Product Bulletin

TNETD4000R Remote ADSL Chipset Solution

Key Benefits

- Based on TMS320C6000 DSP technology for maximum programmability
- Powered by Amati technology
- Complete solution including line driver and receiver
- Proven interoperability
- Advanced design reduces board space by 40 percent

The new TNETD4000R remote terminal ADSL chipset from Texas Instruments is designed to give OEMs a complete, cost-effective and simplified way of building next-generation remote ADSL solutions. Designed for remote applications such as external modems, small office/home office (SOHO) routers and residential gateways, the '4000R builds on TI's leadership in supplying breakthrough solutions for the ADSL industry.

The chipset leverages the industry's most advanced DSP core technology—TI's TMS320C6000 generation—and leading-edge analog and integration capabilities to deliver a cost effective, interoperable and highly programmable solution for stand-alone customer premise applications. The '4000R chipset builds on two previous generations of modem design from Texas Instruments and leverages Amati ADSL software and technology.

High Integration, Lower Total System Cost, Design Ease

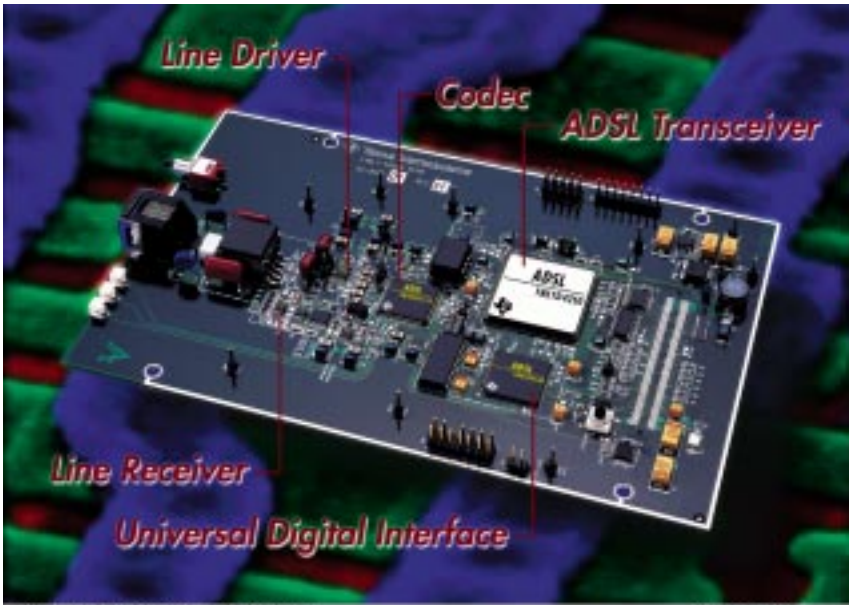
Like all of TI's ADSL solutions, the '4000R chipset features high levels of integration and functionality. The chipset is a complete ADSL solution, offering everything necessary to implement a remote ADSL solution, from Tip/Ring to Utopia 2 or serial interfaces and all the required software. The five-device chipset integrates all necessary program, data, and interleave memory, along with all of the real-time microcontroller functions. By integrating functions such as the microcontroller, the '4000R enables faster time to market while reducing total system cost. TI also improves time-to-market by providing complete development kits that include evaluation module boards, full documentation and detailed reference designs with schematics, gerber files, test routines and design notes. Finally, the latest analog front end (AFE) design helps reduce the board area by more than 40%. This contributes significantly to a lower bill of materials (BOM).

Proven Interoperability

Higher performance doesn't mean anything without the assurance of interoperability. The '4000R chipset has proven interoperability with leading manufacturers of ADSL equipment, giving designers the assurance that systems they design in the lab will work in the real world, multi-vendor environment.

Maximum Programmability

Based on TI's TMS320C6000 core DSP technology, the chipset offers maximum programmability to give designers a powerful yet extremely flexible implementation. For instance, designers can implement the ITU (International Telecommunications Union) G.992.1 Annex A (G.dmt-ADSL over POTS), G.992.1 Annex B (ADSL over ISDN) and G.992.2 (G.lite) standards, as well as



The TNETD4000R chipset gives designers a highly integrated and complete solution for remote-terminal ADSL applications.

ANSI (Americal National Standards Institute) standard T1.413i2, while leveraging the G.994.1(G.hs) and G.997.1 (G.ploam) protocol from a single code load on the same physical hardware platform. This flexibility gives manufacturers a powerful tool for meeting market needs as they emerge, without the need for expensive new hardware.

