

Low-Power Fax Class 1/1.0 Modem with Fifth Generation SmartDAA®

Product Overview

Conexant has been providing fax modem solutions for over five decades with the largest installed base of fax modems in the market. Conexant's comprehensive solutions include both a hardware and software-enabling design for ease and flexibility with quick time-to-market (TTM).

Conexant's CX96811 ASF336 controlled fax modem family with CX21548 (SmartDAA® 5) technology offers low power and superior VoIP performance that supports ITU-T V.34 half-duplex mode operation up to 33,600bps, as well as G3 facsimile up to 14,400bps. The CX96811 supports the host interface with either a UART or an SPI interface, and uses fax class 1 (EIA/TIA 578), fax class 1.0 (ITU-T T.31), and additional AT commands to easily configure/control fax and handset operations. The use of standard AT commands simplifies the design-in process and enables quick TTM.

The ASF336 device set consists of two devices:

- CX96811 Host Side Device (HSD) integrates a Microcontroller Unit (MCU), a DSP, internal RAM, internal ROM, a SmartDAA 5 System Side Device (SSD), a secondary SSD, and a PWM in a 28-pin QFN package
- CX21548 SmartDAA 5 Line Side Device (LSD) in a 16-pin QFN package

Because Conexant's SmartDAA 5 LSD builds on four generations of market-leading silicon Data Access Arrangement (DAA) devices and reduces BOM costs and necessary board space, it makes it the most cost-efficient silicon DAA in the market. The SmartDAA 5 LSD eliminates the need for costly analog transformers, relays, and opto-isolators that are typically used in country-specific discrete DAA implementations. The result is a worldwide reduced system cost solution using a single BOM. The SmartDAA 5 is system-powered, making it the most reliable and best performing silicon DAA in the market.

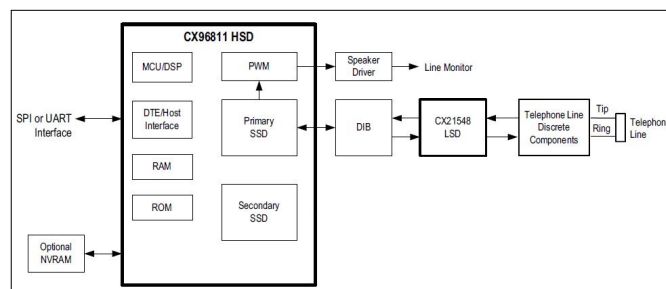
The modem operates by executing a masked code from the internal ROM. The modem features internal RAM memory that enhances the modem's flexibility. The modem's internal RAM can be used to load new country profiles, override existing country profiles, or add customized firmware code. Conexant also supports an optional external serial NVRAM for convenience of permanent storage. Like internal RAM, the NVRAM can be used to store new country profiles, override existing country profiles, or add customized firmware code.

Small, low-profile packages, reduced voltage operation, and low-power consumption make this device set an ideal solution for multifunction printer, fax machine, and fax server applications.

Key Features

- AT command fax class 1 and 1.0 fax modem for design-in ease and quick TTM
- V.34 half-duplex
 - V.34 super G3 half-duplex fax modem mode with send and receive data rates up to 33,600bps
 - Auto-rate Adaption
 - Receive dynamic range = -9dBm to -43dBm
- V.17 G3 send and receive up to 14,400bps
- Caller ID support
- Low power options
- Single SKU meeting worldwide PTT requirements

System Block Diagram



Additional Features

- Worldwide country support with selectable country profiles for compliance and compatibility
- Tone modes and features
 - Programmable single or dual tone generation
 - DTMF receiver
- Auto-dial and auto-answer control
- Receive dynamic range
 - -3dBm to -43dBm for V.17, V.29, V.27ter, and V.21 channel 2
 - -9dBm to -43dBm for V.34 half-duplex
- Caller ID (FSK and DTMF) demodulation
- Programmable transmit level of -4dBm to -25dBm
- PWM output to monitor transmitted and received signals

- V.21 Channel 2 flag detect
- 3.3V only operation
- Power mode can be configured to run using Charge Pump or LDO
- Typical power consumption (Charge Pump Mode)
 - On-hook idle mode = 119mW
 - Off-hook mode = 152mW
 - Deep Sleep mode = 11.6mW
 - Stop mode = 7.6mW
- Patch download capability
- Ability to wake on ring as part of deep sleep mode
- Configurable sleep modes to conserve power.
- Programmable fax and modem parameters

SmartDAA Features

- Minimum support component count and cost
- Eliminates costly line transformers, relays, and opto-isolators
- Enables single, worldwide board configurations
- Digital PBX line protection
- System-side powered DAA operates under poor line current supply conditions
- Ring detection
- Line polarity reversal detection
- Line current loss detection
- Pulse dialing
- Line-in-use detection—Detects while on-hook
- Extension pick-up detection—Detects while off-hook
- Remote hang-up detection—Efficient call termination
- Meets worldwide DC V-I mask requirements

ASF336 Product Ordering Guide

Ordering Number	Modem Model	HSD	SmartDAA4 LSD	G3 Fax Up to 14,400bps	V.34 Fax Up to 33,600bps	Host Interface
DSFX-L681-001	ASF336	CX96811-11Z	CX21548-11Z/H ¹	Yes	Yes	SPI/UART
DSFX-L681-003	ASF336	CX96811-12Z	CX21548-11Z/H ¹	Yes	No	SPI/UART

1 = The device is marked as 21548-A on the package.

All devices are lead-free (Pb-free) and RoHS-compliant.  These devices are compatible with leaded re-flow processes.

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