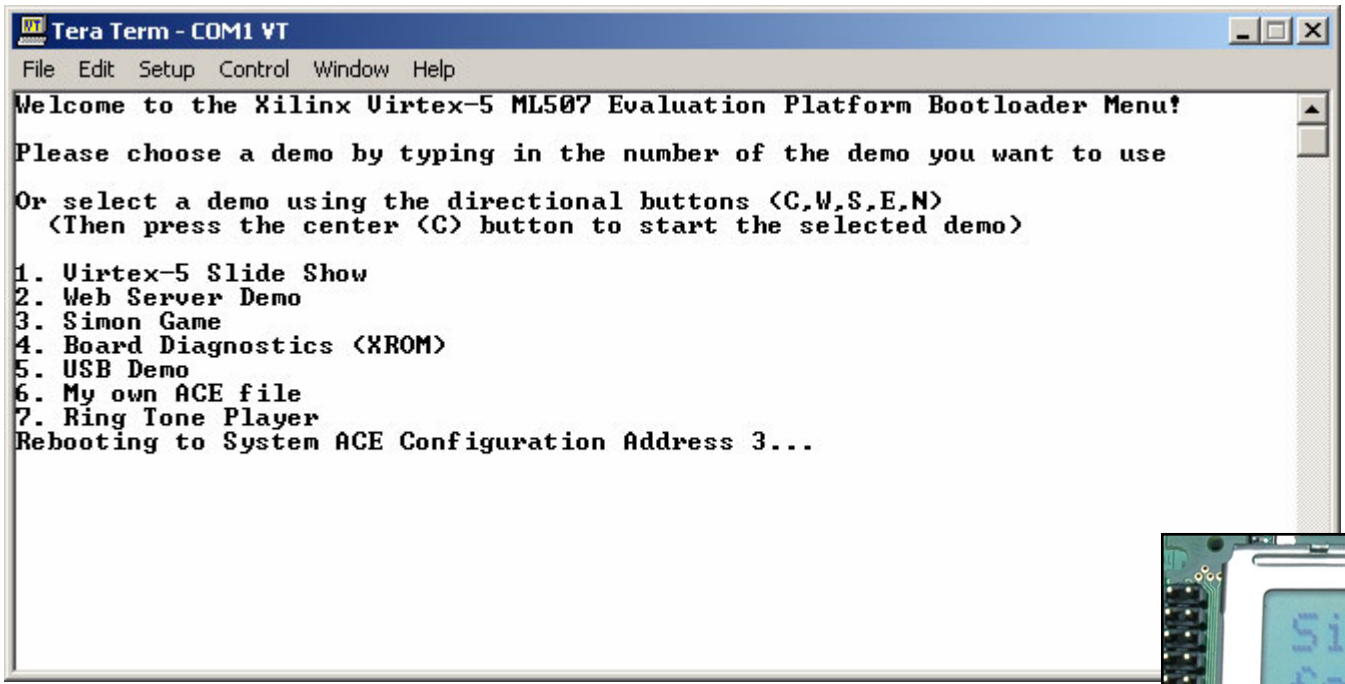
Simon

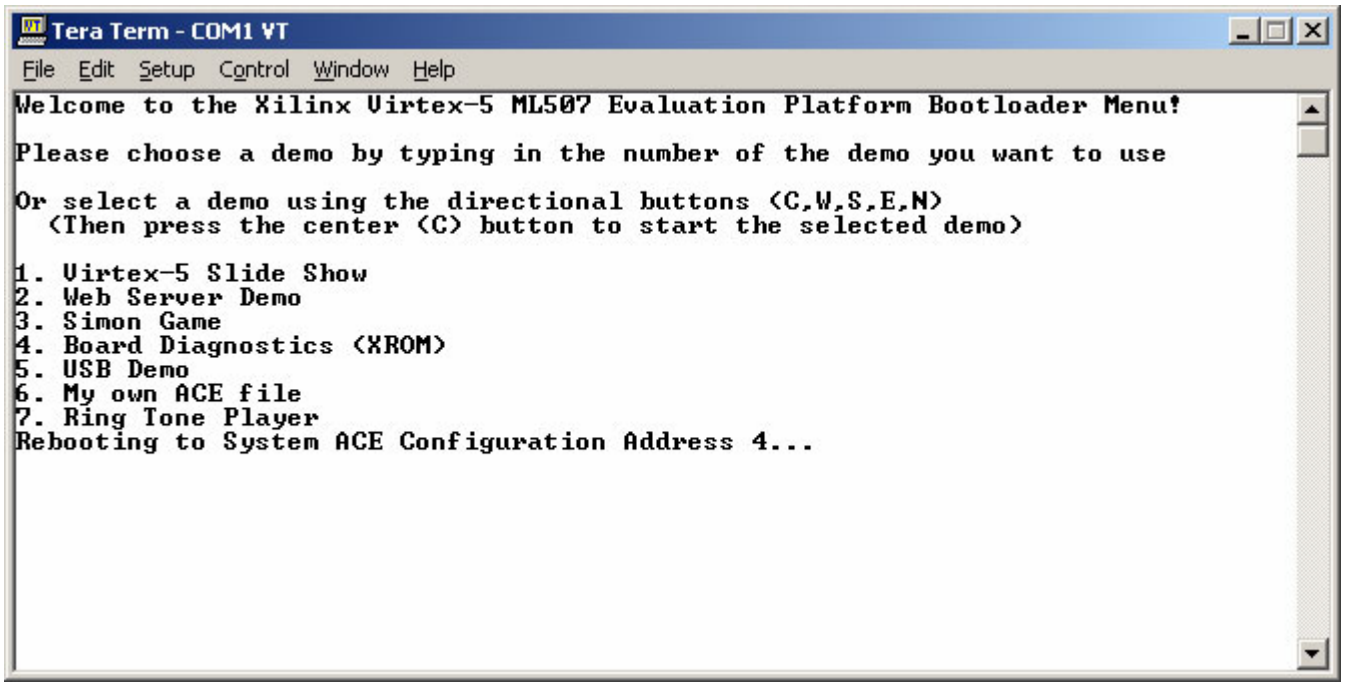
- Type 3, to launch the Simon application in Configuration 3



