ADSL USB Modem

High-Performance External USB Modem

The Analog Devices ADSL USB modem provides PC modem OEMs the opportunity to capitalize on the latest advancements in USB modem technologies.

THE LOW-COST, HIGH-PERFORMANCE USB EXTERNAL MODEM SOLUTION FOR MODEM OEMs

The Analog Devices ADSL USB modem is a low-cost, high-performance modem enabling externally connected high-speed data communications in a variety of multimedia devices. It offers modem manufacturers an enhanced communi-cations solution using existing telecom-munications networks. Additionally, component, manufacturing and utiliza-tion costs are reduced as the modem uses USB bus power, thus eliminating the need for an external power source. The solution is Voice over DSL capable using off-the-shelf third-party software.

The standards-compliant Analog Devices ADSL USB modem provides industry-leading interoperability with DSL access networks worldwide. It operates in both Full-rate and Lite ADSL modes.
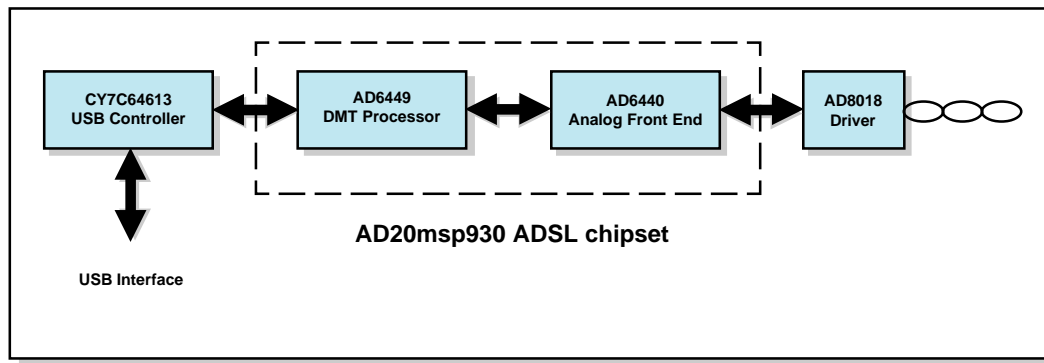
The solution combines Analog Devices' industry-leading analog and mixed-signal integrated circuits with a software-based Asynchronous Transfer Mode (ATM) Segmentation and Reassembly (SAR) controller to offer unparalleled data transfer rates for USB interfaced hardware.

FEATURES

- Compact external USB modem, PCB size < 3 x 4 inches

- Power Requirements: 500 mA @ 4.5 V

- Standard USB 1.1, series B receptacle

- Major components: Analog Devices AD20msp930 chipset comprised of AD6449 and AD6440, AD8018 Line Driver, AD8022 Receiver, and Cypress (Anchor) CY7C64613 USB controller

- Compliant to ITU, DSL Forum, ATM Forum, IETF, and PC2001 specifications

- ADSL-compliant with ANSI T1.413 Issue 2, ITU G.992.1 (G.dmt) including Annex B (ADSL over ISDN), and G.992.2 (G.Lite) with fast retrain in G.Lite mode, and ETSI TR328 standards

- Protocol support for RFC 1577 (now part of RFC 2225 Classic IP over ATM), RFC 2364 (PPP over ATM), RFC 2225/2684 (IP over ATM: Bridged Ethernet/Routed IP), and native mode ATM

- Supplied device drivers support the world's most popular operating systems, Microsoft Windows® 98 and 2000

- Operating temperature $0^{\circ}C - 70^{\circ}C$

**ANALOG
DEVICES**

```
┌─────────────┐     ┌─────────────┐  ┌─────────────┐  ┌─────────────┐
│ CY7C64613   │◄──► │   AD6449    │◄►│   AD6440    │◄►│   AD8018    │──○○○○
│ USB Controller│    │ DMT Processor│  │Analog Front End│ │   Driver    │
└─────────────┘     └─────────────┘  └─────────────┘  └─────────────┘
        ▲
        │
        ▼
   USB Interface
```

AD20msp930 ADSL chipset

USB Modem Functional Block Diagram

SOFTWARE SPECIFICATIONS

The supplied device drivers and software are compatible with Microsoft Windows® 98 and 2000. A simple graphical user interface allows for easy setup, device driver installation, and configuration. An application program is included for diagnostics and performance monitoring. Feature enhancements are accomplished by simple firmware upgrades. The software supports the following protocols: RFC 1577 (now part of RFC 2225 Classic IP over ATM), RFC 2364 (PPP over ATM), RFC 2225/2684 (IP over ATM: Bridged Ethernet/Routed IP), and native mode ATM. The device driver is NDIS 4.0- and NDIS 5.0-compliant.

STANDARDS COMPLIANCE

The hardware and software complies with a variety of standards and specifications including those from ITU, ANSI, ETSI, DSL Forum, ATM Forum, IETF, and PC2001. The ADSL physical layer is compliant with ANSI T1.413 Issue 2, ITU G.992.1 (G.dmt) including Annex B (ADSL over ISDN), and G.992.2 (G.Lite) with fast retrain in G.Lite mode, and ETSI TR328 standards. ATM AAL0/5 software complies with ATM Forum UNI 3.1, ITU-T I.356, I.362 and I.363, ATM signaling is compliant with ITU-T Q.2931 and Q.2971, and OAM traffic handling adheres to ITU-T I.311, I.371, and I.610 standards. The USB controller complies with USB 1.1 and CDC 1.1 specifications.

NEW PRODUCT R&D

Analog Devices is constantly working to develop new products that meet the changing needs of the telecommunications infrastructure. Research and development have enabled this product to address the need for compact, lower power consumption subscriber equipment, ATM handshaking with backbone switches and routers, and nonstandard symmetric data capable systems up to 1.544 Mbps.

REFERENCE DESIGNS AND TECHNICAL SUPPORT

Analog Devices—the company with a legacy in high-performance DSP, analog, and mixed-signal processing—has the design expertise and in-house manufacturing processes to give your next-generation ADSL product the support and technical backing it deserves. We provide a full range of support for modem manufacturers, including a fully functional reference design complete with PC board layout, schematics, and off-the-shelf component lists. Documentation includes detailed data sheets and application notes. Online applications assistance is available over the phone. Product demonstrations can be arranged at your facility or at one of ADI's many sales offices. Analog Devices is a semiconductor supplier with a consistent record of dependable, on-time delivery. We maintain full control over the manufacturing process from raw wafer to finished product, and we have ample capacity for high-volume production.

Reference Design Package:

- ADI ADSL USB Modem evaluation board
- Schematics
- Board layout
- Bill of Materials
- Documentation
- Software
  - Install program
  - Configuration, GUI, and diagnosis tools
  - NDIS5 USB device driver
  - Firmware for AD20msp930 ADSL chipset
  - Firmware for the USB controller
- Full support for hardware and software during development phase

FIRST TO MARKET

While other vendors scramble to develop standards-compliant ADSL solutions, Analog Devices has everything you need now, off the shelf. From full-featured DSP to analog and software. We meet the needs of today's broadband wired and wireless markets with leadership in analog, digital, mixed-signal processing, RF signal processing, data conversion, interfacing, and total system design. So if time to market is important to you, it's time to connect with Analog Devices.

**ANALOG
DEVICES**
www.analog.com