

OMAP2430 applications processor

All-in-One entertainment for 3G mobile phones

Key features

- Advanced Imaging, Video and Audio Accelerator (IVA™ 2) boosts video performance in mobile phones by up to 4X and imaging performance by up to 1.5X
- Delivering a multimedia experience with consumer electronics quality to the handset
- Multi-engine parallel processing architecture for supporting complex usage scenarios
- Built-in M-Shield™ mobile security technology enables value-added services and terminal security
- Support for all major High Level Operating Systems (HLOS) aids applications development

P R O D U C T B U L L E T I N

Leading imaging and video performance

The new OMAP2430 processor from Texas Instruments (TI) delivers a new level of multimedia performance to third-generation (3G) mobile phones and other handheld systems. Leveraging TI's proven OMAP™ 2 architecture, the OMAP2430 features an advanced imaging, video and audio accelerator (IVA™ 2) that provides a 4X improvement in video processing and 1.5X improvement in image processing over previously available solutions for mobile phones. The processor's high video performance enables advanced codec algorithms that promote higher compression ratios allowing networks to support more data, bringing down costs for service providers and allowing them to deploy revenue-generating services such as mobile digital TV and mobile-to-mobile gaming.

Support for these services, plus high-resolution, high-speed decode of standard video compression algorithms, brings a TV-like viewing quality and the familiar features of consumer electronics to mobile communications. The OMAP2430 is optimized for the complex applications characteristic of 3G wireless communications. Offering even higher performance than first-generation OMAP 2 processors while at a lower cost, the OMAP2430 processor provides the ultimate balance between multimedia performance, flexibility, power and cost.

Based on TI's high-performance, low leakage 90-nanometer (nm) CMOS processtechnology, the OMAP2430 integrates an ARM1136 RISC (up to 450 MHz) processor core; IVA 2, based on TI's digital signal processing technology; and dedicated 2D/3D graphics hardware acceleration. The OMAP2430 provides the optimal mix of processing capabilities for mobile multimedia applications, with the RISC processor dedicated to high level operating system, control and user interface tasks; and the IVA 2 to imaging-video-audio processing as well as other real-time signal processing tasks. System hardware support includes a high-speed USB 2.0

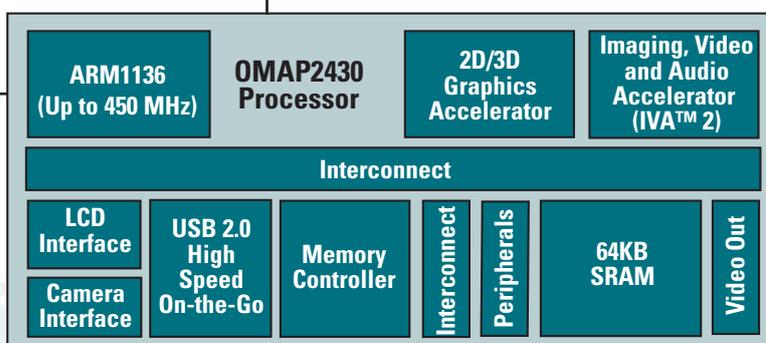
Optimized for 3G multimedia



on-the-go (OTG) interface for fast file transfers on and off the handset, both parallel and serial camera and LCD interfaces for design flexibility and a host of other peripherals. The OMAP2430 device fully supports package on package technology, with a stackable 14 mm x 14 mm, 447-lead ball grid array (BGA) package.

Media features supported by the OMAP2430 processor

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|--|---|
| Downloadable media playback and digital TV decoding | <ul style="list-style-type: none"> • MPEG4, H.264, WMV 9, RealVideo decode at VGA (640 x 480) 30fps |
| Still image capture | <ul style="list-style-type: none"> • >5 Mpixel with 1 second shot-to-shot delay |
| Motion video capture | <ul style="list-style-type: none"> • MPEG4 encoding at VGA (640 x 480) 30 fps |
| Video teleconferencing | <ul style="list-style-type: none"> • H.263/4 videoconferencing with simultaneous recording of VTC session up to CIF (352 x 288) 30 fps |
| 2D/3D Gaming | <ul style="list-style-type: none"> • Rasterization up to 1 million polygons per second |



The OMAP2340 multimedia processor from TI boosts performance by 4X of the first OMAP 2 processors and enables high-compression codecs that make more efficient use of transmission bandwidth.

