Lantiq XWAY™ ARX300 Family

The ultimate SoC for fully integrated ASDL2+ 802.11n MIMO/VoIP gateway/router systems

Key Features

- Lantiq Smart CPU Architecture based on 32-bit MIPS®* 34Kc Core
- Carrier-grade 802.11n WLAN with Thick MAC architecture
- Smart Acceleration based upon 32-bit multi-threading Protocol Processor Engine (PPE) for guaranteed session bandwidth & QoS (e. g. IPTV)
- 8/16-bit DDR1 & DDR2 SDRAM
- Serial and NAND (SLC & MLC) Flash interfaces
- Unique combination of software, firmware, hardware on standard Operating System environment
- Programmable Hardware TC-Layer for all ATM/PTM-related flavors
- DEU for IPSec support
- Integrated 7-port Gigabit Ethernet switch
- Integrated POR, USB Under-Voltage detection, dying gasp
- Integrated switching regulators for 2.5 V, 1.5/1.8 V and 1.0 V power supplies
- IPV6-enabled

Key Interfaces

- ADSL2/2+ analog hybrid interface
- 5 x FE/3 x GE Auto-MDIX PHYs
- I/Q differential interface
- 2 x RMII/RGMII
- 8/16-bit DDR DRAM
- Serial Flash/8-bit NAND Flash memory
- 2 x PCI Express 1.1 lanes
- 2x USB 2.0 host
- Voice Support
    - Smart SLIC™ interface (SSI) for seamless connectivity to XWAY™ SLIC100 family
    - TDM/PCM interface
    - Dedicated DECT SPI interface
- SPI serial Flash
- UART for RS-232
- EJTAG/JTAG, GPIO, EXIN

The Lantiq XWAY™ ARX300 family is the latest generation of ADSL2/2+ single-chip devices which enable the realization of cost-effective or feature rich ADSL2+ WLAN router or gateway systems with very high throughput and Quality of Service (QoS) requirements. Based upon a high-performance dual-CPU architecture, the XWAY™ ARX300 family of devices integrate in a single chip the complete functionality of a modern router and gateway: ADSL2/2+ PHY, VoIP engine, Ethernet switch, Gigabit PHYs and the WLAN MIMO subsystem.

In addition, the XWAY™ ARX300 family is supported by a Protocol Processor Engine which accelerates WAN-LAN-WLAN traffic, and thus guarantees Gigabit routing performance at zero CPU load. As a result, Internet Protocol Television (IPTV) applications benefit from the high routing capabilities as well as from the DSL Physical Layer features such as Erasure Decoding and Re-Transmission. The DSL digital front end and interoperability firmware is common to all Lantiq ADSL2+ chipsets.

XWAY™ ARX300 devices with integrated VoIP engines are best combined with Lantiq's XWAY™ SLIC100 devices to add single or multi channel SLIC™ functionality. High-performance architecture assures always perfect voice quality despite concurrent routing tasks performed by the gateway.

The integrated 802.11n WLAN module of the XWAY™ ARX300 family offers outstandig WLAN data performance up to 300 Mbps. The unique WLAN technology allows supporting applications like "carrier-grade" IPTV services which require enhanced reach and radio coverage while maintaining links with zero-packet-error rate. In addition, the WLAN subsystem is supported by a "Thick MAC" architecture which offloads the main CPU by executing processor-intensive operations.

A wide range of energy-saving features built into the solution enable router or IAD designs to meet the requirements listed in the EU's Code of Conduct (CoC) on Energy Consumption of Broadband Equipment.

ADSL Features

- Fully intergrated multimode ADSL2/2+ transceiver (AFE & LD)
- Fully compliant with ITU-T G.992.1/3/5 (ADSL2/2+) Annexes A, B, I, J, M, and L
- Data rates >28 Mbps downstream and >2.7 Mbps upstream
- Industry-leading IPTV PHY supporting INP Protection >2, Erasure Decoding, increased Interleaver depth
- Super-extended framing and Re-Transmission

WLAN subsystem

- Up to 3x3 MIMO RF system integrated with two spatial streams (2SS)
- PHY transmission rates up to 300 Mbps
- Fully compliant with IEEE 802.11n/e/i/h and backward compatibility to 802.11a/b/g
- Dynamic Frequency Selection (DFS) and Transmit Power Control (TPC) by IEEE 802.11h
- Advanced Maximum Likelihood decoder algorithms
- Advanced integrated beam-forming technology
- LDPC forward-error-correction
- Optimum channel selection and seamless channel switching when detecting disturbers
- Zero-Packet-Loss algorithm

