Texas Instruments OMAP™ platform optimized for Microsoft® Windows Mobile™-based devices

OMAP))) ™

TEXAS INSTRUMENTS TECHNOLOGY

Texas Instruments' (TI) OMAP™ platform delivers a comprehensive family of reference designs, processors, software and support, providing a wide range of real-time, multimedia-rich capabilities for 2.5G and 3G mobile devices. TI has manufactured the core logic for more than 1 billion mobile phones in the last 15 years and today powers the majority of all wireless mobile phones. TI OMAP technology is at the heart of most Microsoft® smartphones.

TI's industry-leading combination of high-performance and power-efficient processing enables compelling applications such as multimedia messaging (MMS), video and audio content, speech recognition, advanced security, 3D interactive gaming, mobile commerce, location-based services, Java and productivity that will attract users to next-generation devices and services. The OMAP platform provides these advanced features, along with the long battery life that phone users have come to expect.

Microsoft® Windows Mobile™ Classic, Standard and Professional software offer an advanced real-time system with a full feature set to power cost-efficient, next-generation smart wireless devices.

O V E R V I E W

Differentiate and get to market faster

Microsoft Windows Mobile software for the OMAP platform

Developing a successful mobile phone or wireless PDA is more challenging than developing a traditional PC or PDA because of the competing requirements of real-time system performance and always-on power management. Device manufacturers typically face three major hurdles when designing new mobile wireless platforms:

*Making**Wireless***

1. OS base port integration and performance optimization
2. Advanced power-management optimization for maximum battery life
3. The time-to-market challenges of optimizing a base port for a particular board while keeping time and resources in the schedule to differentiate the product

Working closely with Microsoft, TI has designed solutions that allow manufacturers to get to market quickly with optimized platforms. TI also worked closely with Microsoft to optimize and certify Windows Mobilesoftware for the OMAP family of processors and will continue to support future OS versions. Furthermore, TI collaborated with Microsoft to offer DSP hardware-accelerated Windows Media in certain OMAP platforms.

Use your valuable engineering resources differentiating products rather than developing base ports and drivers. TI OMAP reference designs and reference design software provide core components, including multimedia, graphics and advanced power management.

TI, the industry leader in wireless communications, has designed the reference designs and software for optimum battery life and real-time per-formance. By completing this lengthy, iterative process for the manufacturer, TI decreases time to market while increasing the end quality of the product.

TI's OMAP-Vox™ modem software passes applicable portions of Microsoft's Windows Mobile Logo Test Kit (LTK) in addition to the same stringent testing TI has been using for years in creating wireless technologies for leading customers such as Motorola, Ericsson and Nokia.

