

# AD20msp918 G.Lite ADSL Chipset

*The AD20msp918 is a next-generation solution that can push the speed of data transmission over conventional telephone lines to 8 Mbps – 60 times faster than traditional ISDN and over 150 times faster than V.90 voice-band modems.*

## NEW ADSL CHIPSET WITH UTOPIA INTERFACE

Analog Devices enables asymmetric digital subscriber line (ADSL) equipment manufacturers to bring true standards-based solutions to market quickly at a price point that end-users can afford. Our ADSL products convert ordinary telephone wires to high-speed broadband communication pipelines and provide seamless interoperability with today's telecom networks.

The AD20msp918 is designed to meet current ANSI T1.413 Issue 2, ETSI TR328 and ITU G.992.1 and G.992.2 industry standards. Full functionality in this five-chip set includes DSP host processing, analog front-end driver/receiver and object code software for user adaptability and control. Based on the industry standard AD20msp910, the AD20msp918 improves and simplifies next-generation designs and reduces equipment manufacturing costs.



## FEATURES

- Flexible bin assignment: supports ADSL over ISDN (per ETSI TM6 & ITU G.992.1 Annex B), enhanced upstream or symmetric data rates
- ATM (UTOPIA 1 or 2) or STM interfaces. Complete software control protocol stack/API
- Complete data pump in five-chip set: includes DMT co-processor, analog front end, line driver, host processor and interface/framer
- Standards compliant: supports ANSI T1.413 Issue 1 and 2, ETSI TR328, ITU G.992.1 and G.992.2 (G.lite)
- Implements DMT (discrete multi-tone) technology as adopted by ANSI, ETSI and ITU
- Supports configurable data rates: 6.1 Mbps simplex, 224 kbps duplex over carrier serving area loop; optimum Internet access at 4.5 Mbps downstream/450 kbps upstream; absolute maximum 12 Mbps/1 mbps
- Rate adaptive: operates at best possible rate for specific line conditions
- Fully compatible with AD20msp910



## FUNCTIONALLY COMPLETE

Unlike functionally deficient solutions, the AD20msp918 combines all the essential hardware and software needed to build a complete ADSL modem, including a DMT (discrete multi-tone) co-processor, analog front end, line driver, DSP host processor and interface/framer circuitry.

Bundled with data pump firmware and software to provide a full protocol stack for data control and management, the result is a complete solution that can push the speed of data transmission over existing telephone lines to 8 Mbps – 60 times faster than ISDN and over 150 times faster than V.90 voice-band modems.

## STANDARDS BASED

The AD20msp918 employs DMT technology standardized by the American National Standards Institute under ANSI T1.413. This standard was adopted by the European Telecommunications Standards Institute (ETSI TR328), endorsed by the International Telecommunications Union (ITU G.992.1) and is currently recognized as the only standard that ensures interoperability and improves system performance.

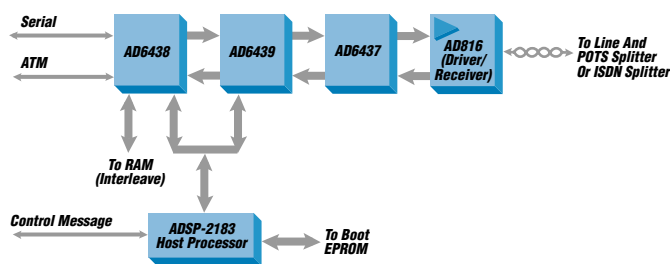
## RATE ADAPTIVE FOR OPTIMUM THROUGHPUT

As a rate adaptive chipset, the AD20msp918 ensures the highest data throughput by assessing the condition and transport capacity of each line. It continuously adapts its operation to achieve the best possible data rate.

In low power customer premises equipment (CPE), for example, the AD20msp918 can drive data upstream at 450 kbps (within 12,000 feet/3.7 km). The AD20msp918 automatically adjusts to line characteristics and noisy environments and offers a low-noise solution when neighborhood wires are within the same cable trunk. More importantly, it ensures seamless interoperability with other standards-based systems.

In equipment built for internet service providers (ISPs) and central offices, the AD20msp918 will maximize a subscriber's downstream network access and speed the transmission of multi-service (DSL, Frame Relay, and ATM) data, voice and video alike.

The AD20msp918 comprises a DMT co-processor, analog front end, line driver, DSP host processor and interface/framer circuitry to speed and simplify the development of ADSL systems.



Many equipment manufacturers of datacom and telecom ADSL modems, switches, routers, and CPE systems already use Analog Devices' ADSL chipsets as their core signal processing engines. There are good reasons to join our growing list of customers.

## CUT TIME TO MARKET AND SAVE DEVELOPMENT COSTS

The AD20msp918 can reduce the engineering investment required to design and test your next-generation ADSL modem. As a complete solution, the AD20msp918 eases the development of custom interfaces and eliminates the need to design around additional support components. In the end, your standards-based modem will be ready for market quicker.

## NEW PRODUCT R&D

Analog Devices is constantly working to develop new products that meet the changing needs of the telecom infrastructure. New chipsets will address the need for PCI Bus interface, lower power consumption for subscriber-side equipment, ATM (asynchronous transfer mode) handshaking for backbone switches and routers, and non-standard 1.544 Mbps Symmetrical DSL (SDSL) systems.

## REFERENCE DESIGNS AND TECHNICAL SUPPORT

Analog Devices – the company with a legacy in high-performance DSP, analog and mixed-signal processing – has the design expertise and in-house manufacturing processes to give your next-generation ADSL product the support and technical backing it deserves. We provide a full

range of support for modem manufacturers, including a fully functional reference design complete with PC board layout, schematics, and off-the-shelf component lists. Documentation includes detailed data sheets and application notes.

On-line applications assistance is available over the phone. Product demonstrations can be arranged at your facility or at one of ADI's many sales offices.

Analog Devices is a semiconductor supplier with a consistent record of dependable, on-time delivery. We maintain full control over the manufacturing process from raw wafer to finished product. And we have ample capacity for high-volume analog and digital productions.

## FIRST TO MARKET

While other vendors scramble to develop standards-compliant ADSL solutions, Analog Devices has everything you need now, off the shelf. From full featured DSP to analog and software. We meet the needs of today's broadband wired and wireless markets with leadership in analog, digital, mixed-signal processing, RF signal processing, data conversion, interfacing and total system design. So if time to market is important to you, it's time to connect with Analog Devices.

## THE AD20MSP918 INCLUDES:

### Modem Interface

The AD6438 chip provides the interface between the chipset and external systems using a standard UTOPIA 2 port (byte wide or serial; cell or byte mode). It inserts ATM cells into an ADSL line and implements both standard and reduced overhead framing per ANSI T1.413 Issue 2.

### Discrete Multi-Tone Co-processor

The AD6439 performs critical digital signal processing operations needed to implement the DMT protocol.

### Analog Front End

The AD6437 performs the analog and mixed-signal operations required by an ADSL system, including analog-to-digital conversion, digital-to-analog conversion, signal filtering and control.

### Line Driver/Receiver

The AD8016 implements the driver and amplifier functions necessary to transmit ADSL signals. The AD8022/AD812 implement the receiver functions separately, eliminating any chance of crosstalk.

### Digital Signal Processor

The ADSP-2183 is a versatile, general-purpose, 16-bit fixed-point DSP with 80 bytes of internal RAM. The DSP is used for training (measuring the line), controlling operations, and acts as a general-purpose system controller.

### Configuration and Management Software

The AD20msp918's bundled software controls modem configuration and management.

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