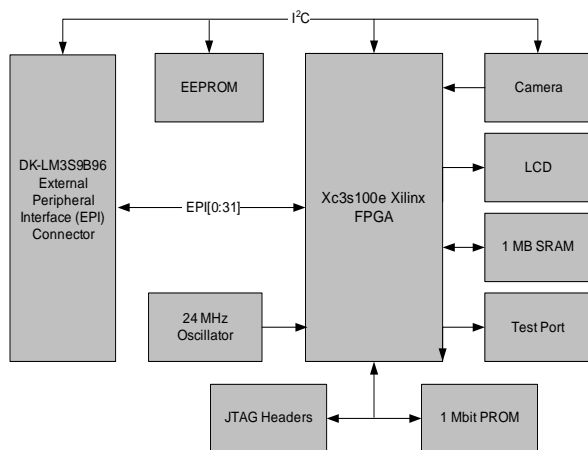


# Stellaris® FPGA Expansion Board for DK-LM3S9B96

The Stellaris® FPGA Expansion Board (DK-LM3S9B96-FPGA) from Texas Instruments is an optional expansion board which connects directly to the External Peripheral Interface (EPI) port of the Stellaris DK-LM3S9B96 development board to demonstrate the machine-to-machine (M2M), high-bandwidth, parallel interface capability of the Stellaris microcontroller. Right out of the box, users are able to control and display the FPGA expansion board's video on the DK-LM3S9B96 development board's large, 3.5" touchscreen display.

Users can explore and prototype the EPI port's many options and select the one best for their application by testing their own code on the Xilinx Spartan 3E FPGA.

The DK-LM3S9B96 development board (sold separately) provides a complete platform for evaluating the LM3S9000 series of Stellaris microcontrollers, featuring extensive connectivity options such as 10/100 Ethernet, Controller Area Network (CAN), Universal Serial Bus (USB) Full Speed On-The-Go, and Inter-IC Sound (I<sup>2</sup>S).



## Features

The FPGA expansion board has the following features:

- Xilinx Spartan 3E FPGA with 100k system gates
- 1/13" CMOS VGA (640x480) Color Camera Module
- 1 Megabyte of asynchronous 10 nsec SRAM for graphics/video buffers
- 1 kilobit of I<sup>2</sup>C memory for storing configuration data
- Standard 1 x 6 and 2 x 5 headers for FPGA programming
- 8 FPGA test pads provide 5 inputs and 3 I/Os for the user

- EPI operation in GPM D16-A12 mode at 50 MHz
- Video software features including:
  - Color, motion video display at QVGA (320 x 240) resolution (full screen on the DK-LM3S9B96 LCD display)
  - Graphical on-screen-display (OSD) overlaid on moving video
  - Widget-based touchscreen user interface
  - Freeze/resume motion with screen capture to SDCard in Windows bitmap (BMP) format
  - Brightness, saturation, and contrast picture controls
  - Mirror and flip picture control



## Package Contents

Along with the DK-LM3S9B96 Development Kit, the FPGA expansion board provides the tools engineers need to develop and prototype embedded applications right out of the box including:

- Stellaris® DK-LM3S9B96-FPGA Expansion Board with Xilinx Spartan FPGA
- Omnivision Color VGA image sensor

## Ordering Information

Product Number	Description
DK-LM3S9B96-FPGA	Stellaris® FPGA Expansion Board for DK-LM3S9B96
DK-LM3S9B96	Stellaris® LM3S9B96 Microcontroller Development Kit (sold separately)

Texas Instruments • 108 Wild Basin, Suite 350 • Austin, TX 78746  
<http://www.ti.com/stellaris>

Copyright © 2010 Texas Instruments, Inc. All rights reserved. Stellaris and StellarisWare are registered trademarks of Texas Instruments. ARM and Thumb are registered trademarks, and Cortex is a trademark of ARM Limited. Other names and brands may be claimed as the property of others.



## IMPORTANT NOTICE

Texas Instruments Incorporated and its subsidiaries (TI) reserve the right to make corrections, modifications, enhancements, improvements, and other changes to its products and services at any time and to discontinue any product or service without notice. Customers should obtain the latest relevant information before placing orders and should verify that such information is current and complete. All products are sold subject to TI's terms and conditions of sale supplied at the time of order acknowledgment.

TI warrants performance of its hardware products to the specifications applicable at the time of sale in accordance with TI's standard warranty. Testing and other quality control techniques are used to the extent TI deems necessary to support this warranty. Except where mandated by government requirements, testing of all parameters of each product is not necessarily performed.

TI assumes no liability for applications assistance or customer product design. Customers are responsible for their products and applications using TI components. To minimize the risks associated with customer products and applications, customers should provide adequate design and operating safeguards.

