

Topic: 7120 C/Port Update Resolves Certain Issues of 7110 C/Port
Component(s) Affected: Universal C/Port (UCP) 7110
Date: November 15, 2004

OVERVIEW / ENVIRONMENT

In certain highly complex network environments using multiple firewalls and proxy servers, Universal C/Port 7100s and 7110s have experienced problems related to the mechanism used for Acoustic Echo Cancellation (AEC) under Windows XP, particularly with VoIP applications.

DETAILED DESCRIPTION

Complete loss of audio traffic in one direction was experienced when using C/Ports in a VoIP application on a massively large TCP/IP network with multiple firewalls and proxy servers.

The root cause was traced to interaction between:

- ClearCube's implementation of the link from the Blade to the C/Port.
- Buffer overflow and packet timestamping inconsistencies in Microsoft's AEC software in Windows XP.
- Compressive voice codecs (e.g., G.723) implemented in the customer's network.

The problem arose because of timing issues encountered as transmitted audio was digitized, packetized, and then reassembled into audio at the receiving end. Each factor on its own was not enough to result in loss of audio in one or both directions, but the sum of these factors was sufficient to do so.

Changing all the voice codecs from G.723 to the non-compressing G.711 codec at the VoIP application level may resolve the problem, at the expense of using approximately 15% more TCP/IP bandwidth, but with the benefit of slightly reducing processing overhead on both ends.

In the interim, ClearCube has developed a solution involving the only component completely within its control, the Blade-to-C/Port link. This solution adds a new PROM to the C/Port containing firmware to optimize use of the link. This change, while not large, is sufficient to ensure bidirectional audio in a VoIP application.

These changes to the C/Port are not externally visible. However, the UCP 7110 (and previous models) can be differentiated from the UCP 7120 by opening the Windows Control Panel and double-clicking **Sounds and Audio Devices**. An installed UCP 7110 (or earlier) is identified as **UAC3556B**. An installed UCP 7120 is identified as **Clearcube Audio Port**.

RESOLUTION

Modified firmware has been added to the UCP 7110, and this product is designated as the UCP 7120.

Microsoft has been made aware of the anomalies in their AEC software in Windows XP, and they are currently working on a patch to be released in a future service pack. For those customers whose application software allows disabling of the Windows XP acoustic echo cancellation (AEC) routines, turning those off may allow bidirectional audio data transfer.

Customers who have not experienced this problem should continue to use their existing UCP 7110s. For more information, please contact ClearCube technical support.

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