![MaxLinear logo]

AnyWAN™ SoC GRX350 Series for Broadband Home Gateways and Routers

PRODUCTS

GRX350	Multicore networking processor for home gateways and routers
WAV654	Concurrent PCIe based 2+2 Wi-Fi 6. Device for routers, gateways, and repeaters

BENEFITS

- Full software and hardware turn-key solution for an AX3000 capable Multi-WAN gateway or router
- Enables cost-competitive field proven solutions for xDSL/G.fast/Fiber/LTE/ETH service providers

FEATURES

- NPU with four processor cores featuring six CPUs for maximum performance, flexibility, and security
- NPU subsystem with L2-cache, system-wide coherence manager, and on-chip trace unit
- NPU speeds up to 2220MHz
- Integrated security for secure code execution, boot, and access control
- Enhanced packet acceleration with a combination of hardware acceleration and flexible, programmable multilevel processing engine. The GRX350 series supports more than four million packets per second (exceeding 2Gbps routing for smallest packet size) at 0% CPU load
- Hardware accelerated, carrier-grade quality of service (QoS) solution with programmable queues, schedulers, and shapers operating both upstream and downstream to any interface on the chip
- Integrated non-blocking 7-port Gigabit Ethernet switch with wire speed switching
- Hardware acceleration for VPN/IPsec, TLS, storage, etc.
- Support for VoIP
- Hardware-enforced security enables different operating systems to run on different cores

APPLICATIONS

- Wi-Fi 6 AX3000 gateways and routers
- VDSL2/35b single and bonded gateways, routers, and repeaters
- Ethernet router (retail routers only)
- LTE gateway
- G.fast gateway
- GPON and fiber gateways
- Smart home gateway

Optimize Investments Across Connected Home Devices

The AnyWAN™ SoC GRX350 series is suited for mid-range home gateways and routers and provides the same peripheral interfaces to reuse existing software across a wide range of applications. It allows equipment and service providers to extend the value of their infrastructure investments and upgrade existing designs.

A multicore network processing unit (NPU) subsystem, combined with hardware acceleration and the integration of all the standard features into a single device makes the AnyWAN SoC GRX350 series a powerful and compact gateway-on-a-chip solution. Various architecture features improve quality of service and enable the integration of hardware-based virtualization.

Wireless Connectivity

Wi-Fi chipsets deliver fast and consistent connectivity for home routers, gateways, and intelligent range extenders

KEY INTERFACES

- 5 × Gigabit Ethernet, including auto-MDIX PHYs
- Up to 2 × RGMII Gigabit interfaces
- 8/16-bit DDR3
- Serial flash/8-bit NAND flash memory
- 3 × PCI Express 2.0 lanes
- 2 × USB 3.0/2.0 hosts
- Support for two foreign exchange station (FXS) ports
- Dedicated DECT/CAT-iq/ DECT Ultra Low Energy (ULE) interface
- TDM/PCM interface
- Enhanced GPIOs
- UART, I²C, MDIO
- EJTAG/JTAG

WI-FI FEATURES

- Wi-Fi 6™ certified supporting:
  - 160MHz
  - QAM 1024 (up to MCS 11)
  - TWT, BSS coloring, and spatial reuse
  - DL and UL OFDMA
- Band steering and 3rd party Mesh
- prplMesh™ infrastructure for EasyMesh™ R2
- Latest WPA3 R2 security for both personal and enterprise
- Repeater and extender support
- Direct connect acceleration

WAN INTERFACES

The GRX350 series can interface to the following:

- Gigabit Ethernet WAN
- ADSL2+/VDSL2/35b
- VDSL2/35b bonding
- G.fast

LAN INTERFACES

The GRX350 series can interface to the following:

- Gigabit Ethernet
- Wi-Fi 6 2.4GHz
- Wi-Fi 6 5.0GHz
- FXS/FXO
- DECT/CAT-iq
- DECT ULE
- USB 2.0/3.0
- SATA
- NFC
- Ability to interface to various PAN radio technologies

Development Kits for AX3000 Routers and Gateways

MaxLinear offers kits to accelerate the development of home routers, gateways, and extenders. Optimized at the system level for easier, faster, and more cost-effective development, the kits allow original equipment manufacturers (OEM) to customize a solution for their unique requirements. The development kit for home gateways EASY350-AX3000 is designed for 2+2 Wi-Fi 6 routers and gateways and integrates the AnyWAN SoC GRX350 and the home Wi-Fi chipset WAV654. This kit also delivers high performance wireless connectivity for AX3000 entry VDSL2/35b gateways.

