

## Third Generation SmartDAA® and Speakerphone Support

### Product Overview

Conexant's ImagingSmart™ portfolio includes a comprehensive suite of semiconductor solutions that enable the connected home office and information network. The CX81801 modem is ideal for embedded applications such as POS terminals, STBs, video recorders metering, security, remote site management, and any other application that requires robust dial-up connectivity.



The CX81801 integrates the microcontroller, DSP, memory, and a worldwide DAA/telephone line interface function that operates with PSTN telephone lines worldwide.

The CX81801 modem features data/fax/TAM with up to 56kbps analog data modem operation and 14.4kbps fax modem operation. The V.92 modem includes quick connect, modem-on-hold, and PCM upstream. The CX81801 is also available in V.34 or V.32bis options.

The CX81801 modem device set consists of a CX81801 modem in either a 128-pin TQFP or 28-pin CTLGA package and an LSD. The CX81801 128-pin TQFP supports:

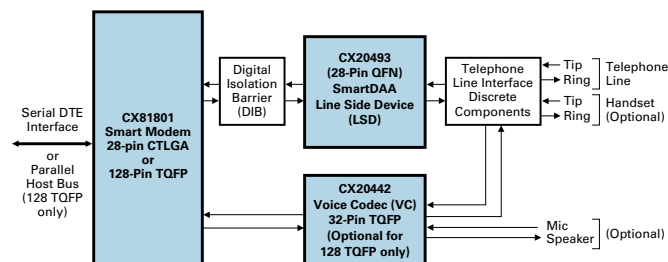
- Either the SmartDAA® 3 LSD (CX20493 28-pin QFN) or the SmartDAA (CX20463 32-pin TQFP). The SmartDAA 3 requires fewer discrete components for a low-cost solution.
- A serial and parallel interface, and an optional FDSP.

The CX81801 modem is also available in a 28-pin CTLGA for the serial interface only, with the SmartDAA 3 LSD (CX20493 28-pin QFN) applications that require the smallest possible dimensions. The CTLGA package has the same footprint as a TSSOP package.

### Key Features

- Data modem modulations
  - Quick connect, modem-on-hold, and PCM upstream functions (V.92 models)
  - ITU-T V.92, V.90 (V.92 models), V.34 (V.92 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
- Fax modem send and receive rates up to 14.4kbps
- FastPOS (V.29) and V.22 fast connect
- V.44/V.42bis and MNP5 data compression
- V.42 and MNP2-4 error correction
- 128-pin TQFP package available
  - Serial or parallel interface
  - Optional FDSP
  - SmartDAA 3 or SmartDAA option
- 28-pin CTLGA package available
  - Serial interface
  - Pin-compatible with CX84100 V.22bis modem
  - Small form-factor
  - SmartDAA 3
- 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

### System Block Diagram



## Additional Features

### General Modem Features

- 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 14.4kbps
  - V.17, V.29, V.27ter, 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
- 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.92, V.90, V.34, V.32bis, and V.32
- Distinctive ring detect
- Direct mode (serial DTE interface)
- Flow control and speed buffering
- 3.3V operation with 5V tolerant digital inputs

- Telephony/TAM
  - V.253 commands
  - 2-bit and 4-bit Conexant ADPCM, 8-bit linear PCM, and 4-bit IMA coding
  - 8kHz sample rate
  - Concurrent DTMF, ring, and caller ID detection
- Automatic format/speed sensing

### General Modem Features for the 28-Pin CTLGA

- Built-in host/DTE interface—Serial ITU-T V.24 (EIA/TIA-232-E) logical interface up to 115.2kbps
- Serial async/sync data
- Thin packages support low profile designs (1mm maximum height)
  - CX81801: Modem in a 28-pin CTLGA
  - CX20493: LSD in a 28-pin QFN
- Typical power use
  - 220mW (normal mode)
  - 56mW (sleep mode)

### General Modem Features for the 128-Pin TQFP

- Interfaces to optional external ROM/flash ROM, RAM, and/or serial EEPROM—Supports custom firmware
- Modem customization available through a patch code that can be stored in optional serial EEPROM or internal SRAM
- FDSP mode using optional CX20442 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 115.2kbps
  - Parallel 16550A UART-compatible interface up to 230.4kbps
- Serial async/sync data and parallel async data
- Thin packages support low profile designs (1.6mm maximum height)
  - CX81801: Modem in a 128-pin TQFP
  - CX20493: LSD in a 28-pin QFN or 20463 LSD in 32-pin TQFP
  - CX20442: VC in 32-pin TQFP
- Typical power use
  - CX81801 and CX20493: 220mW (normal mode) and 56mW (sleep mode)
  - CX81801 and CX20463: 220mW (normal mode) and 56mW (sleep mode)
  - CX20442: 5mW (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 pick-up detection
- Call waiting detection
- Digital PBX line protection
- Meets worldwide DC masks requirements

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