

ATTENTION CORTLAND DEVELOPERS

Important Information Enclosed Regarding: Memory, Sound & Compatibility

Memory

As noted in the last update, there are potential problems with some of the Cortland memory expansion cards. These fall into two categories -- (1) bad chips, and (2) bad cards. Please review the following procedures to determine the appropriate action in your case.

<u>Problem</u>	<u>Diagnosis</u>	<u>Action</u>
Bad Chips	RAM chips are labeled as NEC "USA" not Japan	Call Tore Bonanno @ (408) 973-2214. He will send you a new set of chips.
Bad Card	RAM disk size in Control Panel is 0 or some other erroneous value	Return card to Tore Bonanno @ 10460 Bandley M/S 3-O Cupertino, CA 95014
Bad Chips & Card	Both of above	Return card for replacement
Good Card	None of the above	Rejoice & write software!

Sound

The following applies only if you have a green board system and are using the sound circuitry. If you have a blue board system, skip this section.

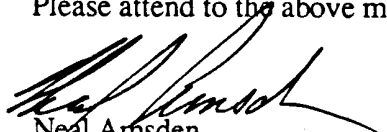
The green boards have a problem in the sound circuitry which can cause errors in the sound RAM. This can be corrected by cutting a jumper and a loop and adding two traces. The instructions for this procedure are attached. You have two options:

- 1) Perform the fix yourself: If you have a technician in-house who can handle a soldering iron, this is the solution I would recommend. If you have doubts about your ability, then use option #2:
- 2) Return the system to Apple for rework: Send it to Tore Bonanno @ 10460 Bandley Dr. M/S 3-O; Cupertino, CA 95014. We will rework the unit within 24 hours and return it Fed Ex.

Compatibility

We will introduce a new 3.5" drive in conjunction with the Cortland which is essentially a "dumber" version of the existing UniDisk 3.5. For most of you, this change will be transparent. However, there are some changes which could cause compatibility problems, particularly with copy protection schemes. Attached is a brief description of the key differences. If you believe that you may incur problems with compatibility, please contact Beth Marchant @ (408) 973-3133. She will make arrangements to send you a drive ASAP for testing.

Please attend to the above matters as quickly as possible. Thanks for your support.


Neal Arnsden
Apple Computer, Inc.

ATTENTION CORTLAND DEVELOPERS

Rectification :

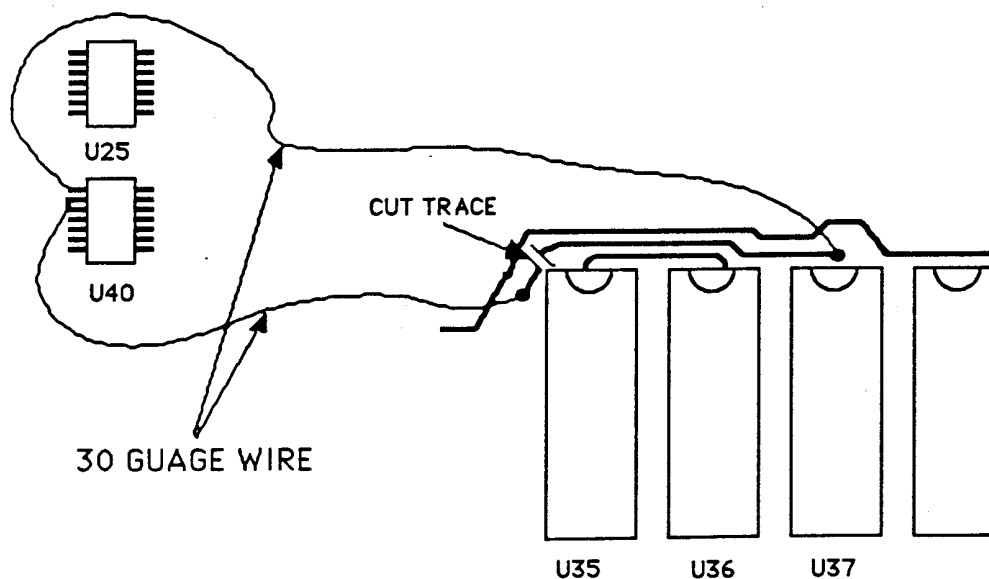
Veillez appeler Xavier SCHOTT (1) 69 28 01 39 et non Tore Boranno en cas de problème.

