



### **AWS21: A/UX & Micropolis Drives**

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There is a known problem with A/UX 3.0.1 and A/UX 3.0.2, and Micropolis drives. The actual problem is in the firmware of the Micropolis drives. The problem is compounded by a problem in A/UX which has been fixed in A/UX 3.1. Note: Apple Computer has not shipped a product that uses Micropolis hard disks. Only customers that have purchased third-party hard disks with Micropolis mechanisms need to be concerned with this issue.

When using A/UX 3.0.2, the A/UX System Console window (Command-zero from the CommandShell) displays a list of the connected SCSI devices. This list shows the name, model, and firmware revision of the SCSI devices. This information will make it easier to determine what SCSI drives are in use. A/UX 3.0.1 customers should install the AWS 95 Tune-Up 1.0. Once this is done, they will be running A/UX 3.0.2.

When a request is made for a large amount of data (128 Kbytes), Micropolis drives are returning 1 sector too few (127.5 Kbytes) but reporting the transfer as okay. At this point, A/UX should generate an error. However, A/UX has "special case" code that determines the last 512 bytes did not actually get transferred. A/UX re-issues the request with the correct residual count (512 bytes). Unfortunately, A/UX uses the wrong memory address and writes the 512 Kbytes to the same place the original data was written. The end result is the first and last 512 bytes of the 128 Kbyte transfer are invalid.

The solutions:

1. Micropolis is now aware that their SCSI disk firmware is behaving incorrectly and will soon have a fix available for their customers. Once the SCSI disk firmware is fixed, customers should no longer see the problem.

2. In A/UX 3.1, Apple has fixed the "special case" code so the residual 512 bytes are written to the correct location. This will allow the AWS 95 to use Micropolis drives even if their firmware has not been updated.

The work around:

There is a work around for this problem for customers that have yet to get the fix from Micropolis. The work around is to patch A/UX using "adb" so the largest request of data is 64 Kbytes instead of 128 Kbytes. This prevents the condition described above from ever occurring. The performance of the AWS

95 should not be noticeably affected by this patch. The work around changes the file `/etc/config.d/newunix`. Make a copy of this file before proceeding. You should also be logged in as the "root" user. Since you will be rebooting the machine at the end of this procedure you should make sure that the timing is convenient for active users of the system.

Create a shell script (file) called "micropolis" with the following lines of text:

```
adb -w /etc/config.d/newunix << EOF
maxba?W 8
maxwb?W 8
EOF
newconfig
```

After the file is created, it needs to be made executable. To do this, type the following in the CommandShell and hit return:

```
chmod +x micropolis
```

Now type `micropolis` in the CommandShell and hit return.

The output to the CommandShell should look something like this:

```
a.out file = /etc/config.d/newunix (COFF format)
cannot open core
ready
maxba:          0x10          =          0x8
maxwb:          0x10          =          0x8
newconfig: Making backup copies of /etc/inittab /etc/passwd /etc/group.
newconfig: Preparing to build a new kernel.
newconfig: Building a new kernel (this may take several minutes).
newconfig: Restoring kernel parameters.
newconfig: Checking for any installation information.
  1 ao Ethernet card(s) installed
ao0: IP address 138.45.4.72
      netmask 255.255.255.0
      broadcast address 138.45.4.255
newconfig: To avoid kernel/device inconsistencies, reboot immediately.
  The new configuration will take full effect when the system is rebooted.
```

After you have done this, restart the Macintosh.

The following is a current list of Micropolis drives with their current firmware revisions that are known to work properly with A/UX 3.x. Please note that this list is subject to change:

<b>Model(s)</b>	<b>Firmware</b>	<b>Checksum</b>	<b>Filename</b>
1926, 1936	hw0a_11	97b8	hw0a-11.mac
21xx series	4930010a	b540	4930010a.mac
22xx series	4930010a	b540	4930010a.mac
22xx-AV series	No know problems		
1548, 1624, 1908, 1924	Not yet available		

In all cases, we recommend customers update their Micropolis firmware. For more information, please contact:

Micropolis Corp.  
21211 Nordhoff St.  
Chatsworth, CA 91311  
800-395-3748; 818-709-3300  
FAX: 818-709-3396  
Tech support: 818-709-3325