



C O N E X A N T®

Description	Single-Chip Cable Modem
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The CX24951 also supports PacketCable applications by interfacing to Conexant's voice DSP products to execute voice processing algorithms.

The CX24951, through its high level of integration, enables manufacturers to develop a complete cable modem with a minimal number of additional components as shown in the CX24951-based cable modem block diagram.



Increased Performance

Conexant's seventh-generation physical-layer downstream receiver includes a 10-bit A/D that accepts a direct IF signal (at 44 or 36 MHz) and a QPSK/16/32/64/128/256 QAM demodulator with Annex A, B and C forward error correction. The CX24951 also contains an 11-bit D/A converter, which can accommodate 65 MHz of upstream bandwidth for EuroDOCSIS and DVB applications, and a QPSK/8/16/32/64/128 QAM burst upstream modulator. Conexant's proven PHY technology exceeds all DOCSIS/EuroDOCSIS 2.0/1.1/1.0 requirements for low BER in noise-filled environments.

The CX24951 is the fastest solution in the industry with integrated dual software programmable network processing engines on board. Its unique packet management, unified memory architecture, and advanced system buses, maximize performance by allowing segmentation of real-time-critical DOCSIS/EuroDOCSIS 2.0/1.1/1.0 functions from non real-time-critical application processes. The CX24951 processor performance and unique architecture enables DOCSIS/EuroDOCSIS 2.0/1.1/1.0 and other software applications, including VPN firewall for added security and routing for cable home or VoIP for PacketCable.

The CX24951 also incorporates a PHS (Payload Header Suppression requirement introduced in DOCSIS 1.1) engine in hardware. Implementation of PHS in hardware further boosts the performance of the CX24951 by relieving the internal CPU from performing repeated filtering operations.

CX24951 Features

Flexible Platform

Cable modem manufacturers have to devote a significant amount of resources to bring new certifiable solutions to market. The unique architecture of the CX24951 provides a number of advantages for cable modem manufacturers and cable operators alike. The software programmability of the dual network processing engine allows manufacturers to customize the CX24951 for application specific requirements, both at the cable MAC and software applications layer.

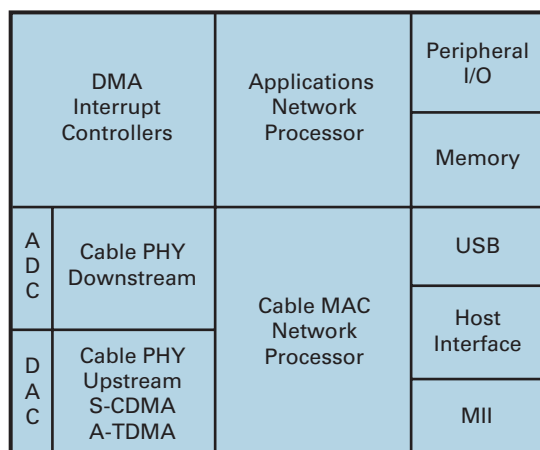
The software programmability of the CX24951 allows one base platform to support numerous products, including PacketCable, CableHome and set-top box products as shown in the CX24951-based cable modem block diagram. In addition, the architectural similarities between the CX24951 and its predecessor, the CX24943, allows for maximum reuse of certified code.

The CX24951 provides the ability to adapt to a multitude of standards by downloading different software into the embedded dual network processing engine, including DOCSIS/EuroDOCSIS 2.0/1.1/1.0, DVB and proprietary standards. Finally, cable operators can download complex feature enhancements above and beyond simple code upgrades to field-deployed solutions, minimizing truck rolls and equipment obsolescence.

Complete Hardware and Software Solution

To reduce the resources and development time required to bring CX24951-based cable modem solutions to market, Conexant provides complete certifiable DOCSIS/EuroDOCSIS 2.0/1.1/1.0 cable modem reference designs which incorporate all of the hardware and software needed for DOCSIS certification.

Cable modem reference designs include Conexant software that is compliant to DOCSIS/EuroDOCSIS 2.0/1.1/1.0 and include the USB drivers that meet Microsoft's Windows Hardware Quality Lab (WHQL) requirements. Additional software enhancements that are above and beyond standards-based requirements are also included in this complete software offering.



**CX24951 Single-Chip
Cable Modem IC Block Diagram**





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