OMAP FPGA Sensor Development Kit

Kinetic 3500

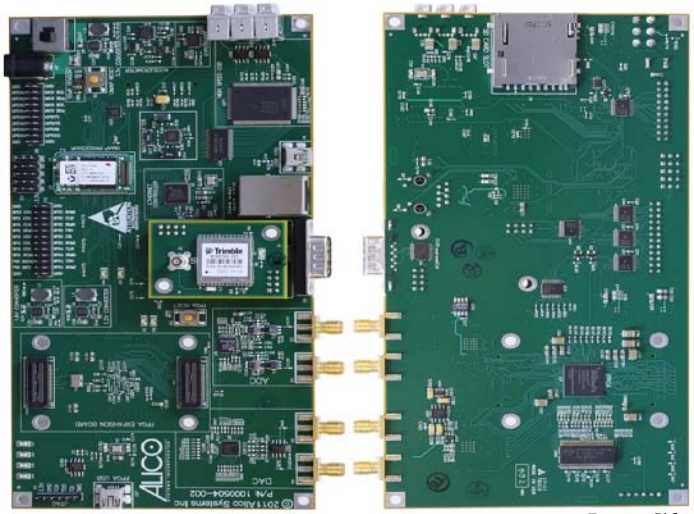
Features

- TI OMAP Family Processor
  - OMAP3530 System on Module (SOM)
- Xilinx Spartan-6 Field Programmable Gate Array (FPGA)
- Wide Variety of Sensors
  - 3-Axis Accelerometer
  - 3-Axis Gyroscope
  - 3-Axis Magnetometer
  - Temperature Sensor
  - GPS Module (Add-on)
- High Speed A/D and D/A Converters
  - Audio Processing
  - Video Processing
  - Communication Processing
- Peripherals
  - MMC/SD card slot
  - RS-232 serial console interface
  - RJ-45 Ethernet interface
  - 1 USB 2.0 OTG
  - 3 USB 2.0 high speed ports
  - SPI, I2C,GPIO interfaces
  - Level Shifter with programmable logic levels
  - JTAG and ETM interfaces
- Turn-key Development Software
  - Board Support Package
  - Device Drivers
  - Web Based GUI
  - Embedded Web Server
  - OMAP Test Suite and Utilities

Benefits

- Turn-key embedded FPGA Sensor Development Kit based on the open source software for OMAP Family Processor
- Allows developers to concentrate on creating domain and product differentiation features
- Simplify the learning curve about the fundamentals of OMAP technology and open source software
- FPGA allows developers to implement custom hardware functionality and signal processing algorithms without actual hardware redesign, reducing engineering recurring costs, and faster time to market
- Web based GUI for onboard provisioning, monitoring and diagnostics
- Web server supporting web page creation and GUI customization
- Well-designed APIs that can be easily used to create custom software
- Ideal for rapid prototyping

OMAP FPGA SDK Kinetic 3500 with GPS add-on Module



Top Side **Bottom Side**

Dimension 8” x 4”

Overview

Alico Kinetic 3500 is the turn-key embedded development kit based on open source software for the OMAP3530 processor from Texas Instruments. OMAP3500 is a high-performance multimedia applications processor comprised of an advanced Superscalar ARM Cortex-A8 RISC core with NEON SIMD coprocessor and a C64x+ digital signal processor (DSP) core. Alico Kinetic 3500 releases with a full set of capabilities that are operational out-of-the box. Equipped with working applications and software drivers for onboard peripherals, Kinetic 3500 allows developers to focus time and resources on development of product differentiation features. This reduces time learning the fundamentals of OMAP, writing basic software drivers, or getting up to speed on information about open source software. The kit is integrated with standard peripheral interfaces, GPS and navigation sensors, enabling immediate evaluation and development of OMAP’s applications. The robust Web based GUI provides extensive monitoring, configuration and diagnostic capabilities. The onboard FPGA gives developers the capability to implement custom hardware functionality and signal processing algorithms without actual hardware redesign. Flexibility and rapid prototyping offered by the FPGA provide added benefits to the overall product development cycle including minimal redesign of hardware, faster time-to-market, and field upgrades. Alico Kinetic 3500 is an ideal platform for early and rapid prototyping.

