SECTION VI

Chassis & Power Supplies

Table 2-2. Alpha Micro Bus Interface Signals List

MNEMONIC	NAME	PIN NO.
+7.5V	+ 7.5vdc Power	1
+16V	+ 16vdc Power	2
$\overline{VI8}$	Vectored Interrupt 8	3
$\overline{VI0}$	Vectored Interrupt 0	4
$\overline{VI1}$	Vectored Interrupt 1	5
$\overline{VI2}$	Vectored Interrupt 2	6
$\overline{VI3}$	Vectored Interrupt 3	7
$\overline{VI4}$	Vectored Interrupt 4	8
$\overline{VI5}$	Vectored Interrupt 5	9
$\overline{VI6}$	Vectored Interrupt 6	10
$\overline{VI7}$	Vectored Interrupt 7	11
RTC	Real Time Clock, 50Hz or 60Hz	12
POWFAIL	AC Power Failure Status	13
$\overline{VI9}$	Vectored Interrupt 9	14
A18	Address 18	15
A16	Address 16	16
A17	Address 17	17
$\overline{STATDSB}$	Status Disable	18
$\overline{C/CDSB}$	Command/Control Disable	19
GND	Ground	20
$\overline{IODIS}$	I/O Disable	21
$\overline{ADDDSB}$	Address Disable	22

Table 2-2.(con't) Alpha Micro Bus Interface Signals List

MNEMONIC	NAME	PIN NO.
$\overline{\text{DODSB}}$	Data Bus Disable	23
Ø2	Phase 2 Clock	24
$\overline{\text{STVAL}}$	Status and Address Valid	25
PHLDA	DMA Request Acknowledge	26
PWAIT	Processor Wait	27
N/U	Not Used	28
A5	Address 5	29
A4	Address 4	30
A3	Address 3	31
A15	Address 15	32
A12	Address 12	33
A9	Address 9	34
DOUT 1/D1	Data Bus Bit 1	35
DOUT 0/D0	Data Bus Bit 0	36
A10	Address 10	37
DOUT 4/D4	Data Bus Bit 4	38
DOUT 5/D5	Data Bus Bit 5	39
DOUT 6/D6	Data Bus Bit 6	40
DIN 2/D10	DATA BUS BIT 10	41
DIN 3/D11	Data Bus Bit 11	42
DIN 7/D15	Data Bus Bit 15	43
SMI	Bus Master OP Code Fetch	44

Table 2-2.(con't) Alpha Micro Bus Interface Signals List

MNEMONIC	NAME	PIN NO.
SOUT	I/O Output Cycle	45
SINP	I/O Input Cycle	46
SMEMR	Memory Read Cycle	47
SHLTA	HLT Acknowledge	48
$\overline{\text{PERR}}$	Parity Error Pulse	49
GND	Ground	50
+7.5V	+7.5vdc Power	51
-16V	-16vdc Power	52
GND	Ground	53
$\overline{\text{SLAVECLR}}$	Reset Signal To All I/O Devices	54
$\overline{\text{DMA0}}$	DMA Controller Arbitration	55
$\overline{\text{DMA1}}$	Lines For Use With Standard	56
$\overline{\text{DMA2}}$	S-100 Bus DMA System	57
$\overline{\text{SXTRQ}}$	16 Bit Cycle	58
A19	Address 19	59
N/U	Not Used	60

Table 2-2.(con't) Alpha Micro Bus Interface Signals List

MNEMONIC	NAME	PIN NO.
A20	Address 20	61
A21	Address 21	62
A22	Address 22	63
A23	Address 23	64
$\overline{\text{ADVAL}}$	Address Valid On Data Bus	65
$\overline{\text{WRDIS}}$	Write Disable	66
$\overline{\text{PHANTOM}}$	ROM Memory Enable	67
N/U	Not Used	68
N/U	Not Used	69
Gnd	Ground	70
N/U	Not Used	71
PRDY	Processor Ready	72
N/U	Not Used	73
$\overline{\text{PHOLD}}$	DMA Request	74
$\overline{\text{PRESET}}$	Preset	75
PSYNC	Processor Sync, Start of Bus Cycle	76
$\overline{\text{PWR}}$	Write Strobe	77
PDBIN	Data Bus Input Command	78

