XWAY™ VRX300 Chipset Family

The ultimate SoC for fully integrated VDSL2/ADSL2/2+ / 802.11n MIMO/VoIP Gateway/Router Systems

VDSL Features

- ITU-T G.993.2 (VDSL2) Support of Profile 8 MHz - 30 MHz without HW change
- ITU-T G.992.1/3/5 (ADSL1/2/2+) Annexes -A, -B, -I, -J, -M and –L
- DSL Forum performance specifications: ADSL TR-048/67, TR-100; VDSL: WT-114
- Bonding performance for 2 pairs: DS: 200 Mbps and US: 150 Mbps.
- Single link Data Rates >100 Mbps downstream, 100 Mbps upstream
- Industry-leading IPTV PHY supporting extended framing INP Protection > 2
- Erasure Decoding and increased Interleaverdepth
- ITU-T G.998.4 PHY-LayerRe-Transmission
- ITU-T G.998.2 Pair Bonding on all VDSL profiles up to 30 MHz
- Programmable TC-Layer for all ATM/PTM related flavors (incl. pre-emption)
- ITU-T G.993.5 Vectoring

WLAN Subsystem Features

- 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

The Lantiq XWAY™ VRX300 family is the next generation VDSL2/ADSL2/2+ chipset enabling the realization of cost-effective and feature rich xDSL WLAN router or gateway systems with best data throughput as well as Quality of Service (QoS) requirements.

Based upon a high-performance dual-core CPU architecture, the XWAY™ VRX300 offers the complete functionality from VDSL2/ADSL2/2+ Transceiver, VoIP engine, Ethernet switch, Gigabit PHYs and the WLAN MIMO subsystem.

In addition, the XWAY™ VRX300 family is supported by a Protocol Processor Engine which accelerates WAN-LAN-WLAN traffic, and thus guarantees Gigabit routing performance at zero CPU load.

The VDSL2/ADSL2/2+ Transceiver is attached as XWAY™ VRX318 device to the central network processor XWAY™ GRX300 family SoC and features all experience in interoperability from the previous generations, as well as functionality enhancements including Vectoring, Pair Bonding, PHY Layer Retransmission according to the respective ITU-T standards.

The combination of the XWAY™ VRX318 and XWAY™ GRX300 family SoC provides highest flexibility and scalability in configuring various CPE systems ranging from entry-level router to mid-range devices up to high-end gateway products. The integrated VoIP engines in the high-performance architecture of the XWAY™ GRX300 family SoC in combination with Lantiq's XWAY™ SLIC100 family devices assure always perfect voice quality despite concurrent routing tasks performed by the SoC.
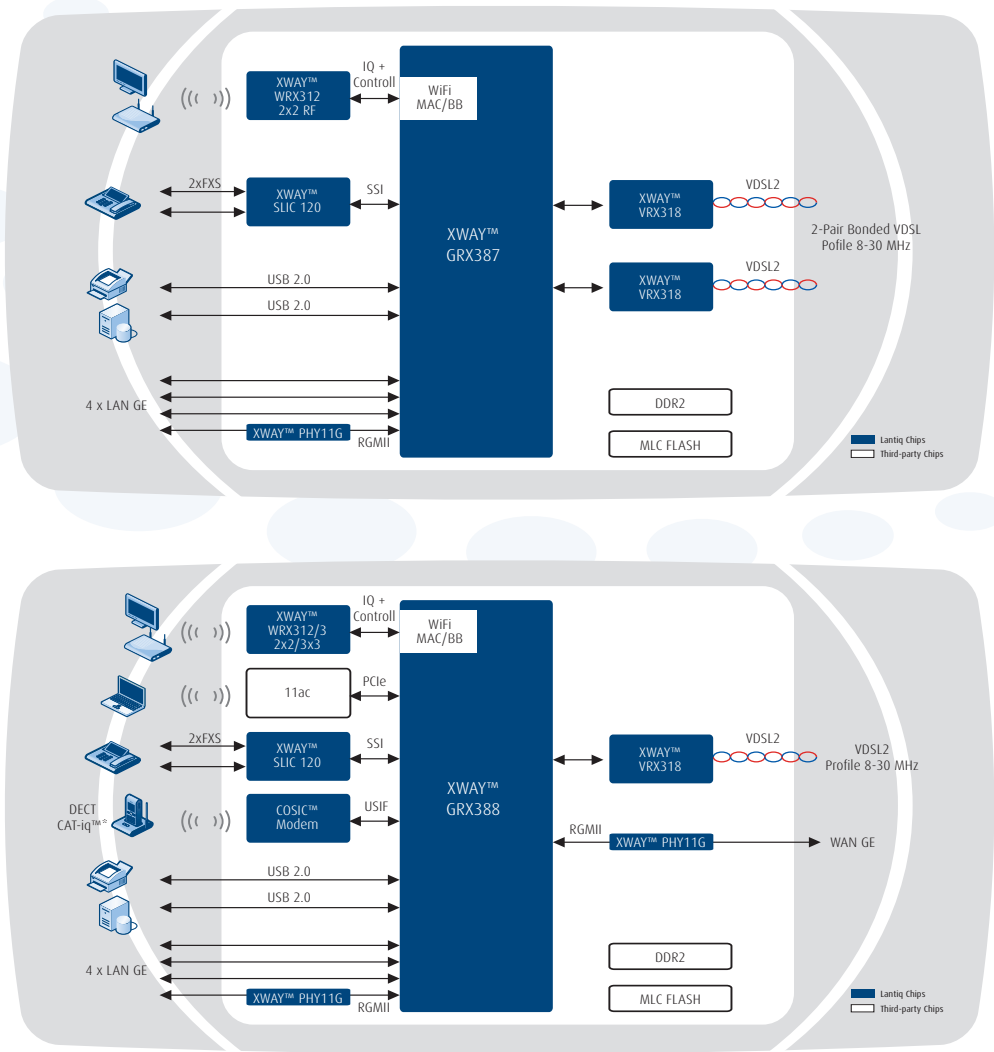
The integrated 802.11n WLAN module of the XWAY™ VRX300 family offers carrier grade WLAN data performance up to 300 Mbps while offloading the main CPU by its „Thick MAC" architecture.

