

A discrete multitone transceiver at the heart of the PHY layer of an in-home power line communication local-area network

A networked home is a micro-version of the Internet, connecting home appliances, PCs, and other smart devices not only to one another but also to a globally connected world through the Internet. For consumers to embrace home networking, a solution that utilizes the existing infrastructure within the home, such as electrical wiring, is significant. However, the use of power lines as a home networking platform presents quite a troublesome and noisy environment that fluctuates with varying load impedance and time, and is also plagued by impulse noise. The latest developments in VLSI and DSP technologies have enabled power line communication (PLC) networks to compensate for the impairments of the environment. This article discusses the use of discrete multitone technology at the PHY layer of an in-home PLC network, particularly with reference to bit-loading techniques.