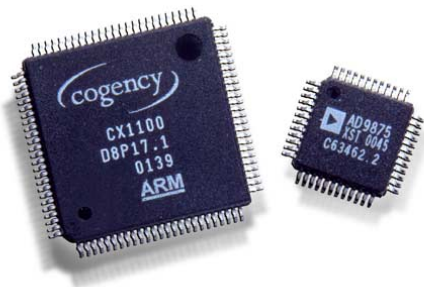# Piranha

Powerline Networking Chipset

The **Piranha™** chipset consists of the CS1100 and the AD9875. The CS1100 is a single-chip HomePlug™ 1.0 compliant MAC/PHY for use in home powerline networking products. The CS1100 enables Ethernet-class networking over existing electrical wiring with full quality-of-service support and privacy ensured through encryption. The AD9875 HomePlug Mixed-Signal Front End is a low-power, low-cost converter for powerline communications. Target applications for the **Piranha** chipset include PC network adapters, residential gateways including set-top boxes, and a wide range of entertainment and communication devices.

HomePlug 1.0 MAC/PHY

- rate adaptive to 14 Mbps
- 0.18 micron CMOS process
- small footprint 100 pin LQFP
- integrated PLL
- low power 1.8V core

Easy Product Integration

- emulates Ethernet PHY
- flexible host interface: MII or 8-bit Peripheral
- 3.3 V I/Os (5V tolerant host I/F)
- glueless interface to highly integrated mixed-signal front end
- direct support for link status LEDs

Flexible Processor-Based MAC

- supports multiple outstanding packets during segmentation and reassembly
- firmware is field-upgradeable and fully configurable from host (serial EEPROM not required)

Design for Manufacture

- testability support – loopback at host interface, local and remote powerline nodes
- optional serial EEPROM - programmable in system
- JTAG Boundary scan

Mixed-Signal Front End

- TX Path
  - 10 bit D/A, 100 MSPS
  - 2x oversampling digital low-pass filter simplifies reconstruction filter

- RX path
  - 10 bit A/D, 50 MSPS
  - -6 dB to 30 dB programmable gain amplifier

Product Applications

- powerline USB adapters
- powerline to Ethernet bridges
- powerline PCI NICs
- DSL/cable modems
- Residential Gateways

- set-top boxes
- multi-room audio and MP3 jukeboxes
- VoIP telephones
- game consoles
- home security

Product Description

The **Piranha** powerline networking chipset can be easily integrated into many applications as illustrated below.
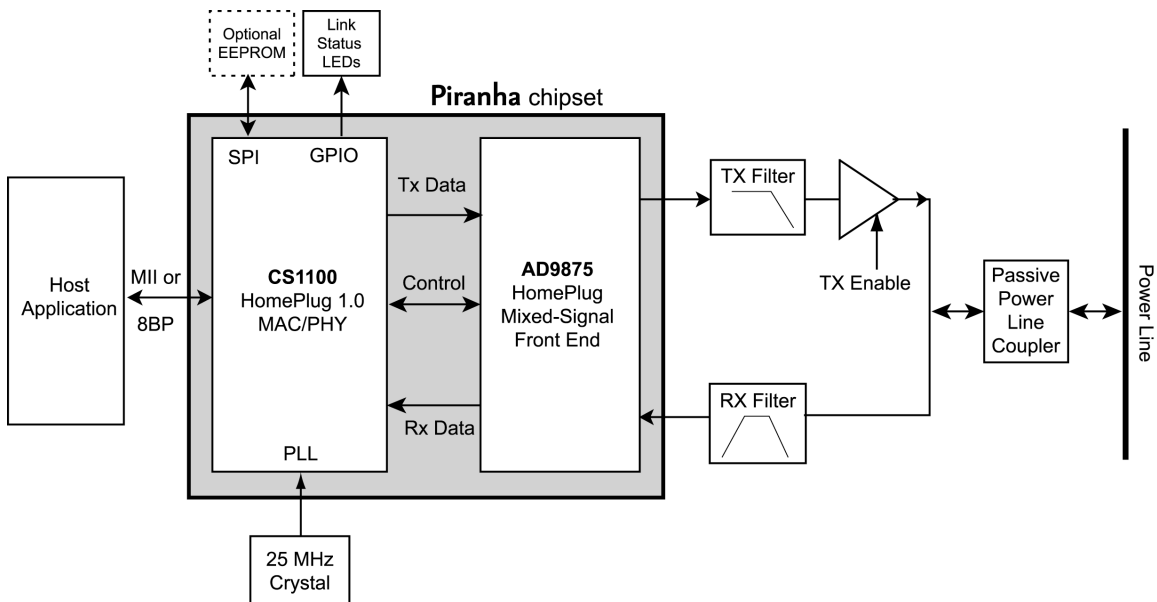

Figure 1: Typical System Application

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