Note: Presentation applies to the ML507

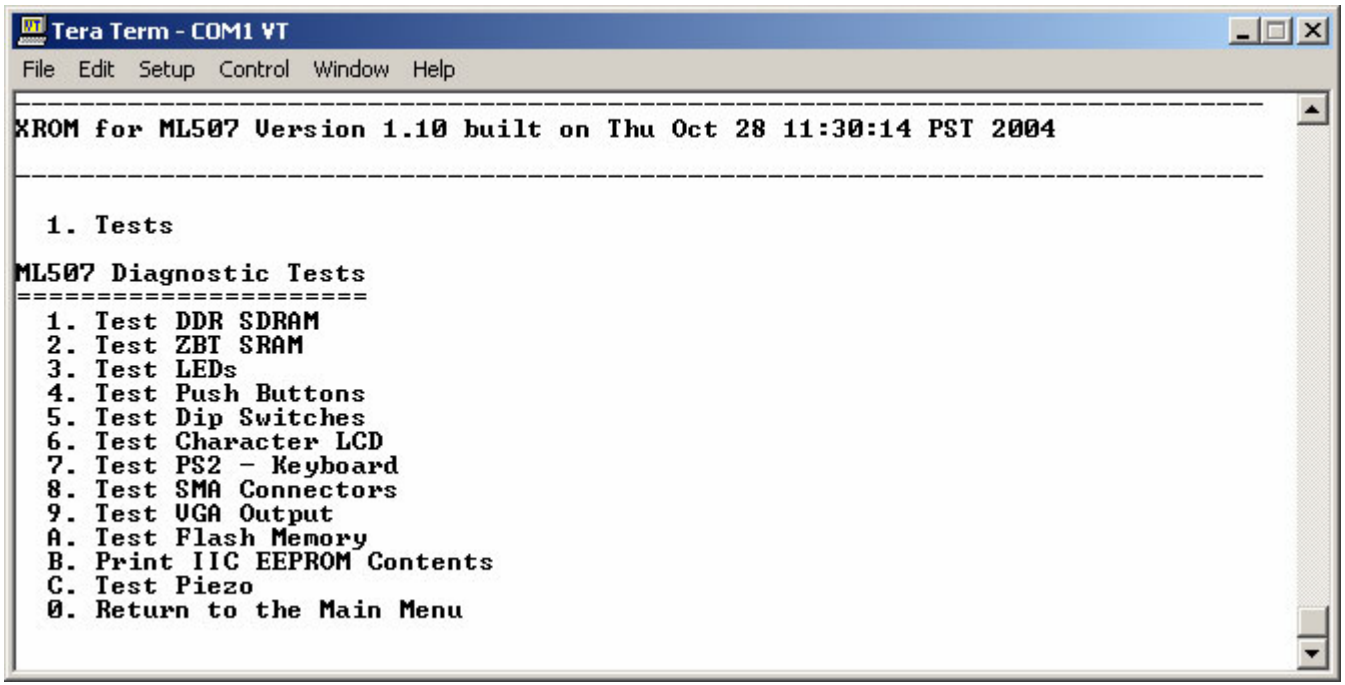
Board Diagnostics

- Type 4, to launch the XROM application