

G.hn chipsets, self install home entertainment networks over all wires, coax, phonline and powerline



Sigma's highly integrated, low power G.hn CG5300 family of chipsets enables a complete self-install home entertainment network for distribution of multiple 4K video streams. Triple Play and IPTV over all existing wires in the home: powerline, coax and phone line.

The CG5300 enables largest number of simultaneous 4K video streams, whole-home DVR coverage. With CG5300, end-users enjoy highest speeds over home wiring and unprecedented convenience and flexibility because every power outlet, coaxial outlet and phone jack in home becomes a network connectivity point on the same mesh network.

The CG5300 series is highly integrated (low power single chipsets) minimizing overall form factor and design costs.

CG5300 G.hn family provides unparalleled performance in real environments and full-home coverage over powerline.

The CG5300 G.hn chipsets are optimized for 4K video, IPTV distribution and advanced multicast systems. The chipsets were designed to be easily embedded within broad range of products such as connected TVs, DVRs, Thin client Set-top boxes, OTT, Gateways, Blu-ray DVDs and any other equipment for multimedia and entertainment making the connected home a reality.

FEATURES

- Optimized for IPTV and multicast systems or video and audio traffic
- Rate up to 1 Gbps per medium, up to 3Gbps aggregated over all media
- Highest rate in real environment
- Plug & Play solution – auto configuration; self-install over all three media
- Support with ITU-T G.hn standards (G.9960/1/2/3/4) over all existing wires: powerline, coax, and phone line
- Supports HomePNA™ 3.1 (ITU-T G.9954 standard)
- Coexistence with HomePlug® AV/2
- G.hn MIMO over powerline - enables usage of powerline as a multiple input multiple output (MIMO) channel, thus extending coverage, improving the network's immunity to noise and delivering higher throughput
- Can operate without external memory
- Supports enhanced algorithms for dynamic topology detection and routing
- Relaying/repeater of data and IPTV streams
- Advanced coordination and coexistence mechanisms enabling neighboring networks

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POWERING THE NEW DIGITAL HOME:

SET-TOP BOXES

CONSUMER ELECTRONICS

AV NETWORKS

HOME CONTROL

COMMERCIAL SYSTEMS



CG5300 Series

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Sigma's CG5300 G.hn family ensures unprecedented levels of consistency and reliability, making it the ideal solution for embedding into G.hn-enabled consumer electronics devices, 4K, gateways and set-top boxes for whole-home networking of multiple HD, UHD and 3DTV video streams. It provides more throughput than any legacy technology by supporting a 1 Gbps physical layer (PHY) bit rate for multimedia and data distribution over a single medium and up to 3 Gbps by simultaneously using all three wires inside the home. The CG5300 family comprises highly integrated, low power transceivers the CG5315, CG5321 and CG5331.

These extremely compact modems incorporate enhancements for IPTV applications resulting in highest throughput in real home environments.

Devices that use the CG5300 will deliver to end-users the highest Quality of Experience (QoE) due to the chipset's network level and device level QoS. The chipsets are optimized for IPTV applications to deliver multiple streams of high definition TV (HDTV and UHD) video content, 3DTV video traffic, audio content, Voice over Internet Protocol (VoIP), data, gaming and other applications that are highly QoS-sensitive.

Over powerline, the CG5321 and CG5331 chipsets offer unmatched performance and the most robust solutions. The CG5321 supports MIMO (multiple input, multiple output) where CG5331 is optimized for SISO (single input, single output) based products. The MIMO feature which uses all three wires in the power outlet – phase, neutral, and ground enables the best delivery of IPTV traffic over powerlines, even in the presence of surge protectors, circuit breakers and across multiple phases.

The CG5315 enables smooth migration from HPNA 3.1 (G.9954) to G.hn over coax and phone line. With CG5315, the same product can auto configure or remotely manage to work as G.hn or HPNA 3.1.

| | CG5315 | CG5321 | CG5331 |
|-------------------------|---------------------------|-------------------------|-----------------------|
| G.hn Modes of Operation | Coax Cable and Phone Wire | Powerline MIMO and SISO | Powerline SISO |
| Max Bandwidth | 100 MHz | 50 MHz | 80 MHz |
| Performance | Ultra | Ultra | Ultra |
| Enhance Coverage | Ultra | Ultra | Very High |
| Coexistence with HPAV/2 | – | • | • |
| HPNA 3.1 (ITU-T G.9954) | • | – | – |
| Embedded IP Stack, TR69 | • | • | • |
| Interfaces | MII, RGMII, UART, SPI | MII, RGMII, UART, SPI | MII, RGMII, UART, SPI |
| Embedded Fast Ethernet | • | • | • |
| External Memory Support | Optional DDR3 | Optional DDR3 | Optional DDR3 |

CG5300 Series

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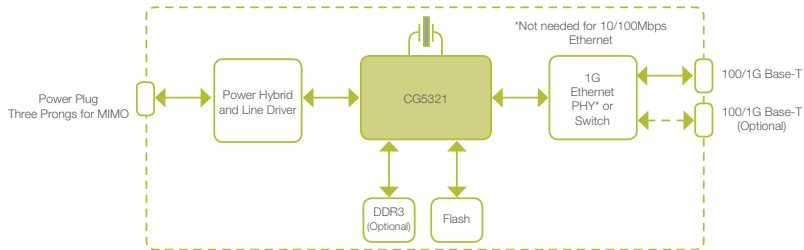
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Features

