

W I R E L E S S



CHIPSET SOLUTIONS

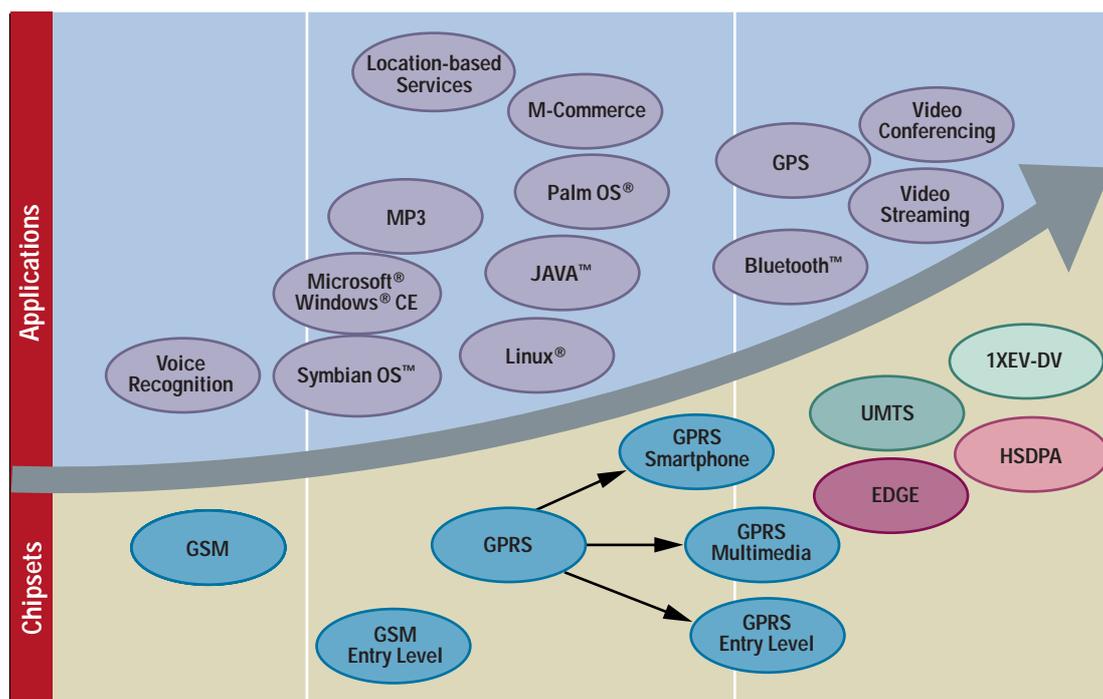


Complete solutions—all markets, all standards

Texas Instruments (TI) wireless chipset solutions have a solid foundation in proven, market-accepted technology. Unlike other chipsets that begin and end with hardware, TI's TCS wireless chipsets—because they offer mobile device manufacturers comprehensive solutions—treat hardware as a starting point and not an end in itself.

Beyond hardware, TI offers a full selection of capabilities vital to the completion of wireless handset and mobile device designs. These capabilities comprise the industry's most extensive roadmap for future generations of wireless devices, such as high-performance application and communication processing with low power consumption, fully validated and ready-to-manufacture reference designs, and open and easy-to-program software platforms supporting the major communications protocols, operating systems and programming languages. With these capabilities serving as a solid foundation, TI extends its support of mobile device manufacturers with an array of value-added software and services, including the TCS Wireless Software Suite, the OMAP™ Developer Network with its third-party applications and media modules, and the Independent OMAP Technology Centers (OTC) with their wireless design expertise and development resources. Also available is TI's extended portfolio of wireless solutions with technologies like Bluetooth™, 802.11 wireless networking and GPS.

TI's roadmap for complete TCS chipset solutions



TI supports the complete range of leading wireless standards with chipsets and digital baseband plus applications processors.

TI provides "Antenna-to-Applications" chipsets, software and support

Complete chipset solutions

Digital baseband modems, analog baseband and power management ICs, direct conversion RF transceivers and OMAP™ application processors.

Mobile device reference designs

Complete hardware and software platforms supported by TI's Independent OMAP Technology Centers ensure rapid time-to-market.

Bluetooth™ and 802.11

TI's leading wireless networking solutions seamlessly complement the TCS chipset family.

Protocol stack software

GSM, GPRS, EDGE, UMTS, WCDMA, CDMA, Bluetooth.

Operating system support

Java™, Linux®, Palm OS®, Symbian Series 60, Microsoft® Windows® CE.

TCS Wireless Software Suite

Fully tested embedded software including Java KVM, micro-browser, voice recognition, MP3 and MIDI, SMS and EMS, location ID, M-commerce, Bluetooth protocol stack, and more.

OMAP Developer Network

Third-party network of software developers that provide innovative applications and media modules for TI's OMAP processors.

Independent OMAP Technology Centers

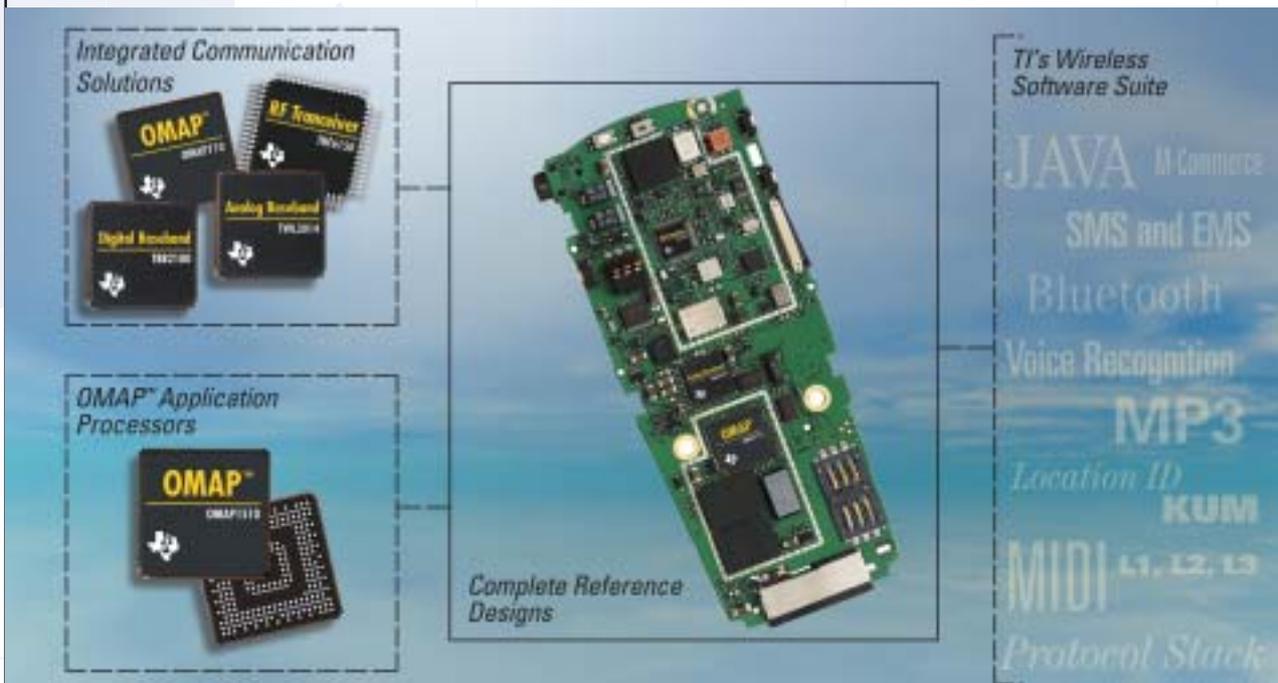
Located in major Asian, European and American markets. Staffed by wireless experts with excellent facilities at their disposal for designing 2.5G and 3G mobile devices.

