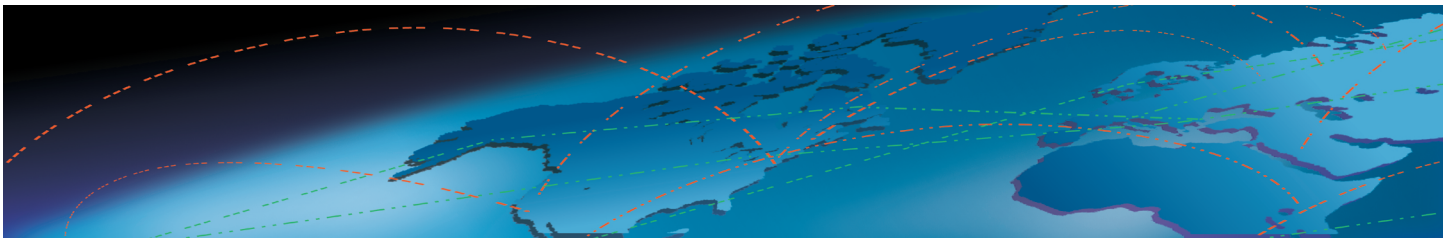


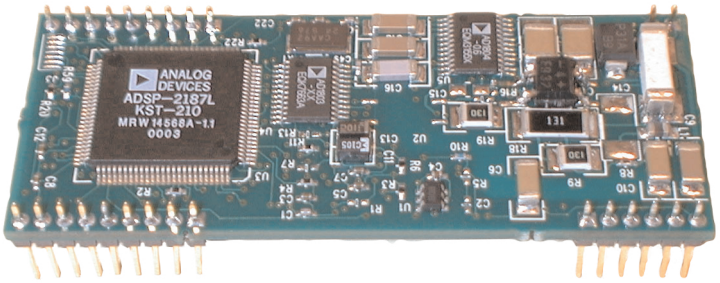
Single-Chip Internet Modem

Includes eDevice TCP/IP Internet Stack in Family of V.32/V.34/V.90 Modem Chipsets

Analog Devices' single-chip Internet modem adds Internet connectivity to devices, appliances, consumer electronics, and office and industrial equipment, without any need for host processors, PCs, or microcontrollers. By including a full TCP/IP stack, the Internet modem implements PPP, IP, ICMP, TCP, UDP, HTTP, SMTP, POP3, FTP, and Telnet, enabling file downloads, standard web page hosting, and email capability. Other Internet-access applications include remote command/control, maintenance/service, and firmware/software updates.

The modem and TCP/IP stack operate on a single-chip DSP with sufficient additional processing and memory remaining for client applications, custom command sets, and other signal processing applications. The complete modem reference design also includes a two-chip silicon DAA for a telephone line interface, and a FLASH memory (1, 2, or 4 Mbits, depending on the modem speed, the protocols selected, and the application) for nonvolatile program storage and to serve as a boot mechanism. The result is a very compact, low-power modem with minimal parts count.

By forming a standalone communications link, the Internet modem operates independently of the systems to which it is connected. This autonomous operation enables remote diagnostics and software downloads to occur independently.



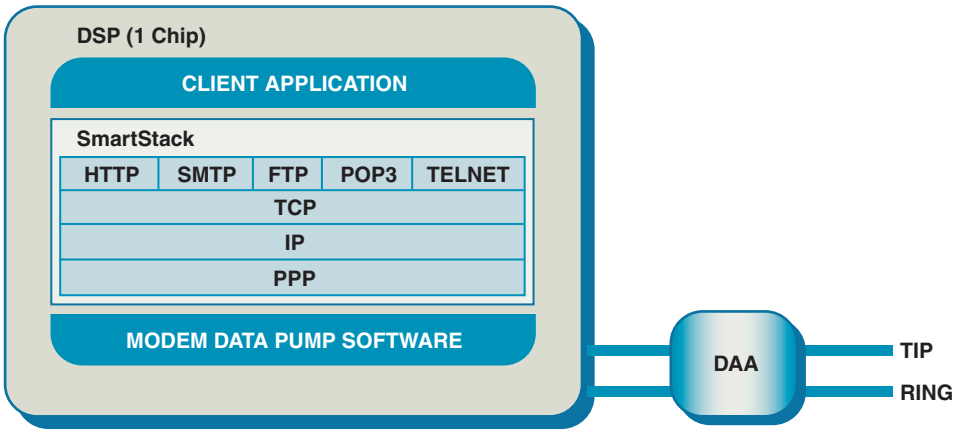
FEATURES:

- Single-chip modem concurrently executes both modem software, to physically connect to the local ISP, and a full TCP/IP stack.
- Modem code and TCP/IP stack execute from on-chip RAM without any external memory required.
- Internal RAM-based DSP memory enables flexible software upgrade through serial port.
- Selects and runs PPP, IP, ICMP, TCP, UDP, HTTP, SMTP, POP3, FTP, and Telnet, without external processor.
- Complete modem includes DSP, silicon DAA, modem algorithms, and full TCP/IP stack.
- Ability to select protocols depending upon target application.
- Available for V.32bis (14.4 kbps), V.34 (33.6 kbps) or V.90 (56 kbps) speeds.
- Small code footprint of just 16 Kwords data memory and 16 Kwords program memory for V.32bis, SMTP and POP3.
- AT-like commands supported via serial port.
- Silicon DAA provides direct interface to telephone line without any additional relay, transformer or isolation component.
- Low power drain (150 mW typical for V.32bis) accommodates battery-powered designs.
- Evaluation boards, sample applications, and all necessary software support (drivers, etc.) available.

