INT6000

Intellon
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HomePlug® AV High-Speed Powerline Solution

HomePlug® AV 200Mbps PHY

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INT6000AO

HomePlug® AV
200Mbps PHY

Features

- Single-chip high-speed powerline MAC/ PHY transceiver with integrated MII, Ethernet, PCI, Memory Bus and MPEG transport stream interfaces

- Up to 200 Mbps on the power line

- HomePlug AV compliant

- Co-existence with HomePlug 1.0 nodes

- Support IGMP managed multicast IP transmission

- Implements windowed OFDM, precise channel adaptation and noise mitigation based on patented line synchronization techniques for high data reliability under noisy media conditions

- Implements both TDMA and CSMA/CA access protocols for optimum MAC performance

- Enhanced Quality of Service (QoS) features: eight levels of prioritized random access, contention-free access, and segment and packet bursting

- Intelligent dynamic channel adaptation maximizes throughput under harsh channel conditions

- Supports 1024/256/64/16/8 QAM, QPSK, BPSK, and ROBO modulation means

- 128-bit AES Link Encryption with key management for secure powerline communications

- Low power consumption

- Flash interface for fast access to configuration parameters

- 289-contact BGA package

Benefits

Intellon's High-Speed Powerline Solutions are based on the highly integrated INT6000 HomePlug AV MAC/ PHY transceiver. The INT6000 high-speed IC enables network solutions that are fully compatible with the HomePlug AV specifications and capable of delivering up to 200 Mbps over the power line.

The INT6000 provides a highly integrated and optimized solution for high-speed powerline networking adapters and embedded products. It offers the higher bandwidth necessary to drive next-generation home entertainment applications including High Definition (HD) and Standard Definition (SD) video distribution, TV over IP (IPTV), networked digital video recorders (DVR) and media center PCs. Additional broadband applications for the INT6000 solution include whole house audio, extension and bridging of high speed wireless technologies such as 802.11x and UWB, and higher data-rate broadband sharing based on technologies such as ADSL2+, VDSL and fiber-to-the-home (FTTH).

The following host interfaces offer maximum system flexibility:

- MII PHY (IEEE 802.3u) interface for interconnection to Ethernet controllers
- MII Host/ DTE interface (IEEE 802.3u) for interconnection to Ethernet PHY
- Peripheral Component Interconnect (PCI) local bus
- Memory Bus Interface (MBI)
- Multiple MPEG Transport Stream (TS)

The INT6000 IC implements HomePlug AV technology, which is tailored to reliably deliver up to 200 Mbps over the harsh powerline communication environment. The chipset combats deep attenuation notches, noise sources, and multi-path fading by using windowed OFDM, Turbo Convolutional Codes, precise channel adaptation and noise mitigation based on AC line cycle synchronization.

The MAC implements a mix of TDMA and CSMA/CA access protocols with prioritization and automatic repeat request (ARQ) for reliable delivery of packets. The TDMA mechanism provides strict QoS guarantees such as bandwidth reservation, tight control of latency and/or jitter, and quasi-error free delivery. These features are essential to provide efficient end-to-end delivery of broadcast quality HD and SD video streams over the harsh power-line environment.

Intellon HomePlug AV Product Development Tools

- INT60MX SIMPLE Module for Embedded Applications
- RD6000-ETH Wall Adapter Reference Design
- RD6000-PCI Mini-PCI Reference Design
- RD6000-COAX Hybrid PLC/Coax Reference Design
- INT6000-SDK Software Development Kit
- EK6000 Evaluation Kit
- PTS6000 Production Test System

Intellon Development Tools reduce costs and shorten time to market!

The CSMA/CA protocol provides efficient delivery of asynchronous traffic. Built-in Quality of Service (QoS) features provide the necessary bandwidth for multimedia payloads including voice, data, audio, and video. An eight-level prioritized random access method is supported with strict adherence to priority. Segment bursting on the power line minimizes the demands on the receiver resources and maximizes the throughput of the network, while still providing excellent latency response and jitter performance. The contention-free access capability extends this concept of segment bursting to allow the transmission of multiple frames over the power line without relinquishing control of the medium.

Functional Diagram
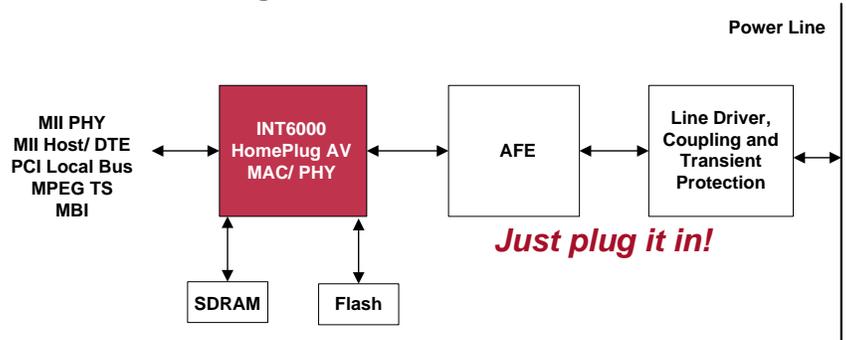
Target Applications

- High Definition (HD) and Standard Definition (SD) video distribution
- TV over IP (IPTV)
- Backbone for Wi-Fi, UWB and Wireless USB
- Higher data rate broadband sharing
- Shared broadband internet access
- Audio and video streaming and transfer
- Expanding the coverage of wireless LANs
- Voice over Internet Protocol (VoIP)
- PC files and applications sharing
- Printer and peripheral sharing
- Network and online gaming
- Security cameras

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Intellon: The World Leader in Powerline Networking

- ✓ Leading contributor to HomePlug AV specification
- ✓ Patented technology chosen as the basis for HomePlug 1.0
- ✓ Complete HomePlug 1.0 and AV solutions from a single supplier
- ✓ World leader in HomePlug IC sales and product enablement
- ✓ Over 5 million powerline ICs shipped
- ✓ Most real-world experience in powerline networking