

# **Spartan-3A DSP FPGA Video Starter Kit**

## ***Quick Start Guide***

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## Revision History

The following table shows the revision history for this document.

Date	Version	Revision
10/29/07	1.0	Initial Xilinx release.
02/08/08	1.1	Addition to “ <a href="#">Video Starter Kit Contents.</a> ” Updated <a href="#">Figure 1-1</a> .

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# *Spartan-3A DSP FPGA Video Starter Kit*

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## Overview

This guide provides a brief overview of the Spartan™-3A DSP FPGA Video Starter Kit (VSK) and how to run a set of pre-defined demonstration designs.

The VSK enables the user to develop a wide range of video processing systems using a Xilinx® Spartan-3A DSP XC3SD3400A device, using a number of digital and analog video interfaces.

All revisions of the user guides and reference designs included with the kit are provided on the Xilinx website. It is strongly recommended that the user periodically check the Spartan-3A DSP Video Starter Kit [web page](#) to obtain the latest information and reference designs.

## Video Starter Kit Contents

The Video Starter Kit provides a Spartan-3A DSP FPGA Development Board populated with an FMC-Video daughter card. It is shipped with all the necessary power supplies, basic cables, and software needed for proper operation.

The following list of hardware is included in the Video Starter Kit:

- 1 – Spartan-3A DSP FPGA Development Board
- 1 – FMC-Video daughter card
- 1 – VGA Image Sensor Camera
- 1 – Power adapter and locale specific adapter
- 1 – S-Video cable
- 1 – RCA composite cable
- 1 – CAT 5 Ethernet crossover cable
- 1 – CAT 6 Ethernet patch cable
- 1 – DVI cable
- 1 – VGA cable
- 1 – Compact Flash card with boot image loaded
- 1 – Null modem cable
- 1 – Analog VGA to DVI adapter
- 1 – CD-ROM disk
- 1 – System Generator™ CD-ROM
- 1 – DVD for EDK/ISE

## Running the Quick Start Demos

Users can quickly experience some of the capabilities of the VSK by loading the configuration bitstreams included on the System Ace™ technology Compact Flash memory card. The configuration bitstreams were fully compiled for the three reference designs provided with the kit:

- DVI Pass-Through Demo
- DVI Frame-Buffer Demo
- Camera Frame-Buffer Demo

To run the demos, set up the VSK as follows:

1. As shown in [Figure 1-1](#), set the power switch (S1) to OFF and insert the Compact Flash (CF) memory card into the Compact Flash slot (P7) on the board.