Table 2-2.(con't) Alpha Micro Bus Interface Signals List

MNEMONIC	NAME	PIN NO.
A0	Address 0	79
A1	Address 1	80
A2	Address 2	81
A6	Address 6	82
A7	Address 7	83
A8	Address 8	84
A13	Address 13	85
A14	Address 14	86
A11	Address 11	87
DOUT 2/D2	Data Bus Bit 2	88
DOUT 3/D3	Data Bus Bit 3	89
DOUT 7/D7	Data Bus Bit 7	90
DIN 4/D12	Data Bus Bit 7	91
DIN 5/D13	Data Bus Bit 13	92
DIN 6/D14	Data Bus Bit 14	93
DIN 1/D9	Data Bus Bit 9	94
DIN 0/D8	Data Bus Bit 8	95
SINTA	Interrupt Acknowledge	96
$\overline{\text{SWO}}$	Bus Master Output	97
$\overline{\text{ERROR}}$	Memory Error Interrupt	98
$\overline{\text{BERR}}$	Bus Error	99
GND	Ground	100

encountered, the controller may become confused and cause the system to lock.

If a CRC error is reported sixteen times for the same block, a hard error has occurred and data cannot be written to that block of the tape. Hard errors usually signify that the tape is no longer in good condition or the heads need to be cleaned. For a detailed discussion of the software affecting the AM-620 backup refer to "Software Information for the AM-620 Series 1/4" Streaming Tape Drive," DSS-10000-23.

Maintenance

Drives

Streaming tape drives should be kept in a room free of dust and lint. Avoid storing paper stock and cardboard in the same area to avoid paper dust. Avoid smoking, eating or drinking in the computer room. Both tapes and drives should be used or stored in a clean environment at the proper temperature - approximately 15 to 50 degrees Centigrade (59 to 122 degrees Fahrenheit).

It is very important to keep the heads on the streaming tape drive clean. The recommended cleaning frequency averages approximately once for every eight hours of actual tape motion across the heads. It is also recommended that the Read/Write head be cleaned after an initial pass of a new cartridge to eliminate oxide, which is a characteristic of new media. At the same time the heads are cleaned, the integral tape cleaner should also be cleaned to decrease the requirement for additional cleaning. For a more detailed discussion as well as recommended cleaning solutions and materials, consult the *ISSG Newsletter*, Vol. 3, No. 11, November, 1981.

Tape Cartridges

There are certain rules that should be followed when handling tapes to insure their quality.

1. Do not touch the surface of the tape. Oil from human skin may damage the magnetic surface. Fingerprints can hold dust and lint, contaminating the tape and possibly other tapes and the drive.
2. Do not smoke near a tape; although the smoke will not damage the tape, the ashes can.
3. Keep tapes away from magnets or magnetic coils.
4. Do not use damaged tapes.
5. Before using tapes brought in from out of doors, allow them to acclimate to computer room temperature. Allow twenty-four hours for large differences in temperature or physical distortion may result.

Installing AM-1020/1021 and AM-1041 Integrated Systems

When installing one of the AM-1020/1021 or AM-1041 Integrated Systems, there are specific procedures that should be followed. These steps should also be followed when perfoming your regular preventive maintenance schedule.

When working with these systems, which feature switching power supplies, keep the ground lead to the scope probe as short as possible to reduce unrelated noise pick up by the probe. Always check connector screws and slip-on connectors to be sure they are installed properly. Always check voltages with a load on the power supply to insure they are correct. The fuses on all power supplies should also be checked.