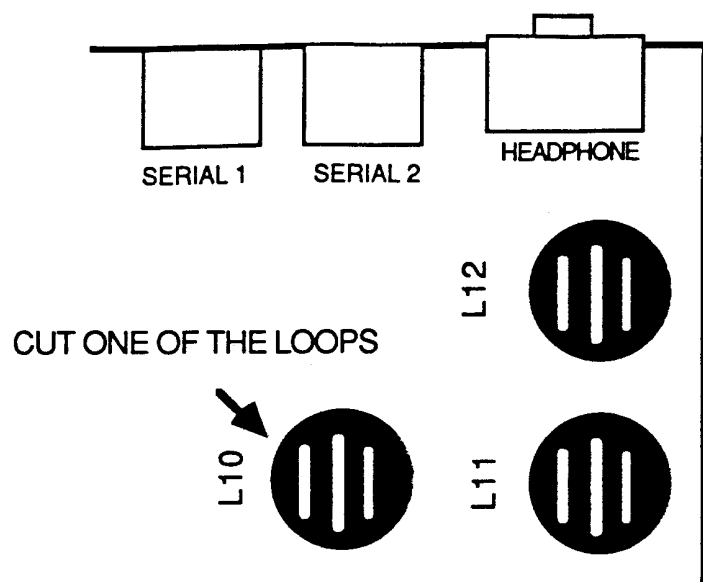
SOUND GLU FIX

(Green pre-productions boards only)

The following circuit modification fixes a timing problem with the sound glu, and a board layout error. The symptoms of the timing problem show up as loss of data in the sound memory. This can cause a clicking sound or an oscillator to stop unexpectedly. To correct this problem follow the instructions below.

1. Be sure you are competent to cut traces and solder wire, if you are not, find someone who is.
2. With the board still in the case, carefully cut the trace just above pin 1 of U35.
3. Solder a wire to pin 1 of U40 and connect the other end to the feed-through just above U37.
4. Solder a wire to pins 2 and 3 of U40 and connect the other end to the feed-through next to pin 1 of U35.
5. Cut one of the wire loops at the top of inductor L10.







UniDisk 3.5 Technote #5 Copy Protection Schemes For 3.5" Drives

Written by: Cameron Birse, Mike Askins 4-8-86
Modified by:

This technote provides some things to keep in mind when developing a copy protection scheme for the UniDisk 3.5 (Liron) and Apple 3.5 Drive.

- o Definition of drives. In order to provide a copy protection scheme that will work on all the 3.5 inch drives, it is important to understand how the drives differ.

UniDisk 3.5 (Liron) is an intelligent drive, meaning that it has a microprocessor based controller inside the drive enclosure that communicates with the host computer in an intelligent fashion through the IWM port. The host sends commands to the intelligent controller in the drive and the controller manipulates the drive hardware to read or write, and sends the data back to the host in a 'packet' format.

Apple 3.5 Drive is an unintelligent drive that depends on the host computer to manipulate the drive hardware to read and write data to and from the drive. Copy protection routines for this drive will be essentially the same as those downloaded to the Liron controller RAM, except they will reside in the host computers memory.

- o Identifying the drives. The drives can be identified by first searching for a device that has the SmartPort* firmware (this is the firmware described in the Protocol Converter preliminary technote #1). After determining that there is a SmartPort device in the machine, perform a Status call with the statcode = \$03 (return device information block). In the device info block there are two bytes called the type and subtype bytes. For the UniDisk 3.5 the type is \$01 and the subtype is \$00. The Apple 3.5 Drive has a type of \$01 and a subtype of \$80.

* SmartPort is the new name for the Protocol Converter.

- o Special routines. In the UniDisk 3.5, there is extra RAM space in the controllers memory map for custom read/write and ID routines. These routines can be downloaded to the controller from the host and executed via the SmartPort, and are typically used for copy protection. With the Apple 3.5 Drive these special routines will reside in the host memory. There will be equivalent mark and hook tables for the Apple 3.5 Drive set by control calls through the SmartPort (see Apple 3.5 Drive Technote #1).
- o IWM Hardware differences. On the UniDisk 3.5, the IWM registers are located in memory starting at \$0A00. On the Apple 3.5 Drive, the IWM registers will be located in memory starting at \$C060 (slot 6 I/O space).
- o Speed differences. Downloaded code in the UniDisk 3.5 controller runs at slightly under 2MHz, and the cycle times are regular. The Cortland running at 1MHz also has regular cycles, however when running at 2.8 MHz, the timing is complicated by RAM refresh and I/O synchronization times. It is best to avoid timing critical solutions, or be sure to run at 1MHz for the Apple 3.5 Drive.

Copyright 1986 by APPLE COMPUTER, Inc., Developer Technical Support
20525 Mariani Avenue
Cupertino, CA 95014
(408) 996-1010