Key offerings available from TI and third parties for Microsoft Windows Mobile on the OMAP platform include:
- OMAP platform reference designs from TI provide maximum flexibility for highly differentiated form factors
- OMAP reference design software packages and board support packages (BSPs) for Microsoft Windows Mobile-based devices help manufacturers get to market faster on Microsoft Windows Mobile Classic, Standard and Professional software
- Support for the latest TI wireless technologies, including:
  - GSM/GPRS and EDGE
  - 802.11 WLAN and *Bluetooth*® co-existence
  - Hollywood™ mobile DTV solution
  - FM radio
  - WCDMA and UMTS
- GPS for location-based services
- OMAP hardware DSP-accelerated Windows multimedia
- Hardware-accelerated 2D and 3D graphics
- TI's worldwide support organization with dedicated engineers
- OMAP Developer Network members deliver OMAP-optimized software applications and components that drive next-generation applications
- Independent OMAP Technology Centers (OTC) provide full development support for device manufacturers and network operators by bringing together hardware, software and system integration expertise
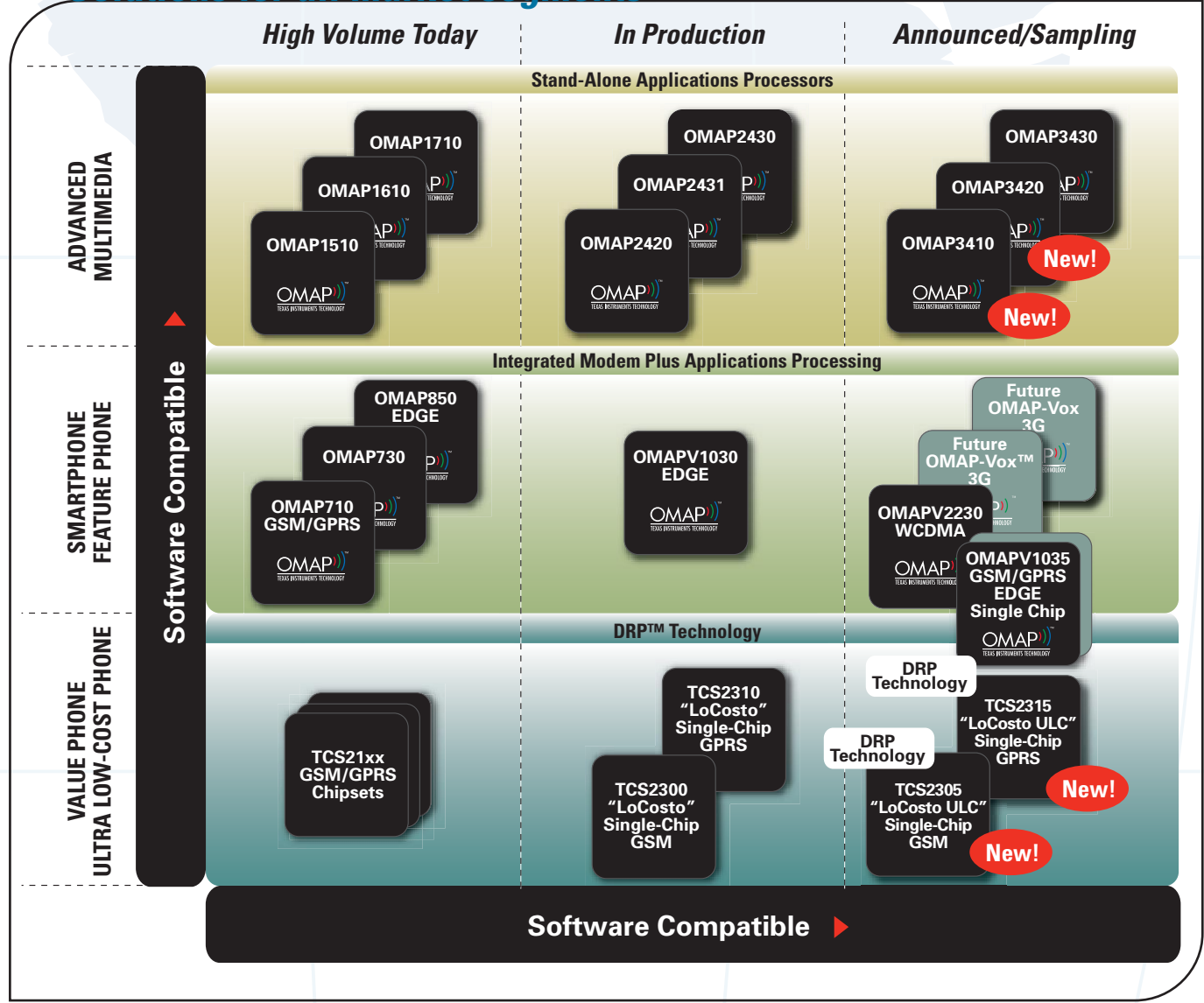
Microsoft®
Windows®
Embedded
Partner

Designed for
Windows
Mobile™

Microsoft Windows Mobile OS for the OMAP platform

All-in-One Entertainment Architecture
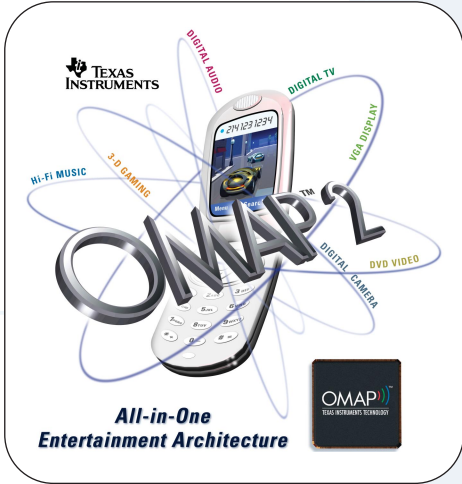
For manufacturers or developers working on smartphones or wireless PDAs who want to get started immediatly with OMAP processors, TI provides BSPs that provide the core drivers and OEM adaptation layer (OAL) for the OMAP processors and software development boards. In addition, hardware accelerators on OMAP processors for Microsoft's Direct Show™ and Direct 3D™ Mobile speed the seamless execution of multimedia and advanced 3D gaming. OMAP BSPs and their support for multimedia and 3D graphics are integrated and validated on TI's reference hardware as well as with Microsoft's Windows CE Test Kit (CETK) and LTK to ensure quality and compatibility.