The OMAP2430 supports VGA resolution decode at 30 frames per second (fps) for MPEG4, H.264, and Windows Media® Video 9 (VC-1) formats. Improved H.264 and Windows Media Video performance supports video playback, digital TV (DTV) decoding, and video capture. Additionally, H.264 supports videoconferencing. H.264 and Windows Media Video (VC-1) also enable operators to reduce network operating costs (OPEX) by delivering the same level of video quality as previous codecs while requiring a fraction of the bit rate. The OMAP2430 processor supports all known DTV standards worldwide and is a perfect companion to TI's Hollywood™ mobile DTV chip.

Designed for security

The OMAP2430 multimedia processor integrates an advanced hardware and software security framework, M-Shield™ mobile security technology, which enables new value-added services and increased terminal security. Network operators can increase revenue with new services that secure sensitive assets and usage rights through:

- **Content protection.** High-value multimedia contents, such as audio, video and games, are protected against unauthorized usage.
- **Secure transactions.** Mobile-ticketing, banking, brokering, and shopping are enabled by protecting end use.

- **Secure network access.** Virtual private networks (VPNs) are enabled and users are protected against viruses and other invasions.

In addition, increased terminal security allows operators to minimize revenue loss by embedding the “root of trust” in the silicon, supporting functions such as:

- **Secure flashing and booting.** Only authorized software can be loaded on the handset.
- **Terminal identity protection.** Since stolen phones cannot have the identity altered, they become useless.
- **Network lock protection.** A user cannot go to the web to “unlock” the phone and switch networks.

All-in-One audio and power management



The TWL4030 is the optimized all-in-one audio and power manager to a host of OMAP processors including the OMAP2430. It is an integrated power management/audio codec device intended for use in portable cellular telephone designs which derive their power from batteries based on Lithium-Ion, Lithium-Ion Polymer or Cobalt Nickel Manganese chemistries. It combines TI’s SmartReflex™ power and performance management technology compliant voltage regulators and DC/DC converters, an audio/voice codec, class AB/D audio amplifiers, high-speed USB 2.0 OTG transceiver, battery charger circuitry and much more into a highly integrated single chip.