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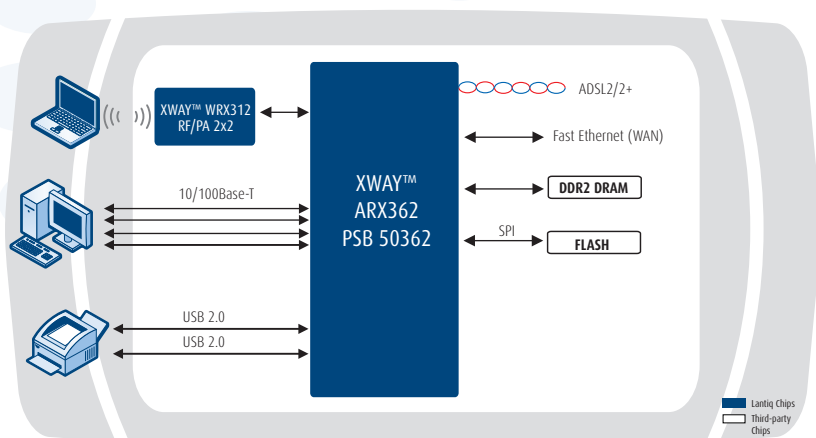
Cost-effective 11n 2x2 WLAN ADSL2+ router based on 2-Layers PCB with alternative WAN interface (ADSL2/2+ or Gbit Ethernet)
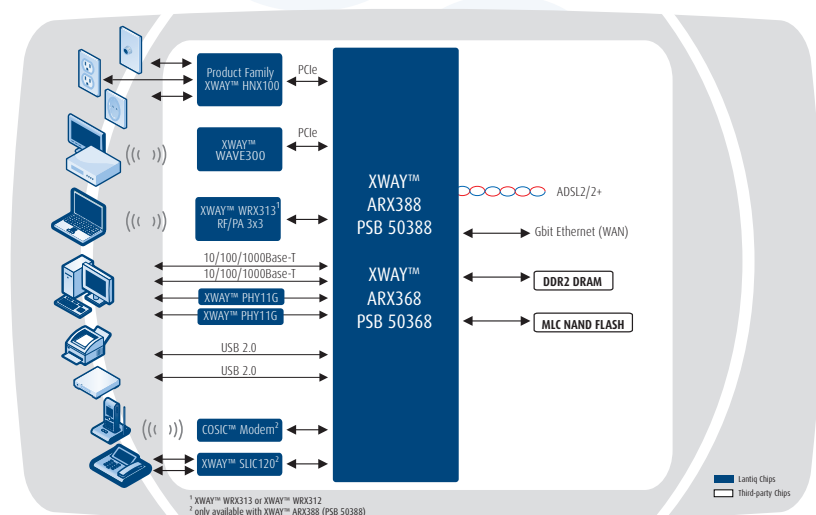
Feature-rich concurrent dual-band WLAN gateway with alternative WAN interface (ADSL2/2+ or Gbit Ethernet)

Product Summary

Product Name	Sales Code	Description	Package
XWAY™ ARX388	PSB 50388	Feature-rich SoC for 2x2/3x3 WLAN ADSL2+ Gateway	PG-LFBGA-369
XWAY™ ARX368	PSB 50368	Feature-rich SoC for 2x2/3x3 WLAN ADSL2+ Router	PG-LFBGA-369
XWAY™ ARX382	PSB 50382	Cost-effective SoC for 2x2 WLAN & FE, ADSL+ Gateway	PG-MRQFN-205
XWAY™ ARX362	PSB 50362	Cost-effective SoC for 2x2 WLAN & FE, ADSL+ Router	PG-MRQFN-205
XWAY™ WRX313	PSB 82313	Fully integrated 11n 3x3 RF/PA chip	PG-MRQFN-105
XWAY™ WRX312	PSB 82312	Fully integrated 11n 2x2 RF/PA chip	PG-MRQFN-105
XWAY™ ARX3x8 Family Board	EASY388	Support tool: High-End ADSL2+ WLAN Gateway Reference Board	-
XWAY™ ARX3x2 Family Board	EASY362	Support tool: Cost-effective ADSL2+ 2x2 WLAN Router 2-layers PCB Reference Board	-

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Information For further information on technology, delivery terms and conditions and prices, please contact the nearest Lantiq Office (www.Lantiq.com).

Warnings Due to technical requirements, components may contain dangerous substances. For information on the types in question, please contact the nearest Lantiq Office. Lantiq components may be used in life-support devices or systems only with the express written approval of Lantiq, if a failure of such components can reasonably be expected to cause the failure of that life-support device or system or to affect the safety or effectiveness of that device or system. Life support devices or systems are intended to be implanted in the human body or to support and/or maintain and sustain and/or protect human life. If they fail, it is reasonable to assume that the health of the user or other persons may be endangered.

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