Integrated VDSL2 Gateway Chipsets

CX96xxx - VDSL2 Chipset Family

Conexant's portfolio includes a comprehensive suite of semiconductor solutions for broadband communications and the digital home.

The CX96xxx chipset family enables next-generation, wireless VDSL2 gateways, VDSL2 VoIP Integrated Access Devices (IADs), and VDSL2 bridges. This chipset includes a highly integrated Analog Front End (AFE) and a single chip ARM[™] based Network Processor (NP), a flexible xDSL DSP core and a field-proven Voice DSP engine.

Key features include:

- Integrated high performance ARM[™] network processor core with routing and switching packet accelerator engine that enables up to one gigabit data throughput
- Dedicated Voice Digital Signal Processor (DSP) which frees up processing power for other a applications while supporting two complete VoIP channels
- Flexible xDSL DSP core architecture available in 30MHz, 17MHz bandwidth and 2-pair bonded configurations enabling cost-optimized products for Fiber-To-The-Building (FTTB), Fiber-To-The-Node (FTTN), and CO deployments, respectively
- Fully compatible with legacy ADSL/2/2+ applications enabling the world most interoperable ADSL/2/2+ fallback capabilities

CX96xxx devices include a wide variety of interfaces that support complementary home networking technologies to provide a complete system solution for xDSL gateways. The CX96xxx SoCs seamlessly integrate with Conexant's 802.11a/b/g Wi-Fi®, Ethernet, HomePlug®, SmartDAA and industry standard Subscriber Line Interface Cards (SLIC)/codec chipsets, providing manufacturers a single-source solution for low-cost turnkey triple play applications. Interfaces such as PCI and GMII are also supported to enable emerging home distribution technologies such as Multimedia over Coax Alliance (MoCA®), HomePNA[™] specification 3.0 and HomePlug® A/V.



CX96xxx Block Diagram



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Distinguishing Features

- Flexible VDSL2 DSP core architecture, delivering profiles 8x, 12x, 17a and 30a with long reach
- 2 pair VDSL2 bonding up to profile 12x
- ADSL/ADSL2/ADSL2plus fallback
- Two VOIP channels running in internal voice DSP
- Supports up to 4 VoIP channels
- Enhanced high performance ARM network processor core
- 16/32 bit DDR-1 interface
- 32bitx33MHz Peripheral Component Interconnect (PCI)
- Gigabit Media Independent Interface (GMII) with Ten-Bit Interface (TBI) and Media Independent Interface (MII) modes
- MII in master of slave mode
- ULPI interface for USB2.0 host/device applications
- Serial and parallel flash support
- Up to 1GB NAND flash support
- HW engine handling all layer 2 switching and layer 3 routing including Network Address Translation (NAT)
- HW VPN engine supporting DES, 3DES, AES, SHA-1, SHA-256 and MD5 operations

 Part Number
 CX96629, CX96429, CX96420, CX96329, CX96320, CX96220, CX96820

 Description
 VDSL2 IAD Chipsets
 CX96xxx VDLS2 CPE solutions are delivered with Linux® Board Support Package and Conexant's widely deployed Integrated Software on Silicon (ISOS®) software. ISOS incorporates a feature complete software stack and footprint efficient kernel that allows manufacturers to quickly and easily productize complex gateway products. ISOS also supports DSLHomeTM, the DSL Forum's initiative to standardize and simplify the provisioning and configuration of the DSL gateway. The comprehensive ISOS software suite for the new product family extends across Conexant's complete line of broadband access Customer Premise Equipment (CPE) products from ADSL2plus bridges to advanced VDSL2 gateways.

Chipset	Profile 30a	Profile 17a	Profile 12x	Profile 8x	Data Bridge	Voice	Gateway	Bonding
CX96629			х	х		Х	Х	х
CX96429	х	Х	х	х		Х	Х	
CX96420	х	х	х	х			х	
CX96329		Х	х	х		х	х	
CX96320		Х	х	х			х	
CX96220	х	х	х	х	х			
CX96820		Х	х	х	х			

Product Features

- Support for VDSL2 (G.993.2) with ADSL/ADSL2/ADSL2plus fallback (G.992.1, G.992.2, T1.413, G992.3, G.992.5)
- Integrated, field-proven xDSL DSP core architecture delivering profiles 8x, 12x, 17a, 30, long reach and VDLS2 pair bonding
- 16/32-bit DDR-1 interface
- Integrated 10/100/1000 Ethernet gigabit MAC with GMII, MII and TBI interfaces
- Integrated 10/100 Ethernet MAC with MII interface
- Integrated PCI interface with 32-bit x 33 MHz
- USB2.0 interface via ULPI with host and device mode capability
- External Parallel Bus (EPB) provides support for NAND flash devices along with host interface mode for external host control
- · Support for parallel flash and serial flash
- Integrated Voice DSP engine supports up to two VoIP channels with HW echo cancellation
- PCM interface to external Conexant's single- or dual-channel industry standard SLIC/Codec integrated devices (CX20560 & CX20559) or industry standard SLIC/codec devices
- Interface to lifeline backup using Conexant's cost effective SmartDAA FXO technology
- MGCP and SIP stacks for VoIP
- Optimized power management with support for dying gasp
- Support for DSLHome™ including TR-064, TR-068, TR-069, TR-098, TR-104, TR-106, TR-110, TR-111, TR-124, TR-133

- Memory and feature optimized binary and source software releases for targeted deployments
- Easy to use HTML based Graphical User Interface (GUI) tools for customization of user configuration web pages
- Modular IP stack with comprehensive networking protocol support including advanced bridging and routing capabilities, Dynamic Host Configuration Protocol (DHCP), Point-to-Point Protocol over Ethernet (PPPoE), Point-to-Point Protocol over ATM (PPPoA)
- PPP and tunneling features and Routing Information Protocol (RIP)
- Simple Network Management Protocol (SNMP) agent and tools
- Stateful Packet Inspection (SPI) firewall and Network Address Translation (NAT) security solution
- ATM SAR engine supporting Unspecified Bit Rate (UBR), Constant Bit Rate (CBR) and other service classes
- UPnP for seamless network interconnectivity
- Common customer development environment and tools across ADSL to VDSL2 products

Applications

- VDSL2 17 MHz or 30 MHz bridges
- VDSL2 17MHz or 30 MHz gateways
- Wireless VDSL2 17 MHz or 30 MHz gateways
- VDSL2 17 MHz or 30 MHz voice gateways
- VDSL2 12 MHz pair bonded voice gateway

Conexant Product Portfolio

The company's broad portfolio of semiconductor products also includes client-side DSL and cable modem solutions, home network processors, broadcast video encoders and decoders, digital set-top box components and systems solutions, and dial-up modems. In addition to its IEEE 802.11a/b/g-compliant WLAN chipsets, software, and reference designs, Conexant offers a suite of networking components that includes solutions for applications based on HomePlug® and HomePNA[™]. Additional products include a complete line of asymmetric and symmetric DSL central office solutions, which are used by service providers worldwide to deliver broadband data, voice, and video over copper telephone lines.

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