CONEXANT™

V.92 Single-Chip ACF Modem with Optional CX20437 Voice Codec

CX06827

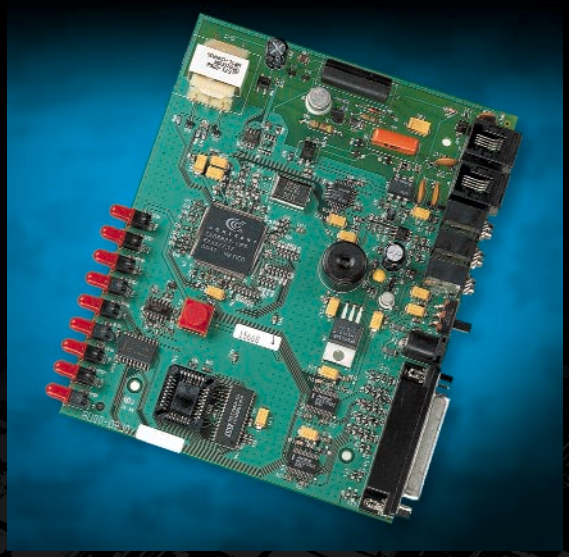
Conexant's CX06827 single-chip V.92 modem device set enables modem designers to develop modems for desktop PCs and Internet appliances. Features available with V.92 are quick connect, PCM upstream and modem-on-hold. The new V.44 standard is also supported. This new data-compression protocol delivers data rates faster than those achieved by the V.42 bis protocol. The device set supports analog data at up to 56 Kbps, analog fax at up to 14.4 Kbps, telephone answering machine (TAM)/telephony extensions and voice/speakerphone (optional), and parallel/serial host interface operation, depending on the model.

V.92 Features

Quick Connect
This feature approximates the "always on" connection of broadband access solutions by enabling dial-up modems to complete the modem handshake sequence 30% to 40% faster than before.

PCM Upstream
Using a new modulation for upstream data (a variation of PCM), V.92 supports a maximum upstream data rate of 48 Kbps, as compared to 33.6 Kbps for V.90. At the maximum rate, this represents a 40% improvement in upstream throughput. Users will also see throughput improvements when uploading digital audio and image files.

Modem-on-Hold
Call waiting is a popular feature offered by many telephone companies around the world. Unfortunately, a call-waiting event may disconnect a modem when it is in use, frustrating the user and often prompting a call to the OEM or ISP support center. Modem-on-hold allows the modem to remain online during a call-waiting event, thereby eliminating the need to redial to get back on the Internet.



Distinguishing Features

- V.92 features: modem-on-hold, quick connect and PCM upstream
- V.44 data-compression protocol increases data rates faster than those achieved by the V.42 bis protocol
- Hardware-based modem controller digital signal processor (DSP)

Because the modem features external firmware, modem designers can update and customize firmware code as needed.

In TAM mode, enhanced 2- or 4-bit-per-sample coding schemes at a sample rate of 8 kHz provide flexible format compatibility and allow efficient digital storage of voice/audio. Also supported are 8-bit linear and IMA 4-bit ADPCM coding. This mode supports applications such as digital TAM, voice annotation, and recording from and playback to the telephone line.

The speakerphone option (S models), includes a CX20437 voice codec (VC) in a 32-pin TQFP. This option supports position-independent, full-duplex speakerphone (FDSP) operation using microphone and speaker, as well as other voice/TAM applications using handset or headset.

Product Features

- **ITU-T data modem - V.92**
  - ITU-T V.90/K56flex, V.34, V.32 bis, V.32, V.22 bis, V.22, V.23, and V.21; Bell 212A and Bell 103
  - V.44, V.42 bis and MNP 5 data compression
  - V.42 LAPM and MNP 2-4 error correction
  - V.250 and V.251 commands
- **Fax modem send and receive rates up to 14.4 Kbps**
  - V.17, V.29, V.27 ter, and V.21 channel 2
  - EIA/TIA 578 Class 1 and T.31 Class 1.0, and EIA/TIA 578 Class 2 commands
- **Downloadable architecture**
  - Downloadable MCU firmware from the host/DTE to flash ROM
  - Downloadable MDP code modules from the MCU transparent to the host
- **Worldwide operation**
  - Complies with TBR21 and other country requirements
  - Caller ID detection
  - Call progress, blacklisting
  - External ROM/flash ROM includes default values for 29 countries
- **Caller ID and distinctive ring detect**
- **Telephony/TAM**
  - V.253 commands
  - 2-bit and 4-bit Conexant ADPCM, 8-bit linear PCM, and 4-bit IMA coding
  - 8 KHz sample rate
  - Concurrent DTMF, ring, and Caller ID detection
- **Full-duplex speakerphone (FDSP) mode using optional CX20437 voice codec (S models)**
  - Microphone and speaker interface
  - Telephone handset or headset interface
  - Acoustic and line echo cancellation
  - Microphone gain and muting
  - Speaker volume control and muting
- **Built-in host/DTE interface**
  - Parallel 16550A UART-compatible interface
  - Serial ITU-T V.24 (EIA/TIA-232-E) logical interface
- **Direct mode (serial DTE interface)**
- **Flow control and speed buffering**
- **Automatic format/speed sensing**
- **Serial async/sync data; parallel async data**
- **Thin packages support low-profile designs (1.6 mm max. height)**
  - CX06827 ACF: 144-pin TQFP
  - CX20437 VC: 32-pin TQFP (for S models only)
- **+3.3V operation with +5V-tolerant digital inputs**
- **Typical power use**
  - SCFACF: 274 mW (Normal Mode); 28 mW (Sleep Mode)
  - VC: 5 mW (Normal Mode)

Available in V.34 and V.32 bis modems in pin-compatible packages

Applications

- **Desktop modems**
- **Remote monitoring and data collection systems**
- **Stand-alone TAM/fax machines**
- **Set-top boxes**
- **Internet appliances**

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