System Features

- Lantiq Smart CPU Architecture based on 32-bit MIPS ® * 34Kc Core
- Carrier-grade 802.11n WLAN with Thick MAC architecture
- Smart Acceleration 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
- DEU for IPSec support
- Integrated 7-port Gigabit Ethernet switch
- IPV6-enabled

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The ultimate SoC for fully integrated ADSL2/2+/VDSL2 802.11n MIMO/VoIP Gateway/Router Systems

Diagram 1 labels: XWAY™ WRX312 2x2 RF · IQ + Controll · WiFi MAC/BB · 2xFXS · XWAY™ SLIC 120 · SSI · XWAY™ GRX387 · XWAY™ VRX318 · VDSL2 · 2-Pair Bonded VDSL Pofile 8-30 MHz · XWAY™ VRX318 · VDSL2 · USB 2.0 · USB 2.0 · 4 x LAN GE · XWAY™ PHY11G · RGMII · DDR2 · MLC FLASH · Lantiq Chips · Third-party Chips

Diagram 2 labels: XWAY™ WRX312/3 2x2/3x3 · IQ + Controll · WiFi MAC/BB · 11ac · PCIe · 2xFXS · XWAY™ SLIC 120 · SSI · XWAY™ GRX388 · XWAY™ VRX318 · VDSL2 · VDSL2 Profile 8-30 MHz · DECT CAT-iq™ · COSIC™ Modem · USIF · RGMII · XWAY™ PHY11G · WAN GE · USB 2.0 · USB 2.0 · 4 x LAN GE · XWAY™ PHY11G · RGMII · DDR2 · MLC FLASH · Lantiq Chips · Third-party Chips

Product Summary

Product	Sales Code	Description	Package
XWAY™ VRX318	PSB 80318	ADSL2/2+/VDSL Transceiver and Line Driver	PG-MRQFN-122
XWAY™ GRX388	PXB 4310	Feature-rich SoC for 2x2/3x3 WLAN, 3xGE Gateway	PG-LFBGA-369
XWAY™ GRX387	PXB 4387	Feature-rich SoC for 2x2 WLAN, 3xGE Gateway	PG-LFBGA-369
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

* CAT-iq™ is the registered trademark of the DECT Forum

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