V.34 Modem

DATA PUMP REFERENCE DESIGN
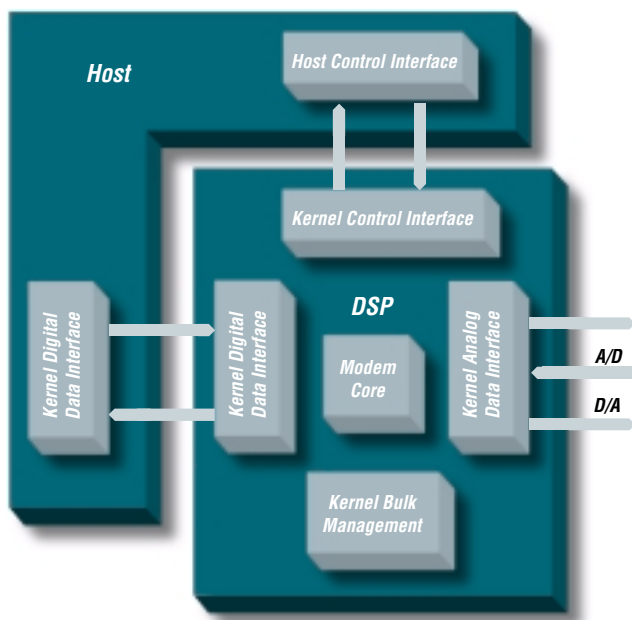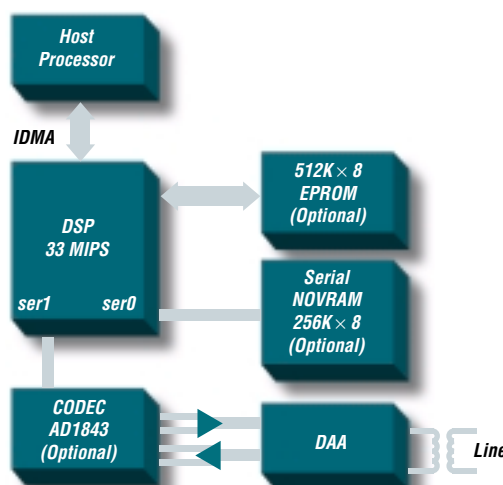
OVERVIEW

The V.34 modem uses a 33-MIPS DSP to execute with no external memory required.

Implementation requires only a single Analog Devices DSP to execute. Clock recovery and resampling is done entirely in software. This feature enables easy interfacing with a wide variety of codecs such as the AD1843. For digital modem implementations, no Codec is needed, since the sampling rate conversions can be done in software.

Hardware Architecture

All software executes from internal memory and can be loaded from an external storage device such as an EPROM or via the host interface. Under these circumstances, the architecture can support a DSP memory upload of 80K within 70 msec.

Software Architecture

The V.34 Modem Data Pump package consists of a relocatable modem core in object format. All interfaces to external systems such as host, Codec and bulk memory are available in source format for easy integration with user applications.

Kernel drivers are available for the AD1843 codec and for direct ISDN connection at an 8 kHz PCM sampling rate.

**ANALOG
DEVICES**

Analog. Digital. Solutions.

V.34 Modem

Boot Mechanism

The V.34 software is divided among several pages. Only one page is contained in the internal memory of the DSP at any given time.

Page	PM	DM
BOOT	716	683
DIAL	1832	1240
V22bis	6029	2249
V32bis	9408	12297
FAX	6953	9501
FSK	2881	1972
V8	2709	2521
INFO	9265	7432
V34	13734	13375

Table 1

Table 1 indicates the amount of memory used in words (three bytes for PM, two bytes for DM). From this table, the amount of memory left for user applications on each page can be deducted. The total amount of available memory is 16 KWord for PM space and DM space.

Two boot cores are supported:
- from EPROM
- using IDMA for host download

Table 2 shows a performance comparison between the ADI modem and three major

Performance
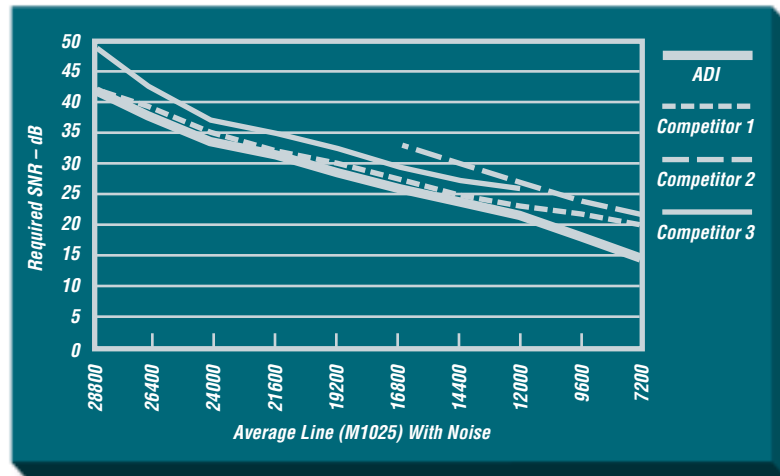
Table 2

competitors. From the graph, one can see that Competitor 3 will only connect at 28.8 Kbit/s, with 8 dB less noise and Competitor 2 cannot connect on this line at speeds higher than 16.8 Kbit/s.

Adding Applications

A major advantage of this solution is that other applications can be integrated with the modem software, even running concurrently on the same DSP. How large the application can be depends on which ITU recommendation is running concurrently. In V.34 operation a minimum of 4 MIPS is available on the DSP for other purposes. By reducing features, this number may be increased to 11 MIPS.

Applications Include:
- Video conferencing
- Cable modems
- PC modems
- Laptop Fax modems

ADI Technology Partner

Telindus, a designer and manufacturer of high quality modems, is based in Belgium and licenses code to Analog Devices for sales with its chipset solutions.

Ordering Information

ADSST-MOD-2000
    Includes DSP and V.34 Modem License

ADSST-MOD-2010
    Includes DSP and V.34 Modem License

H02160–.6–9/00(A)

PRINTED IN U.S.A.

EUROPE HEADQUARTERS
Am Westpark 1–3, D-81373
München, Germany
Tel: +89 76903-0; Fax: +89 76903-557

JAPAN HEADQUARTERS
New Pier Takeshiba, South Tower Building
1-16-1 Kaigan, Minato-ku, Tokyo 105-6891, Japan
Tel: +3 5402 8200; Fax: +3 5402 1063

SOUTHEAST ASIA HEADQUARTERS
4501 Nat West Tower, Times Square
Causeway Bay, Hong Kong, PRC
Tel: +2 2506 9336; Fax: +2 2506 4755

WORLDWIDE HEADQUARTERS
One Technology Way, P.O. Box 9106
Norwood, MA 02062-9106, U.S.A.
Tel: +1 781 461 3483, Fax: +1 781 461 4360
World Wide Web Site: http://www.analog.com

ANALOG DEVICES

Analog. Digital. Solutions.