Product Bulletin

ADSL PCI Chipset Solutions

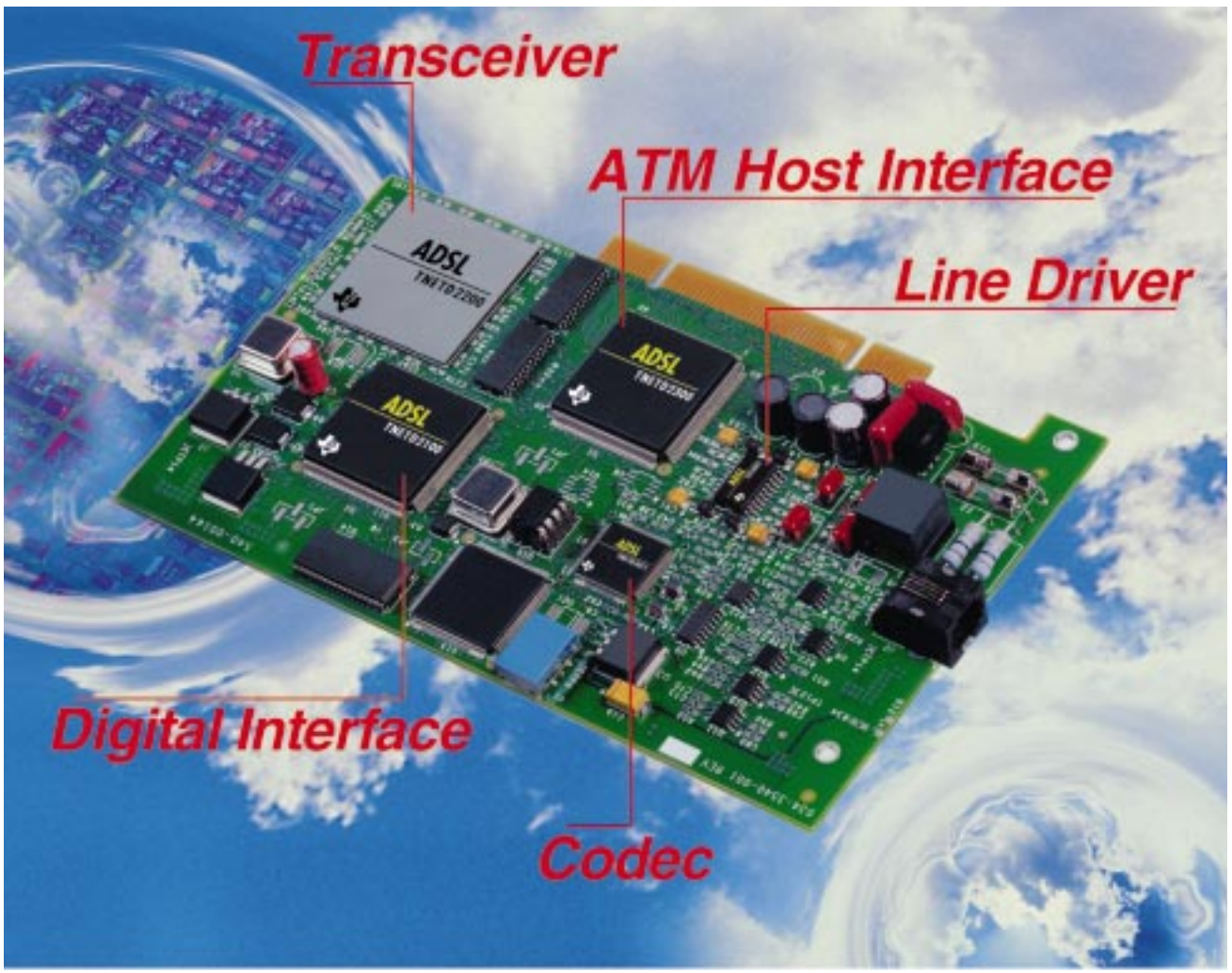
Providing End-to-End Solutions for High-Speed Communications

Key Benefits

- Market-proven fifth-generation Amati technology
- T1.413 Issue 2 compliant
- UAWG compliant
- Fully programmable to accommodate evolving standards (G.lite)
- Interoperable with leading central office ADSL equipment
- Long-reaching robust ADSL solution

With more than 100 times the performance of today's analog modem technology, Asymmetric Digital Subscriber Line (ADSL) is revolutionizing the remote access industry. Now, Texas Instruments delivers all the silicon and software support that personal computer and modem designers need to quickly and easily build T1.413 Issue 2 and UAWG (Universal ADSL Working Group)-compliant remote access solutions.

Designated TNETD2000P, for PCI-based solutions, the new chipset leverages the company's DSP industry leadership and world-class mixed-signal technology to deliver the industry's most programmable and flexible ADSL designs. TI's client-side ADSL solutions also benefit from the recent acquisition of DSL technology pioneer, Amati Communications. With Amati's four previous generations of proven DSL chipsets and TI's



DSP solutions leadership, designers and PC/modem manufacturers can be sure they are getting the most advanced and cost-effective ADSL solutions available.