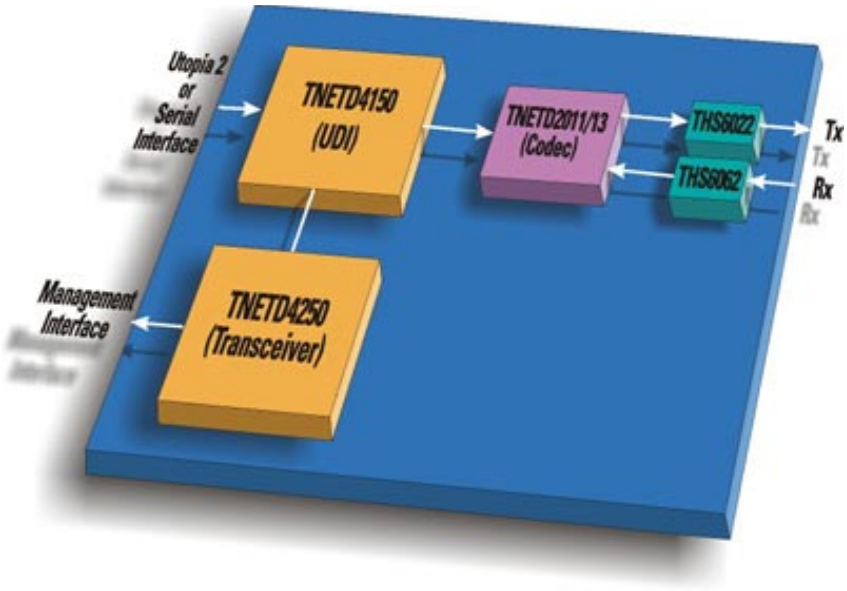
TI's ADSL solutions inherit much of their programmability and interoperability from TI's purchase of Amati, a pioneer in the DSL industry. With the combination of TI's silicon expertise and Amati's seven years of standards-based DSL intellectual work, '4000R chipset customers get all of the technology they need to implement any version of standards-based ADSL. This represents a tremendous advantage in getting leading-edge products to market quickly.

For More Information

Leading-edge hardware and software, proven interoperability and support from one of the industry's most capable suppliers—all combine to make TI's TNETD4000R chipset a powerful choice for next-generation remote terminal ADSL systems. If you would like to learn more about how TI can give you the tools for a winning design, please contact your local TI field sales office.

Or, you'll fine more information on the web at:

http://www.ti.com/sc/access



TNETD4000R Remote Terminal Chipset

The Devices

Digital Section

TNETD4150 Universal Digital Interface—The Universal Digital Interface (UDI) provides the data interfaces (serial or Utopia 2) for the modem. Functions performed by the UDI include bearer channel muxing/demuxing, ADSL framing/deframing, ATM transmission convergence, Trellis coding, Reed-Solomon encode/decode, CRC scrambling/descrambling, and interleave/deinterleave (8-Kbytes on-chip interleave memory).

TNETD4250 ADSL Transceiver—The TNETD4250 utilizes TI's industry-leading 'C6000 DSP technology to provide superior performance and unparalleled programmability. The device performs the ADSL digital signal processing and all real-time operation, administration and maintenance (OA&M) and management functions for the modem. Specific digital signal processing includes the control and processing of all initialization/training sequences and the steady state ADSL modem processing. The steady state processing functions include FFT/IFFT, line equalization (FEQ & TEQ) filtering and echo cancellation.

Analog Front End

TNETD2011/13—The TNETD2011 and '2013 are high performance ADSL codecs that provide a 14-bit analog-to-digital converter, 14-bit digital-to-analog converter and a complete set of digital and analog filters. The '2011 device features sets of filters for ADSL over POTS while the '2013 provides the filtering for ADSL over ISDN applications. The set of POTS filters in the '2011 are applicable for both full-rate and G.lite implementations.

THS6022—A remote terminal line driver, the THS6022 contains two high-speed, high-current drivers capable of providing 250-mA output current (min) into a 50-ohm load. The drivers can be configured differentially to drive a 50-V_{p-p} output signal over low-impedance lines.

THS6062—Using the latest ultra-low-noise amplifier technology, the THS6062 consists of two low-noise, high-speed remote-terminal line receive amplifiers.

TEXAS INSTRUMENTS

Printed in U.S.A. by _____

Printed on recycled paper.

SPAT105