

FEATURES

- **Data modem modes**
 - CCITT: V.32 bis, V.32, V.23, V.22 bis, V.22, and V.21
 - Bell®: 212A and 103
 - Speeds: 14400, 12000, 9600, 7200, 4800, 2400, 1200, and 300 bps
 - Industry-standard 'AT' command set
- **Fax modem send and receive modes**
 - CCITT: V.17, V.29, V.27 ter, and V.21 ch2
 - Speeds: 14400, 12000, 9600, 7200, 4800, 2400 and 300 bps
 - Supports Group 3 fax
 - Data/fax EIA/TIA-578 Class 1 'AT' command set
- **Voice mode**
 - Embedded voice mode 'AT' command set
 - Auto-recognition (data/fax/voice) answer mode
 - 3- and 4-bit ADPCM, and A-law compression
- **V.42/MNP® protocols**
 - Error correction: V.42 and MNP® 2-4
 - Data compression: V.42 bis and MNP® 5
- **PCMCIA-compliant interface**
 - Direct connection to PCMCIA 2.0 bus
 - 16C550A/16C450 register-compatible UART
 - Integrated CIS ROM
- **Manufacturer-programmable CIS (optional ROM)**
- **Telephone emulation**
- **Microphone interface**
- **No external microprocessor required** (cont.)

PCMCIA-Compatible, 14,400-bps Data/Fax/Voice Modem Device Set

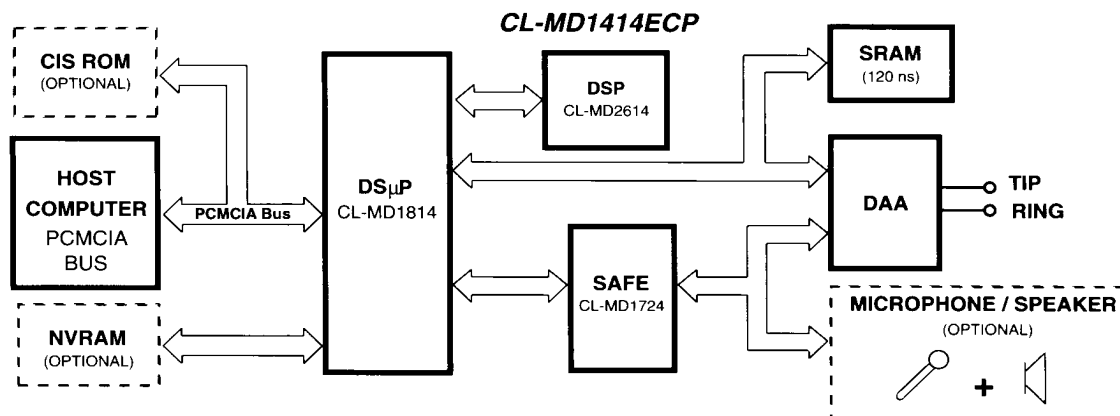
OVERVIEW

The Cirrus Logic CL-MD1414ECP is a complete, intelligent, multi-mode modem combining data, fax, and voice features in only three devices, the DSμP, DSP, and SAFE.

The CL-MD1414ECP operates up to 14,400 bps (transmit and receive) as a fax modem, and up to 14,400 bps as a data modem. The device set provides a complete solution not requiring any additional firmware development. The CL-MD1414ECP is intended for modem applications implementing a PCMCIA 2.0 interface.

The CL-MD1414ECP integrates a PCMCIA host interface that allows the modem to be connected directly to a PCMCIA bus without additional hardware. A built-in CIS eliminates the need for an external Card Information Structure (CIS) ROM. To customize the modem design, the internal CIS may be overridden by using an optional external CIS ROM.

(cont.)



CL-MD1414ECP Functional Block Diagram

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FEATURES (cont.)

- **Low power requirement**
 - Automatic sleep (power-down) and wake-up
 - Operates from a single +5V power supply
 - Typical power requirements:
 - Operating power: 550 mW
 - Sleep mode: 15 mW
- **Data, fax, and voice application software available through third party software vendors**
- **DTMF and tone generation/detection**
- **Analog, local, and remote digital loopback tests**
- **Automatic adaptive and fixed compromise equalizers**
- **Non-volatile RAM (NVRAM) interface**
- **Direct connection to a speaker**
- **Expansion bus**
- **Trellis code modulation**
- **Small package dimensions**
 - DSμP (CL-MD1814): 100-pin VQFP
 - DSP (CL-MD2614): 100-pin VQFP
 - SAFE (CL-MD1724): 44-pin VQFP

OVERVIEW (cont.)

This device set also provides a complete set of voice/audio functions that allow the host and modem to playback/record voice messages and emulate an answering machine. With the integrated microphone interface and supporting firmware, dictaphone and telephone emulation are possible with a minimum of additional parts. Three voice-mode compression formats (A-Law, 3- and 4-bit ADPCM) provide flexibility for optimizing system quality and performance during playback and record modes.

