GAO Research Inc.

#1 In Embedded Communications Software

GAO Research Inc.
G.Lite (G.992.2) Softmodem

http://www.gaoresearch.com

Features

► **High Speed**
- Data rates of up to 1.5 Mbps downstream and 512 Kbps upstream
- About 55 times faster than V.34 modems
- About 30 times faster than V.90 modems
- About 12 times faster than ISDN modems

► **Always on-line and connected**
- The modem is always connected so no time is wasted dialing up the service several times a day and waiting to be connected.

► **Continuous access telephone service**
- The telephone can be used for normal conversation or faxes can be sent/received while the Internet connection is up.

► **Splitterless**
- Very simple and convenient to install; no visit to the user's premises is required. This saves time and money.

Product Description

G.Lite is a relatively new modem technology that promises to revolutionize online commerce, communications, and entertainment by transforming existing copper telephone lines into instant high-speed connection for Internet access, video conferencing, remote access services, and multimedia applications. One could simultaneously talk on the phone or send or receive a fax while surfing the Web.

G.Lite (ITU G.999.2) was developed as an alternative to full-rate ADSL (Asymmetric Digital Subscriber Line) sacrificing some of the speed in favor of operating without a splitter This significantly reduces costs to the telephone company's service and ultimately the consumer.

GAO's G.Lite modem can be combined with our V.90 modem software to form a package that makes full use of the POTS channel, which remains available under DSL modem technology. The V.90 modem function of the software package takes advantage of the POTS channel and serves as a fallback if the G.Lite modem service fails or is not available. Telephone service may also be accessed through the POTS channel when the V.90 modem is not being used.

G.Lite uses discrete multi-tone (DMT) modulation. In this scheme, the whole transmission band (552 kHz) is subdivided into 128 independent, parallel, equally spaced sub channels. A quadrature-amplitude modulated (QAM) signal is transmitted in each sub channel. Because G.Lite occupies different frequencies than POTS, both a telephone and a G.Lite modem can coexist. Full-rate ADSL uses higher power and bandwidth, so it is prone to bleeding into the POTS frequencies. As a result, a splitter is necessary to ensure this doesn't occur. G.Lite does not bleed into the POTS frequencies and, therefore, a splitter isn't required.

GAO's G.992.2 provides data rates of up to 1.5 Mbps downstream and 512 Kbps upstream. Since no splitter is required, the user can simply plug a GAO G.992.2 modem into the phone jack with no visit required by the telephone company. This reduces costs to the service provider and may facilitate the speedy roll out of ADSL services.

The basic functional blocks of GAO's ADSL Lite system are shown in Fig. 1 in a simplified form with only one input/output bitstream and one interleaved buffer. Blocks in dashed lines are implemented in the front-end hardware; other blocks can be distributed between the host processor and a dedicated DSP. Details of ADSL system operation are described in the

ANSI T1.413, ITU G.992.1, and ITU G.992.2 standards.

Leadership in Embedded Communications Software

With over a decade of experience, GAO leads the embedded communications software market by providing comprehensive modem, fax, speech, and telephony technologies; broad technical expertise; and unsurpassed support to our world-class customers including electronics, communications, and semiconductor companies across the globe. GAO's software integrates easily with MP3, MPEG, TCP/IP, and most popular real-time operating systems.

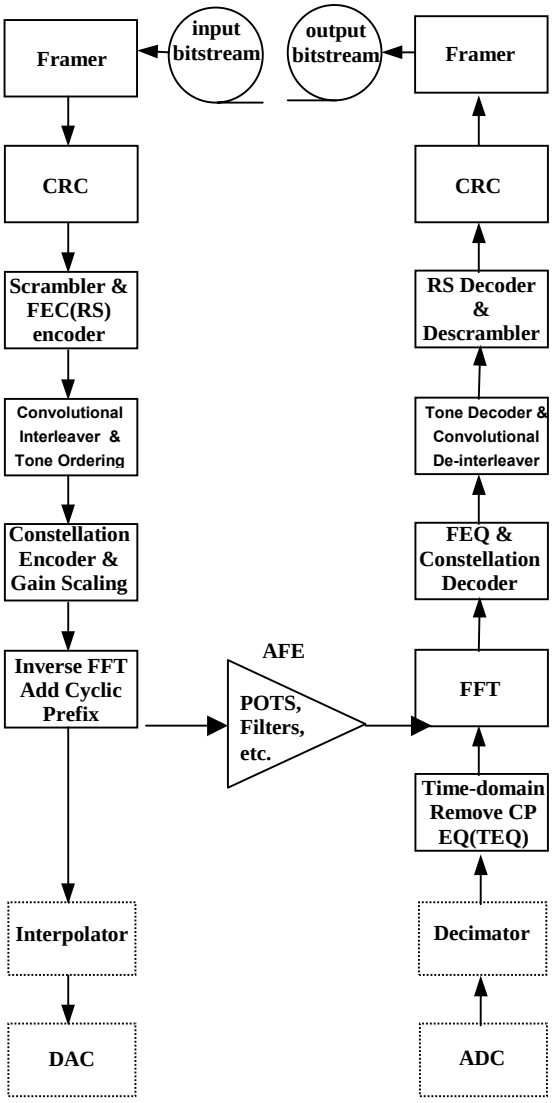

Figure 1 – Basic Functional Blocks of GAO's G.Lite Softmodem

Rigorous Testing

GAO's testing facilities are equipped with state-of-the-art test equipment. Our analog-modem and fax software is rigorously tested on TAS, Consultronics, Rochelle, Advent and Telegra equipment under various channel models according to the relevant ITU or TIA standards. All GAO's speech software has passed the test vectors specified by the ITU. Our telephony software meets all appropriate TIA, EIA, BellCore, and Mitel standards. GAO also adheres to stringent quality control procedures, which is reflected in our well structured code, detailed design documentation, and well-defined design and test plans. This ensures ease of integration into the customer's system, easy maintenance, and a smooth upgrade path for next-generation customer products.

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