in Configuration 4



Board Diagnostics

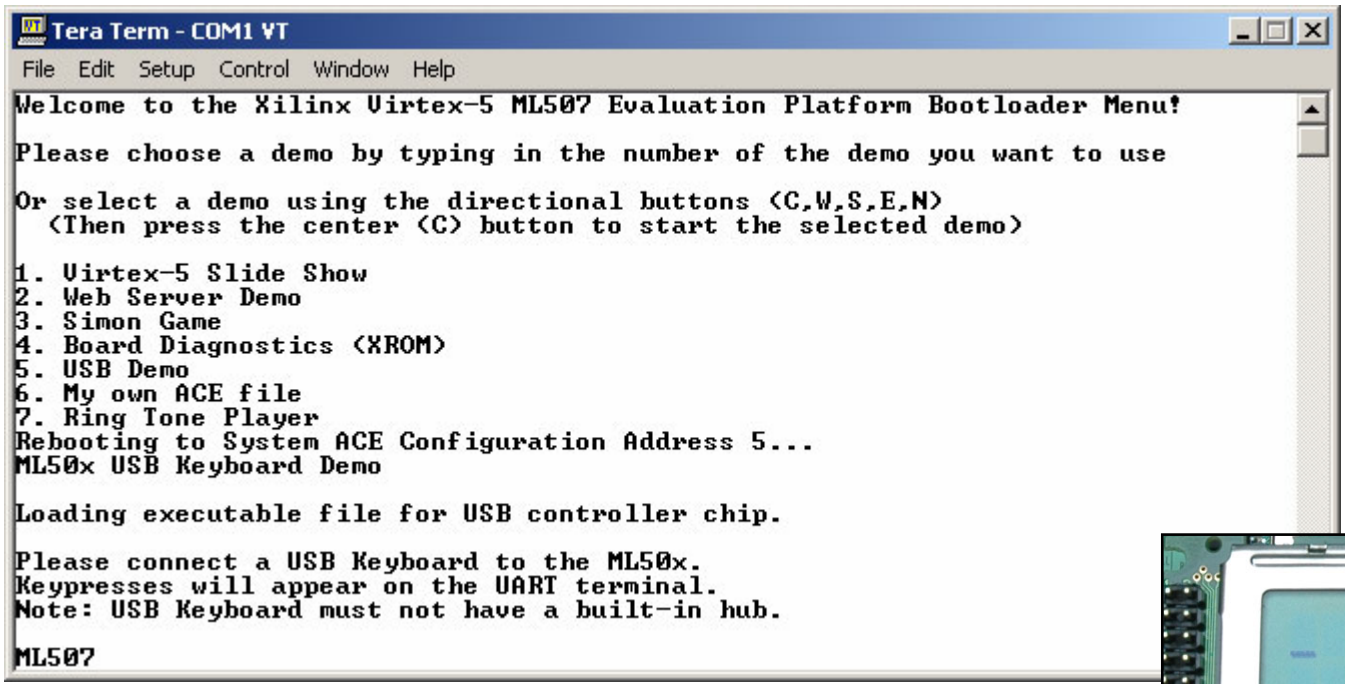
- XROM includes a series of board test routines