An extended data and EIA/TIA-578 Class 1 Standard fax and voice 'AT' command set interpreter is embedded in the device sets, allowing system designers to develop a Hayes®-compatible modem with a minimum of effort. The device set provides V.42/MNP® 2-4 error correction and V.42 bis/MNP® 5 data compression to ensure fast error-free data transfer during data modem connections.

Low power requirements and small package dimensions make the CL-MD1414ECP ideal for PCMCIA applications.

ADVANTAGES**Unique Features**

- **Direct connection to PCMCIA bus**
- **14400-bps full-duplex data mode**
- **14400-bps fax transmission and reception**
- **Voice mode**
- **Microphone interface**
- **Telephone emulation mode**
- **16C550A register-compatible UART**
- **Small package sizes**
- **Sleep mode**
- **Requires a single +5V power supply**

Benefits

Eliminates the need for a PCMCIA interface chip and a CIS ROM.

Reduces telephone connect time.

Latest fax standard. Reduces telephone connect time.

System can emulate an answering machine.

Reduces hardware requirements for external microphone or handset.

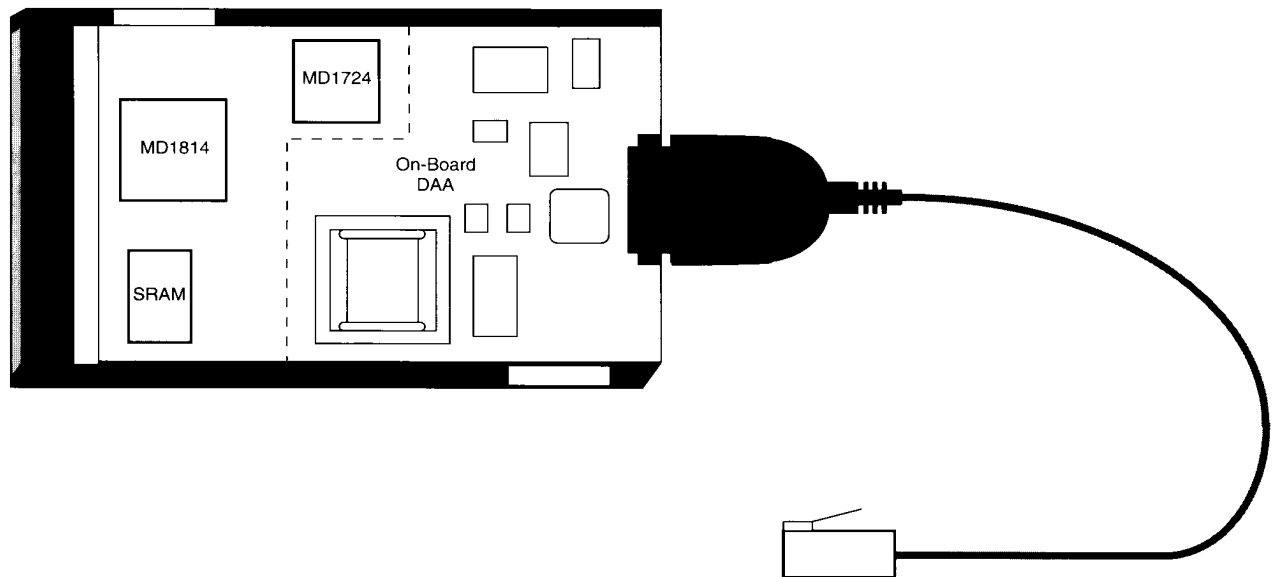
System can be used as a telephone.

Supports enhanced communication software for improved data throughput.

Minimizes board area.

Substantially reduces power consumption by over 97 percent.

Simplifies board design.



Typical PCMCIA 2.0 Modem Card with On-Board DAA (Actual Size)

Table 1. Cirrus Logic Modem Products

Device Set	Features
CL-MD9624AT	Basic modem that provides 2400-bps data mode, and 9600-bps fax and voice modes (with two built-in DTE interfaces — serial RS232 and parallel 16C450A/16C550-compatible interface registers that can be connected directly to an ISA bus).
CL-MD9624EC2	Same features as the CL-MD9624AT, plus error correction (V.42 and MNP 2-4) and data compression (V.42 bis and MNP 5).
CL-MD9624ECT	Same features as the CL-MD9624EC2, plus a microphone interface and phone-emulation mode.
CL-MD9624ECP	Same features as the CL-MD9624ECT, except built-in PCMCIA interface with 16C450/16C550-compatible registers, (i.e., does not support parallel ISA bus and serial RS232 host interfaces).
CL-MD1414ECT	A high-speed modem that provides 14,400-bps data, fax, and voice modes (with two built-in DTE interfaces — serial RS232 and parallel 16C450A/16C550-compatible interface registers that can be connected directly to an ISA bus). Error correction (V.42 and MNP 2-4), data compression (V.42 bis and MNP 5), a microphone interface, and phone-emulation mode are also provided.
CL-MD1414ECP	Same features as the CL-MD1414ECT, except built-in PCMCIA interface with 16C450/16C550-compatible registers, (i.e., does not support parallel ISA bus and serial RS232 host interfaces).