

DK-LM3S9B96-FPGA README FIRST

Stellaris[®] FPGA Expansion Board

The Stellaris[®] FPGA expansion board (DK-LM3S9B96-FPGA) provides an easy way to evaluate the capabilities of the Stellaris External Peripheral Interface (EPI) using the highly integrated DK-LM3S9B96 development platform.

FPGA Expansion Board

Requirements

- You have a DK-LM3S9B96 development platform
- You have the Stellaris LM3S9B96 Development Kit Documentation and Software CD

Recommendations

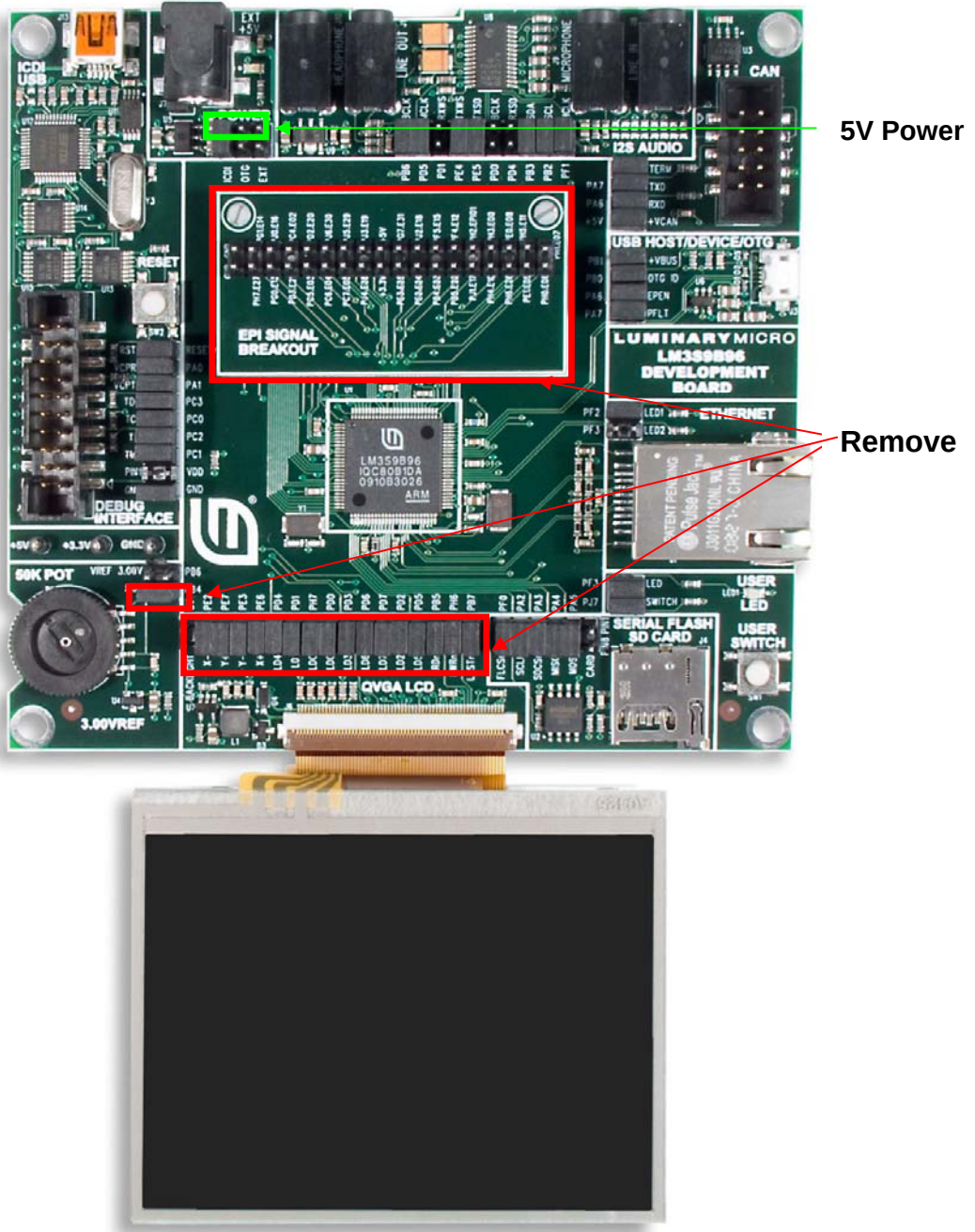
- You have loaded an SD Card in the DK-LM3S9B96's SD card slot. This is only necessary for the "Save Image" function.
- A JTAG Programming cable that supports Xilinx[®] Spartan3 devices.

