

Quad-Port ADSL Chipset

The Quad-Port is a 4th generation CO-specific solution that can push the speed of data transmission over conventional telephone lines to 10 Mbps: 70 times faster than traditional ISDN and nearly 200 times faster than V.90 voice-band modems.

NEW ADSL CHIPSET IS FULLY INTEGRATED

Analog Devices, the market leader in ADSL silicon solutions, now offers a 4th generation, CO-specific, DMT-based ADSL chipset: the Quad-Port. The Quad-Port is a fully programmable, multimode, flashless chipset solution that enables xDSL equipment manufacturers to design high-density line cards for voice switches, DSLAMs, and digital loop carrier equipment. This flashless solution eliminates four flash chips and replaces them with one SRAM chip that controls all four modems. Incorporating higher integration levels, the Quad-Port reduces overall system and operating costs, and significantly lowers power consumption. The industry's lowest power consumption, 0.7 watts per port, allows operators to significantly decrease Central Office operating expenses. The power consumption for the complete solution, from UTOPIA bus to line, is less than 2 watts per port for full-rate ADSL.



FEATURES

- Flexible bin assignment: supports ADSL over ISDN (per ETSI TM6 and 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 three compact ICs (BGA quad DMT engine, 196 BGA quad analog front end, and 20 PSOP/24 SOIC line driver)
- 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 multitone) technology as adopted by ANSI, ETSI, and ITU
- Normal or reduced overhead framing modes
- 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
- Category 2 functionality: Trellis code and echo cancellation
- Fully compatible with AD20msp930, AD20msp918, and AD20msp910
- Power (excluding driver): G.dmt – 0.85 W/port, G.lite – 0.7 W/port
- –40°C to +85°C operation



FUNCTIONALLY COMPLETE

Unlike functionally deficient solutions, the Quad-Port chipset combines all the essential hardware and software needed to build a complete ADSL modem, including: 1) a DMT (discrete multitone) engine that incorporates a DSP host processor and interface/framer circuitry; 2) a quad analog front end IC; and 3) line driver ICs.

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 10 Mbps: 70 times faster than ISDN and nearly 200 times faster than V.90 voice-band modems.

INDUSTRY STANDARDS COMPLIANT: Full Rate ADSL and G.lite Internet Connectivity

The Quad-Port chipset is fully compliant with industry standards set by the American National Standards Institute under ANSI T1.413 Issue 1 and 2, the European Telecommunications Standards Institute ETSI TR328, and International Telecommunications Union standards for G.dmt (G.922.1) and splitterless G.lite (G.922.2). The Quad-Port offers configurable data rates to 6.1 Mbps simplex, 224 kbps duplex, over carrier serving area loop, and optimum Internet access at 4.5 Mbps downstream/450 kbps upstream. On short loops, a Quad-Port-based modem can achieve speeds in excess of 10 Mbps.

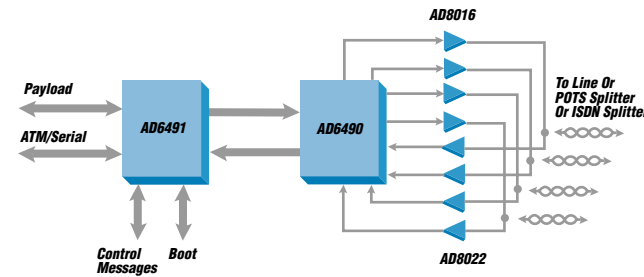
IMPROVED QUALITY OF SERVICE LEVELS

A new DMT coprocessor replaces the first generation's DMT accelerator for dual-line, two-way simultaneous transmission of data, voice, and video. Specifically designed for superior Quality of Service (QoS) levels, the Quad-Port features a rate-adaptive design that automatically adjusts to line characteristics and delivers the best possible performance, regardless of indigenous line conditions.

RATE ADAPTIVE FOR OPTIMUM THROUGHPUT

As a rate-adaptive chipset, the Quad-Port ensures the highest data throughput by assessing the condition and transport capacity of each line. It continuously

The Quad-Port comprises a quad DMT engine, quad analog front end, line driver, and receiver to speed and simplify the development of ADSL systems.



adapts its operation to achieve the best possible data rate.

The Quad-Port 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 Quad-Port will maximize a subscriber's downstream network access and speed the transmission of multiservice (DSL, Frame Relay, and ATM) data, voice, and video alike.

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 Quad-Port can reduce the engineering investment required to design and test your next-generation ADSL modem. As a complete solution, the Quad-Port 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. Research and development have enabled this new chipset to address the need for lower power consumption for subscriber-side equipment, ATM (asynchronous transfer mode) handshaking for backbone switches and routers, and nonstandard 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 QUAD-PORT CHIPSET FEATURES:

Improved Performance
Significant changes in the AD6490 improve performance, including lower noise floor, less distortion, and improved resolution on converters.

Programmable Analog Equalizer

Improves reach and performance on long loops.

JTAG Test Port

Eases manufacturing test on AD6491 digital IC.

Increased MIPS

The embedded core has >40 MIPS, compared to 26 MIPS of external ADTSP2183.



www.analog.com

© Analog Devices, Inc., 2000. All rights reserved. Trademarks and registered trademarks are the property of their respective companies.

Printed in the U.S.A. H3792-8-1/00 (rev. 0)