Target Market

Kinetic 3500 is designed for the following potential markets:

- High-Speed Data Logging Systems
- GPS Based Handheld Devices
- Vehicle Tracking Systems
- Location Tracking Systems
- Set-Top Boxes
- Robotic Applications
- Motion Control Systems
- Platform Stabilization Systems
- Video Game Human Machine Interaction Systems
- High-speed Video Encoder/Decoder Systems

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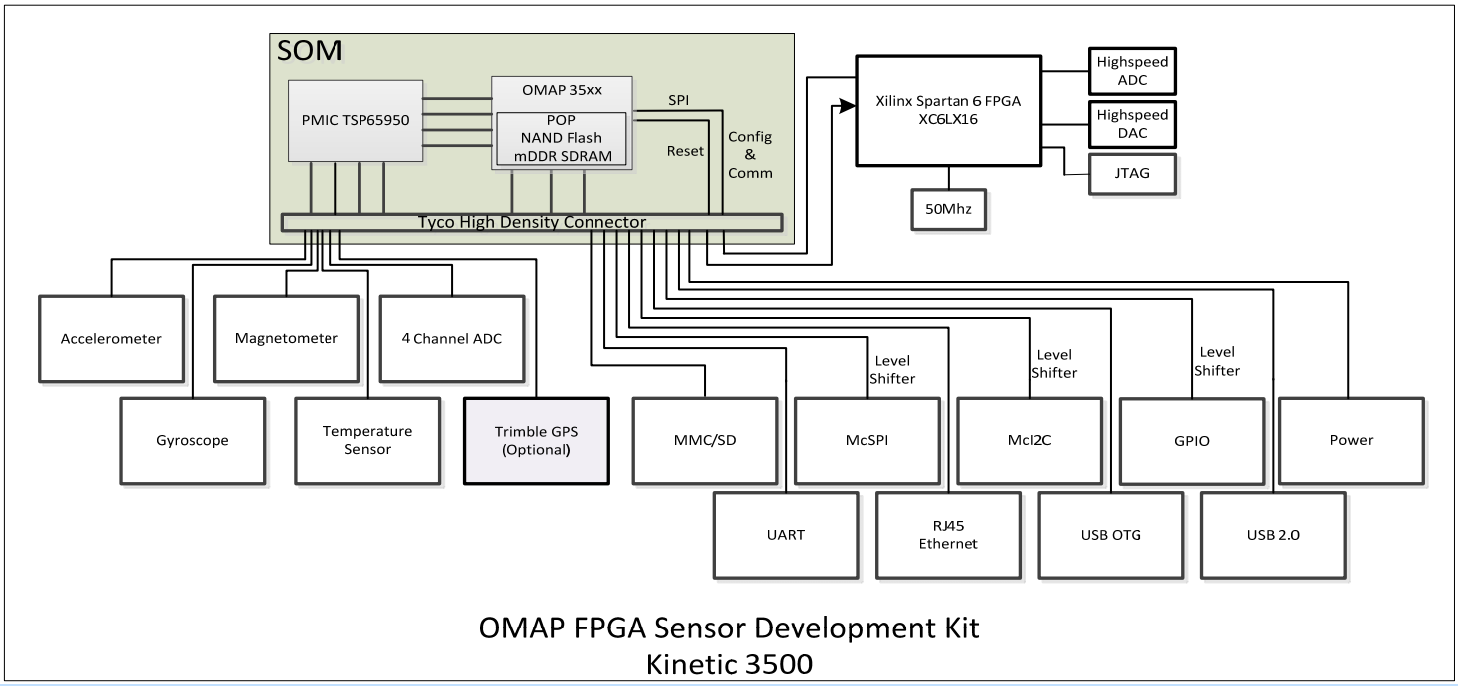
High Level System Diagram



Provisioning & Monitoring

Kinetic 3500 comes with a Web Server that can deliver system information when queried by a standard web browser. From a standard browser, the user can control and provision individual hardware components, monitor in real time data from accelerometers, gyroscopes, magnetometers, temperature sensors, and GPS.