TI's chipset solutions streamline time-to-market

The TCS family of wireless chipset solutions from TI provides all the elements needed to rapidly bring superior and differentiated mobile devices-to-market. Components like digital and analog baseband processors, robust application processors capable of real-time multimedia processing, power management ICs, sophisticated RF transceivers, and more, give handset manufacturers' products a competitive edge in the wireless marketplace.

But TI's TCS chipsets are more than just a collection of devices. They truly are complete "antenna-to-applications" solutions. Fully validated and type-approved hardware and software reference designs and extensive developer support programs accompany the TCS solutions to ensure success. Differentiated, flexible, scalable wireless chipset platforms address every market segment from traditional cost-sensitive, voice-centric handsets to multimedia-rich wireless PDAs, smartphones and Internet appliances.

Supported by standards-compliant protocol stacks, leading mobile operating systems, high-level programming languages, easy-to-use application programming interfaces (APIs), and a comprehensive set of development tools, the TCS chipset solutions and complementary family of OMAP application processors anticipate the requirements of a device manufacturer's product development strategies and streamline time-to-market. The TCS family of chipset solutions can form the basis for a diverse, differentiated and extremely competitive mobile handset product strategy for generations to come.



TI's wireless chipset solutions: "Antenna-to-Applications"

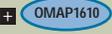
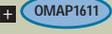
Complete chipset solutions

The reasons why mobile device manufacturers have consistently chosen TI wireless chipsets are fundamental. The combination of high processing performance, low power consumption, and low handset bill-of-materials (BOM) costs give manufacturers the ability to offer differentiated and superior products that win share in each segment of the market. From traditional cost-sensitive, voice-centric handsets to advanced, multimedia-rich wireless PDAs and 3G smartphones, mobile devices based on TI's complete chipset solutions are leaders across the wireless industry.

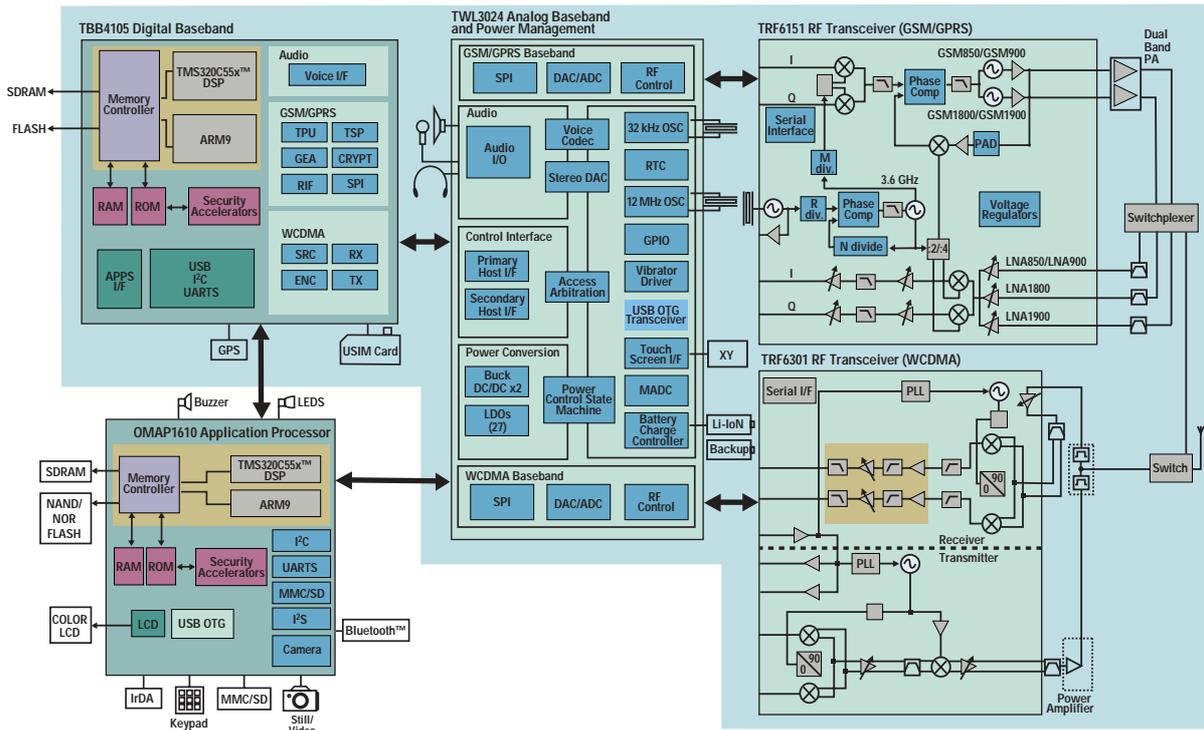
TI's chipsets for all market segments

TI's GSM and GPRS chipset solutions are complete offerings of hardware, software, reference designs, development tools and support programs. The TCS1110, TCS2010, TCS2100, TCS2200, TCS2500 and TCS2600 chipsets, as well as TI's UMTS chipset, the TCS4105, give mobile device manufacturers complementary platforms with scalable capabilities that can be tailored to meet the requirements of every segment of the marketplace.

TI chipsets and OMAP processors support multiple market segments

	Voice-Centric	Voice-Applications	Multimedia	High-End Multimedia
High-Performance Multimedia PDA				UMTS  Paired with one OMAP Processor     GSM/GPRS 
Multimedia Smartphone			GSM/GPRS     GSM/GPRS	
Feature-Rich Multimedia JAVA Phone		  GSM/GPRS		
Voice-Centric GSM/GPRS Handsets	 GSM/GPRS  GSM			
Benefits	Low BOM cost with optimized power consumption, proven and fully tested reference design	Class 12 GPRS solution with embedded Java support and full application software suite	OMAP710 and OMAP730 are the most integrated GSM/GPRS modem, baseband and dedicated smartphone processors available. Includes support for all the leading mobile Operating Systems	Chipsets paired with an OMAP application processor deliver real-time, high-performance DSP processing and long battery life

TCS4105 UMTS chipset paired with the OMAP1610 application processor



TCS4105 elements

- TBB4105 UMTS/GPRS digital baseband processor
- TWL3024 analog baseband integrated with power management
- TRF6151 DC, quad-band RF Transceiver (GMS/GPRS)
- TRF6301 RF Transceiver (WCDMA)

TCS4105 features

- Complete hardware and software chipset and reference design for fast time-to-market
- Double the battery standby time over existing 3G handsets
- Multimedia-rich 2.5G and 3G applications through a seamless interface to an OMAP™ processor
- Highly integrated four-chip solution lowers parts count by approximately 30 percent
- Dual-mode GSM/GPRS and WCDMA
- Enables popular applications like MMS, digital camera, hardware-accelerated Java applications, MP3 and other music formats, streaming video and more

TCS4105 UMTS chipset solution

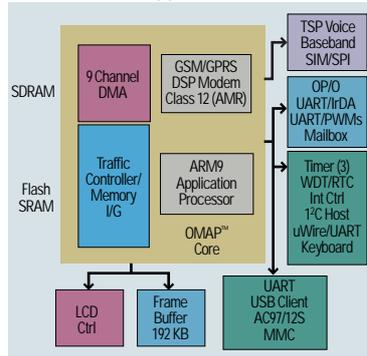
Leveraging its industry leadership in the GSM/GPRS market, TI has announced the highly integrated, low-power TCS4105 chipset and reference design for the Universal Mobile Telecommunications Services (UMTS) market.