TI's client-side ADSL chipsets, along with the TNETD2000C central office ADSL chipset, make up end-to-end, highly interoperable ADSL solutions. As the market evolves, TI chipset solutions will be further tailored to meet the needs of specific DSL market segments.

The Chipset Architecture

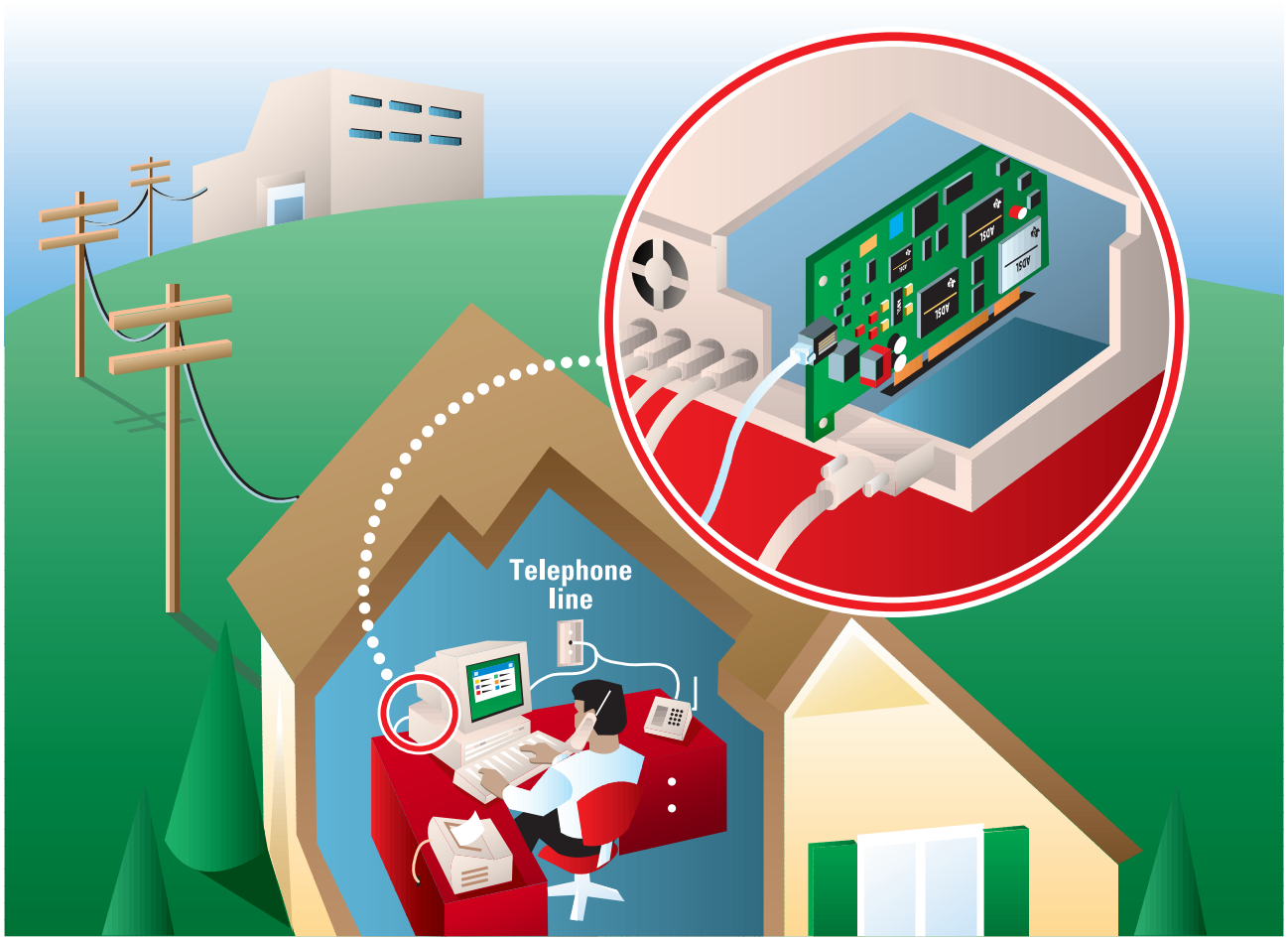
The TNETD2000P client-side chipset's incredible performance is powered by TI's revolutionary 1600 Millions of Instructions Per Second (MIPS) TMS320C6000 DSP core technology and mixed-signal expertise. This leap-frog technology provides the MIPS headroom to enable future applications such as home networking, virtual private networks (VPNs), and voice-over-IP. Some benefits of the TNETD2000P architecture include:

High-Performance Architecture— TI's 'C6000 technology, which is five to ten times more powerful than the nearest competitor's DSP, allows the TNETD2000P PCI chipset to offer high throughput, long reach and robust ADSL modem performance. TI also adds to the inherent performance of its chipset by leveraging DSP algorithms to cancel reflected echo in the analog domain. This allows for even greater performance when the chipset is used in "echo cancellation mode," and provides only a single tone separation between the upstream and the downstream when using in a "frequency-division-multiplexing mode." In this later instance, by using a unique combination of the DSP MIPS and the analog front end, the full precision of the analog front end is maximized without the use of bulky or inaccurate analog filters.

