AnyWAN™ SoC GRX550 Series for Broadband Home Gateways and Routers

PRODUCTS

GRX550	Multicore networking processor for home gateways and routers
WAV614	Wi-Fi 6, 4×4, 2.4GHz chip
WAV624	Wi-Fi 6, 4×4, 5GHz chip

BENEFITS

- Full software and hardware turn-key solution for an AX6000 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 2600MHz
- 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 GRX550 series supports more than eight million packets per second 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 queue-based back-pressure algorithm
- 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 AX6000 gateways and routers
- VDSL2/35b single and bonded gateways, routers, and repeaters
- LTE gateway
- G.fast gateway
- Fiber gateways
- Smart home gateway

Optimize Investments Across Connected Home Devices

The AnyWAN™ SoC GRX550 series is suited for high-end 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 GRX550 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
- TDM/PCM interface
- Enhanced GPIOs
- UART, I²C, MDIO
- EJTAG/JTAG

WI-FI FEATURES

- Speeds of up to 2.5Gbps TCP CDB
- 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
- Zero Wait DFS

WAN INTERFACES

The GRX550 series can interface to the following:

- Gigabit Ethernet WAN
- ADSL2+/VDSL2/35b
- VDSL2/35b bonding
- LTE WAN
- xPON
- G.fast 106MHz and 212MHz

LAN INTERFACES

The GRX550 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 AX6000 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 EASY550-AX6000 delivers high performance wireless connectivity for high-end 4×4 Wi-Fi 6 xDSL/ETH gateways and routers.

With the integrated home Wi-Fi chipset WAV600 series, this development kit offers support for Gigabit Wi-Fi and provides the ability to connect up to 250 clients simultaneously per band 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.
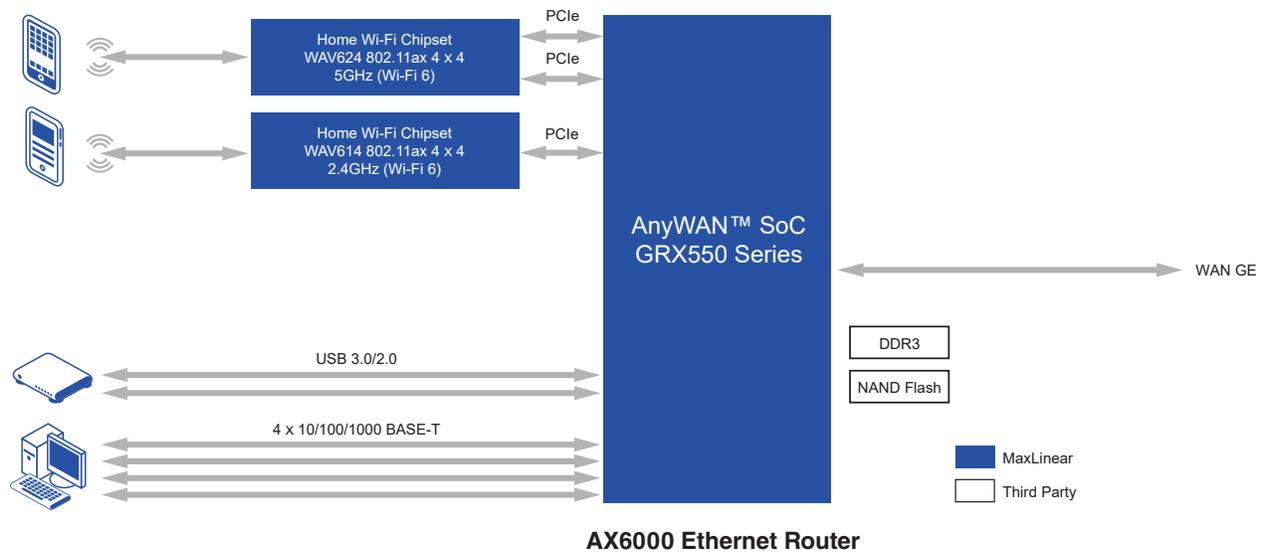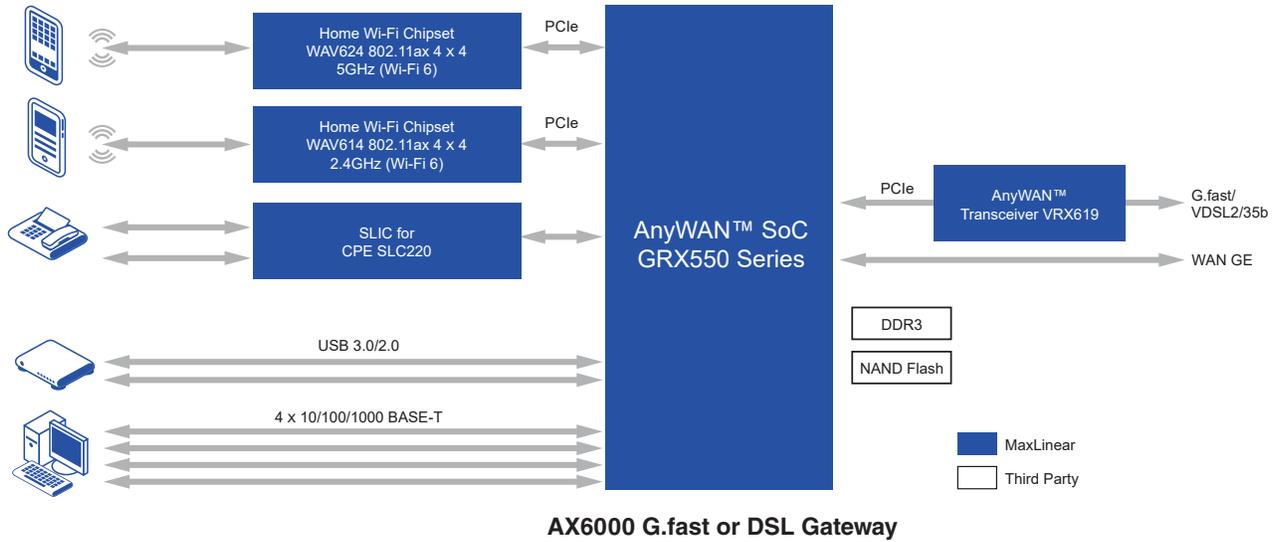
TOOL PACKAGE