The processing capabilities of the TCS4105 chipset combined with the family of OMAP application processor will be scalable because of its seamless interface to OMAP processors. As a result, the chipset can be deployed in a wide variety of platforms such as handsets, smartphones, wireless PDAs, PC cards and other new types of mobile devices. The complementary nature of the TCS4105 chipset and OMAP family of application processors ensures a high level of software and engineering reuse among manufacturer's mobile device product lines.

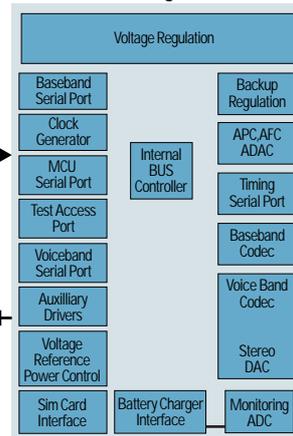
Because the TCS4105 chipset will provide extremely fine control over its power management resources, a design based on the chipset will double the battery standby time over existing 3G handsets without sacrificing high-performance application processing. And the high level of integration in the chipset saves board space and reduces parts count by approximately 30 percent over today's 3G designs.

TCS2600 chipset solution for high-performance multimedia smartphones

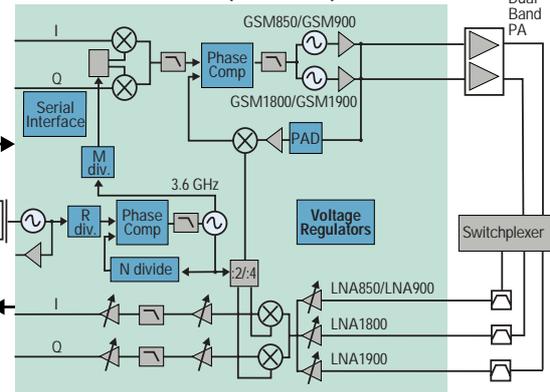
OMAP730 Integrated Digital Baseband and Dedicated Application Processor



TWL3016 Analog Baseband and Power Management



TRF6151 RF Transceiver (GSM/GPRS)



TCS2600 elements

- OMAP730 GSM/GPRS smartphone processor with integrated digital baseband and dedicated ARM926TEJ application processor
- TWL3016 analog baseband integrated with power management
- TRF6151 direct conversion, quad-band RF transceiver
- Full featured L1/L2/L3 GSM/GPRS protocol stack
- Complete hardware and software smartphone reference design including Series 60 and Microsoft Smartphone 200x

TCS2600 features

- Double the application processing of previous generation with a 70% boost in audio performance and 8x improvement in Java processing
- High-level mobile OS support including Symbian OS, Series 60, Microsoft Windows CE, Palm OS, Linux and others
- Software compatibility with OMAP processor family
- OMAP Developer Network support
- Proven GSM/GPRS modem technology
- Highly integrated solution for reduced smartphone BOM cost and chip count
- Hardware security features a state of the art Memory Protection Unit on FLASH and SDRAM memory interface
- Quad-band, direct-conversion RF solution
- Hardware Java acceleration
- Complete peripherals set; USB On-The-Go, SD/MMC/SDIO, high-speed Bluetooth connectivity, dedicated 802.11 a/b/g high-speed link. Fast Ir DA, etc.

TCS2600 chipset solution

Leveraging the market-proven acceptance of the TCS2500 chipset as well as TI's OMAP platform, the TCS2600 chipset features an OMAP730 smartphone processor with integrated Class 12 GSM/GPRS digital baseband and dedicated ARM926 application processor. With the OMAP730 processor, the TCS2600 offers twice the application performance while extending the battery life of handsets, smartphones and PDAs. And an extensive selection of

peripherals have been integrated on-chip to reduce the design's BOM costs and to free board space for additional functionality.

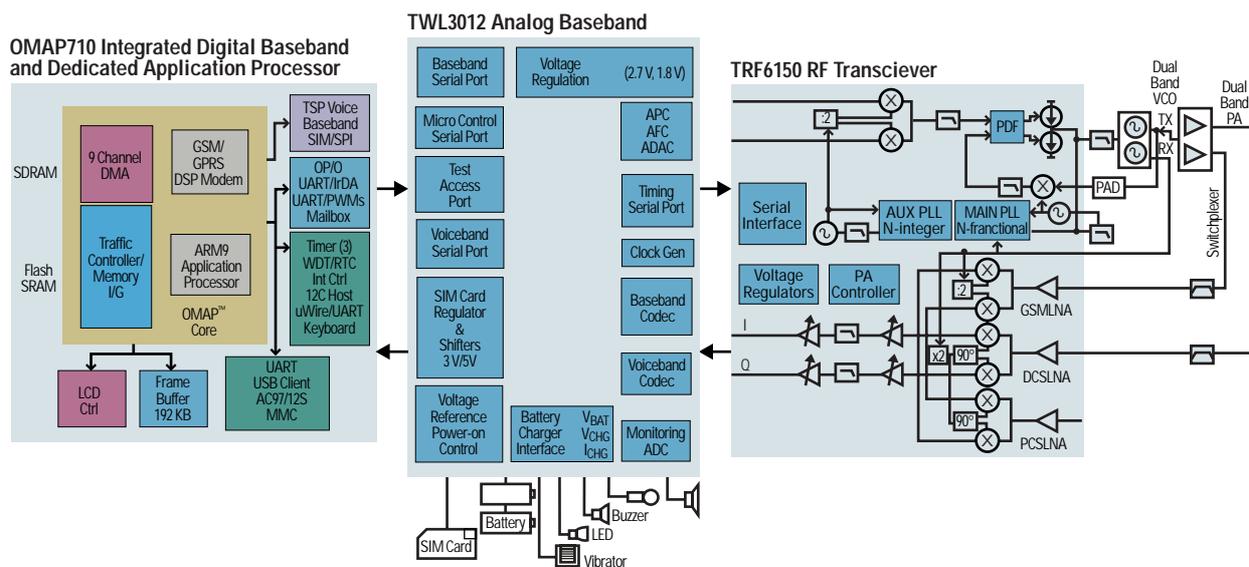
And the TCS2600 chipset benefit unique hardware security features of the OMAP730. Such advanced hardware-based security features will be critical for the market's acceptance of many next-generation applications. These security capabilities provide strong safeguards and, just as importantly, offer security that is transparent to the user.

The three-chip TCS2600 includes an analog baseband with complete power management and a single-chip quad-band RF transceiver with integrated vocoders, vocoder tanks, voltage regulators, power amplifier loop and PLL filters.