Board Set-Up

The FPGA expansion board interfaces to the DK-LM3S9B96 development board via the Extended Peripheral Interface connector and the LCD connection header. Before installing the FPGA expansion board, you must remove the jumpers from JP16-31 in the QVGA LCD section of the development board. If you do not remove the jumpers, the FPGA expansion board cannot be installed on the DK-LM3S9B96 development board. The jumper POT/PB4 at the bottom left of the board must also be removed. See Figure 1. DK-LM3S9B96 Development Board.

With the jumpers removed, you must then remove any expansion board that is currently fitted to the expansion connector. Boards that may be installed in this location are the SDRAM daughter board, the EPI Signal Breakout board or the Flash/SRAM/LCD daughter board. Figure 1. DK-LM3S9B96 Development Board

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Once the jumpers and expansion boards have been removed, fit the FPGA expansion board onto the DK-LM3S9B96 development board. There is a male EPI expansion connector on the bottom side of the FPGA expansion board that connects to the female EPI expansion

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connector of the DK-LM3S9B96 development board (J2). Since the FPGA expansion board also interfaces to the LCD, there are holes to fit the LCD header pins through the PCB.

Once the expansion board is connected to the EPI and LCD interfaces, use the included jumper wire to provide 5 V power to J5 (immediately above the JTAG port on the daughter board) from any of the three upper pins immediately below and to the right of the “EXT +5V” connector on the development board (as shown in Figure 1).

VideoCap Application

The “videocap” example application illustrates communication with the FPGA and is provided in the StellarisWare® software release for the DK-LM3S9B96 development kit. The FPGA expansion board’s configuration PROM comes pre-loaded with the binary image required by the videocap application, so no FPGA-specific tools are required.

If you installed StellarisWare in the default installation directory, you can find the videocap application source in the following location:

C:\StellarisWare\boards\dk-lm39b96\

Lower level subdirectories contain binaries for the application built with each supported toolchain. These binaries can be downloaded to the dk-lm3s9b96 board using the LM Flash Programmer tool. When you run the videocap application, it automatically connects to the FPGA and begins displaying the camera image on the LCD.

You can find the videocap application in version 5879 or later of the StellarisWare distribution. Download the latest version of StellarisWare from the ti.com/stellaris web site at

<http://focus.ti.com/mcu/docs/mcuorphan.tsp?contentId=87903>

The application has the following functions:

- **Pan / Zoom**
Touch and Drag on the touchscreen to pan the image. Click the “Scale” button to toggle between 2x scaled view and full screen view.
- **Save Image to Disk**
If an SD Card is installed, click the “Freeze” and then “Save” buttons to save the camera image as a .bmp file.
- **Image Quality Controls**
The Controls panel allows for real-time adjustment of the brightness, saturation, and contrast of the image.

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References

The following references are included on the Stellaris LM3S9B96 Development Kit Documentation and Software CD and are also available for download at the www.ti.com/stellaris web site:

- *Stellaris LM3S9B96 Development Kit User's Manual* (publication number DK-LM3S9B96)
- *DK-LM3S9B96 Firmware Development Package User's Guide* (publication number SW-DK-LM3S9B96-UG)
- DK-LM3S9B96 Firmware Development Package (order number SW-DK-LM3S9B96)
- *Stellaris[®] Peripheral Driver Library User's Guide* (publication number SW-DRL-UG)
- *Stellaris LM3S9B96 Microcontroller Data Sheet* (publication number DS-LM3S9B96)

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Texas Instruments
108 Wild Basin Rd., Suite 350
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