Standards Support—In addition to T1.413i2 compliance for full-rate performance, the TNETD2000P chipset also fully supports the UAWG framework specification. UAWG support enables low-cost installation, 1.54-Mbps/512-Kbps operation, fast retrain algorithms and power management.

Highly Programmable Architecture—The fully programmable 'C6000-based ADSL transceiver facilitates quick and easy software upgrades, code updates and even future standard implementations such as the upcoming G.lite standard.

Interoperability—TI's proven interoperability with leading central office equipment solutions provides a superior level of "connectability," which enables widespread deployment.



PCI Adapters based on TI's ADSL solution enable voice and data transmission over the same telephone line, allowing the user to access the Internet and use the telephone simultaneously.

Flexible Platform—The power of the 'C6000-based platform helps extend remote access capabilities. TI client-side ADSL solutions can run at multiple bit rates and support multiple standards (T1.413i2, UAWG, G.lite), depending on code load. This gives manufacturers the ability to build universal modems, get to market quickly and to provide a software upgradeable solution.

Complete Solutions

TI ADSL client-side chipsets offer designers everything, including all the hardware and software they need to take end products from concept to production. TI's ownership, leadership and support of all the key technologies and software required to develop ADSL solutions gives OEMs a single resource for all of their design requirements.

TNETD2000P Chipset

The TNETD2000P chipset consists of five devices and the necessary ADSL and Microsoft® compatible Windows driver software to implement a standards-compliant PCI adapter modem. The devices and software include:

TNETD2100 Digital Interface— Programmable serial interfaces provide simple and clean standards-compliant data interfaces to the chipset. In order to help support asynchronous transfer mode (ATM) implementations, each serial interface features a byte mark pin.

TNETD2200 ADSL Transceiver— Based on the high-performance TMS320C6000 DSP core technology, the completely programmable ADSL transceiver provides the necessary computationally intensive digital signal processing required for MIPS-intensive ADSL modem operation. Further, the 'C6000 core provides additional processing headroom, which enables PC/modem manufacturers and third parties to develop and market value-added differentiators.

TNETD2300 ATM Host Interface Device—This highly integrated device handles all ATM, SAR, and PCI bus control functions for efficient host bus utilization. In addition, its advanced traffic shaping capabilities ensure optimum network bandwidth utilization.

TNETD2011 Codec—This codec is a high-precision mixed-signal device that provides the analog-to-digital (A/D) and digital-to-analog (D/A) conversions and associated filtering required for ANSI T1.413 Issue 2 modems.

THS6002 Line Driver—This device provides the high-speed line drivers and the receive circuitry required to drive the ADSL line. It is available in TI's patented PowerPad™ package, reducing the size of the device and greatly improving its thermal dissipation characteristics.

Windows Software Drivers—TI provides robust software drivers and install wizards that support point-to-point protocol (PPP) over ATM for Microsoft Windows 95/98 and Windows NT Operating Systems. This enables seamless integration with Windows dial-up networking.

Reference Design

To further help OEMs speed products to market, all of the chipset devices and software are available in a robust PCI adapter reference design.

Benefits for Remote Client Applications

To navigate the constantly changing world of remote access modem standards, end users need highly adaptable products that give them the flexibility to meet new DSL protocols and evolving standards to ensure interoperability. TI's remote client chipsets put users just a mouse click away from software upgrades.

Cost and performance are also two key concerns in remote client DSL applications. By providing a complete chipset solution with high levels of silicon integration, the TNETD2000P is extremely cost-effective. In addition, the programmable architecture reduces the total cost of ownership for modem manufacturers by enabling remote downloads of code updates and new feature set additions.

And when it comes to performance, TI is the leader. Leveraging thousands of Amati's successful real-world field trials, the modem chipset delivers the industry's highest performance. The precision Analog Front End (AFE) designs and an extremely robust code base assure customers of the highest connect rates and longest-reaching standards-compliant chipset available.

For More Information

DSL represents more than a new technology. It is a fundamental new approach to remote access communications that uses existing infrastructure to deliver incredible new bandwidth and incredible new applications. For this constantly changing environment, TI offers the industry's most powerful and flexible solutions. If you would like more information on the TNETD2000P client-side ADSL chipset, please call your local TI field sales office. Or, you'll find additional information at:

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

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