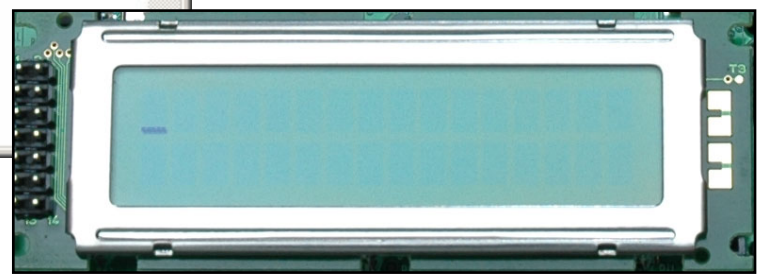


Note: Presentation applies to the ML507

USB Keyboard

- Type 5, to launch the USB Keyboard application in Configuration 5
- Type **ML507** and view results:

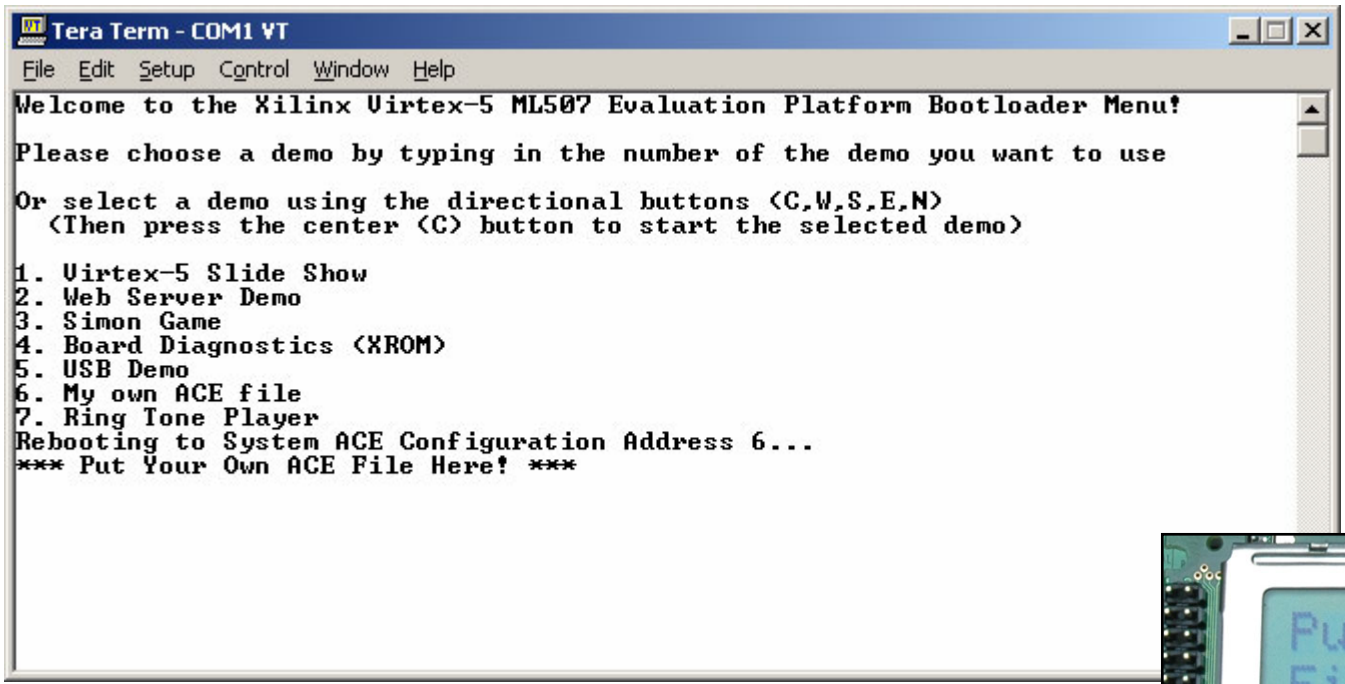