This level of software integration delivers enhanced product quality with maximum software reuse, reducing development costs and shortening time to market for new products. Rather than expending development resources on software system integration, manufacturers can concentrate on compelling and differentiated features that will improve the competitiveness of their products in the marketplace.

Solutions for all market segments

	High Volume Today	In Production	Announced/Sampling
Stand-Alone Applications Processors			
ADVANCED MULTIMEDIA	OMAP1710 / OMAP1610 / OMAP1510	OMAP2430 / OMAP2431 / OMAP2420	OMAP3430 / OMAP3420 / OMAP3410 **New!** **New!**
Integrated Modem Plus Applications Processing			
SMARTPHONE FEATURE PHONE	OMAP850 EDGE / OMAP730 / OMAP710 GSM/GPRS	OMAPV1030 EDGE	Future OMAP-Vox 3G / Future OMAP-Vox™ 3G / OMAPV2230 WCDMA / OMAPV1035 GSM/GPRS EDGE Single Chip
DRP™ Technology			
VALUE PHONE ULTRA LOW-COST PHONE	TCS21xx GSM/GPRS Chipsets	TCS2310 "LoCosto" Single-Chip GPRS / TCS2300 "LoCosto" Single-Chip GSM	DRP Technology / TCS2315 "LoCosto ULC" Single-Chip GPRS **New!** / DRP Technology / TCS2305 "LoCosto ULC" Single-Chip GSM **New!**

Software Compatible ◄ (vertical)

Software Compatible ▶

Application developers benefit from complete platforms that provide early access to the latest OMAP technology while mirroring the capabilities and peripheral set of leading mobile devices.

Microsoft Windows Mobile reference design software packages for the OMAP platform

TI offers a complete reference design software package for wireless PDAs and smartphones that supports the latest versions of the Microsoft Windows Mobile Standard or Professional software using TI's OMAP73x, OMAP850 and OMAPV1030 reference design platforms. With these reference design software packages, manufacturers can quickly and efficiently design new Windows Mobile-based devices using the OMAP platform for GSM/GPRS- and EDGE- class devices.

The OMAP73x, OMAP850 and OMAPV1030 reference design software packages include:
- Windows Mobile Standard or Professional reference software optimized for the OMAP platform
- Advanced power management
- Drivers for on-chip and board peripherals
- A suite of flexible bootloader and flashing tools

Each OMAP73x, OMAP850 and OMAPV1030 reference design software package also includes support for TI's latest wireless technology:
- Radio Interface Layer (RIL) GSM driver for TI GSM/GPRS/EDGE telephony
- Integrated and validated with TI's GSM/GPRS/EDGE protocol layer
- Support for TI's BlueLink™ *Bluetooth* solutions

Development tools

A full complement of easy-to-use, world-class software development tools are available for developing with Microsoft Windows Mobile on the OMAP platform:
- TI's OMAP reference design platforms and development systems
- Microsoft Platform Builder for Windows Embedded CE
- Hardware-assisted debugging through TI XDS-class JTAG using eXDI for Microsoft Platform Builder
- Microsoft eMbedded Visual C++
- Virtio Virtual Platform simulation
- TI's Code Composer Studio™ IDE (integrated development environment) for the OMAP platform
  – DSP and ARM IDE and debuggers

These tools allow developers to easily create and optimize real-time wireless applications to take full advantage of the OMAP platform's processing power and low power consumption.

Industry support

Mobile Applications

Audio/Speech

Java

Video Conferencing

Gaming

Multimedia Messaging Services

M-commerce

Security

Location-based Services

Video/TV

Music

3D Graphics/Imaging

Enterprise

sasken
Make the Right Connection

teleca

TapRoot Systems Inc.