OMAP730 integrated modem baseband and dedicated application processor

The OMAP730 device extends the application performance capabilities of the OMAP710 while extending the battery life of voice-centric handsets, smartphones and PDAs. Integrated peripherals reduce a mobile device's overall BOM costs and free board space for additional functionality. The OMAP730 includes an SRAM frame buffer for fast streaming media performance and a standard interface to 54-Mbps wireless LAN technology (802.11a/b/g). Hardware-based security features and a library of third-party security applications provide the industry's strongest safeguards against theft, hackers and viruses.

TCS2500 chipset solution for high-performance multimedia smartphones



TCS2500 elements

- OMAP710 integrated digital baseband and dedicated application processor
- TWL3012 analog baseband and power management
- TRF6150 tri-band, direct-conversion RF transceiver
- Full featured L1/L2/L3 GSM/GPRS protocol stack
- Complete hardware and software smartphone reference design

TCS2500 features

- High integration ensures low system cost and small size
- High-level mobile OS support, including Symbian, Microsoft Windows CE, Palm OS, Linux, and others
- Software compatibility with OMAP processor family
- OMAP Developer Network support
- Highly integrated solution for reduced smartphone BOM cost and chip count
- Tri-band, direct-conversion RF solution
- Complete peripherals set

TCS2500 chipset solution

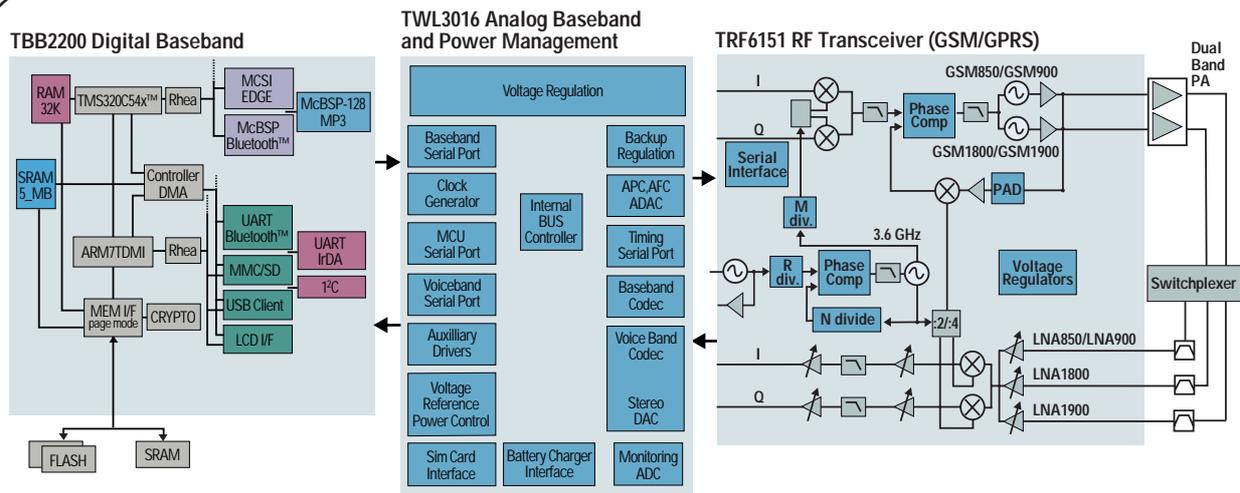
The innovative TCS2500 chipset uses the OMAP710 smartphone processor as its centerpiece. This highly integrated processor combines a DSP-based GSM/GPRS modem baseband subsystem and a dedicated TI-enhanced

OMAP710 integrated modem baseband and dedicated application processor

Combining a DSP-based GSM/GPRS modem baseband subsystem for voice and a dedicated TI-enhanced ARM925 microprocessor for multimedia application processing, the OMAP710 device is one of the most integrated processors for smartphones and voice-capable PDAs. The device comes with a complete GPRS protocol stack and is a key component in the TCS2500 chipset. The 192K-bytes of shared memory in its dual-core architecture as well as on-chip instruction and data caches, and a nine-channel DMA give the OMAP710 processor the resources needed for powerful yet small and sleek multimedia and wireless communication devices.

ARM925 microprocessor for real-time voice, Internet access and basic multimedia capabilities. By including all these capabilities on a single chip, the OMAP710 device is the most integrated smartphone processor available, including support for all the leading mobile OS like Linux®, Palm OS®, Symbian OS™ and Microsoft® Windows® CE. The OMAP710 device enables significant system cost savings in compact and sleek form factors. In addition, the TCS2500 chipset includes a state-of-the-art direct conversion (DC) RF transceiver, reducing the handset's parts count and cost. The TCS2500 is the first chipset to optimize the combination of GSM/GPRS communication with powerful OS-based application processing in a highly integrated solution.

TCS2200 chipset and reference design for feature-rich multimedia Java phones



TCS2200 elements

- TBB2200 GSM/GPRS digital baseband processor with integrated multimedia support and hardware-based security
- Full featured L1/L2/L3 GSM/GPRS protocol stack
- TWL3016 analog baseband integrated with power management
- TRF6151 direct conversion, quad-band RF transceiver
- Complete ready-to-manufacture GSM/GPRS handset reference design
- TCS Wireless Software Suite provides a range of embedded applications including multimedia processing, Java KVM, WAP browser, EMS/MMS, Bluetooth PS and profiles

TCS2200 features

- Dual-core digital baseband with TI's proven modem architecture
- Enhanced application processing with color display, music and security
- Software compatibility with TCS2100 and TCS2010 GSM/GPRS Chipsets
- Highly integrated quad-band, direct conversion, single-chip RF transceiver
- Strong hardware-based security
- Third-party security library for added protection
- Low system power consumption with split-power technique
- Adaptive MultiRate Narrow Band (AMR-NB) vocoders
- Integrated EOTD location determination
- Extended memory resources with DMA for fast data movement
- Page-mode interface for external memory
- Complete peripherals set: USB, MMC, Memory Stick, Bluetooth connectivity and others

