CONEXANT

SmartV.XX Modem

CX81801

Controller-Based Modem with SmartDAA® for Embedded Applications

Conexant's broadband communications portfolio includes a comprehensive suite of semiconductor solutions that enable the digital home and information network. The Dial-up modems continue to be the predominant method of communication for the embedded market. As the leading provider of modem solutions, Conexant introduces a new product family supporting serial and parallel host interface operation.

The Conexant SmartV.XX Modem is ideal for embedded applications such as POS Terminals, Video Recorders, Set-Top Boxes, Metering, Security, Remote Site Management and any other application that requires a robust dial-up connectivity.

The device set integrates the controller, digital signal processor, memory and a worldwide DAA/telephone line interface function that operates with PSTN telephone lines worldwide.

The SmartV.XX Modem supports data/fax/Telephone Answering Machine (TAM) with up to 56 kbps analog data and 14.4 kbps fax modem operation. The SmartV.90+ modem includes V.92 features such as quick connect, Modem-on-Hold™ and V.44 data compression. The modem device is also available in V.34 and V.32bis options.

128-pin TQFP

The SmartV.XX Modem device set consists of a CX81801 Modem in a 128-pin TQFP and a Line Side Device (LSD), supporting either SmartDAA (20463 32-pin TQFP) or the new SmartDAA 3 (CX20493 28-pin QFN). The new SmartDAA 3 requires fewer discrete components for a lower-cost solution. The SmartV.XX 128-pin TQFP supports serial/parallel interface and optional full-duplex speakerphone.

28-pin CTLGA

The SmartV.XX Modem device set consists of a CX81801 Modem in a 28-pin CTLGA and SmartDAA 3 LSD (CX20493 28-pin QFN). This device targets applications that require the smallest possible dimensions. The CTLGA package has the same footprint as a TSSOP package. The SmartV.XX 28-pin CTLGA support a serial interface.

SmartV.XX Modem Block Diagram

CX81801 Distinguishing Features

- V.90+, V.34 and V.32bis options
  - V.90+ includes Modem-on-Hold™, quick connect, and V.44
- 128-pin TQFP package available
  - Serial or parallel interface
  - Optional speakerphone
  - SmartDAA or SmartDAA 3 option
- 28-pin CTLGA package available
  - Serial interface
  - Pin-compatible with SCXV.22bis modem
  - Small form-factor
- V.44/V.42bis and MNP5 data compression
- V.42 and MNP2-4 error correction
- Fax modem send and receive rates up to 14.4 kbps
- SmartDAA 3
  - Line-in-use detection
  - Digital Line Guard (programmable)
  - Extension Pick-up detection
  - Remote Hang-up detection
- Worldwide support
- Quick time-to-market
- Low-cost solution
- Optional Pb-free devices available

Part Number CX81801
Description SmartV.XX Modem

CX81801 Features

General Modem Features

- High-quality real-time encoding (I-, B-, and P-frames)
- Data modem
  - Quick connect and Modem-on-Hold™ functions (V.90+ models)
  - ITU-T V.90 (V.90+ models), V.34 (V.90+ and V.34 models), V.32bis, V.32, V.22bis, V.22, V.23, and V.21; Bell 212A and Bell 103
  - V.250 and V.251 commands
- Data compression and error correction
  - V.44 data compression
  - V.42bis and MNP 5 data compression
  - V.42 LAPM and MNP 2-4 error correction
- 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
- V.80 synchronous access mode supports host-controlled communication protocols with H.324 interface support
- Data/Fax/Voice call discrimination
- Hardware-based modem controller
- Hardware-based digital signal processor (DSP)
- Worldwide operation
  - Complies to TBR21 and other country requirements
  - Caller ID detection for many countries
  - Call progress, blacklisting
  - Internal ROM includes default values for 29 countries
  - Additional modified country profiles can be stored in internal SRAM (all CX81801) or optional serial EEPROM (128-pin TQFP only)
- Caller ID detect
  - On-hook Caller ID detection
  - Off-hook Call Waiting Caller ID detection during data mode in V.90, V.34, V.32bis, and V.32
- 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
- Direct mode (serial DTE interface)
- Flow control and speed buffering
- Automatic format/speed sensing
- +3.3V operation with +5V tolerant digital inputs

General Modem Features (28-pin CTLGA only)

- Built-in host/DTE interface
  - Serial ITU-T V.24 (EIA/TIA-232-E) logical interface up to 115.2 kbps
- Serial async/sync data
- Thin packages support low profile designs (1.0 mm max. height)
  - CX81801 Smart Modem in 28-pin CTLGA
  - CX20493 LSD in 28-pin QFN
- Typical power use
  - 220 mW (Normal Mode); 56 mW (Sleep Mode)

General Modem Features (128-pin TQFP only)

- Interfaces to optional external ROM/flash ROM, RAM, and/or optional serial EEPROM
- Downloadable Architecture
  - Downloadable MCU firmware from the host/DTE to flash ROM
  - Downloadable MDP code modules from the MCU transparent to the host
- Modem customization available through patch code that can be stored in optional serial EEPROM or internal SRAM
- 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
  - Serial ITU-T V.24 (EIA/TIA-232-E) logical interface up to 115.2 kbps
  - Parallel 16550A UART-compatible interface up to 230.4 kbps
- Serial async/sync data; parallel async data
- Thin packages support low profile designs (1.6 mm max. height)
  - CX81801 Smart Modem in 128-pin TQFP
  - CX20463 LSD in 32-pin TQFP or CX20493 LSD in 28-pin QFN
  - CX20437 VC in 32-pin TQFP
- Typical power use
  - CX81801 and CX20463: 220 mW (Normal Mode); 56 mW (Sleep Mode)
  - CX81801 and CX20493: 220 mW (Normal Mode); 56 mW (Sleep Mode)
  - CX20437: 5 mW (Normal Mode)

SmartDAA Features

- System side powered DAA operates under poor line current supply conditions
- Modem Wake-on-Ring
- Ring detection
- Line polarity reversal detection
- Line current loss detection
- Pulse dialing
- Line-in-use detection during on-hook operation
- Remote hang-up detection for efficient call termination
- Extension pickup detection
- Call waiting detection
- Digital PBX line protection
- Meets worldwide DC VI masks requirements

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Order# 102098A

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