FUJITSU
Fujitsu Broad Solution and Consulting Inc.

b SQUARE

INTRINSYC

WIPRO
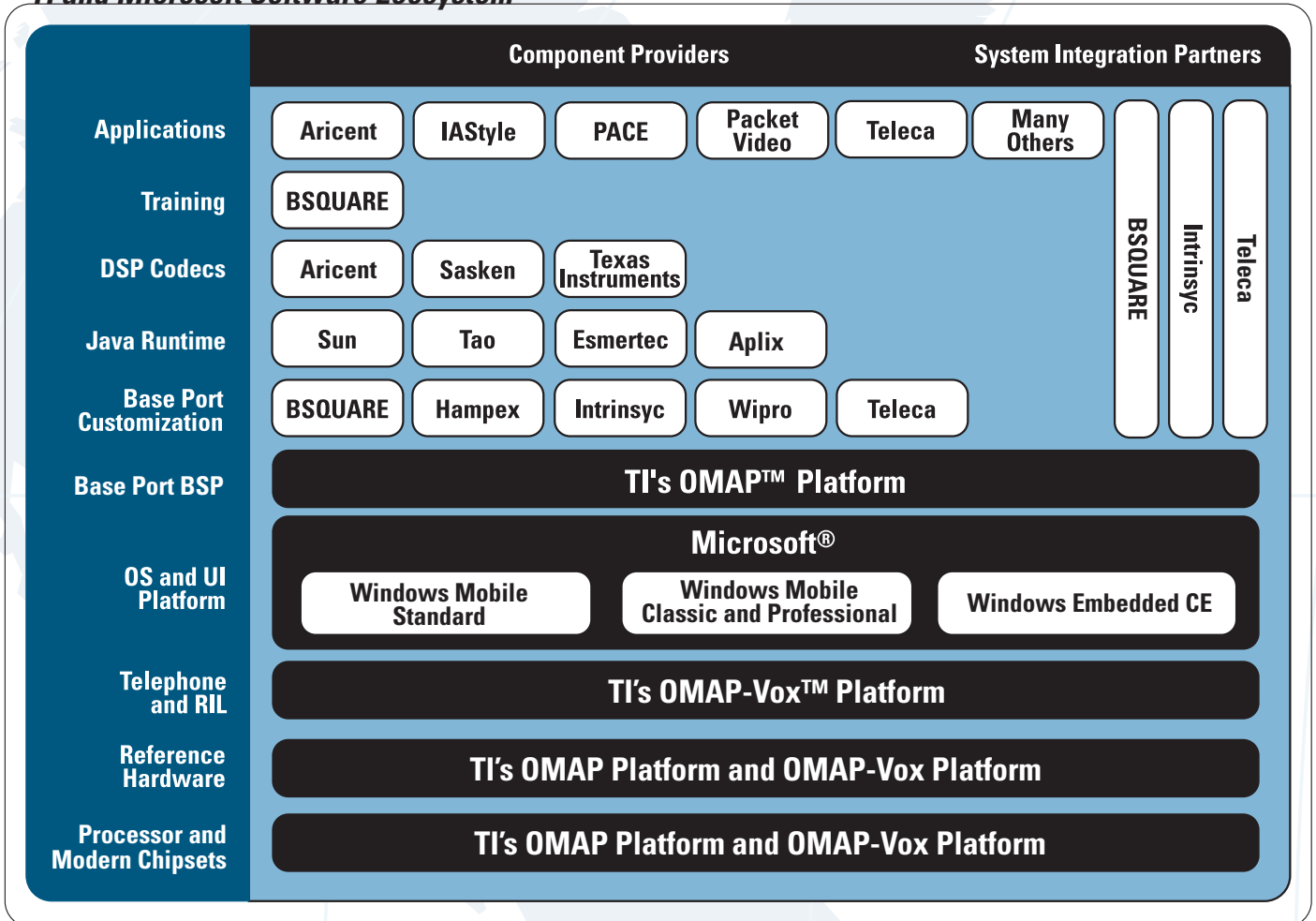Applying Thought

TI's OMAP Developer Network and Microsoft's Mobile2Market programs deliver full solutions and applications that allow differentiation, quick time to market and faster return on investment. OMAP Developer Network members are creating rich software applications and components that drive next-generation applications in areas like MMS, video and audio content, speech recognition, advanced security, 3D interactive gaming, M-commerce, location-based services, Java and productivity software.

www.ti.com/omapgaming
www.ti.com/omapdevnet
www.microsoft.com/windowsmobile/mobile2market

