



# INT5500CS

## HomePlug 1.0 with Turbo Powerline Chipset



### INT5500 Integrated Powerline MAC/ PHY Transceiver

- Single-chip powerline networking transceiver with integrated MII interface
- Up to 85 Mbps data rate on the powerline
- HomePlug 1.0 compatible
- Supports QAM 256/64/16, DQPSK, DBPSK and ROBO modulation schemes
- Multi-vendor flash compatibility
- Low power consumption
- Orthogonal Frequency Division Multiplexing (OFDM) with patented signal processing techniques for high data reliability in noisy media conditions
- Intelligent channel adaptation maximizes throughput under harsh channel conditions
- Integrated Quality of Service (QoS) features: prioritized random access, contention-free access, and segment bursting
- 56-bit DES Link Encryption with key management for secure powerline communications
- 1.8V core, 3.3V I/O Signaling
- 100-pin LQFP small footprint package
- RoHS (lead-free) compliant



### Benefits

Intellon's turbo Powerline chipset INT5500CS comprises of the INT5500, Integrated Powerline MAC/ PHY Transceiver, and its companion INT1200, an Analog Front End IC. The INT5500CS is fully compatible with the HomePlug<sup>®</sup> 1.0 specifications, and capable of delivering up to 85 Mbps over the power line.

The INT5500CS provides a highly integrated and optimized solution for networking adapters and embedded products. It offers the higher bandwidth performance necessary to drive next-generation home entertainment applications, including standard definition (SD) video distribution, TV over IP (IPTV), digital video recorder (DVR) networking and media center PCs. Other applications include whole house audio, extension and bridging of higher speed wireless technologies such as 802.11x and UWB, and higher data-rate broadband sharing based on technologies such as ADSL2 and fiber to the home.

The INT5500CS provides two types of host interface for maximum system flexibility:

- An MII PHY (IEEE 802.3u) interface for interconnection to Ethernet controllers
- An MII Host / DTE interface (IEEE 802.3u) for direct connection to an Ethernet PHY

The INT5500CS implements Intellon's patented OFDM technology, which forms the basis for the HomePlug 1.0 specification. Tailored to reliably deliver up to 85 Mbps over the difficult power line communication environment, the chipset combats deep attenuation notches, noise sources, and multi-path fading by allocating usable frequencies according to the signal to noise ratio (SNR). Synchronization is achieved in low SNR channels without the use of pilot carriers. Inclusion of additional modulation schemes (QAM 256/64/16) increases the chipset's capability to attain higher throughput performance.

The MAC implements a CSMA/CA scheme with prioritization and automatic repeat request (ARQ) for reliable delivery of Ethernet packets via packet encapsulation. Built-in Quality of Service (QoS) features provide the necessary bandwidth for multimedia payloads including voice, data, audio, and video. A four-level prioritized random access method exists with strict adherence to priority. Segment bursting on the power line minimizes the demands on the receiver resources and

## INT1200 Analog Front End IC

- Low Power 2.5V CMOS mixed-signal front-end optimized specifically for high speed home network communications
- Direct connection to Intellon INT5500 Powerline MAC/ PHY transceiver
- High Performance 10-bit ADC
- High Performance current steering 8-bit DAC with adjustable full-scale output current
- Serial configuration interface
- 48-pin LQFP small footprint package
- RoHS (lead-free) compliant



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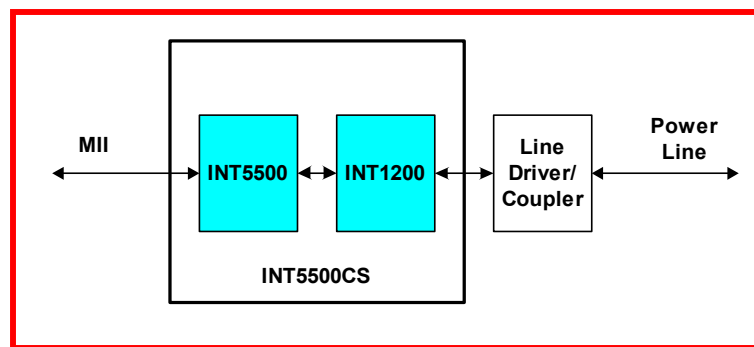


maximizes the throughput of the network, while still providing excellent latency response and jitter performance. The contention-free access capability extends this concept of segment bursting to allow the transmission of multiple frames over the power line without relinquishing the control of the medium.

Intellon offers a complete solution for powerline applications using the INT5500CS, including data sheets, reference manuals, configuration utility software and production test capabilities, together with a proven technical support team to shorten customer's time to market.

**Just plug it in!**

## Functional Diagram



## Target Applications

- Standard Video TV (SDTV) Distribution
- TV over IP (IPTV)
- Higher data rate broadband sharing
- Shared broadband internet access
- Audio and video streaming and transfer
- Expanding the coverage of wireless LANs
- Voice Over IP calls
- PC file and application sharing
- Printer and peripheral sharing
- Network and online gaming
- Security cameras

## Intellon: The World Leader in Powerline Networking

- ✓ Patented technology chosen as the basis for HomePlug® 1.0
- ✓ Complete HomePlug IC solution from a single supplier
- ✓ Only implementation proven in 500-home test
- ✓ Most real-world experience in powerline networking

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