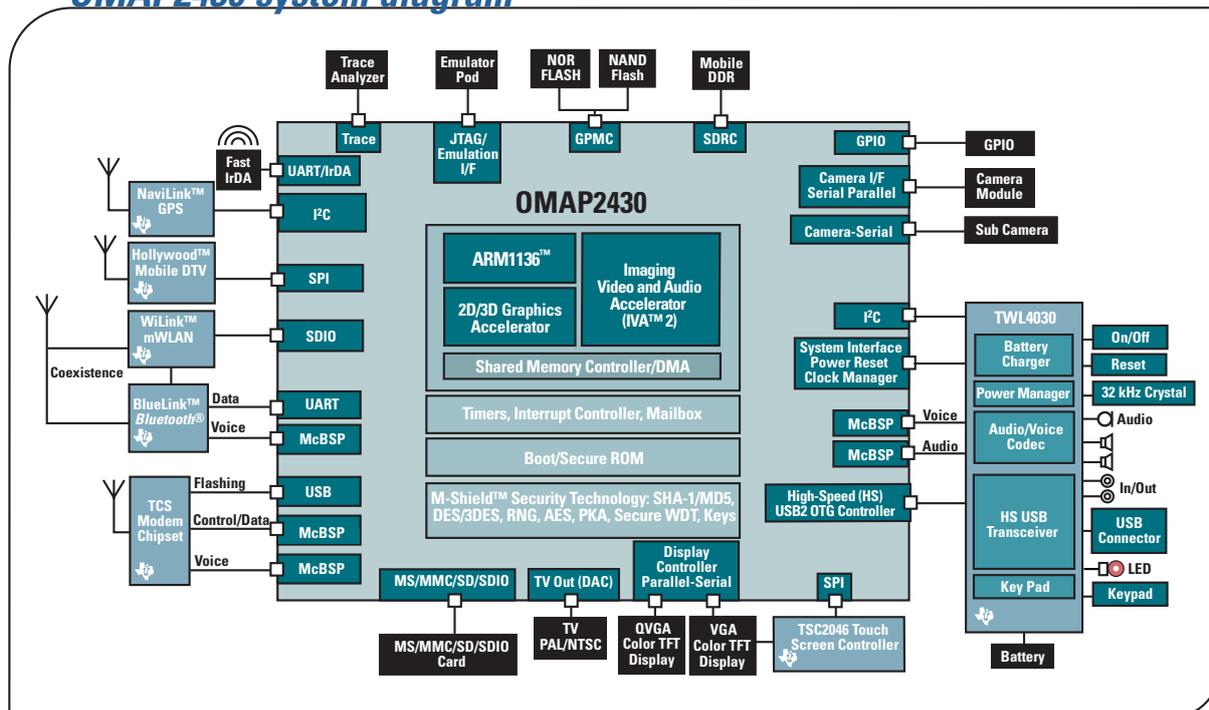
In addition to audio/voice codecs and amplifiers, the audio resources on the TWL4030 include stereo/mono audio support for speakers, earpiece and headsets, analog and digital mixing, analog/digital microphone support as well as noise cancellation circuitry. The advanced battery charger system features support for charge via AC adapter, USB or car kit standard in addition to back-up battery management, battery presence and over voltage detection. Self contained voltage regulators and converters along with the integrated keyboard interface, LED and vibrator drivers, and real-time clock reduces the need for additional external components. The OMAP2430 and TWL4030 combination boost system performance, maximize battery life and reduce board space.

HLOS support

OMAP2430 has been designed to support all high-level operating systems (HLOS) platforms, including leading OSs Linux®, Microsoft® Windows Mobile™ and Symbian™. HLOS enable OEMs and mobile operators to differentiate their products through:

- **A rich, easy-to-use, customizable user interface.** HLOS provide powerful user interfaces, with support for a rich array of applications and services, and the ability to customize according to operators’ needs.
- **A robust, flexible applications and services architecture.** Applications development and services deployment and management all benefit from the robust, flexible architecture provided by HLOS.
- **An extensive network of third-party developers.** HLOS have the largest developers’ base in the industry, which help make the platform richer and more complete.

OMAP2430 system diagram



TI was the first wireless system vendor to offer all major HLOS and other software platforms on a mobile phone. TI has developed close relationships with all HLOS vendors, so that today the great majority of smartphones running HLOS are based on the TI OMAP platform. In addition, TI has built an extensive network of specialized system integrators skilled in all aspects of HLOS porting and integration. More information is available at www.ti.com/omapotcs

In-depth development support

The OMAP2430 applications processor is backed by TI's extensive development support, helping you get to market quickly with your product. Like all of TI's OMAP processors, the OMAP2430 is supported by the OMAP Platform Ecosystem, a world-wide network of application software developers, system integrators and development tool providers. Compatibility with ARM code in other OMAP processors makes it easy to port software, and the most sophisticated development tools in the industry speed programming for signal processing. TI's wide network of third parties is also available to supply algorithms that can help speed up system development.

For more information

To learn more about the OMAP2430 processor, or about other OMAP products from TI, visit www.ti.com/omap. Find out how the OMAP2340 can bring a new level of multimedia performance to your mobile communications system.

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Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265
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