TI does not warrant or represent that any license, either express or implied, is granted under any TI patent right, copyright, mask work right, or other TI intellectual property right relating to any combination, machine, or process in which TI products or services are used. Information published by TI regarding third-party products or services does not constitute a license from TI to use such products or services or a warranty or endorsement thereof. Use of such information may require a license from a third party under the patents or other intellectual property of the third party, or a license from TI under the patents or other intellectual property of TI.

Reproduction of TI information in TI data books or data sheets is permissible only if reproduction is without alteration and is accompanied by all associated warranties, conditions, limitations, and notices. Reproduction of this information with alteration is an unfair and deceptive business practice. TI is not responsible or liable for such altered documentation. Information of third parties may be subject to additional restrictions.

Resale of TI products or services with statements different from or beyond the parameters stated by TI for that product or service voids all express and any implied warranties for the associated TI product or service and is an unfair and deceptive business practice. TI is not responsible or liable for any such statements.

TI products are not authorized for use in safety-critical applications (such as life support) where a failure of the TI product would reasonably be expected to cause severe personal injury or death, unless officers of the parties have executed an agreement specifically governing such use. Buyers represent that they have all necessary expertise in the safety and regulatory ramifications of their applications, and acknowledge and agree that they are solely responsible for all legal, regulatory and safety-related requirements concerning their products and any use of TI products in such safety-critical applications, notwithstanding any applications-related information or support that may be provided by TI. Further, Buyers must fully indemnify TI and its representatives against any damages arising out of the use of TI products in such safety-critical applications.

TI products are neither designed nor intended for use in military/aerospace applications or environments unless the TI products are specifically designated by TI as military-grade or "enhanced plastic." Only products designated by TI as military-grade meet military specifications. Buyers acknowledge and agree that any such use of TI products which TI has not designated as military-grade is solely at the Buyer's risk, and that they are solely responsible for compliance with all legal and regulatory requirements in connection with such use.

TI products are neither designed nor intended for use in automotive applications or environments unless the specific TI products are designated by TI as compliant with ISO/TS 16949 requirements. Buyers acknowledge and agree that, if they use any non-designated products in automotive applications, TI will not be responsible for any failure to meet such requirements.

Following are URLs where you can obtain information on other Texas Instruments products and application solutions:

<b>Products</b>		<b>Applications</b>	
Amplifiers	<a href="http://amplifier.ti.com">amplifier.ti.com</a>	Audio	<a href="http://www.ti.com/audio">www.ti.com/audio</a>
Data Converters	<a href="http://dataconverter.ti.com">dataconverter.ti.com</a>	Automotive	<a href="http://www.ti.com/automotive">www.ti.com/automotive</a>
DLP® Products	<a href="http://www.dlp.com">www.dlp.com</a>	Communications and Telecom	<a href="http://www.ti.com/communications">www.ti.com/communications</a>
DSP	<a href="http://dsp.ti.com">dsp.ti.com</a>	Computers and Peripherals	<a href="http://www.ti.com/computers">www.ti.com/computers</a>
Clocks and Timers	<a href="http://www.ti.com/clocks">www.ti.com/clocks</a>	Consumer Electronics	<a href="http://www.ti.com/consumer-apps">www.ti.com/consumer-apps</a>
Interface	<a href="http://interface.ti.com">interface.ti.com</a>	Energy	<a href="http://www.ti.com/energy">www.ti.com/energy</a>
Logic	<a href="http://logic.ti.com">logic.ti.com</a>	Industrial	<a href="http://www.ti.com/industrial">www.ti.com/industrial</a>
Power Mgmt	<a href="http://power.ti.com">power.ti.com</a>	Medical	<a href="http://www.ti.com/medical">www.ti.com/medical</a>
Microcontrollers	<a href="http://microcontroller.ti.com">microcontroller.ti.com</a>	Security	<a href="http://www.ti.com/security">www.ti.com/security</a>
RFID	<a href="http://www.ti-rfid.com">www.ti-rfid.com</a>	Space, Avionics & Defense	<a href="http://www.ti.com/space-avionics-defense">www.ti.com/space-avionics-defense</a>
RF/IF and ZigBee® Solutions	<a href="http://www.ti.com/lprf">www.ti.com/lprf</a>	Video and Imaging	<a href="http://www.ti.com/video">www.ti.com/video</a>
		Wireless	<a href="http://www.ti.com/wireless-apps">www.ti.com/wireless-apps</a>

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265  
Copyright © 2010, Texas Instruments Incorporated

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[Texas Instruments:](#)

[DK-LM3S9B96-FPGA](#)