With the home Wi-Fi chipset WAV600 series, this kit offers support for Gigabit Wi-Fi and provides the ability to connect up to 250 clients simultaneously with reduced latency. It also incorporates advanced Wi-Fi 6 (Gig+) technology features including 160MHz and capability for both downlink and uplink OFDMA.
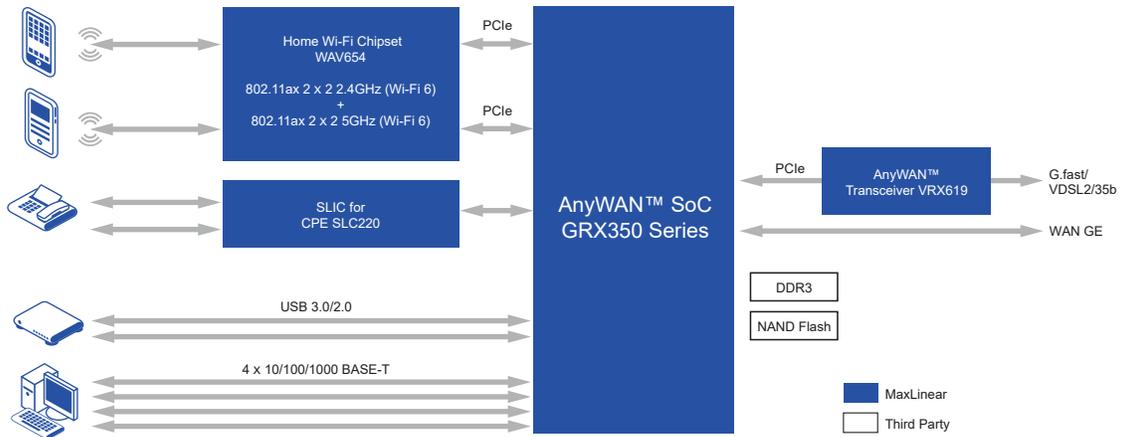
The chipsets also deliver exceptional throughput for both small and large packet sizes while running at over 250,000 packets per second (PPS). In addition, wireless traffic is fully offloaded with zero CPU utilization, which frees up the CPU performance for advanced services.
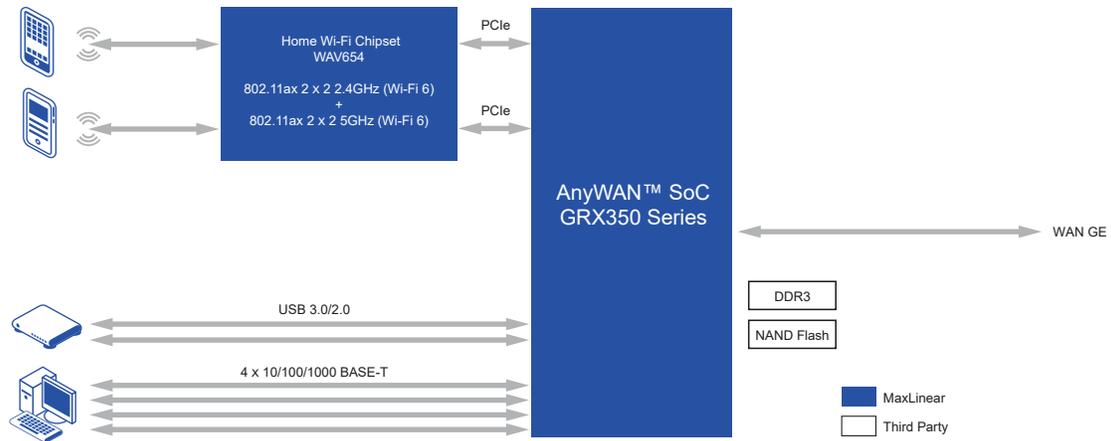
TOOL PACKAGE

- Reference board
- Reference casing
- Cables and power supply
- Schematics and layout, BOM
- Ready-to-use software image
- Calibration tools

TECHNICAL SPECIFICATIONS

- 4-Gigabit LAN connections, 1-Gigabit WAN connection, and a 2.5Gbps SFP connector
- WAN Ethernet aggregation for greater than 1Gbps WAN speeds
- 2 × USB 3.0
- Universal gateway software supporting routing, security, and enhanced QoS features
- Aligned to latest FCC and ETSI standards, including CoC
- Supports up to 125 clients and 7 virtual SSIDs per band
- Supports multiple client modes (WDS, L2NAT)
- Supports Wi-Fi EasyMesh R2 standard
- Supports advanced tunneling modes through HW acceleration: MAP-E, DSlite, PPTP, L2TP, 6to4, 6rd

AX3000 G.fast or DSL Gateway

Home Wi-Fi Chipset WAV654

802.11ax 2 x 2 2.4GHz (Wi-Fi 6)
+
802.11ax 2 x 2 5GHz (Wi-Fi 6)

PCIe

PCIe

SLIC for
CPE SLC220

USB 3.0/2.0

4 x 10/100/1000 BASE-T

AnyWAN™ SoC
GRX350 Series

PCIe

AnyWAN™
Transceiver VRX619

G.fast/
VDSL2/35b

WAN GE

DDR3

NAND Flash

MaxLinear

Third Party

AX3000 Ethernet Router

Home Wi-Fi Chipset WAV654

802.11ax 2 x 2 2.4GHz (Wi-Fi 6)
+
802.11ax 2 x 2 5GHz (Wi-Fi 6)

PCIe

PCIe

AnyWAN™ SoC
GRX350 Series

WAN GE

DDR3

NAND Flash

USB 3.0/2.0

4 x 10/100/1000 BASE-T

MaxLinear

Third Party

Product Information

Product	Description	Ordering Code	Package
AnyWAN™ SoC GRX350	Multicore networking processor for home gateways and routers.	GRX350A3BC160	PG-LFBGA-413
Home Wi-Fi Chipset WAV654	Concurrent PCIe based 2+2 Wi-Fi 6. Device for routers, gateways, and repeaters.	WAV654A1MC	PG-MRQFN-244

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