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Specifications

Carrier Board

- Xilinx Spartan-6 ISE WebPack device
- 3-Axis Gyroscope
- 3-Axis Accelemometer
- 3-Axis Magnetic Sensor
- Temperature Sensor
- GPS Kit (add-on hardware)
- SPI
- I2C
- GPIO
- MMC/SD Card Slot
- Serial UART for RS-232
- RJ-45 Ethernet
- 1 USB OTG
- 3 USB 2.0 High Speed Host Ports
- 25 MS/S 12-High Speed ADC
- 125 MS/S 14-bit High Speed DAC
- JTAG and ETM interfaces
- Power (3.3 to 4.2)V DC or regulated 5V

SOM Board

- LogicPD OMAP3530 Torpedo SOM

Standard Support (90 days)

- Build Environment
- Build From Source
- Kernel Configuration
- Software Maintenance Releases
- Access to FAQs
- Access to on-line documentation
- Technical Support (Phone, Email)

Software		
Base Support Package		
Boot		
X-Loader 1.4.4	Bin	Src
U-boot 2010.06	Bin	Src
Boot Linux from SD card, NAND Flash or Ethernet	Bin	Src
Kernel and Drivers		
Linux Kernel 3.2.0	Bin	Src
File system Format - YAFFS2/NFS/ EXT3	Bin	Src
S/W drivers for Serial, RTC, NET, NAND, MMD/SD, USB and USB OTG	Bin	Src
Custom Software		
3-Axis Accelerometer s/w driver	Bin	
3-Axis Gyroscope s/w driver	Bin	
3-Axis Magnetic Sensor s/w driver	Bin	
GPS s/w driver	Bin	
Temperature Sensor s/w driver	Bin	
Web Based GUI	Src	
Example Web Pages	Src	
OMAP Software Utilities		
Pin Mux Configuration	Bin	
Register Read and Write	Bin	
GPIO Read and Write	Bin	
Verification S/W for NEON Coprocessor	Bin	
Device Driver Test Suite	Bin	
FPGA Configuration	Bin	

Kinetic 3500 SDK Includes:

- One Kinetic 3500 Digital Board
- One serial cable
- Power Adaptor
- Software DVD
- Getting Started Guide
- End User License Agreement

Kernel Distribution Supported:

- Linux-omap Kernel

Development Tool Supported:

- GCC embedded compiler/toolchain
- Eclipse
- Xilinx ISE Design Suite

Ordering Information

Description	OMAP FPGA Sensor Development Kit
Model	Kinetic 3500
Availability	Now
Price	$1695
Limited Warranty	Kinetic 3500 hardware is warranted against defects in materials and workmanship for a period of 90 days from the date of purchase.
Technical Support	(See Details in Standard Support Section)

Add-On Module

Item	Description	Interface Support
GPS3500	GPS and Antenna Kit	UART
Availability	Now	
Price	$250	

In addition to Kinetic 3500 SDK, Alico offers GrayFox 3500 Software Subscription and Support product. GrayFox 3500 provides source code to jumpstart custom development. The product includes:

1. Source code and driver software for accelerometers, gyroscopes, magnetometers, temperature sensors, GPS module, web server, and OMAP Test Utilities Suite.
2. 12 months of unlimited technical support via phone and email.
3. 12 months of unlimited software updates.

About Alico Systems, Inc.

Alico Systems, Inc. is an advanced technology business specialized in the design and development of commercial and military network communication systems, especially wireless networking and SATCOM-On-The-Move products. Our core competencies include communication systems architecture, phased array antenna design, RF design, digital microprocessor and FPGA design, RTOS firmware design, inertial navigation systems and OMAP FPGA SDK. For more information about Alico and its products, please visit us on the web at http:// www.alicosystems.com.

Specifications subject to change without notice

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