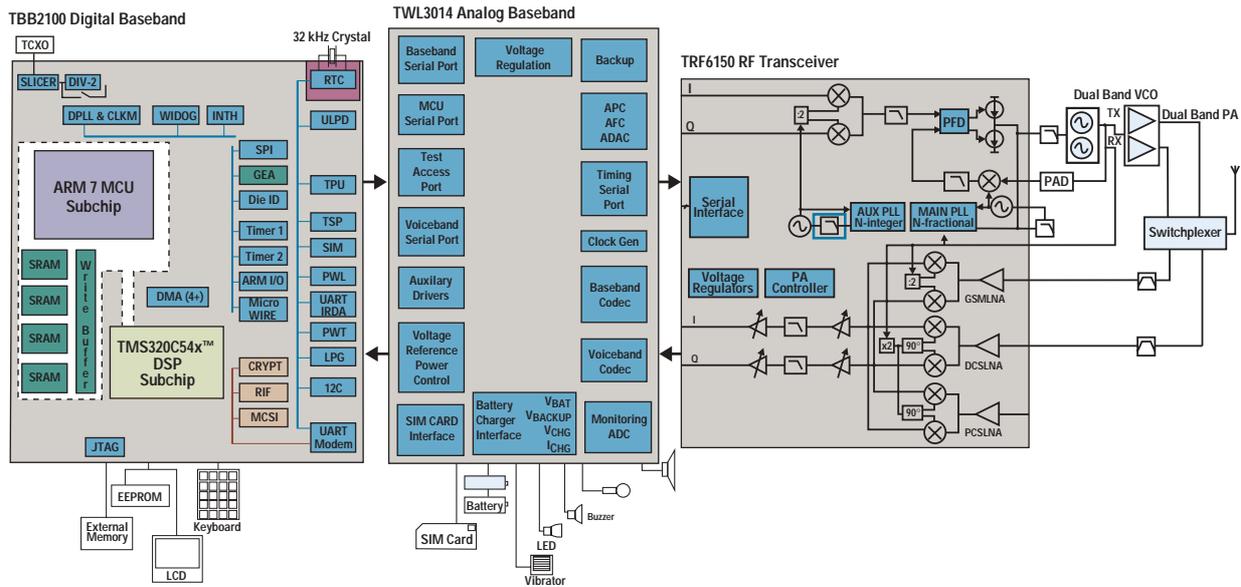
TCS2200 GPRS chipset

To ensure a compelling multimedia user experience, the TCS2200 GPRS chipset has the processing performance in combination with low power consumption that is needed for next-generation processing-intensive applications. The TCS2200's extended memory resources and extremely fast direct memory access (DMA) controller give the chipset the storage and data movement facilities demanded by engaging applications.

The three-chip TCS2200 chipset is made up of a digital baseband processor with DSP and ARM cores, a highly integrated analog baseband capable of managing all power functions for the design and an advanced single-chip RF transceiver that reduces materials costs for the RF subsystem by approximately 30 percent over previous generations of RF technology.

The TCS2200 chipset is fully supported by a complete handset reference design and TI's extensive worldwide technical support. The TCS2200 reference design is fully type-approved and includes a full BOM, detailed board design with schematics and layout. The TCS development tools that accompany the TCS2200 chipset and reference design ensure that manufacturers will be able to easily and efficiently add differentiating capabilities, providing their products with a competitive advantage in the marketplace. The full complement of tools for the TCS2200 includes the Windows-based development environment, C compilers, assemblers, linkers, simulators, emulators and high-level language debuggers.

TCS2100 chipset and reference design for GPRS handsets



TCS2100 elements

- The TBB2100 dual-core, high-performance digital baseband processor
- TWL3014 analog baseband and power management
- TRF6150 tri-band direct conversion RF transceiver
- Complete ready-to-manufacture GSM/GPRS handset reference design
- TCS Wireless Software Suite provides a range of embedded applications including Java KVM, WAP browser, EMS/MMS, Bluetooth PS and profiles

The TCS2100 features:

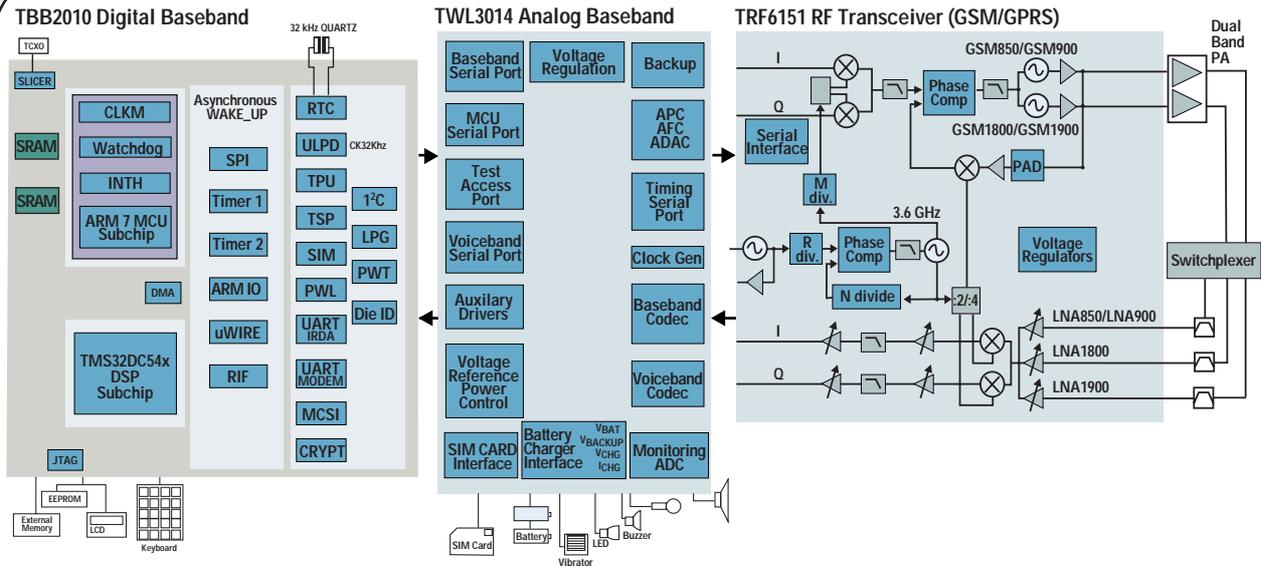
- Complete hardware and software solution for GPRS handset
- Class 12 GPRS with processing headroom for additional applications and features
- Reduced BOM count and cost via highly integrated tri-band single-chip RF transceiver
- Software compatibility with TCS2200 and TCS2010 GSM/GPRS chipsets
- Pin-to-pin compatibility with TBB2010 GSM/GPRS modem
- Quad-channel Adaptive Multi Rate Narrow Band (AMR-NB) vocoders
- Integrated EOTD location determination
- Optimized interface to OMAP application processors for multimedia-rich applications
- Easy-to-use software development environment for embedded applications

TCS2100 chipset solution

The TCS2100 chipset supports Class 12 GPRS with plenty of processing headroom for additional value-added and differentiated functions and features. Besides its powerful dual-processor digital baseband, it includes a highly integrated analog baseband with complete power management functions and TI's innovative power-split technique for low power consumption, a single-chip direct conversion RF transceiver, complete communication software and the comprehensive TCS Wireless Software Suite.

Pairing the TCS2100 GPRS chipset with TI's OMAP1510 application processor provides manufacturers the high performance and power efficient technology to support multimedia-rich applications.

TCS2010 chipset for voice-centric GSM/GPRS handsets



TCS2010 elements

- TBB2010 GSM/GPRS digital baseband processor
- Full featured L1/L2/L3 GSM/GPRS protocol stack
- TWL3014 analog baseband integrated with power management
- TRF6151 direct conversion, quad-band RF transceiver
- Complete ready-to-manufacture GSM/GPRS handset reference design
- TCS Wireless Software Suite provides a range of embedded applications

