

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

Dimension 8" x 4"

Bottom Side

Overview

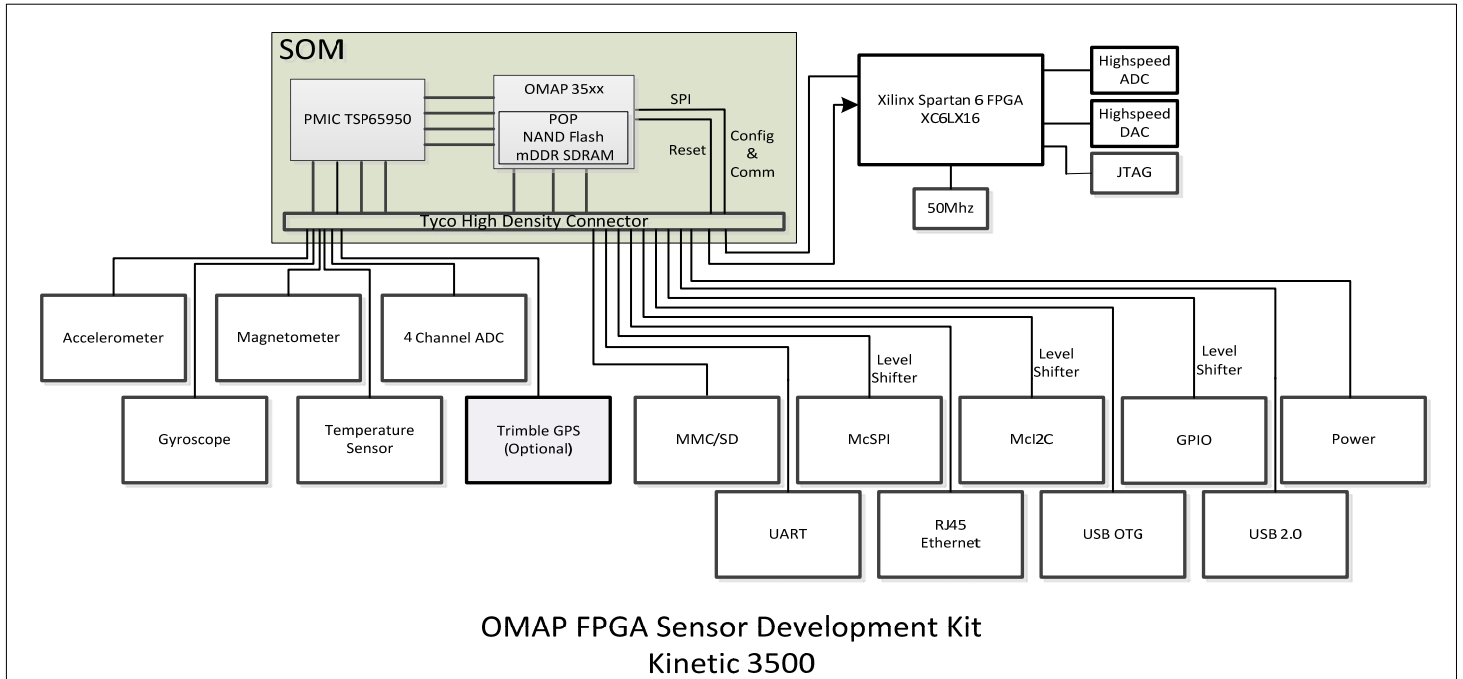
Alico Kinetic 3500 is the turn-key embedded development kit based on open source software for the OMAP3530 processor from Texas Instruments. OMAP3500 is a high-performance multimedia applications processor comprised of an advanced Superscalar ARM Cortex-A8 RISC core with NEON SIMD coprocessor and a C64x+ 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

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.

The screenshots show the Kinetic 3500 Management web interface. The main page displays system information and sensor status. Below is a table of system and sensor data:

SYSTEM	Version	FIRMWARE	Build Time	FW Build
SYSTEM		V1.05		Jul 13 2012 at 09:34:22
SENSOR	Accelerometer	OK	Gyroscope	OK
	Magnetometer	OK	Temperature	OK
	GPS	OK		
TEMPERATURE	Board Temperature	32.0°C		
LOCATION	Latitude (°)	33.50 634 N	Longitude (°)	118.20 373 W
	Velocity (m/s)	0.20		

Real-time monitoring graphs are shown for:

- ACCELEROMETER:** X: -18.32, Y: 84.25, Z: 1021.98 mg
- GYROSCOPE:** X: 23.65, Y: -4.59, Z: -8.63 °/s
- MAGNETOMETER:** Heading (°): 218.8, X (count): -90, Y (count): 61, Z (count): -168
- TEMPERATURE:** 31.0°C

Other screenshots show the Login page and the Administration section for User Management.