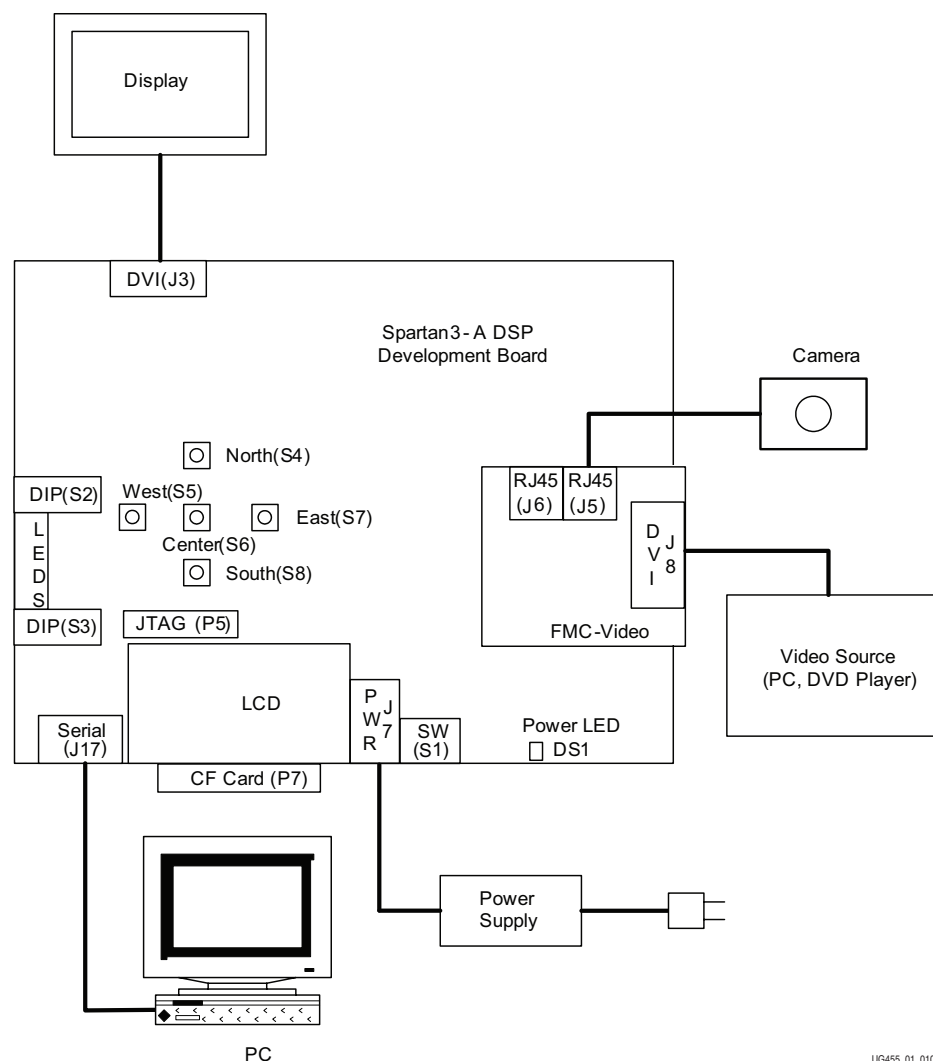


Figure 1-1: Video Starter Kit Physical Setup

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2. Verify that the boot mode DIP switch (S2) is set to 01010111 (arranged switch 1-8, 1 = ON). This allows a bootloader program to be loaded from the CF card by the System Ace controller. After the bootloader program has been loaded, the user is able to select a design to run by using the push buttons on the base board.
3. Remove the jumper from JP6 on the Spartan-3A DSP FPGA Development Board. This allows the on-board PLL to be programmed by the I<sup>2</sup>C bus.
4. To connect the LVDS RGB camera to the FMC-Video card using the supplied CAT6 cable, first plug one end into the Camera #1 RJ45 connector (J5) on the FMC-Video card. Then plug the other end of the CAT6 cable into the RJ45 connector on the LVDS RGB camera.

**Caution!** While the FMC-Video camera connector looks like a standard Ethernet connector, it is not compatible with Ethernet, and ONLY works with the LVDS RGB camera provided with the VSK. You may damage your equipment by connecting anything other than the VSK camera using the provided CAT 6 cable.

5. Connect a DVI monitor to the DVI output connector (J3) on the Spartan-3A DSP FPGA Development Board.

**Note:** A VGA display may also be used by connecting the VGA cable to a VGA-to-DVI adapter that is then plugged into the DVI output connector (J3) on the Spartan-3A DSP FPGA Development Board.

6. Connect a DVI source to the DVI input connector (J8) on the FMC-Video.

**Note:** A VGA source may also be used by connecting the VGA cable to a VGA-to-DVI adapter that is then plugged into the DVI input connector (J8) on the FMC-Video.

7. Connect a host PC to the Spartan-3A DSP FPGA Development Board with a 9-pin RS232 serial Null Modem cable. Connect one end of the cable to the RS232 Port (J17) on the Spartan-3A DSP FPGA Development Board and the other end of the cable to the serial port of the host PC.
  8. Start and configure a hyper-terminal session on the host PC for 9600 baud, 8-bit, no parity, and no flow control. You will be able to interact with the demo through the hyper-terminal in real-time.
  9. Connect the power supply to the Spartan-3A DSP FPGA Development Board power supply input (J7).
  10. Switch the power switch (S1) on the Spartan-3A DSP FPGA Development Board to ON. The Power Good LED (DS1) on the Spartan-3A DSP FPGA Development Board should be illuminated, indicating that power is available.
  11. Use the North (S4) and South (S8) push buttons on the Spartan-3A DSP FPGA Development Board to scroll through the demo selections and choose a demo to load. You should see this displayed on both the monitor and LCD display (DS21) on the Spartan-3A DSP FPGA Development Board.
  12. Use the Center (S6) push button to load the demo. To reload the bootloader, press the Spartan-3A DSP FPGA Development Board push button labeled Reset ACE (S9).
- Note:** For the DVI-based demonstrations, the video source used to drive the VSK should be set to a resolution of 640x480P for proper operation. You should see the output of the video source displayed on the display monitor.

Each demo provides a series of menus, via the HyperTerminal program configured in step 7 above, that allow you to exercise all of the capabilities of the design. See the VSK User Guide ([UG456](#)) for more information about each of the demos.

## Technical Support

Xilinx support is available at: [www.xilinx.com/support](http://www.xilinx.com/support).