

# Embedded Modem Chipsets— Serial UART Interface

## Highlights

- Complete reference design includes modem chipset, DAA, and modem algorithms
- Full international compliance and compatibility with FCC and CTR21
- International operation with multiple country call progress
- 3.3 V only design with low power drain, enabling battery-powered applications
- Hardware and software building block approach maximizes design flexibility and market opportunities and enables porting modem functionality into existing designs
- Uses Analog Devices' ADSST-1803 codec and a wide range of traditional and silicon DAAs or a digital PCM modem interface
- Supports modulations from 300 bps to 56 kbps
- ITU-T V.42 or MNP 2–4 modem error correction and ITU-T V.42bis or MNP5 data compression
- AT command interface
- Fax class 1 operation
- Internal RAM based modem DSP memory enables flexible upgrade of software
- General-purpose modem DSP with open system architecture enables modem customization through the addition of user-specific modules and enables many different implementations
- Socket modem manufacturing kit: BOM, schematics, and PC board layout
- Boots from local flash at power-up



Analog Devices' Serial Modem Evaluation Platform

Analog Devices' Embedded Modem chipsets are a family of manufacturable reference designs that provide a complete design for OEMs worldwide to integrate into their applications or equipment. The modem design offers very low operating power requirements and a small form factor and is ideal for many applications, such as embedded control systems, communications for instrumentation equipment, set-top boxes, Internet TV, email phone, and portable communications equipment.

The serial modem configuration provides a complete standalone modem that communicates with standard RS-232 serial interface and embedded applications that support serial connections. Upon power-up or reset of the chipset, the modem code is loaded from flash memory via the BDMA port into the modem DSP internal memory. The user can then communicate with the modem through the serial interface using industry-standard AT commands.

The reference design includes a board, software modules in binary form, BOM, hardware schematics, AT manual, and support to enable quick to market products.

## Applications Areas

- Line cards
- Security systems
- Games and toys
- Low cost embedded modems
- Video phones
- IP phones
- Surveillance
- Medical equipment
- Fax modems
- Set-top box modems
- Point of sale (POS)

## Functional Specifications

### Modulations

- V.90 (server and client), V.34bis, V.34, V.33, V.32bis, V.32, V.29, V.23, V.22bis, V.22, V.22fast (Hypercom compatible), V.21, V.18, Bell212A, Bell 103
- Fax mode modulation complying with V.17, V.27ter, V.29, V.21
- DTMF generation and detection
- General-purpose tone detection and generation
- V.25 auto answer
- Upgradeable to V.92

### Automatic Dialer

- Country specific automatic dialer
- Support for DTMF and pulse dialing

### Caller ID

- International CID (ETSI, Bellcore, BT)

### Line Sensing

- Distinctive ring detect
- Line in use
- Parallel phone pickup
- Distinctive dc line voltage sensing

### Protocols

- V.42 or MNP2-4 error correction
- V.42bis or MNP 5 data compression
- Buffered mode with Xon/Xoff flow control
- AT commands according to V.250 with NVRAM profile storing
- Fax Class 1 and T.30 protocol
- V80 synchronous mode with SDLC framing
- Extended diagnostics to implement management agents
- Upgradeable to V.44

### Serial Modem Interfaces

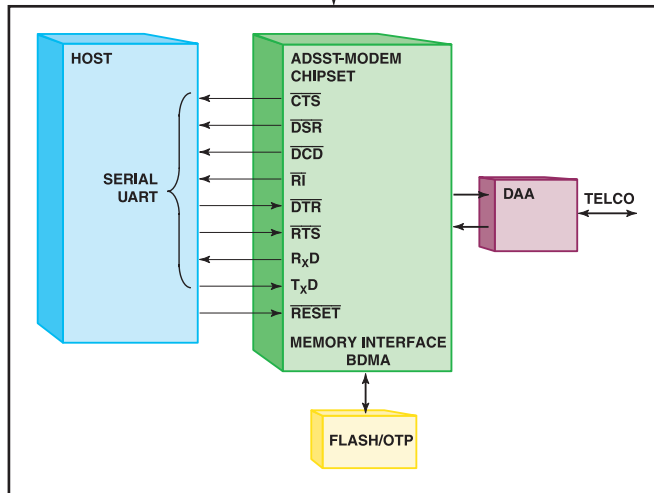
- Asynchronous serial control and data interface via software UART

## Line Interfaces

- Analog interface using the ADSST-1803 codec and transformer based DAA with sensing for ring detect, Caller ID, line in use, and parallel phone pickup
- IOM2 and TDM digital PCM interface suitable for ISDN or T1/E1 environments

## Software Format

- Binary customized image (selection of line interface and modem features)



Serial UART Modem Block Diagram

## Ordering Information

The Analog Devices Serial Modem Evaluation Platform can be ordered as:

- ADSST-MOD-EV-100 for the modem with analog front end
- ADSST-MOD-EV-000 for the modem with digital PCM interface

This is a reference design kit including the modem evaluation board with an evaluation copy of the software, schematics, and other materials.

Designers using this reference design will also be required to sign a license agreement with Analog Devices before final product can be shipped to them. The final product will be shipped from Analog Devices and will include the modem chipset and software.

For more information, contact [systems.solutions@analog.com](mailto:systems.solutions@analog.com) or call 781.461.3483.

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