

OCTOBER 1997

# ELECTRONIC PRODUCTS

THE ENGINEER'S MAGAZINE OF PRODUCT TECHNOLOGY

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**Audio transducer outputs 92 dB, we**  
**Flexible pc board needs no through hole**  
**Update: Ckt protection devices & filter**

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## Outlook

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- ▶ Packaging components ease design of VME 64 Extension and Compact PCI systems
- ▶ 32-bit architecture aims at embedded control and superintegration
- ▶ Next-generation HBT wafers improve reliability and ease of use
- ▶ Semiconductor technology has IGBT and thyristor strengths

## Features

### COMMUNICATIONS SPECIAL

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## Product Highlights

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- ▶ High-output transducer offers 50% size reduction
- ▶ Flexible pc board needs no through holes
- ▶ Compact module eases digital satellite set-top box design
- ▶ and more

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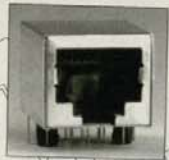
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## Selecting an ADSL transceiver: ANSI standard offers two levels of modem performance

*T1.413 Category II defines an advanced feature set for higher data throughput and backward compatibility with Category I*

BY RICK HALL  
Motorola Semiconductor  
Austin, TX

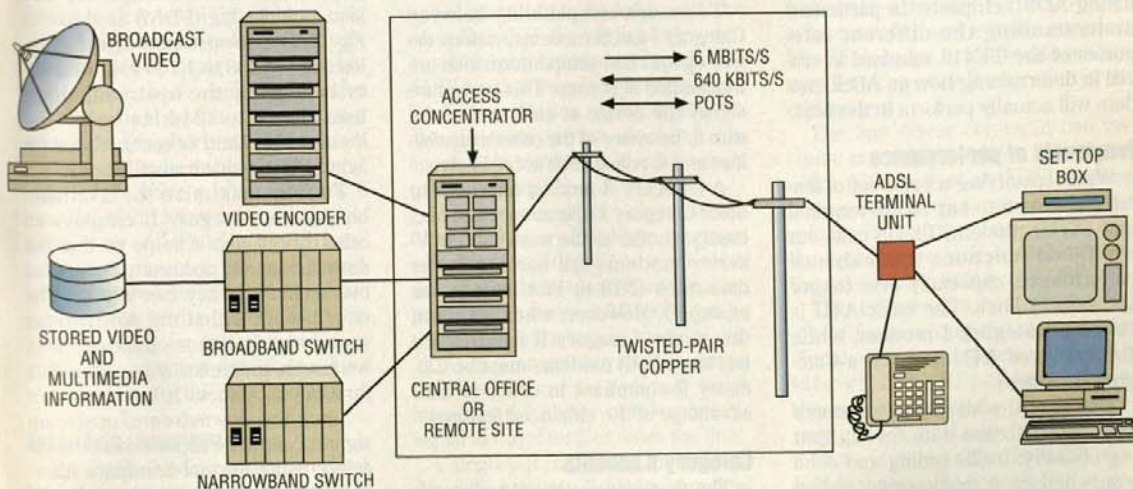
**A**symmetric digital subscriber line (ADSL) is a modem technology for a new generation of high-speed modems. ADSL uses an advanced signal modulation technique called discrete multitone (DMT) to transmit data over normal copper telephone wires at rates 200 times faster than current V.34 modems.

With a data rate of 6 Mbits/s, ADSL (see Fig. 1) offers users blazing Internet browsing speeds while simultaneously preserving Plain Old Telephone Service (POTS). Consequently, ADSL provides a quick, cost-effective way for network service providers to offer multi-megabit services, such as distance learning or telecommuting, using the 650 million telephone lines already in place throughout the world.

Intensive standards development, spearheaded by the T1E1.4 working

group of the American National Standards Institute (ANSI), led to the publication of the T1.413 ADSL interface standard in 1995. This document details the standard functions of an ADSL modem and enables the design of interoperable, multivendor products.

More than 50 equipment and semiconductor vendors are now developing T1.413-compliant ADSL products. Other standards bodies such as the European Telecommunications Standards Institute and the



**Fig. 1. ADSL modem technology delivers high-speed Internet access over existing telephone lines, while simultaneously preserving Plain Old Telephone Service (POTS).**

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