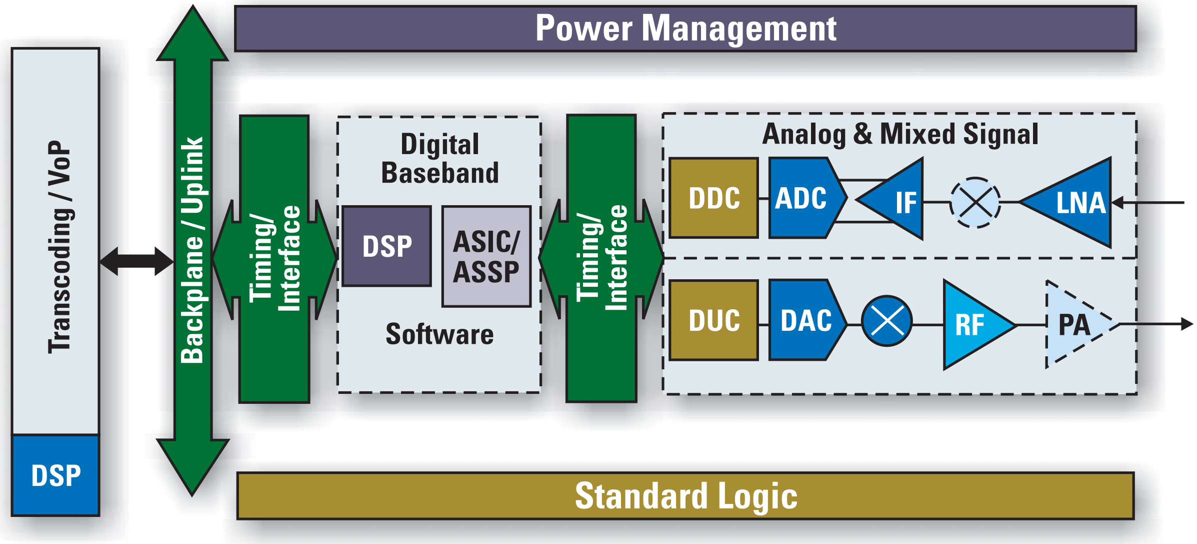
Wireless Infrastructure Systems Solutions

Flexibility. Performance. Efficiency.

Texas Instruments provides the broadest wireless infrastructure portfolio available today.



TI's new wireless infrastructure products connect people faster, with better call quality, enabling richer wireless services.

Data intensive applications, such as emailing 2–3 megapixel images captured by camera phones, are expected to place a greater burden on the already strapped wireless infrastructure. Combined, these factors are spurring system providers toward cost effective, flexible and complete solutions that help minimize capital and operating expenditures.

Leveraging its significant experience with wireless infrastructure customers, TI has responded to these market factors by developing high performance products which provide greater channel density, increased system flexibility and enable customers to get to market faster.

From the highest performance digital signal processors (DSP) and data converters to high-density digital up/down converters to monolithic integrated quadrature modulators, TI works with its customers to provide the most complete signal chain solutions* available today. TI Wireless Infrastructure solutions provide:

- Support for all major cellular standards
- Industry leading systems expertise that comes from implementing solutions for 10 of the top 12 third-generation (3G) infrastructure suppliers
- Flexibility via high-performance device programmability and product
- Unique process technology in the semiconductor industry
- Software and hardware development tools and evaluation kits designed to reduce development and implementation time

ASIC

TI provides customers options for ASIC implementations that include many of its DSP cores and provide:

- Experienced, flexible and global design services
  - Expertise in high-complexity as well as low-cost, low-power designs
- System-level integration using a wide variety of highly differentiated intellectual property
- Global leadership in semiconductor manufacturing
  - 90 nm devices in production

High-Speed Amplifiers

Innovative architectures and technology have enabled TI to provide high-speed, high-performance amplifiers that are ideal for wireless infrastructure applications. The THS9000 and THS9001 amplifiers are medium power, cascadeable, gain block optimized for 50 MHz to 400 MHz IF frequencies. These amplifiers incorporate internal impedance matching to 50 Ω. The THS9000 comes in a very small 2×2 mm leadless MSOP package, and the THS9001 comes in a 6-pin SOT23 package. These devices make excellent choices for driving SAW filters, buffering LOs, or general-purpose IF amplifiers.

Key Features

- OIP_3: 37 dBm at 300 MHz
- Gain: 15.5 dB
- Noise figure: 4.0 dB at 300 MHz
- 1 dB compression: 20.6 dBm
- V_S = 3 V to 5 V
- I_S is adjustable
- Packaging: 6-lead (leadless) MSOP, SOT23-6

Standard Logic

TI is constantly moving forward to advance its logic portfolio, while remaining dedicated to providing the industry with the broadest portfolio of mature logic devices.