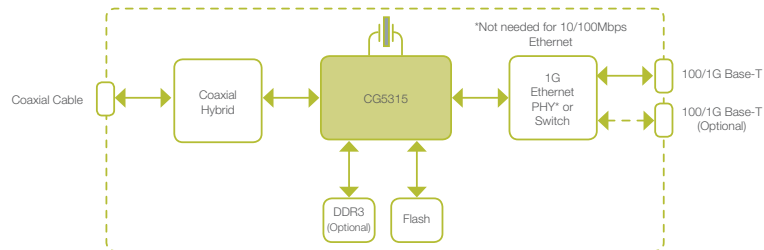
- Guaranteed Quality of Service (QoS), prioritized and parameterized
- Device Level QoS
- Supports IPv6, IPv4. Manages multicast using IGMP v1-3 and MLD v1-2
- 128-bit AES encryption with key management
- Instant security. Also supports legacy push button-based security mechanism
- Support for Broadband Forum's remote management and diagnostics based on TR-069
- Remote and local firmware upgrade
- Fully configurable device able to integrate customized functionality
- Quick system troubleshooting using built-in diagnostic tools and APIs
- Signal quality LED indication
- Environmentally-friendly technology - integrates innovative features for reduced energy consumption
- Green and RoHS compliant packaging
- CG5315, CG5321, and CG5331, DRQFN 164 Pin
- Full development package and turnkey reference designs enable fast time-to-market

SYSTEM IMPLEMENTATION EXAMPLES:

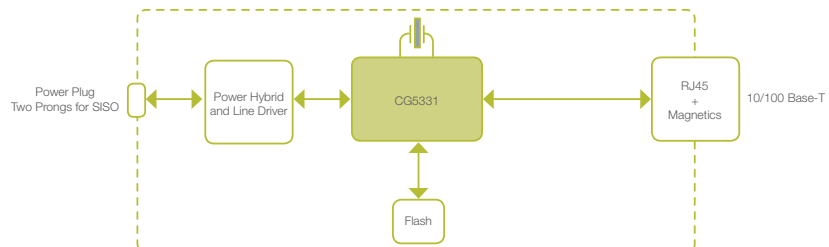
Ethernet Over Powerline Bridge, MIMO (CG5321 Based)



Ethernet Over Coaxial Cable Bridge (CG5315 Based)



Low End Ethernet Over Powerline Bridge, SISO (CG5331 Based)



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BENEFITS:

- Self install even by a novice customer, no need for professional installation
- Guaranteed reliable whole home coverage even in homes with thick walls and multiple floors results in increased customer satisfaction and cuts maintenance expenditures
- Consistent user experience and improved immunity to interference for reliable HD picture quality
- Simple management, unified set of APIs, management and diagnostic tools for all media
- No need to hold double inventory; the same solution can support all media
- No need to run new wires; G.hn operates over existing powerline, coax and phone line
- Instantly secure the home network without the hassle of SSID and other cumbersome mechanisms
- Enables fast and cost-effective troubleshooting via advanced local/remote diagnostic tools
- Easy to be embedded, enables all consumer electronics products in a home can be part of the same mesh network
- Enables a smooth and seamless migration from HomePNA™ technology to G.hn on coax
- Delivers best coverage and throughput without any need for user intervention
- Quick customization and product differentiation via optimized software API

- Fast integration and time-to-market enabled by full development package and turnkey reference designs, including board layout, manufacturing diagnostic tools, documentation and more

APPLICATIONS:

- 4K, 3D, High definition (HD) and standard definition (SD) in-home video distribution, multi-room DVR
- IPTV applications
- Voice over IP (VoIP)
- Shared broadband internet access
- PC file and application sharing
- Security and surveillance (home monitoring)
- Home health care
- Gaming
- Z-Wave® coverage extender

PRODUCTS:

- Connected 4K TVs
- Set-top boxes, thin clients and consumer electronics products
- Residential gateways (RG)
- Optical network terminals (ONTs)
- Home audio and home theater systems
- Network-attached storage devices (NAS)
- IP cameras
- PCs
- Video game consoles
- VoIP adaptors
- Ethernet to G.hn bridges
- G.hn to Z-Wave® bridges

ORDERING INFORMATION:

- Chipsets
 - CG5315A-CBE3, CG5321A-CBE3, CG5331A-CBE3 G.hn Transceivers
- Reference designs
 - CG5315H2EC Ethernet-over coax bridge
 - CG5321HEPM Ethernet-over-powerline MIMO bridge
 - CG5331HEPS Ethernet-over-powerline SISO Bridge
- Development package
 - CG5300-HDK hardware development kits
 - CG5300-SDK software development kits
 - G.hn-PTS production test setup

ABOUT SIGMA DESIGNS

Sigma Designs is a leading provider of system-on-chip (SoC) solutions used to deliver entertainment and control throughout the home:

Media Processing, Smart TV, Video Encoding, Home AV Networking, Video Processing, Home Control

These SoCs are supported with board-level reference designs, sophisticated system software, and technical documentation to form a complete solution for a variety of set-top boxes, smart TVs, consumer electronics, AV network devices, and home control systems.

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Visit: www.sigmadesigns.com/sales
Email: sales@sigmadesigns.com

Headquarters
1778 McCarthy Blvd.
Milpitas, CA 95035
Main: +1.408.262.9003
Fax: +1.408.957.9740
www.sigmadesigns.com

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