

VisionMOS FPGA Development Kit

Overview

The VM-A004 FPGA Development Kit (FDK) is a system designed to be the basis of FPGA engineering and prototyping. The core of the system is an Altera EP3C10 Cyclone III FPGA, and a powerful set of tools that enable bulk data capture, and control through a USB 2.0 HS interface to a PC. The kit is further enhanced with a PC example application and application programming interface (API).

Users of the IDK will find that it very versatile, with the ability to create PC or embedded new functions. It comes with source code and examples to get a user started, and can be used for system control right out of the box. All developmental functions are enabled right over the single PC to USB connection from new function coding, compiling, downloading of firmware, testing & debug, and user functionality.



The IDK comes with a customizable hardware interface, which can be designed by the user or VisionMOS engineering to meet specific needs. Options include an image sensor, or other sensor / data generator. A common interface between the custom port and the FPGA enable simple modifications to support a variety of applications.

The main board of the system has an integrated USB 2.0 microcontroller, which handles both bi-directional communication and high speed bulk data handling. A user manual included in the kit allows the user to understand and interact with various USB commands for control of the system.

Features

- Versatile USB Communications Controller
 - Micro controller USB communications
 - Matching PC side driver
 - Communication structured language
 - High speed data capture
 - Download of FPGA and other data
 - Control of system functions
 - Debug of programming / algorithms
- Multi Use FPGA
 - Provide system control, I2C, UART
 - Large logic block for programming
 - High speed data routing
 - Example source code included for control
 - Additional cores logic blocks available
- Input peripheral port
 - Image or other high speed data
 - Custom board interface
 - Up to 16 bit data transfers
 - I²C controls
 - Various power and GPIO
- Application Development
 - USB download interface supplied
 - USB PC and embedded source code
 - FPGA example source code
 - Rich PC API environment
 - Download and control scripting
 - Single interface development & debug
- Low cost development tools
 - Altera Quatrus tools free
 - FPGA source code supplied
 - Program and debug via USB
 - Binary code for micro controller supplied
 - PC example application and documents
- Power and mechanical
 - Operates from USB supply
 - System 2.6"x4.6"x0.5"
 - Custom layouts available

Architecture

The Cyclone III FPGA is the heart of this Development Kit. It offers an unprecedented combination of low cost, higher density and low power consumption. The FPGA contains an optimal set of features used to drive high-bandwidth parallel processing. The highly integrated FPGA consists of 10K Logic Elements, 400K bits of embedded memory and multiple hardware accelerators.

The Development Kit consists of preprogrammed hardware elements, an example PC application with Graphical User Interface (GUI), Windows drivers and custom Dynamic Link Library (DLL). The application includes USB interface, API, and examples for customization. An FPGA Programmer and an Integrated Circuit Communications (I²C) compliant interface will aid in development of custom designs. FPGA source code examples are also included, which includes interface examples for I²C and bulk data transfers.

The Development Kit offers the ability to design, compile, download and execute, all via the USB port on your PC. The use of embedded non-volatile memory eliminates the need of constant reprogramming. Free tools including the custom VHDL source code (supplied) with the kit along with free industry standard tools available online allow for a wide range of design flexibility without the need or expense of additional components.

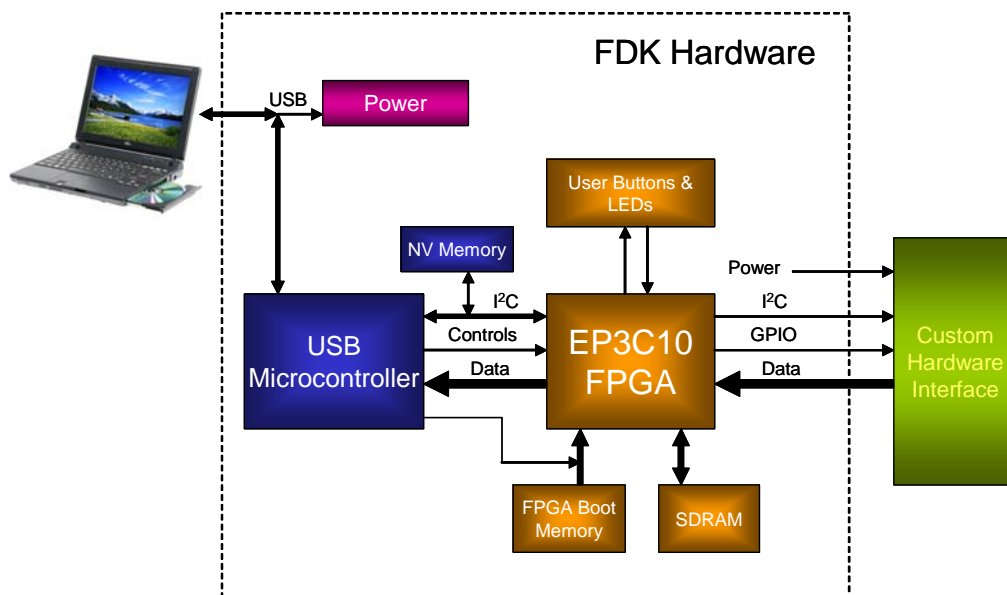
System Use

The FDK is ideally suited for design projects that may require FPGA enhancement to custom hardware. These applications could contain special user features, PC software, USB controls, and a easy interface for a sensor or data generator. Out of the box, the system comes with an application programming interface, and full source code for PC, micro controller, and FPGA examples. All development, programming, and operation (including custom device controls) can be done via the same simple USB interface.

This kit can enable applications:

- Rapid Prototyping and Development of Altera Cyclone Design
- Sensor / High speed device bulk data capture
- Hardware enabled PC applications
- Data logging
- Automatic test systems
- Data and pattern generators
- Audio and imaging systems prototypes
- USB to I2C Bus Bridge with scripting

The FDK and can be customized by VisionMOS to meet your needs, or is available off the shelf in a number of standard configurations. A custom PC application to enable control, data capture and user interface is also available through VisionMOS engineering. The FDK is in pre-production now.



Ordering Information

The VisionMOS FPGA Development Kit is available at:
<http://www.VisionMOS.com>

For custom and/or upgraded features contact our sales team at 480-730-7800 or email Sales@visionmos.com