

GGL541 1Gbps, dual-channel, wireline home networking solution

GGL541 is the only wireline home networking IC that can deliver up to 1Gbps PHY throughput over any of the existing wires in the home - powerlines, coaxial cables and phone lines. It has been designed to meet the demands of the next generation of home multimedia networks, and is the first home network communication device capable of delivering ultra-high-speed, reliable and secure communications throughout the home without installing any new wires.

GGL541 is a full system-on-chip implementation with integrated analog front-end, CPU, memory and MAC/PHY transceivers. This delivers significantly lower cost and appreciably smaller space requirements than alternative multi-chip implementations.

GGL541's unique dual-channel architecture features two independent channels. The first channel is fully compliant with Homeplug® AV, the global industry standard for communicating over powerlines. The second channel utilizes Gigle's mediastream™ technology capable of delivering PHY throughput rates of near 1Gbps over powerlines, coax cables or phone lines. mediastream™ operates in full co-existence with other in-home wire services such as MoCA, Satellite, HPNA, DOCSIS or xDSL.

GGL541 also features Gigle's xtendnet™ technology which enables each device added to a home network to serve as a new node in a mesh network, increasing the overall range of the signal, assuring coverage throughout the entire home, and improving throughput between distant devices. In this way, each additional node improves overall network performance.

GGL541 is specifically engineered to be easily integrated in consumer electronics and IT products, such as home gateways, set-top boxes, digital video recorders, DVD players/recorders, PCs, digital media adaptors, network-attached storage devices, video game consoles, voice-over-IP terminal adaptors, home security devices, and televisions.

Benefits

- Robust, reliable and secure whole-home network coverage
- Avoids costly new wiring
- Industry-leading throughput rates for demanding multimedia applications
- Each additional connected device improves overall network performance
- Superior connection reliability
- Greatest implementation flexibility
- Highly-integrated low profile module configurations for aesthetic product design
- Future-proof home network nodes

Applications

- High-definition and standard-definition cable, satellite and IPTV installations
- PC broadband network connections
- WiFi router linking to extend coverage
- Multi-room DVR networking
- Home multimedia content distribution and storage
- On-line and networked console and PC video game connections
- VoIP installations



Features

- Up to 880Mbps PHY throughput using mediastream™
- Up to 200Mbps PHY throughput in Homeplug® AV mode
- Homeplug® AV compliant
- Built-in repeater capabilities on each band using xtendnet™
- Fully-programmable, integrated QoS with priority identification and eight levels of priority
- Fully compliant with DLNA and UPnP requirements for network interface devices
- Fully compliant with global EMC regulations
- Integrated 802.3 Ethernet MAC with up to 1,000 Mbps throughput
- Source-aware Ethernet bridge
- IGMP and MLD snooping
- Application programming interface for product configuration and customization
- Homeplug® AV compliant encryption for network security and neighbor isolation
- “Green” modes for power efficient networking
- 100 TQFP-EP lead-free package
- Optional external Flash interface for firmware upgradeability or configuration
- Optional external E2PROM for configuration
- Fully manageable by remote devices and servers.

Interfaces

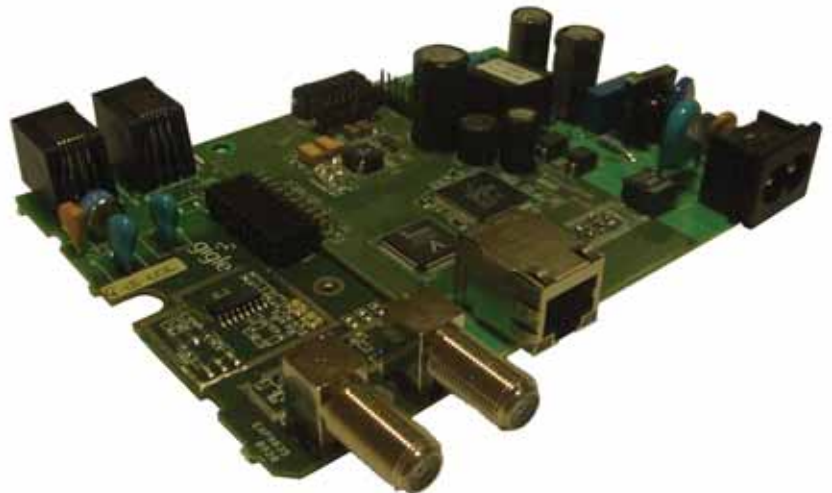
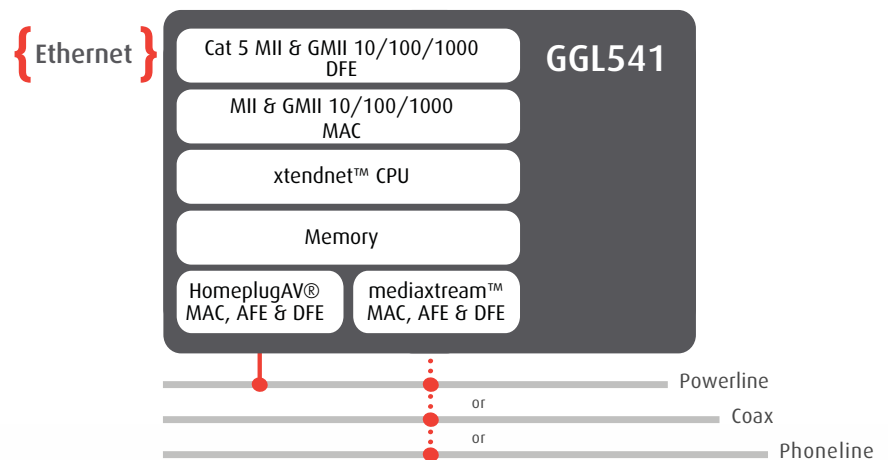
- GMII Gigabit Ethernet Interface which will operate in 10/100/1000 Base-T MAC mode or 100/1000 Base-T PHY mode.
- Dual MII Fast Ethernet Interfaces which will operate in 10/100 Base-T MAC or 100 Base-T PHY modes.
- SPI flash and e2prom host
- Serial interface

Reference Designs

GGL541 is supported by a suite of hardened reference designs detailing the use of GGL541 in embedded applications and in external **anywire** modems. The reference designs, together with detailed application notes and design notes enable product developers and manufacturers to reduce test and integration costs and minimize time-to-market.

Diagrams

GGL541 Functional Diagram



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