

DNARD Rev. 5.0 Video Rework

15 June 1998

Purpose:

This notice is for the Digital Network Computer Reference Design, Revision 5. It provides rework instructions for the video controller circuit to minimize certain image instability problems that can be observed on the monitor. The rework involves removing one resistor and relocating three discrete components (that are already on the board) so that these problems are eliminated.

The problem:

This rework eliminates two different forms of video instability. One involves "swimming" of the entire image, especially when other I/O is going on. The second involves a more localized "tearing" of one or more sections of the image, which typically happens only when the unit has not fully warmed up.

General description:

The rework involves removing one resistor and adding three discrete components.

Note: A photograph of the ideal rework implementation is included below for reference, as well as a schematic showing the changes.

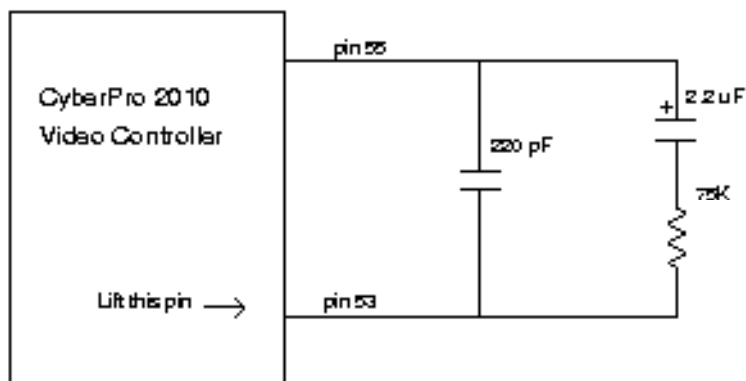
Caution: This rework relates to low-level analog circuitry. It is crucial that the rework be done in such a way as to minimize the lead lengths. Because the rework involves small surface mount components and fine pitch IC leads, it is important that it be performed by an appropriately skilled technician equipped with the proper tools.

Bill of materials:

The required parts are as follows:

<i>Quantity</i>	<i>Description</i>
1	Resistor, 75K, SM805
1	Capacitor, 2.2uF, 10V, SM
1	Capacitor, 220pF, SM805

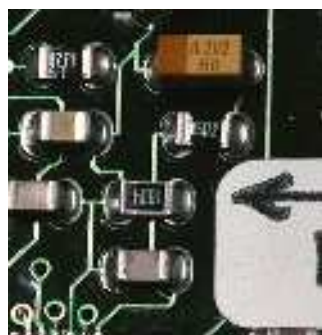
Schematic: (Click on schematic for full-size version in Adobe PDF format)



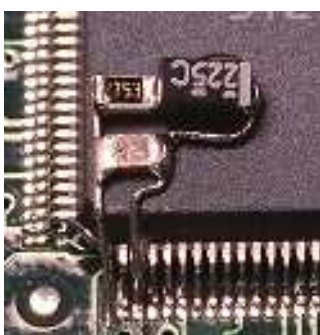
Rework procedure:

1. Remove the 1 Megohm surface mount resistor indicated in the left photograph.
2. Unsolder and lift pin 53 (a corner pin) of the CyberPro 2010 graphics chip from the pc board. See center and right photographs below.
3. Add the three components listed in the Bill of Materials above. Arrange them as shown in the center and right photographs. They are to be connected between the lifted pin 53 and pin 55 of the graphics chip. The components should be positioned as close to the edge of the chip as is shown. The positive end of the 2.2uF capacitor connects to pin 55.
4. Carefully inspect pins 53 through 55 of the graphics chip for good solder joints and verify that there are no shorts.
5. Apply the firmware patch described in the [instructions](#) provided.

Photos: (Click on photo for wide-view, high-resolution JPEG image)



Removed resistor



Component placement



Angle view

Testing the unit:

Testing the reworked unit requires an operational environment for running the operating system and associated applications -- typically from a boot server on the Ethernet. After you have completed the rework, attach a monitor, keyboard, mouse and 10BaseT ethernet

connection. Then plug in the power supply, boot the system up and run a graphical application. An ideal test is an X-window for an X-application running elsewhere on the network. The image should appear clean and stable, and no "swimming" should be seen, even during rapid mouse motions in the remote window.

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