World's First Commercially Available Chip to Make Home Networking Using HD-PLC Technology a Reality

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Matsushita Electric Industrial Co., Ltd., best known for its Panasonic brand products, announced today it has developed the world's first chipset that puts High Definition Ready, High-speed Power Line Communication (HD-PLC) technology into practical use. The new chip, "MN1A92080L," can bring high-speed transmission of high-definition video into every room in the home via existing home power lines. Positioning the chip as the core of home networking, Panasonic plans to supply the chips by Spring 2005.

Existing forms of home networking technologies include wireless LANs, coaxial cables and Ethernet LANs. Each has its own strong points, however, coaxial cable and Ethernet communications may require installing new cable in existing houses. At the same time, it can be difficult to communicate between rooms using wireless LANs, and ensuring security is an issue. Panasonic's HD-PLC chip, compatible with a standard Ethernet, overcomes these issues and provides broadband connectivity with electric outlets between wide ranges of electronic products from TVs to white goods by using the already-active Internet Protocol (IP). Panasonic expects the chip will further expedite development of all kinds of product networking.

Panasonic has integrated all the digital processing components onto a single chip, including the physical layer (PHY) that supports Wavelet-based Orthogonal Frequency Division Multiplexing (WOFDM), a CPU

and the media access control (MAC) layer for controlling transmission. By adopting the WOFDM, the chip can reduce noise by more than 20 dB compared to Fast Fourier Transform (FFT). It is also able to make a high-speed transmission of 170 Mbps on existing home power lines, enabling simultaneous use of two high-definition TVs, IP telephone and data transmission. The Time Division Multiple Access cable (TDMA)-based, built-in Quality of Service (QoS) function can accommodate varying transfer speed requirements and seamlessly transmit high-resolution high-quality video as well as voice. Plug-and-play, critical to home appliance networking, is now realized. Home networking can now be easily set up by simply plugging into AC outlets in the home. Incorporating a band-reject, flexible notch filter, the chip is capable of avoiding interference with other home systems such as the radio by controlling the noise up to 35 dB with software.

Over the years development of communications technology using home power lines has been limited to low-speed transmission due to unstable power line conditions. In recent years, high-speed transmission, using a 2 - 30 MHz short frequency bandwidth based on the OFDM technology for LAN, has been available in the US and Europe. However, until now these technologies have been greatly affected by interference from other signals such as short-wave radio and amateur ham radio.

Panasonic's new HD-PLC chip now provides high speed, stable, high-quality data, video and voice transmission over home power lines.

Evaluation module boards and software development kits will be available in April 2005 for manufacturers developing HD-PLC adapters and built-in products. Panasonic is targeting to introduce HD-PLC adapters within this year for consumers.

Panasonic has applied for 16 patents in Japan and four abroad on the HD-PLC chip.