Note: Attach keyboard after demo loads

My ACE

- Type 6, to launch the My ACE application in Configuration 6



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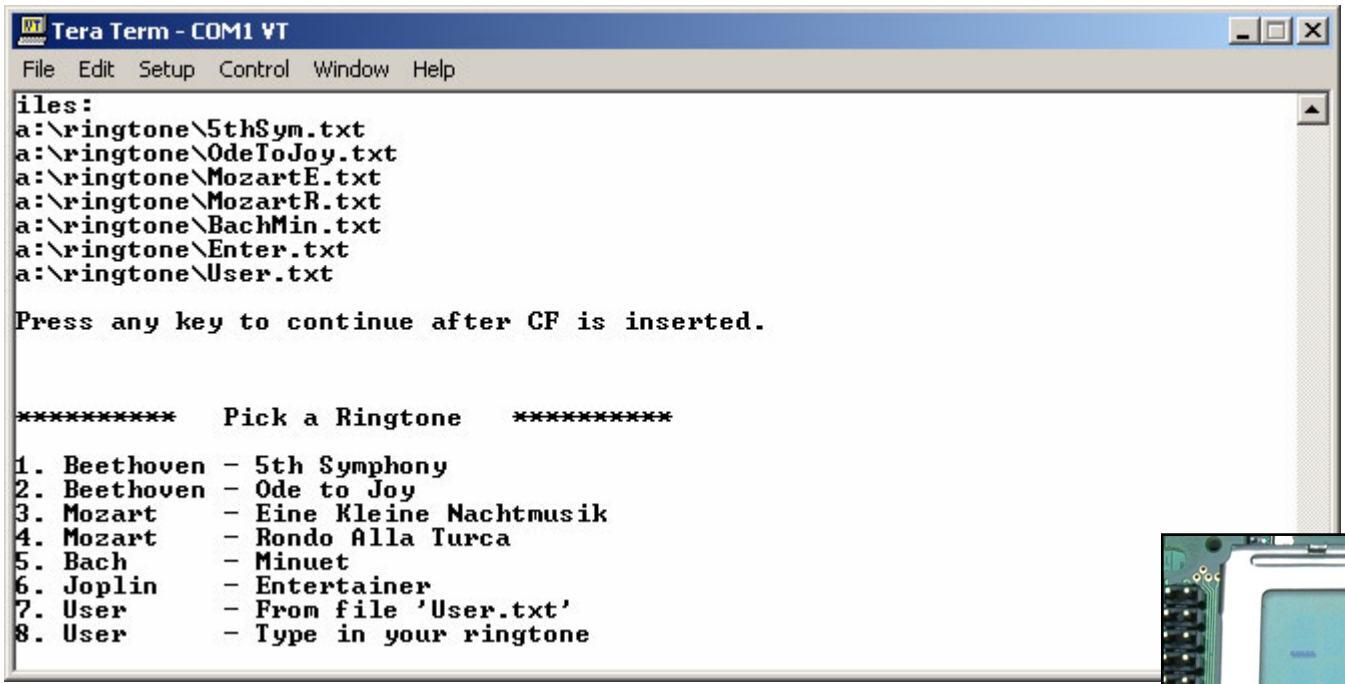
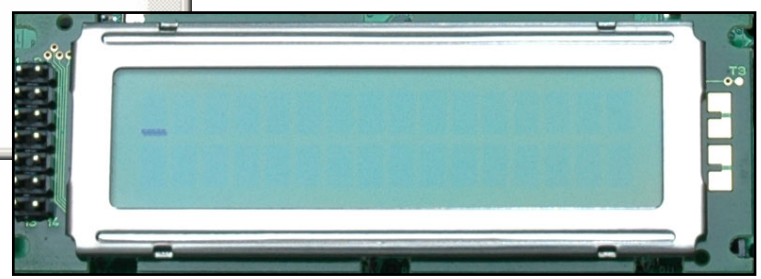
Ringtone