TCS2010 features

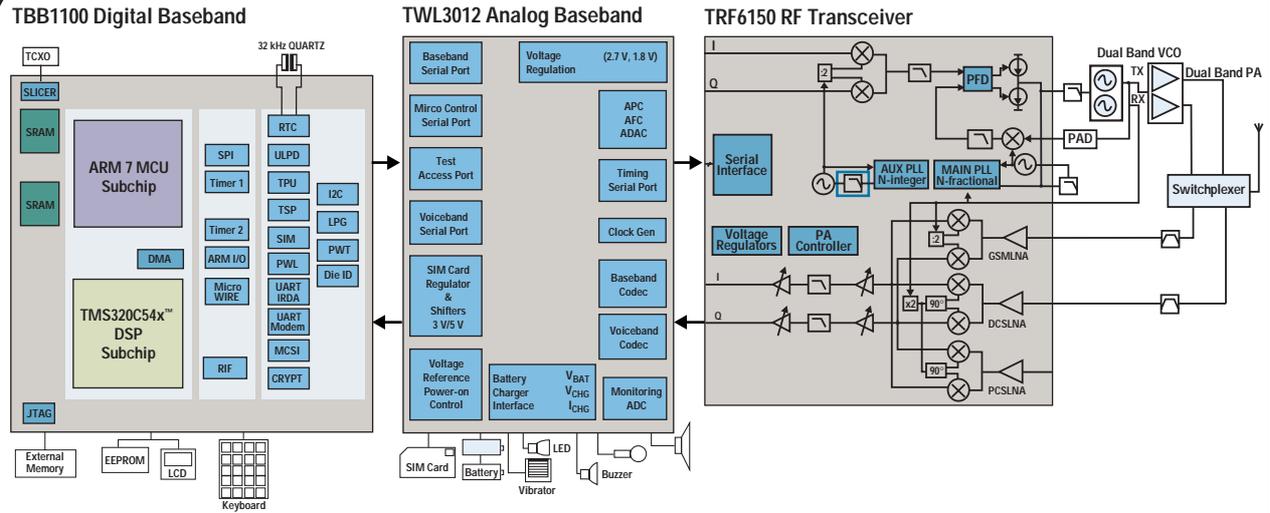
- Dual-core digital baseband with TI's proven GSM/GPRS modem architecture
- Reduced BOM cost for high-volume low-cost handsets
- Low power consumption with double the standby time of previous generation
- Pin-to-pin compatibility with TBB2100 GSM/GPRS modem
- Highly integrated quad-band, direct conversion, single-chip RF transceiver
- Software compatibility with TCS2200 and TCS2100 GSM/GPRS chipsets
- Class 12 GPRS-ready
- Adaptive MultiRate Narrow Band (AMR-NB) vocoders
- Integrated EOTD location determination
- Optimized interface to OMAP application processors for multimedia-rich applications

TCS2010 chipset solution

For next-generation voice-centric handsets, the TCS2010 offers a fully functional Class 12 GSM/GPRS platform with application processing capabilities. The three-chip TCS2010 chipset consists of a dual-core digital baseband based on TI's leading DSP core and an ARM general-purpose processing core, a highly integrated and space-saving analog baseband, and an advanced single-chip quad-band RF subsystem with DC technology.

The low-power features of the TCS2010 extend a battery's standby power time considerably. For example, the TCS2010's digital baseband is a GSM ultra-low power device (ULPD) and the chipset's analog baseband controls the power modes of the entire mobile device, placing portions of the design into any of several sleep modes to reduce power consumption.

TCS1110 chipset and reference design for voice-centric GSM handsets



TCS1110 Elements

- TBB1110 dual-core, high-performance digital baseband processor
- Full featured L1/L2/L3 GSM protocol stack
- TWL3012 analog baseband with power management
- TRF6150 tri-band direct conversion RF transceiver
- Complete ready-to-manufacture GSM handset reference design

TCS1110 Key Benefits

- Complete solution and reference design reduces time-to-market
- Full GSM implementation
- Dual-core digital baseband with TI's proven GSM modem architecture
- Reduced BOM count and cost via highly integrated single-chip tri-band RF transceiver
- Audio software modules
- Bluetooth connectivity

TCS1110 chipset solution

TI's GSM chipset, the TCS1110, has a proven track record of success in the marketplace, having gone through four generations of increasing capabilities and performance. This three-chip solution provides multiband DC RF operation and features a proven dual-core digital baseband (DBB) with a powerful TMS320C54x™ DSP and ARM7TDMI RISC microprocessor.

The versatility, scalability and adaptability of the TCS1110 handset reference design is borne out by the fact it has been implemented in a vast array of mobile devices serving diverse segments of the wireless marketplace.

Pairing TCS Wireless chipsets with TI's OMAP application processors

Complementing the TCS wireless chipset solutions, the OMAP™ family of application processors can provide a mobile device design the high-performance processing power and low power consumption needed for rich 2.5G and 3G applications. But beyond the OMAP platform's hardware capabilities, its integral software infrastructure and support are what set it apart and make it such an effective complement to the TCS wireless chipsets. After all, the successful applications and services which, will make up 2.5G and 3G, certainly will be compelling, captivating and habit forming. With TI's TCS chipsets and OMAP processors, mobile device manufacturers can ensure their products have enough horsepower to process killer multimedia applications and still have an extended battery life and a compact form factor.

OMAP310 application processor

The OMAP310 device brings the application processing capabilities of an ARM925 microprocessor to smartphones, PDAs and wireless PDAs. The pipelining features of the OMAP310 application processor ensure all parts of the processor and memory system can be operating simultaneously. Supporting both ARM and Thumb mode, the OMAP310 device features a memory management unit with nine-channel DMA, as well as a traffic manager. An internal 16K-byte instruction cache and an 8K-byte data cache minimize wait states.

OMAP1510 application processor

For high-end multimedia PDAs, wireless PDAs, smartphones, Internet appliances and tablets, the OMAP1510 application processor places an unprecedented level of resources at the disposal of mobile device designers. The OMAP1510 device integrates a TI-enhanced ARM925 core with a TMS320C55x™ DSP core and includes a interprocessor communications mechanism for easy, high-level software development. The real-time architecture and software environment of the OMAP1510 application processor allows ARM developers to program in a familiar environment and benefit from the real-time signal processing performance and low power consumption of the DSP core.

OMAP161x application processors

The ARM and DSP cores of the OMAP161x devices feature Java execution 8x faster than software-based implementations. The OMAP1611 processor features enhanced multimedia application processing with 2-Mb internal SRAM (ISRAM). The device has a standard low pin-count and dedicated connection to 54-Mbps WLAN (802.11 g/a/b) technologies such as TI's TNETW1130 processor. The OMAP1612 processor includes all OMAP 1611 device features plus 256 Mb of stacked ultra-low-power, mobile DDR SDRAM. The OMAP161x devices will be available in TI's TCS4105 complete UMTS reference designs.

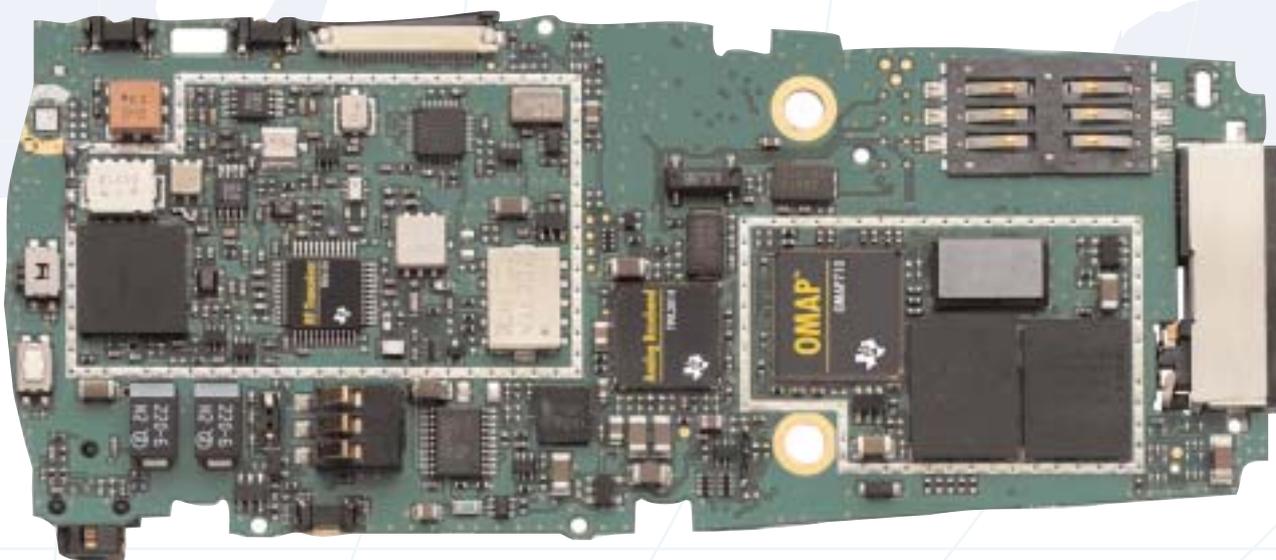
Reference designs for handsets, mobile devices, PDAs and modules