Our latest technologies are groomed for a moving market with advanced CMOS families and functions, including the AUP and AUC low-power and high-speed families ideal for wireless applications. For datacom applications, the GTLP family offers the broadest portfolio of high-performance backplane drivers designed to increase data throughput over traditional logic devices. TI offers both high-drive (100 mA) GTLP devices for heavily loaded backplanes as well as medium-drive devices (50 mA). The CBT, CB3Q, CB3T and CBTLV families of Bus Switches offer designers a broad portfolio to meet their switching needs.

CDC7005 Clock Distribution Circuit

Reducing board space by 70 percent, the CDC7005 low phase noise clock synthesizer provides multiplying, dividing and jitter cleaning features that optimize timing performance. The CDC7005 also reduces board costs, and the need for numerous discrete components. Ideal for wireless infrastructure applications, the device's low-phase-noise performance is beneficial for many signal chain devices including ADCs, DACs, SerDes, ASICs and DSPs, which require precise reference clocking.

- High-performance 1:5 LVPECL clock synthesizer
- VCXO_IN clock is synchronized to REF_IN
- Synchronizes frequencies up to 800 MHz
- Efficient jitter cleaning from low loop bandwidth
- Each output frequency is selectable by ×1, /2, /4, /8, /16
- Industrial temperature range –40°C to 85°C

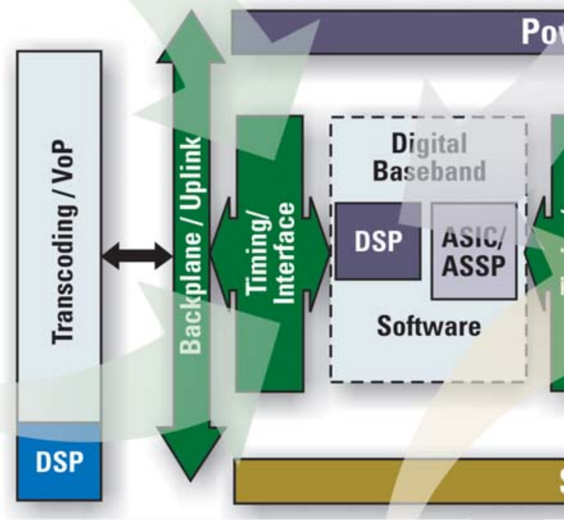
TMS320TCI100 DSP

Based on TI's leading TMS
TMS320TCI100 DSP offers
programmability and flexibi
high-density UMTS channe
standards.

- Industry-leading 90 nano
  - 720 MHz core perform
  - Power-efficient design
  - High integration throu manufacturing proces
- DSP designed for Wireles
  - Integrated Viterbi (VCP
  - TCP supports over 35
  - VCP enables over 600
- Complements TCI110 and accelerators for Wideba

TLK1521, TLK2521 SerDes Family

This serializer/deserializer (SerDes) family provides an 18:1/1:18 SerDes function for general-purpose point-to-point links. The devices support data rates from 500 Mbps to 2.5 Gbps with low-power dissipation. The 18-bit parallel interface provides flexibility in terms of interfacing with FPGA and ASIC solutions where standard 16- and 32-bit buses are not used or needed. In addition, the family offers built-in, high-speed equalization that allows for greater signal integrity when driving long links. Multi-channel devices such as TLK4120 and TLK4250 are also available.



GC5316 Digital Up/Down Converter

A highly integrated digital up and down converter, the GC5316 is ideal for 3G applications including W-CDMA and CDMA2000. The high-channel density allows designers to reduce the size and complexity of their designs.

Key Features:

- Supports up to 24 DDC and 24 DUC CDMA2000 channels
- Supports up to 12 DDC and 12 DUC W-CDMA channels
- Supports mixed CDMA2000 and W-CDMA channels
- Integrated power meters on both DDC and DUC channels
- Real/Complex DDC inputs/DUC outputs
- 115-dB SFDR
- Low power

Power Management

Wireless Infrastructure systems require designers to consider a wide range of power management

320C64x™ DSP core, the
the performance,
lity to provide users low-cost,
el card designs for all major

