Software Development Platform for the OMAP2430 Processor

OMAP))))™
TEXAS INSTRUMENTS TECHNOLOGY
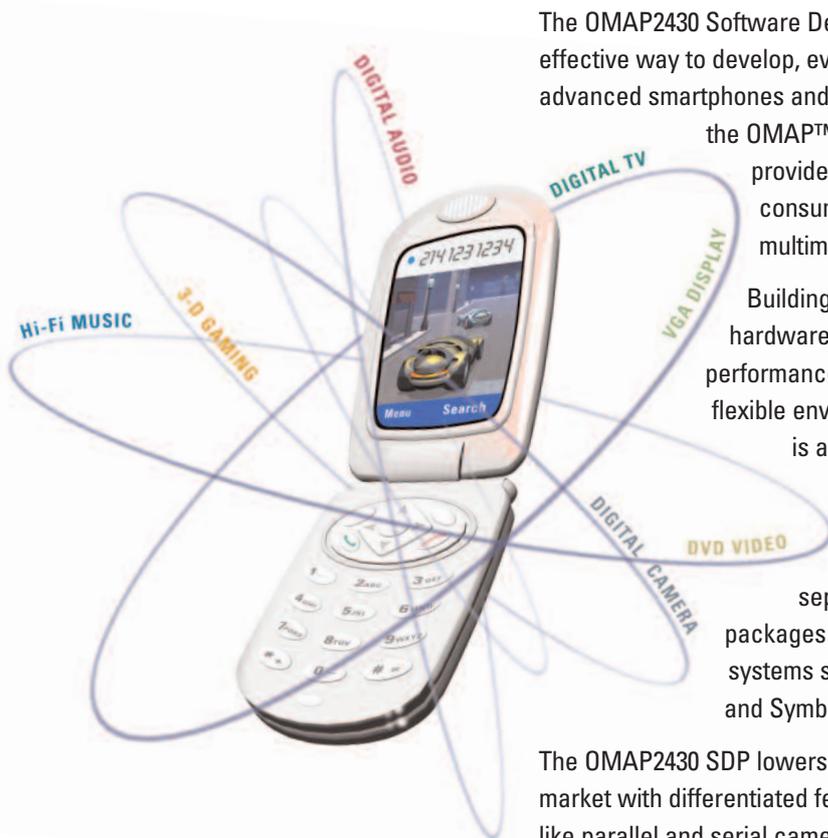
Key benefits:

- Cost-effective Software Development Platform (SDP) for the OMAP2430 processor
- Maximum visibility into performance to support optimization and debugging
- Flexible configuration to support customer's product requirements
- Proven second-generation architecture for SDP