- 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 250 clients and 32 virtual access points per Wi-Fi 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

AX6000 G.fast or DSL Gateway

Home Wi-Fi Chipset
WAV624 802.11ax 4 x 4
5GHz (Wi-Fi 6)

PCIe

Home Wi-Fi Chipset
WAV614 802.11ax 4 x 4
2.4GHz (Wi-Fi 6)

PCIe

SLIC for
CPE SLC220

USB 3.0/2.0

4 x 10/100/1000 BASE-T

AnyWAN™ SoC
GRX550 Series

PCIe

AnyWAN™
Transceiver VRX619

G.fast/
VDSL2/35b

WAN GE

DDR3

NAND Flash

MaxLinear

Third Party

AX6000 Ethernet Router

Home Wi-Fi Chipset
WAV624 802.11ax 4 x 4
5GHz (Wi-Fi 6)

PCIe
PCIe

Home Wi-Fi Chipset
WAV614 802.11ax 4 x 4
2.4GHz (Wi-Fi 6)

PCIe

AnyWAN™ SoC
GRX550 Series

WAN GE

USB 3.0/2.0

4 x 10/100/1000 BASE-T

DDR3

NAND Flash

MaxLinear

Third Party

Product Information

Product	Description	Ordering Code	Package
AnyWAN™ SOC GRX550	Multicore networking processor for home gateways and routers.	GRX550A3BC200	PG-LFBGA-413
Home Wi-Fi Chipset WAV614	Wi-Fi 6, 4×4, 2.4GHz chip.	WAV614A1MC	PG-MRQFN-244
Home Wi-Fi Chipset WAV624	Wi-Fi 6, 4×4, 5GHz chip.	WAV624A1MC	PG-MRQFN-244

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