ANALOG DEVICES

APPLICATION AREAS

IP Phones	Cable and Set-Top Boxes	Consumer Electronics
Pay Phones	Games and Toys	Automatic Dialers
Kiosks	Point of Sale (POS)	Automatic Teller Machines
Security Systems	Metering	Credit Card Validators
UPS (Uninterruptible Power Supplies)	Office Equipment	Medical Equipment
Voice over IP	Bar Code Readers	Multifunction Peripherals
Video Phones	Satellite Set-Top Boxes	Surveillance
Wagering Machines	Electronic Banking	Utilities
Drop Boxes	Automotive Analyzers	SCADA
Vending Machines	Household Appliances	



COMPLETE INTERNET MODEM

Features	Benefits
Standalone modem—no microcontroller or host processor required	Replaces Connexant (Rockwell), Lucent, and others
Data RAM + Program RAM contained in DSP	Fewer external parts—FLASH and DAA only
FLASH can be loaded from an external device	System remotely upgraded from the serial port
3.3 V – 5.0 V power device	Low power drain (150 mW typical at 14.4 kbps)
Small Size. DSP available in 100-pin package	Less real estate—monolithic, not multichip
Complete modem software package	No customer code required
AT-like command set executes on DSP	User-programmable modem commands
Reconfigurable, general-purpose DSP code	Simplified customization and ability to add own functionality
Additional software modules available from Analog Devices	Easy to add capability

ADVANTAGES OF ANALOG DEVICES' SILICON DAA

Features	Benefits
Eliminates isolation transformer, opto-isolators, relays, 2-to-4-wire hybrid, etc., by replacing them with two 24-lead TSSOP packages that connect directly to the DSP	Fewer components improves reliability, manufacturing, decreases PCB real estate and ultimately cost
Lowest power compared to competing solutions and traditional DAAs	Smaller power supply and longer battery life
Capacitor isolation	Smaller and cheaper than bulky transformer. Better performance as signals are digitally transmitted over the isolation barrier
Supports U.S. and international caller ID	No relay required. Software programmable for different countries
International part—one design for all countries	Simplifies inventory, manufacturing, and customer support
Advanced power management and sleep modes	Power savings, green compliance
Supports monitor output and mic input	Used for voice/handset applications
Same ADSST-1803 codec only has TxRx pins for customized, traditional DAA	Used for telephone line interface
Software programmable country support	Ease of PTT (FCC, CTR21 and others) approvals. No hardware modification required

TECHNICAL SPECIFICATIONS

Chipset packaging

The complete solution including the modem and the DAA (telephone line interface) is composed of:

- one DSP (100-pin TQFP)
- one FLASH memory [1, 2, or 4 Mbits, depending on the modem speed, the protocols selected and the application] (TSOP 40 or TSOP 48 or PLCC 32)
- two chips for the DAA (2 x SO16)

Internet protocols available

PPP
IP, ICMP
TCP, UDP
HTTP
SMTP
POP3
FTP
Telnet

Modem data rate

14,400 bps (V.32 bis)
33,600 bps (V.34)
56,000 bps (V.90)

ELECTRICAL AND ENVIRONMENT CHARACTERISTICS

Operating voltage: 3.3 V or 5.0 V
Power consumption: < 50 mA (typ., 3.3 V, connected)
< 8 mA (typ., 3.3 V, idle)
Commercial operating temperature range: 0°C to +70°C
Industrial operating temperature range: –40°C to +85°C

COUNTRIES OF OPERATION

Argentina, Australia, Austria, Belgium, Brazil, Bulgaria, Canada, Chile, China, Cyprus, Czech Republic, Denmark, Finland, France, Hungary, Germany, Greece, Iceland, Ireland, Israel, Italy, Japan, Liechtenstein, Luxembourg, Malaysia, Mexico, the Netherlands, New Zealand, Norway, Philippines, Poland, Portugal, Singapore, Slovakia, Slovenia, South Africa, South Korea, Spain, Sweden, Switzerland, Taiwan, the United Kingdom, USA, and others.

DEMONSTRATION/EVALUATION PLATFORM

The evaluation platform includes sockets for a serial connection, a DB-9 connector RS-232 input, an RJ-11 connector for telephone line connection, power supply (9–12 VAC modular wall transformer), and power-on reset circuitry. It also includes a full TCP/IP stack from Analog Devices' technology partner eDevice and modem software from technology partner Telindus. Integration and optimization of all software components is provided by eDevice.

ORDERING INFORMATION

Designers of products using this reference design will 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.

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