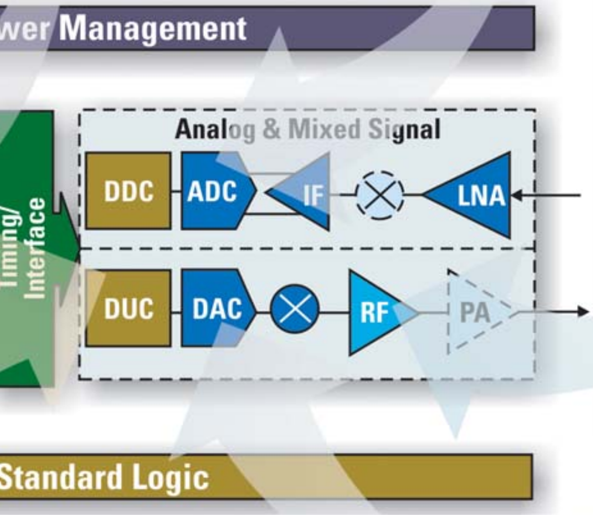
meter process node
ance
n (~600-mW core power)
gh state-of-the-art CMOS
s
ss Infrastructure applications
P) and Turbo (TCP) coprocessors
data (384-kbps) channels
voice (7.95-kbps AMR) channels
TCI120 receive and transmit
nd CDMA (W-CDMA)

ADS5500 Analog-to-Digital Converter

The ADS5500 high-speed ADC offers designers outstanding performance of 14-bits at 125 mega-samples per second (MSPS), while consuming only 750 mW of power.

Specifications

Resolution	14 bits
Speed	125 MSPS
SNR	70 dB
SFDR	82 dB
Total power	750 mW
Single supply	3.3 V
Input bandwidth	750 MHz
Availability	Today!



TRF370x Modulator

TRF3701 and TRF3702 are low-noise, quadrature-direct modulators capable of converting complex input signals from 0–250 MHz IF up to RF. An internal analog combiner sums the real and imaginary components of the RF output.

- TRF3701: RF output up to 1.5 GHz
- TRF3702: RF output up to 2.5 GHz
- Typical optimized carrier suppression > 50 dBc
- Typical optimized sideband suppression > 50 dBc
- Typical noise floor – 157 dBm/Hz
- 5-V single supply

DAC5686 Digital-to-Analog Converter

The DAC5686 is the newest high-speed DAC from TI featuring dual outputs, low power, high output rate and digital features including interpolation and digital quadrature modulation with a numerically controlled oscillator. This DAC offers superior performance and ultimate flexibility for demanding 3G Wireless Infrastructure environments.

Key Features:

- 500-MSPS maximum DAC update rate
- Three modes of operation: dual-channel, quadrature modulation, single sideband up conversion
- Selectable 2× to 16× interpolation, dual-channel with on-chip 2×–16× PLL clock multiplier, PLL bypass mode
- Low power dissipation: 440 mW (SSB mode)
- 1.8-V digital / 3.3-V analog supply

technology. From discrete devices to modular approaches, WI designers must select technology that addresses the technical challenge of the system and offers ancillary benefits in terms of ease-of-use and supply chain reliability and efficiency.

Much of TI's broad range of power-management products has been targeted at wireless infrastructure applications. Based on extensive experience with power technology, TI products address application challenges that designers face daily. With devices ideal for both portable and board power applications, TI has a comprehensive array of power management solutions. In addition, its market-proven record of expertise has made TI's power technology very easy to use for designers. A wide range of both discrete devices and isolated and non-isolated modular power technology is also available.

VoP Gateway & Transcoding

TI's high-density voice over packet (VoP) gateway solutions address the tough challenges facing service providers deploying packet-based networks. TI's gateway solutions are designed with an emphasis on solution density and address channel density, power per channel, solution architecture and carrier class features to deliver a complete solution.

- Flexible, carrier-grade solution
  - Field-proven Telogy software with over 30 million ports shipped
  - Carrier-certified echo cancellation
- Telogy software framework optimized for the TMS320C64x™ and TMS320C55x™ DSP platforms
- Multi-use for wireline and wireless voice applications
  - Extensive voice codec suite, including wireless codecs such as SMV, EVRC, AMR, WB-AMR and QCELP

Texas Instruments – Making Wireless

TI is the leading manufacturer of wireless semiconductors, delivering the heart of today's wireless technology and building solutions for tomorrow. TI provides a breadth of silicon and software and 15 years of wireless systems expertise that spans handsets and base stations for all communications standards, wireless LAN, Bluetooth® and Ultra Wideband. TI offers custom to turnkey solutions, including complete chipsets and reference designs, OMAP™ application processors, as well as core digital signal processor and analog technologies built on advanced semiconductor processes.

TI Worldwide Technical Support

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*System and equipment manufacturers are responsible for ensuring that the overall design meets all safety and other requirements for their applications that incorporate TI devices.

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