- Complete set of software tools and support
- Software-only functional simulation for development (available separately)
- Support for high-level operating systems (HLOS)
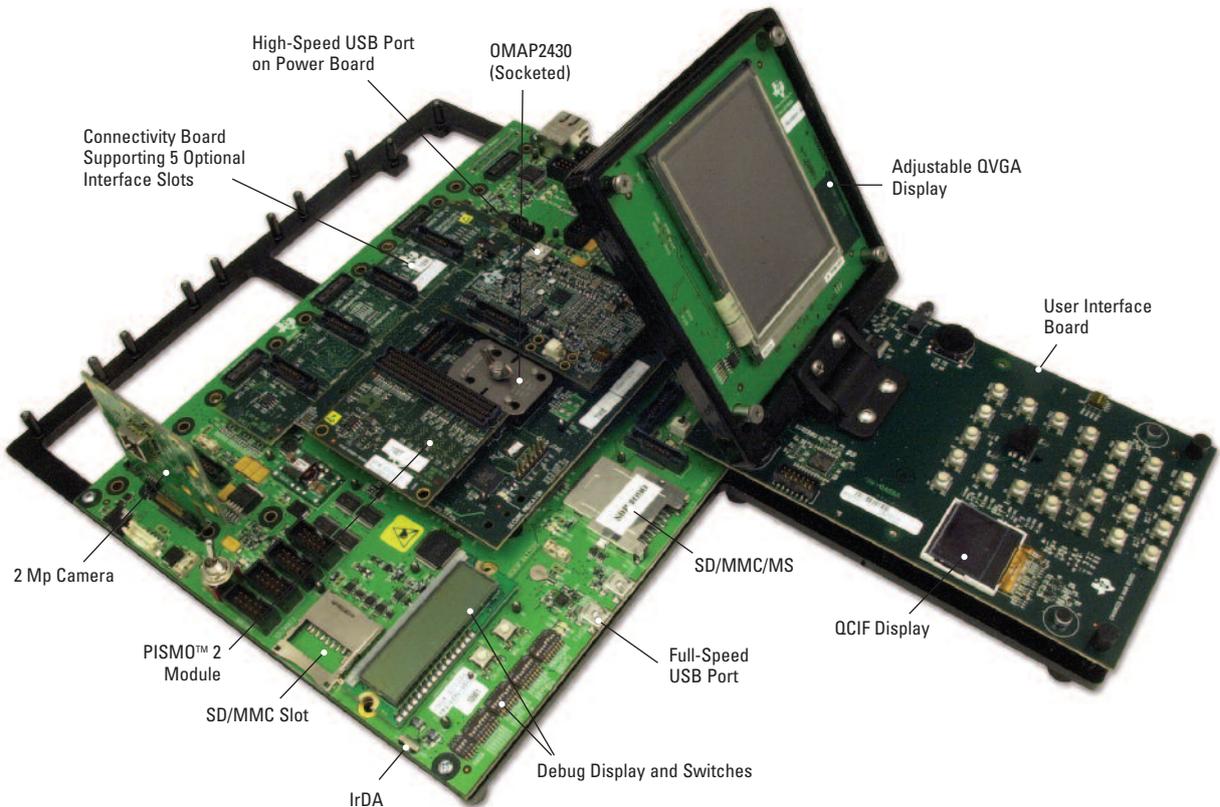- Faster time-to-market for developers

O V E R V I E W

The OMAP2430 Software Development Platform (SDP) is an easy and cost-effective way to develop, evaluate and test software for next-generation advanced smartphones and converged portable multimedia devices based on the OMAP™ 2 architecture. The OMAP 2 architecture provides an outstanding foundation for merging high-end consumer electronics with "All-in-One" mobile multimedia devices.

Building software that takes full advantage of OMAP 2 hardware, including new accelerators which increase video performance 4x and imaging performance 1.5x, demands a flexible environment with powerful tools. The OMAP2430 SDP is a full range of software, services and support beginning with utilities to configure a board for development and extending to functional simulation of the entire system (available separately). In addition, individual board support packages give developers access to high-level operating systems such as Linux®, Microsoft® Windows Mobile™ and Symbian™.

The OMAP2430 SDP lowers development risks by speeding mobile devices to market with differentiated features which leverage new OMAP 2 functionality like parallel and serial camera and display support, and faster file transfers with USB 2.0 On-the-Go. The powerful development tools of the OMAP2430 SDP efficiently deliver applications such as 4+ megapixel cameras, DVD quality video, high-end gaming, HiFi music with 3D sound effects, digital TV, high-speed wireless connectivity and more. Throughout development, designers have flexible tools for developing all aspects of the system, including peripheral drivers. And visibility into each software component streamlines the debug process considerably. Tools for debugging mobile connectivity capabilities such as Bluetooth® or wireless LAN are also included.

OMAP2430 SDP

High-Speed USB Port on Power Board

OMAP2430 (Socketed)

Connectivity Board Supporting 5 Optional Interface Slots

Adjustable QVGA Display

User Interface Board

2 Mp Camera

SD/MMC/MS

QCIF Display

PISMO™ 2 Module

SD/MMC Slot

Full-Speed USB Port

IrDA

Debug Display and Switches

Key benefits:

- Leverages the modular and multi-engine OMAP 2 architecture
- Supports development on and evaluation of the OMAP2430 processor
- Modular design of the SDP allow for easy customization and expansion
- Defined memory board interface using PISMO™ 2 (Platform Independent Storage MOdule) compatible memory boards
- Flexible interfaces defined for present and future mobile connectivity solutions: assisted-GPS (A-GPS), WLAN, *Bluetooth®*, DTV, DBB, etc. Interfaces are configured using a separate "Connectivity Board"
- Easy access to interfaces and signals for monitoring and debugging

Key attributes:

- ARM1136 (up to 450 MHz)
- Image, Video and Audio Accelerator (IVA™ 2)
- 2D/3D hardware accelerators, up to 1 million polygons/sec
- Still pictures > 4 Mpixels
- Full motion video encoding or decoding at rates up to DVD at 30 frames per second
- Video out supporting an external TV display
- Integrated memory controllers supporting Mobile DDR and Flash memories
- Complete peripheral set including high-speed USB 2.0 OTG controller
- Full, built-in hardware security platform
- Supports all major air interface standards and high-level operating systems (HLOS)

OMAP2430 optional interfaces

- Assisted-GPS (A-GPS)
- WLAN
- Bluetooth
- DTV
- Digital BaseBand Modem

Remote access and support

- 10/100-Mbps Ethernet
- DHCP Assigned IP
- Remote login and access over Ethernet
- Remote board configuration and management
- Remote power-on and reset

OMAP2430 Software Development Platform Kit

- OMAP2430 Main Board
- OMAP2430 Processor Board
- Power Companion Board
- PISMO™ 2 Memory Board
- Micron 2Mpixel Camera
- Connectivity Board
- Power supply (adapters for the US, UK, and Central Europe)
- Four RS232 adapter cables
- USB 2 cable
- TV Video/Audio 3.5 mm cable
- Stylus
- CD with documentation and software tools (diagnostics and tools required to test and operate the hardware)

OMAP2430 processor board

Memory
- On board
- PISMO 2 Memory Board
- 512 Mb NOR and 512 Mb NAND
- 167 Mhz, 1 Gbit, 32-bit MDDR
- 1 Gbit OneNAND Flash
- 1 Gbit NOR Flash

- Power Companion Board
  - TWL4030 Audio/Power Manager IC
  - High Speed USB Connector
- ETM support
- TV Out Jack

OMAP2430 main board
- IrDA
- 2 DB9 Serial Ports
- OMAP JTAG Port
- SD/MMC/MS Cardcage
- Dual Voltage, HS MMC Cardcage
- Full Speed USB Connector
- Micron 2 Mpixel Camera Module
- Debug Support logic
  - 10-Mbps Ethernet
  - 4 Serial Ports
  - Dual PS/2 Interfaces
  - Character Display
  - Test Interface Connector

OMAP2430 user interface
- Adjustable QVGA LCD Display w/Touch Screen
- Secondary QCIF Serial Display
- Keypad
- Stereo Speakers and Microphones
- Mono headset jack
- Stereo headphone jack

OMAP2430 SDP Block Diagram

Software and tools

TI has multiple tools partners delivering a wide range of development tools for the OMAP2430 SDP. Some of these tools partners are shown in the list below.
See www.ti.com/wireless for more information.

HLOS tools

- Symbian OS™
  - OMAP2430 CCS – Texas Instruments
  - CodeWarrior™ OEM v3.0 – Metrowerks™
  - ARM RealView™ V2.2 – ARM Ltd
  - Lauterbach Trace 32 Source Level Debugger – Lauterbach
- Linux®
  - GNU based tools – OSF
  - Lauterbach Trace 32 Source Level Debugger – Lauterbach
  - For more information see http://linux.omap.com

- Microsoft® Windows Mobile™
  - Embedded Visual C++ – Microsoft
  - Platform Builder – OEM – Microsoft
- DSP tools
  - OMAP2430 CCS – Texas Instruments
  - Lauterbach Trace 32 C55 Debugger – Lauterbach

Simulation tools

TI has worked with Virtio to create a virtual, high-performance software simulation of the TI OMAP2430 SDP, enabling wireless system and software developers to begin development of their end-user systems and software immediately. This virtual platform (VP), VPOM-2430, powers dramatic gains in developer productivity by providing a high level of system visibility and control to effectively create applications, middleware, operating system baseports and drivers. The VP integrates with software developer's development tools of choice including TI Code Composer Studio, Lauterback Trace 32, Metrowerks CodeWarrior and more. Debugging with a VP allows the software developer to stop all cores which greatly increases their multi-core debugging productivity. Using the VP makes it possible to efficiently optimize and debug the software at full speed.

For more information see www.virtio.com/vpom-2430

Documentation

- Schematics
- Quick Start Guide
- User's Guide

For more information, please contact a TI sales representative or OMAP Developer Network manager.

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