TI's OTCs provide development support by bringing together a variety of hardware, software and system integration expertise, giving device manufacturers a single point of entry for OMAP development technologies. In addition to working on some of the same application areas as OMAP Developer Network members, OTCs provide:

- System integration
- OS support, testing and certification
- Custom software application and component development
- Device driver development
- Hardware design development and testing

www.ti.com/omapotcs

With hardware and software from TI, along with support and software from the OMAP Developer Network, OTCs and Microsoft, manufacturers have a complete solution for developing their mobile devices using Microsoft Windows Mobile on the OMAP platform.

www.ti.com/omap
www.microsoft.com/windowsmobile

TI and Microsoft Software Ecosystem

	Component Providers						System Integration Partners			
Applications	Aricent	IAStyle	PACE	Packet Video	Teleca	Many Others		BSQUARE	Intrinsyc	Teleca
Training	BSQUARE									
DSP Codecs	Aricent	Sasken	Texas Instruments							
Java Runtime	Sun	Tao	Esmertec	Aplix						
Base Port Customization	BSQUARE	Hampex	Intrinsyc	Wipro	Teleca					

Base Port BSP — TI's OMAP™ Platform

OS and UI Platform — Microsoft®
- Windows Mobile Standard
- Windows Mobile Classic and Professional
- Windows Embedded CE

Telephone and RIL — TI's OMAP-Vox™ Platform

Reference Hardware — TI's OMAP Platform and OMAP-Vox Platform

Processor and Modern Chipsets — TI's OMAP Platform and OMAP-Vox Platform

Mobile Connectivity Solutions

To deliver mobile connectivity on multiple networks in today's Microsoft smartphones, TI's integrated, proven wireless connectivity solutions ensure multi-mode operation and access to a variety of network connections for service anytime, anywhere. TI offers single-chip solutions for *Bluetooth* technology, mobile WLAN and GPS using TI's DRP™ technology and advanced process technology. TI's mobile connectivity solutions easily interface with TI's cellular modem solutions, OMAP processors and OMAP-Vox solutions so manufacturers can get new handsets to market efficiently and fast.

Bluetooth wireless technology—BlueLink™ solutions

TI focuses on delivering optimized *Bluetooth* wireless personal area networking (WPAN) connectivity for mobile devices. By leveraging its innovative DRP technology, TI has delivered five generations of single-chip *Bluetooth* solutions that integrate RF and *Bluetooth* processor. Manufactured in 65 nm, TI's BlueLink 7.0 platform provides a complete hardware and software solution for *Bluetooth* and FM transmit and receive, enabling ease of design and speeding time to market for mobile device manufacturers. The BL6450 is the industry's smallest *Bluetooth* and FM single-chip solution and delivers cost and power savings for mobile handset designs.

802.11 WLAN—WiLink™ solutions

Optimized at the hardware, firmware and driver level, TI solutions deliver the power efficiency, small size, data/access security and spectrum sharing required for mobile WLAN handsets. TI's WiLink 6.0 platform integrates WLAN (802.11a/b/g/n), Bluetooth and FM in a single chip. The two WiLink 6.0 solutions are implemented in 65-nm CMOS processes using TI's DRP technology to meet the low-power, small-form factor and low-cost requirements of handset manufacturers worldwide. TI's WiLink solutions also include Voice over WLAN support with on-chip UMA and IMS acceleration to deliver seamless voice and data connectivity between WLAN and cellular networks.

TI's experience in delivering WLAN and Bluetooth solutions for handsets has resulted in a coexistence package for WLAN and Bluetooth in co-located environments. TI's coexistence platform enables data and voice to be transmitted without interference while optimizing system through-put, range and responsiveness. With no antennae isolation requirements and providing for shared antenna designs, it is ideal for handsets.

GPS—NaviLink™ solutions

TI addresses assisted GPS (A-GPS) and stand-alone GPS with a highly integrated single-chip solution that interfaces with TI's wireless chipsets and delivers precise location capabilities to mobile phones. TI's GPS5350 NaviLink 5.0 single-chip solution for GPS applications is targeted at mass-market handsets to deliver applications such as mobile navigation, 3D maps, location-based services and safety services to consumers. Through DRP technology, TI is able to provide the smallest size and lowest cost GPS discrete solution with low power and high performance to mobile phone manufacturers.

For more information   **www.ti.com/windowsmobile**

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