- Type 7, to launch the Ringtone application in Configuration 7
- Press any key then press 1-7 to play a simple melody





Note: Presentation applies to the ML507

Documentation

- Virtex-5
  - Silicon Devices
    http://www.xilinx.com/products/devices.htm
  - Virtex-5 Multi-Platform FPGA
    http://www.xilinx.com/products/virtex5/index.htm
  - Virtex-5 Family Overview: LX, LXT, SXT, and FXT Platforms
    http://www.xilinx.com/support/documentation/data_sheets/ds100.pdf
  - Virtex-5 FPGA DC and Switching Characteristics Data Sheet
    http://www.xilinx.com/support/documentation/data_sheets/ds202.pdf

Documentation

- Virtex-5
  - Virtex-5 FPGA User Guide
    http://www.xilinx.com/support/documentation/user_guides/ug190.pdf
  - Virtex-5 FPGA Configuration User Guide
    http://www.xilinx.com/support/documentation/user_guides/ug191.pdf
  - Virtex-5 System Monitor User Guide
    http://www.xilinx.com/support/documentation/user_guides/ug192.pdf
  - Virtex-5 Packaging and Pinout Specification
    http://www.xilinx.com/support/documentation/user_guides/ug195.pdf

Documentation

- Virtex-5 RocketIO
  - RocketIO GTP Transceivers
    http://www.xilinx.com/products/virtex5/lxt.htm
  - RocketIO GTP Transceiver User Guide – UG196
    http://www.xilinx.com/support/documentation/user_guides/ug196.pdf
  - RocketIO GTX Transceivers
    http://www.xilinx.com/products/virtex5/fxt.htm
  - RocketIO GTX Transceiver User Guide – UG198
    http://www.xilinx.com/support/documentation/user_guides/ug198.pdf

Documentation

- Design Resources
  - ISE Development Tools and IP
    http://www.xilinx.com/ise
  - Integrated Software Environment (ISE) Foundation Resources
    http://www.xilinx.com/ise/logic_design_prod/foundation.htm
  - ISE Manuals
    http://www.xilinx.com/support/software_manuals.htm
  - ISE Development System Reference Guide
    http://toolbox.xilinx.com/docsan/xilinx10/books/docs/dev/dev.pdf
  - ISE Development System Libraries Guide
    http://toolbox.xilinx.com/docsan/xilinx10/books/docs/virtex5_hdl/virtex5_hdl.pdf

Documentation

- Additional Design Resources
  - Customer Support
    http://www.xilinx.com/support
  - Xilinx Design Services:
    http://www.xilinx.com/xds
  - Titanium Dedicated Engineering:
    http://www.xilinx.com/titanium
  - Education Services:
    http://www.xilinx.com/education
  - Xilinx On Board (Board and kit locator):
    http://www.xilinx.com/xob

Documentation

- Platform Studio
  - Embedded Development Kit (EDK) Resources
    http://www.xilinx.com/edk
  - Embedded System Tools Reference Manual
    http://www.xilinx.com/support/documentation/sw_manuals/edk10_est_rm.pdf
  - EDK Concepts, Tools, and Techniques
    http://www.xilinx.com/support/documentation/sw_manuals/edk_ctt.pdf

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Documentation

- PowerPC 440
  - Embedded Processor Block in Virtex-5 FPGAs Reference Guide – UG200
    http://www.xilinx.com/support/documentation/user_guides/ug200.pdf
  - PPC440 Virtex-5 Wrapper – DS621
    http://www.xilinx.com/support/documentation/ip_documentation/ppc440_virtex5.pdf
  - DDR2 Memory Controller for PowerPC 440 Processors – DS567
    http://www.xilinx.com/support/documentation/data_sheets/ds567.pdf

