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**Adaptive Digital's G.168 Plus™ Cancels Echo on Circuits With Round Trip Delays of Up to 512 Milliseconds**

The Newest Addition to the Adaptive Digital Echo Canceller Family of Products – **G.168 Plus™**, a Packet Echo Canceller for Voice over Internet Protocol (VoIP) Applications.

Plymouth Meeting, PA, January 28, 2008 - Adaptive Digital Technologies, Inc. (Adaptive Digital) is proud to announce the newest addition to its family of echo cancellation products. The VoIP G.168 Plus™ packet echo canceller has the unparalleled ability to handle round-trip delays of up to 512 milliseconds. This ability to cancel echoes with exceptionally long delays, coupled with a built-in awareness and handling of packet-loss makes G.168 Plus uniquely suitable for VoIP applications.

Echo, latency and packet loss are the major causes of poor quality in VoIP applications. Adaptive Digital's innovative G.168 Plus greatly reduces the impact of these impairments that have plagued voice quality over IP networks since its inception.

From a user's perspective, echo is arguably the most disruptive type of degradation encountered during a telephone conversation. Round-trip latency, caused by the travel time necessary for a voice packet to reach its destination (where the echo may be introduced as a reflection) and then return back to the speaker, who can now hear his own voice in the reflection, can significantly compound the undesirable effects of an echo. The longer the round-trip delay (and subsequently, the time between the original speech and its echo), the more noticeable and disruptive the echo becomes to a speaker. In fact, the added network-induced delay can make what is otherwise considered a negligible echo within traditional circuit switched networks distracting enough to cause users to hang up and end the call. For two party calls the solution is to end the call and try again.

In the case of a conference call where uncanceled echo on one line causes parties on all the other lines to hear echo, the effect is multiplied and decidedly difficult to eliminate since any one (or more) of the participant's circuits may be the source of the reflection. When a large number of callers participate in a conference call, the probability that one or more of the lines have an echo problem increases with each added caller. Assuming the offending participant is identified, that participant must then hang up and dial back in, hopefully this time on an echo-free circuit. But it is not intuitively obvious how to identify the offending participant. The offending participant is the one who does not hear echo. If more than one circuit causes echo, then everybody hears echo and it is virtually impossible to identify the offending participants.

Although it should be the responsibility of the equipment causing the reflection to cancel the echo and prevent it from making its way back to the original speaker, there is equipment in telephone networks today that simply ignore this responsibility. With its capability to cancel echoes that should be cancelled by other equipment in the VoIP circuit, G.168 Plus allows equipment manufacturers to distinguish their equipment from that of their competitors by providing their own customers echo-free telephone and conference calls even when interoperating equipment fails to take responsibility for its own echo.

Packet loss (the situation in which some voice packets fail to reach their destination) can be extremely detrimental to echo cancellers that are unaware of the packet loss and are ill equipped to deal with it.

If the echo canceller is unaware of the momentary data interruption, it will process the synthesized data that fills in for the lost signal as if the echo were present. This can prevent the echo canceller from being able to detect and cancel the echo. Even worse, the lost data can cause the echo canceller to incorrectly determine the characteristics of the echo and, in its attempt to remove echo that isn't truly an echo, render the speech unintelligible during the period of packet loss and beyond. Adaptive Digital's G.168 Plus product provides a truly unique solution to what would otherwise be a lost call.

Adaptive Digital's G.168 Plus packet echo canceller software currently runs on several platforms including: Texas Instruments Incorporated's (TI) high-performance TMS320C6000™ DSP and Intel's x86 line of processors. The software is offered in library format, fixed point C-reference code, and as part of Adaptive Digital's Application Specific Signal Processing chips.

About Adaptive Digital Technologies, Inc.

Adaptive Digital ([www.adaptivedigital.com](http://www.adaptivedigital.com)) develops/licenses highly optimized DSP Algorithms/Solutions for telephony, audio, and video applications. Adaptive Digital's products include network, line, and acoustic echo cancellation, high-density conferencing, speech compression, telephony, and voice quality algorithms. Recognized internationally for its quality software, Adaptive Digital's customers include British Telecom, Global Crossing, Motorola, Sonus, and Texas Instruments. Adaptive Digital is a member of the TI's TMS320™ Third Party Program and is located in suburban Philadelphia, Pennsylvania (USA).

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Contact:

Tina Marcinek

Marketing Coordinator

610-825-0182 x115

[tina.marcinek@adaptivedigital.com](mailto:tina.marcinek@adaptivedigital.com)

[www.adaptivedigital.com](http://www.adaptivedigital.com)

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Additional Contact:

Scott Kurtz

Vice President Engineering

[Scott.kurtz@adaptivedigital.com](mailto:Scott.kurtz@adaptivedigital.com)