CONEXANT®
EXPERIENCE SMART™

SPI Controller-Based Modem with Fourth Generation SmartDAA® for Embedded Applications

Product Overview

The CX93040 modem paired with the CX20548 SmartDAA® 4 LSD, is well suited to embedded applications such as POS terminals, STBs, video recorders, meters, security systems, remote site management, and other applications that require robust dial-up connectivity. Integrating a microcontroller, DSP, memory, and a SmartDAA interface onto a single die, the CX93040 is easily adaptable for just about any application, and is completely independent of the host processor and operating system. In addition, the SmartDAA interface hooks directly to Conexant's field-proven, market-leading fourth-generation silicon DAA, supporting the lowest component LSD and permitting a single-cost, optimized SKU that is capable of meeting and exceeding global PTT standards.

Setting the CX93040 apart is the addition of an SPI interface, which allows for maximum flexibility in the main processor. Found in virtually every SoC and/or main processor, SPI is a shared bus working in a master/slave configuration and requires only one set of I/Os for all peripherals that attach to the SPI bus. This is in stark contrast to a UART port for an RS232 serial bus, which requires a set of dedicated I/Os for each peripheral. Using an SPI bus allows the CX93040 to eliminate a UART port on the SoC and its associated pins that would have otherwise been dedicated for the modem.

The CX93040 is offered in V.32bis, V.34, and V.92 versions. Furthermore, the CX93040 leverages three generations of firmware expertise and know-how that, coupled with Conexant's market-leading and field-proven DAA and full reference design kits, makes this modem the easiest, most mature and robust modem in which to design.

The CX93040 controller-based SPI modem device set is available in the smallest footprint and environmentally friendly, RoHS/green-compliant packages that consist of a CX93040 SPI interface modem device in a 6mmx6mm 20-pin QFN package, and the CX20548 SmartDAA 4 LSD in a 4mmx4mm 16-pin QFN package.

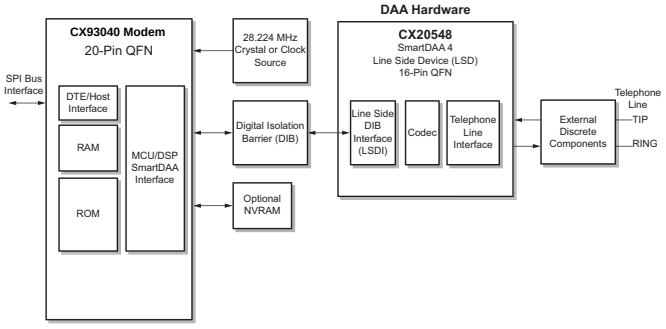
Applications

- POS terminals
- STBs
- Security systems
- Remote site management
- Meters
- Videophone terminals

Key Features

- SPI Interface
- Controller-based modem—No external memory required
- Up to V.92
- Robust and field-proven CID support
- Support for POS-specific fast connect protocols
- SmartDAA support
- Optional serial NVRAM interface
- Reference design that supports 6kV

System Block Diagram



Additional Features

- Modulations and protocols
  - ITU-T V.92 = Quick connect, modem-on-hold, and PCM upstream
  - V.90/V.34/V.32bis/V.32
  - V.22bis/V.22/V.23/V.21
  - V.23 reverse and half-duplex
  - Bell 212A/103
  - V.29 FastPOS and V22 Fast Connect
  - SIA protocol and contact ID for alarm equipment
  - V.80 synchronous access mode
  - V.17/V.29 fax class 1/1.0 and fax class 2
- V.44/V.42bis/MNP5 data compression
- V.42/MNP2-4 Error correction
- Call waiting detection for selected countries
- Hardware and software flow control and speed buffering
- 63 embedded and upgradeable country profiles
- Optional serial NVRAM interface for country profile storage and code upgrades
- Full-duplex 8-bit/16-bit PCM voice pass-through mode
- 28.224MHz Xtal or clock input
- Worldwide operation
  - Complies to TBR21 and other country requirements
  - Type I caller ID decoding
  - Type II caller ID snooping
  - Call progress, blacklisting
  - Meets worldwide DC mask requirements
- Low power and voltage
  - Single 3.3V supply
  - Low-power consumption mode
  - 3.3V I/O level
- Compact, robust board design
  - Reference design files provided for quick time-to-market
  - Reference design tested for PTT and TBR21 approvals
  - Small, low-profile modem packages
  - Reference design supports 6kV isolation

SmartDAA Features

- Extension pick-up detection
- Digital line protection
- Line reversal detection
- Remote hang-up detection
- Worldwide compliance
- CX20548 SmartDAA 4 LSD in a 16-pin QFN
- Worldwide support with a single design

Benefits

- Uses an I/O that is shared with other SPI peripherals—Alleviates the need for the host to support a traditional serial interface
- OS independent and minimal host intervention
- Robust dial-up connectivity
- Allows worldwide support with a single design
- Allows additional country profile storage and code upgrades
- Quick time-to-market and low system cost

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