Documentation

- MicroBlaze
  - MicroBlaze Processor
    http://www.xilinx.com/microblaze
  - MicroBlaze Processor Reference Guide – UG081
    http://www.xilinx.com/support/documentation/sw_manuals/mb_ref_guide.pdf

Documentation

- ChipScope Pro
  - ChipScope Pro 10.1i Serial IO Toolkit User Manual
    http://www.xilinx.com/ise/verification/chipscope_pro_siotk_10_1_ug213.pdf
  - ChipScope Pro 10.1i ChipScope Pro Software and Cores User Guide
    http://www.xilinx.com/ise/verification/chipscope_pro_sw_cores_10_1_ug029.pdf

Documentation

- Memory Solutions
  - Demos on Demand – Memory Interface Solutions with Xilinx FPGAs
    http://www.demosondemand.com/clients/xilinx/001/page_new2/index.asp#35
  - Xilinx Memory Corner
    http://www.xilinx.com/products/design_resources/mem_corner
  - Additional Memory Resources
    http://www.xilinx.com/support/software/memory/protected/index.htm
  - Xilinx Memory Interface Generator (MIG) 2.1 User Guide
    http://www.xilinx.com/support/software/memory/protected/ug086.pdf
  - Memory Interfaces Made Easy with Xilinx FPGAs and the Memory Interface Generator
    http://www.xilinx.com/support/documentation/white_papers/wp260.pdf

Documentation

- Ethernet
  - Virtex-5 Embedded Tri-Mode Ethernet MAC Wrapper Data Sheet
    http://www.xilinx.com/support/documentation/ip_documentation/v5_emac_ds550.pdf
  - Virtex-5 Embedded Tri-Mode Ethernet MAC Wrapper Getting Started Guide
    http://www.xilinx.com/support/documentation/ip_documentation/v5_emac_gsg340.pdf
  - Virtex-5 Tri-Mode Ethernet Media Access Controller User Guide
    http://www.xilinx.com/support/documentation/user_guides/ug194.pdf
  - LightWeight IP (lwIP) Application Examples – XAPP1026
    http://www.xilinx.com/support/documentation/application_notes/xapp1026.pdf

Documentation

- PCIe
  - LogiCORE Endpoint Block Plus for PCI Express Data Sheet
    http://www.xilinx.com/support/documentation/ip_documentation/pcie_blk_plus_ds551.pdf
  - LogiCORE Endpoint Block Plus for PCI Express Designs
    http://www.xilinx.com/support/documentation/ip_documentation/pcie_blk_plus_ug341.pdf
  - LogiCORE Endpoint Block Plus Getting Started Guide for PCI Express Designs
    http://www.xilinx.com/support/documentation/ip_documentation/pcie_blk_plus_gsg343.pdf
  - Virtex-5 Integrated Endpoint Block User Guide for PCI Express Designs
    http://www.xilinx.com/support/documentation/user_guides/ug197.pdf

Documentation

- System Generator
  - System Generator for DSP
    http://www.xilinx.com/sysgen
  - Xilinx System Generator for DSP User Guides
    http://www.xilinx.com/support/documentation/sw_manuals/sysgen_bklist.pdf
  - XtremeDSP Design Considerations
    http://www.xilinx.com/support/documentation/user_guides/ug193.pdf

Documentation

- PLB v4.6 IP
  - Processor Local Bus (PLB) v4.6 Data Sheet – DS531
    http://www.xilinx.com/support/documentation/ip_documentation/plb_v46.pdf
  - Multi-Port Memory Controller (MPMC) – DS643
    http://www.xilinx.com/support/documentation/ip_documentation/mpmc.pdf
  - XPS Multi-CHannel External Memory Controller (XPS MCH EMC) – DS575
    http://www.xilinx.com/support/documentation/ip_documentation/xps_mch_emc.pdf
  - XPS LocalLink TEMAC – DS537
    http://www.xilinx.com/support/documentation/ip_documentation/xps_ll_temac.pdf
  - XPS LocalLink FIFO – DS568
    http://www.xilinx.com/support/documentation/ip_documentation/xps_ll_fifo.pdf

