56k Modem
Data Modulation Software (http://www.vocal.com)

VOCAL Technologies, Ltd. modem software libraries include a complete range of ETSI / ITU / IEEE compliant modulations, optimized for execution on ANSI C and leading DSP architectures (ADI, ARM, DSP Group, LSI Logic ZSP, MIPS and TI). This software is modular and can be executed as a single task under a variety of operating systems or it can execute standalone with its own kernel.

This modulation family can be combined with other data modulations (V.92, V.34, V.32bis/V.32, and V.22bis/V.22/V.23/V.21). V.8/V.8bis startup procedures can be used. All data modulation software is fully compatible with VOCAL's facsimile, telephony, speech coder and multimedia systems.

Depending upon 56k modem configuration selected, the line interface may be an analog front end (codec and DAA) or a digital interface such as T1/E1, switched 56 and ISDN. The upper end of this software can provide PPP, V.14, HDLC or direct binary framing layers. Higher data protocol layers, V.42 (including MNP 2-4), V.44, V.42bis and MNP5 are options as well.

56k Modem Features:

- Compliant with V.90 modem, upgrades as recommendation is approved.
- Modem MIB Support (RFC 1696)
- Specifies 22 modulation rates in range of 28000 bps to 56000 bps, in increments of 1 1/3 kbps. (Administration requirements may restrict maximum rates/power allowed).
- Multi-tasking environment compatible

Terminology:

- 56k modem (Determined February 1998) refers to procedures between a "digital modem" and an "analog modem". The analog modem, which may be connected to the PSTN through either an analog or digital interface, transmits V.34 signals and receives G.711 PCM signals. The digital modem, which is connected to the PSTN through a digital interface, transmits G.711 PCM signals and receives V.34 signals.
- 56k modem (Determined February 1998) refers to analog/digital configurations. Future ITU recommendations or extensions to this modem) may refer to digital/digital configurations and/or PCM transmit and receive for an analog/digital configuration.

Configurations:

- As per terminology above, three 56k modem system configurations are relevant: systems that implement an analog modem only, systems that implement a digital modem only, and systems in which the modem can take on the role of either an analog or digital modem.
- Analog modem DAA interface using linear codec at 16.0 kHz sample rate.
- Digital modem direct interface to 8.0 kHz PCM data stream (A-law or μ-law).
- PPP (RFC1662), V.14, HDLC and direct binary framing layers available.
- North American and International Dialing/Telephony functions available.
- Data protocol layer (V.42/MNP2-4/V.44/V.42bis/MNP5) available.
- System can be combined with V.110 rate adaptation software.
- System can be combined with other modulations (V.92, V.34, V.32bis, et al.) and automode procedures (V.8bis, V.8 and PN-2330).
- Data/Facsimile/Voice Distinction upon startup available. Complete facsimile systems, modulations (V.34, V.17 et al.) and protocols (T.30), and speech coders available.

Example Resource Requirements for 56k Modem (ADSP-2181):

- 16k words program memory, 16k words data memory using overlays between phase 2 and phase 3.
- Estimated 26 MIPS at the highest symbol rate using 8 kHz sampling rate.
- Estimated 27 MIPS at the highest symbol rate using 8 kHz sampling rate.
- Lower MIPS possible with less frequent adaptive coefficient updates.

Figure 1 shows 56k modem block diagram.

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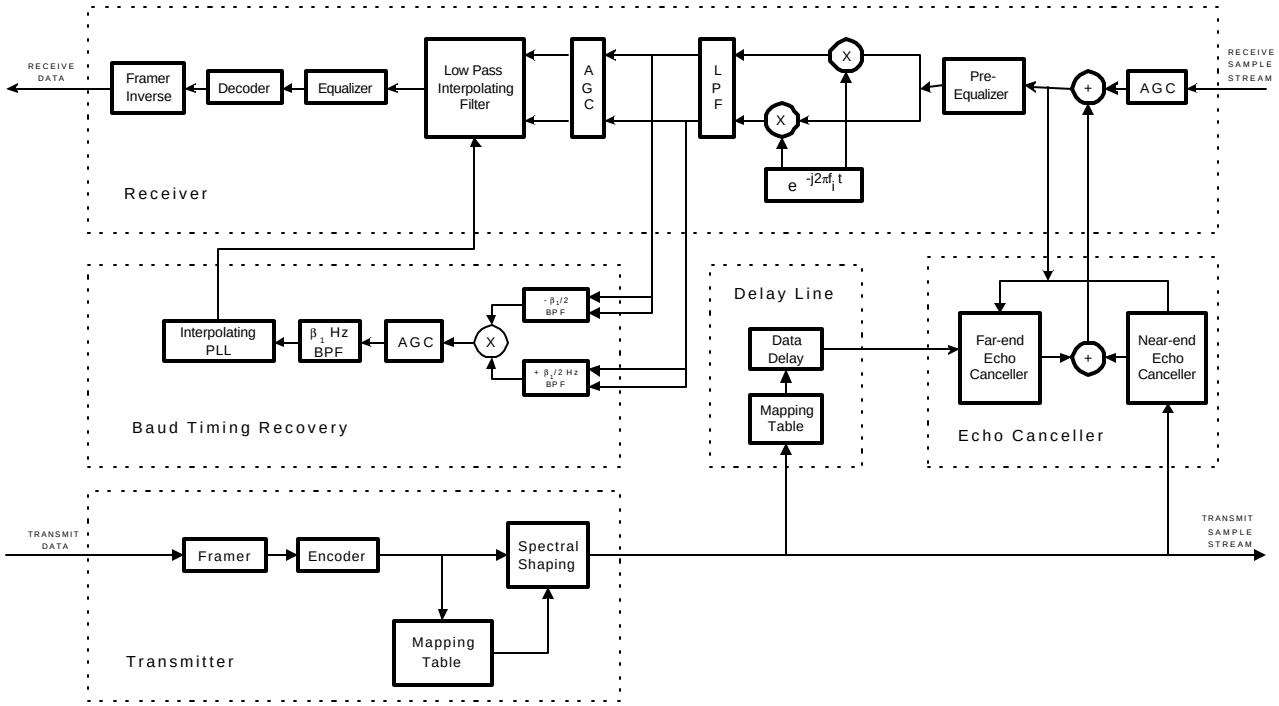

Figure 1. 56k Modem Block diagram

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