Key features and benefits of TI's wireless reference designs

- Manufacturing quality with competitive BOM costs and complete component list
- Designs tailored to each segment of the market, including GPRS modules, voice-centric phones, application-rich smart-phones and high-end wireless PDAs
- Low-power consumption
- Board design and layout
- Complete and fully-validated Wireless Software Suite:
 - Communications protocol stacks for 2G, 2.5G and 3G wireless standards
 - Support for mobile OSs such as Linux, Palm OS, Symbian and Windows CE
 - TI's TCS Wireless Software Suite and embedded development environment
- A user interface ready for customization
- Multimedia and PIM applications
- Best-in-class and worldwide customer support structure, with locations in Europe, USA, China, Taiwan and Japan to assist from the start of design to full-scale production.

The TCS family of chipsets and their supporting reference designs provide mobile device manufacturers with a diverse product strategy and rapid time-to-market. In addition, as the worlds of computing and Internet merge with wireless communications, new categories of manufacturers, some with limited prior wireless experience, are entering the mobile device marketplace. TI's wireless systems expertise coupled with our comprehensive "antenna-to-applications" chipset solutions and reference designs provide these new manufacturers with the wireless and RF expertise they need to quickly participate in the rapidly growing 2.5G and 3G market. TI's wireless reference designs give a jump-start to new mobile devices, eliminating some development tasks and shortening the product's time-to-market. In some cases, manufacturers can capitalize on a reference design and deliver a product to market in less than 6 months.

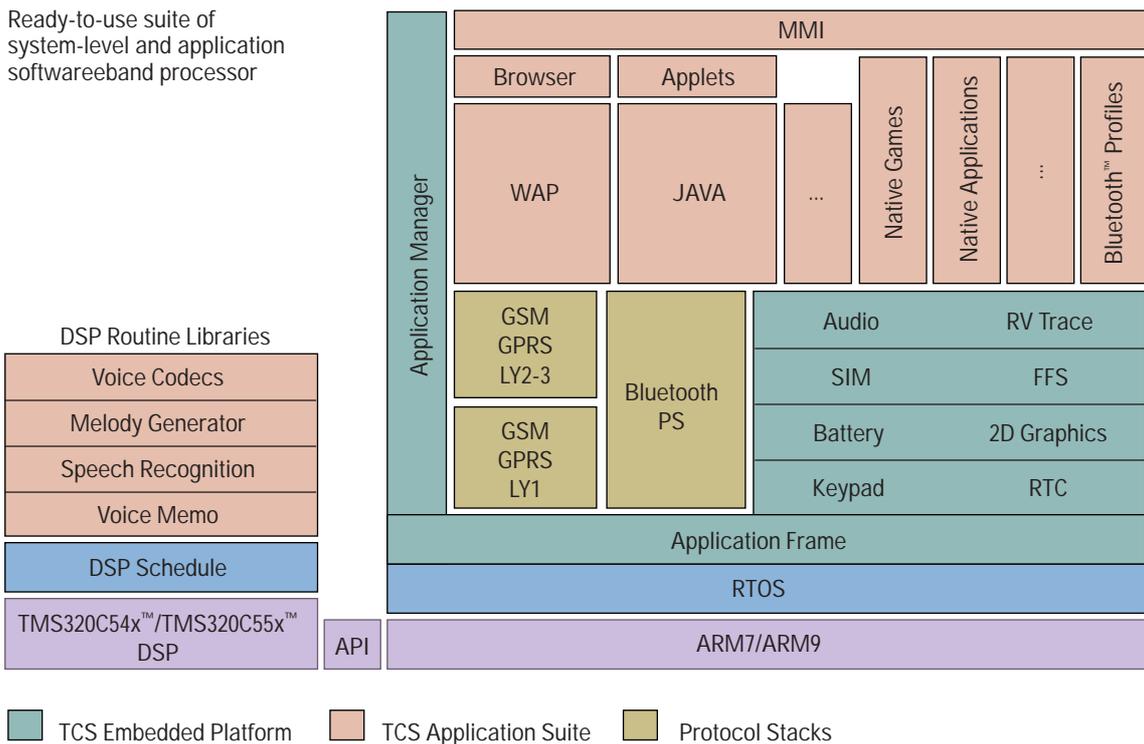
TI's wireless reference designs are fully tested and type-approved. As a result, mobile device manufacturers can concentrate on product customization, differentiation and application development. That is, manufacturers can focus on what they do best and rely on the quality of the wireless reference design provided by TI.



Reduce time-to-market designing with TI's wireless reference designs.

TCS Wireless Software Suite

Ready-to-use suite of system-level and application softwareband processor



TCS Wireless Software Suite and platforms

A key aspect of competitive differentiation for 2.5G and 3G mobile device manufacturers are the applications running on their handsets, smartphones, and PDAs. A rich multimedia experience and a set of compelling applications will set some mobile devices apart. To reach that point, manufacturers need the right software platforms with a comprehensive set of algorithms, drivers and functional software modules to facilitate efficient software development or to rapidly deploy fully developed software applications.

The TCS chipsets start with a solid foundation made up of complete and standards-compliant protocol stacks, including GSM, GPRS, WCDMA and UMTS. In addition, TI's chipset solutions and reference designs are complemented by TCS Wireless Application Suite of fully validated embedded software. Finally, TI's OMAP application processors support the most popular and widely-used mobile operating systems, such as Linux, Palm OS, Symbian OS and Microsoft Windows CE.

TI's TCS Wireless Application Suite

The TCS chipset family supports a rich set of embedded services known as the TCS Wireless Applications Suite. This software suite includes an easy-to-use PC-based software development environment, optimized Java KVM, microbrowser, voice recognition, EMS and MMS messaging clients, Bluetooth™ profiles, and more. The TCS Wireless Application Suite is fully validated and type-approved, allowing a rapid time-to-market with a proven solution.