Documentation

- PLB v4.6 IP
  - XPS IIC Bus Interface – DS606
    http://www.xilinx.com/support/documentation/ip_documentation/xps_iic.pdf
  - XPS SYSACE (System ACE) Interface Controller – DS583
    http://www.xilinx.com/support/documentation/ip_documentation/xps_sysace.pdf
  - XPS Timer/Counter – DS573
    http://www.xilinx.com/support/documentation/ip_documentation/xps_timer.pdf
  - XPS Interrupt Controller – DS572
    http://www.xilinx.com/support/documentation/ip_documentation/xps_intc.pdf
  - Using and Creating Interrupt-Based Systems Application Note
    http://www.xilinx.com/support/documentation/application_notes/xapp778.pdf

Documentation

- PLB v4.6 IP
  - XPS General Purpose Input/Output (GPIO) – DS569
    http://www.xilinx.com/support/documentation/ip_documentation/xps_gpio.pdf
  - XPS External Peripheral Controller (EPC) – DS581
    http://www.xilinx.com/support/documentation/ip_documentation/xps_epc.pdf
  - XPS 16550 UART – DS577
    http://www.xilinx.com/support/documentation/ip_documentation/xps_uart16550.pdf
  - PLBV46 to DCR Bridge Data Sheet – DS578
    http://www.xilinx.com/support/documentation/ip_documentation/plbv46_dcr_bridge.pdf

Documentation

- IP
  - Local Memory Bus Data Sheet – DS445
    http://www.xilinx.com/support/documentation/ip_documentation/lmb_v10.pdf
  - Block RAM Block Data Sheet – DS444
    http://www.xilinx.com/support/documentation/ip_documentation/bram_block.pdf
  - Microprocessor Debug Module Data Sheet – DS641
    http://www.xilinx.com/support/documentation/ip_documentation/mdm.pdf
  - LMB Block RAM Interface Controller Data Sheet – DS452
    http://www.xilinx.com/support/documentation/ip_documentation/lmb_bram_if_cntlr.pdf
  - Device Control Register Bus (DCR) v2.9 Data Sheet – DS406
    http://www.xilinx.com/support/documentation/ip_documentation/dcr_v29.pdf

Documentation

- IP
  - JTAGPPC Controller Data Sheet – DS298
    http://www.xilinx.com/support/documentation/ip_documentation/jtagppc_cntlr.pdf
  - Processor System Reset Module Data Sheet – DS402
    http://www.xilinx.com/support/documentation/ip_documentation/proc_sys_reset.pdf
  - Clock Generator v2.0 Data Sheet – DS614
    http://www.xilinx.com/support/documentation/ip_documentation/clock_generator.pdf
  - Util Bus Split Operation Data Sheet – DS484
    http://www.xilinx.com/support/documentation/ip_documentation/util_bus_split.pdf

Documentation

- ML505/506/507
  - ML505 Overview
    http://www.xilinx.com/ml505
  - ML506 Overview
    http://www.xilinx.com/ml506
  - ML507 Overview
    http://www.xilinx.com/ml507
  - ML505/506/507 Evaluation Platform User Guide – UG347
    http://www.xilinx.com/support/documentation/boards_and_kits/ug347.pdf
  - ML505/506/507 Getting Started Tutorial – UG348
    http://www.xilinx.com/support/documentation/boards_and_kits/ug348.pdf
  - ML505/506/507 Reference Design User Guide – UG349
    http://www.xilinx.com/support/documentation/boards_and_kits/ug349.pdf

Documentation

- ML505/506/507
  - ML505/506/507 Schematics

    http://www.xilinx.com/support/documentation/boards_and_kits/ml50x_schematics.pdf
  - ML505/506/507 Bill of Material

    http://www.xilinx.com/support/documentation/boards_and_kits/ml505_501_bom.xls