OMAP software



Processors

- Applications Processors
- Integrated Baseband and Application Processors

Software

- OMAP™ Developer Network
- TI DSP Third-Party Network
- Software Libraries
- High-Level OS Support

Support

- OMAP™ Technology Centers
- TI Support
- Development Tools

The OMAP application processors can be paired with one of the TCS chipsets and support the complete range of leading mobile OSs and high-level programming languages, including Java, Linux, Palm OS, Symbian OS and Windows CE. Software architecture allows rapid application development by mobile device manufacturers and third-party software developers because programmers work in a unified, consistent and familiar programming environment with simple access to all processing cores, including DSP cores, through one high-level API.

In addition to TI's own extensive software algorithms, drivers and other resources, the OMAP Developer Network is comprised of innovative third-party developers who are rapidly compiling many rich applications and

drop-in media modules that perform multimedia functions like streaming media, voice recognition, high-end audio, speech recognition, text-to-speech, security and others.

Customer support programs

TI offers a wide range of support programs, such as online training, extensive technical documentation, an online knowledge base, interactive discussion groups and support initiatives.

For example, with the sophisticated Innovator Development Kit™ for the OMAP™ Platform, the time spent on programming is shortened because software development can begin immediately. The Innovator Development Kit doubles as a demonstration platform, features an OMAP processor and is packaged as a compact mobile device. It is scalable and can be expanded to meet virtually any special set of needs. Through its add-on expansion boards, the Innovator Development Kit can support multiple wireless communications standards, including GSM/GPRS (TCS2100 Chipset), 802.11 (WLAN) and Bluetooth. Moreover, the Innovator Development Kit can serve as a development platform for multiple operating systems, including all the major mobile OSs supported by the TCS chipsets and OMAP processors.

The OMAP family of processors is also supported by a lengthy list of programs and initiatives. The OMAP Developer Network, for example, encourages the development of software applications and functional modules by offering its members a wide range of technical resources, business development programs and interactive community activities. In addition, Independent OMAP Technology Centers (OTC) are located conveniently around the globe. These facilities are staffed by experts in wireless design and OMAP technology development who can support design projects and streamline the entire new product development process. System integration, multimedia development, cross-OS development and training on OMAP technology and its development tools are just some of the valuable services OTC can provide manufacturers.

Complete wireless technology portfolio

As multimedia mobile devices, PDAs, and Internet appliances evolve, wireless chipset solutions will continually expand to include exciting new capabilities through which device manufacturers will gain a competitive advantage in the marketplace. TI is uniquely positioned to supply all the technologies in tomorrow's multimode mobile devices. These devices will incorporate additional wireless technologies like Bluetooth, 802.11 WLAN and global positioning services (GPS). TI provides these technologies in tightly integrated and proven wireless solutions so that device manufacturers can bring their leading-edge products to market faster and more efficiently.

Bluetooth

Bluetooth, and the personal area networks (PAN) that it enables, is an exciting technology for the wireless industry. Bluetooth will allow the wholesale replacement of many of the short connecting cables in use today. In addition, the easy-to-use, ad hoc networks made possible by Bluetooth will create a host of new applications, enhancing user convenience and utility.

Much of TI's Bluetooth strategy is centered on the requirements of mobile devices and peripherals like headsets, headphones, gaming devices and others. Using an innovative digital RF architecture and advanced fabri-

cation processes, TI has integrated RF processor and Bluetooth baseband processor on the same chip, in the BRF6100. As a first in the industry, this highly integrated device consumes very little power and requires miniscule board space, making it an ideal solution for handsets, cell phones, smartphones and other mobile wireless systems. The BRF6100 has been optimized to the various 2.5G and 3G communications standards like GSM, GPRS, CDMA and UMTS.

With a cost of less than \$4 in volume, the BRF6100 slashes system cost and reduces board space. And, by driving down power consumption, it provides a critical factor for wireless terminals and consumer devices.



WLAN (802.11) Wi-Fi

Over the years, TI has been a leader in WLAN technology and in the development of the open IEEE 802.11 specification. Our technology has delivered innovative performance levels, low-power consumption and interoperability.

TI's pioneering products, like the industry-leading ACX100 802.11b Wi-Fi-certified processor, have extended the capabilities of 802.11b to provide improved rate and reach. The single-chip ACX100 MAC/baseband processor supports all 802.11b data rates of 1, 2, 5.5, and 11 Mbps, as well as TI's optional 22 Mbps data rate extension.

Drawing on its decades-long experience with low power operation in the wireless industry, TI's Wi-Fi solutions for embedded and battery-powered applications provide a new level of functionality and low power consumption. For example, the Enhanced Low Power (ELP) technology of the TNETW1100B MAC/baseband processor enables a breakthrough standby power consumption of less than 2mW at the chip level, yielding a 10x reduction in standby power consumption. At this level, the TNETW1100B significantly extends the battery life of 802.11-enabled laptops, PDAs and smartphones.

In anticipation of the new IEEE 802.11g specification with speeds up to 54 Mbps in the 2.4 GHz band, TI has developed the TNETW1130 processor. With this device manufacturers can develop true multi-mode WLAN products capable of speeds up to 54 Mbps in both the 2.4- and 5.2-GHz bands. In addition, the TNETW1130 supports enhanced security and quality of service (QoS). And TI's Auto-Band™ technology in the TNETW1130 and its reference designs allows users to roam and remain connected to 802.11b, 802.11g or 802.11a networks without manually adjusting any network settings.

As further extensions to the 802.11 specification are explored in the future, TI's innovation, thorough interoperability testing and proven commitment to the WLAN market ensures our Wi-Fi solutions will continue to be leaders in the industry.

Global Positioning System (GPS)

Designed specifically for low-power wireless mobile devices, TI's GPS chipset has an air-independent interface which supports all of the wireless communications protocols, such as GSM, TDMA, WCDMA, UMTS, GPRS, CDMA2000 and others. This small, compact chipset comes in chip-scale packaging (CPS) to save board space. It supports Assisted Global Positioning System (A-GPS) for faster, more accurate location fixes over a wider range of geography

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support.ti.com/sc/knowledgebase

Product Information Centers

Americas

Phone +1(972) 644-5580
Fax +1(972) 927-6377
Internet/Email support.ti.com/sc/pic/americas.htm

Europe, Middle East, and Africa

Phone
Belgium (English) +32 (0) 27 45 55 32
Finland (English) +358 (0) 9 25173948
France +33 (0) 1 30 70 11 64
Germany +49 (0) 8161 80 33 11
Israel (English) 1800 949 0107
Italy 800 79 11 37
Netherlands (English) +31 (0) 546 87 95 45
Spain +34 902 35 40 28
Sweden (English) +46 (0) 8587 555 22
United Kingdom +44 (0) 1604 66 33 99
Fax +(49) (0) 8161 80 2045
Email epic@ti.com
Internet support.ti.com/sc/pic/euro.htm

Japan

Fax International +81-3-3344-5317
Domestic 0120-81-0036
Internet/Email International support.ti.com/sc/pic/japan.htm
Domestic www.tij.co.jp/pic

Asia

Phone
International +886-2-23786800
Domestic Toll-Free Number
Australia 1-800-999-084
China 108-00-886-0015
Hong Kong 800-96-5941
Indonesia 001-803-8861-1006
Korea 080-551-2804
Malaysia 1-800-80-3973
New Zealand 0800-446-934
Philippines 1-800-765-7404
Singapore 800-886-1028
Taiwan 0800-006800
Thailand 001-800-886-0010
Fax 886-2-2378-6808
Email tiasia@ti.com
Internet support.ti.com/sc/pic/asia.htm

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