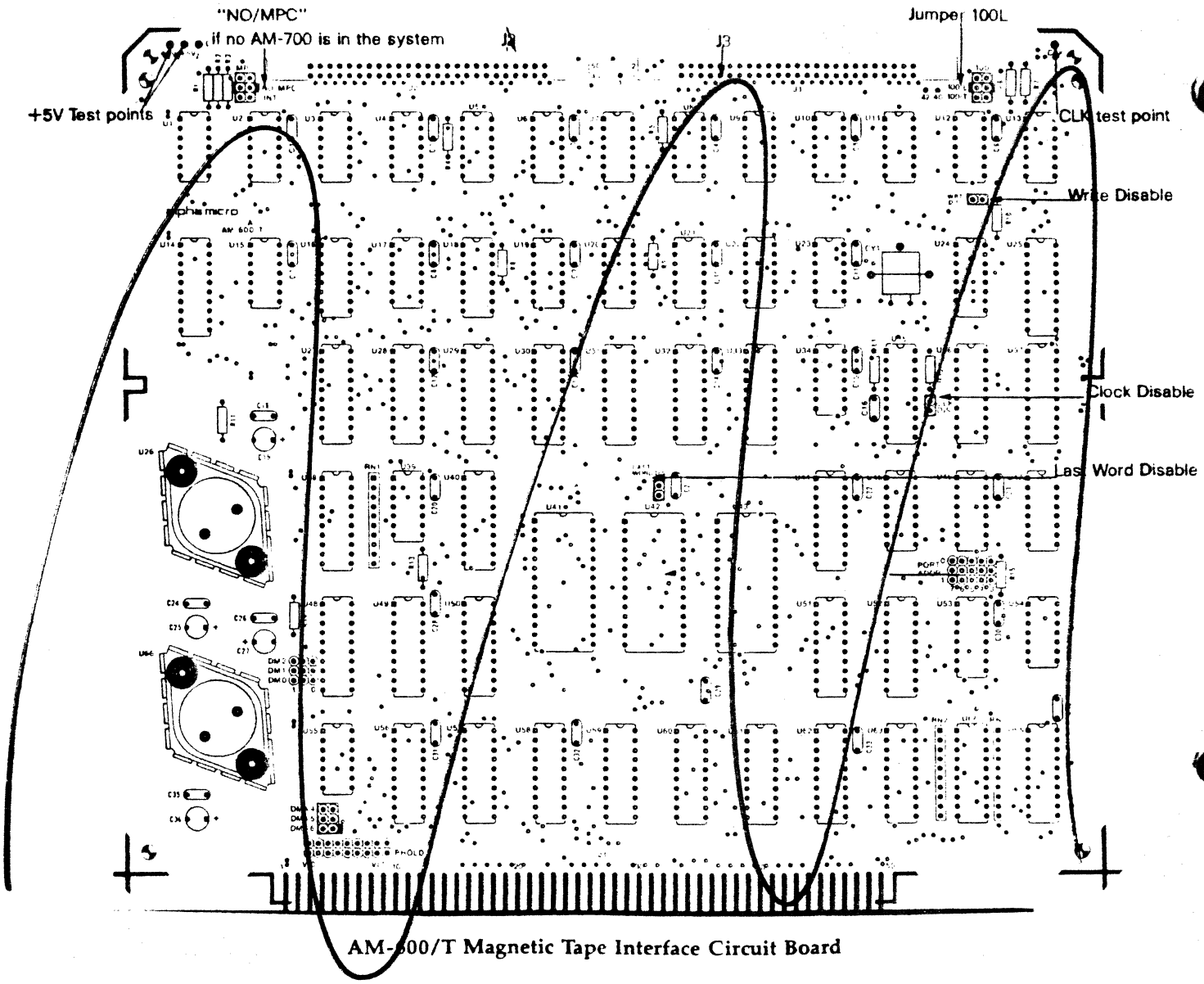
If the following problems arise after system installation: 1) Drive will not spin up, 2) Drive is not ready, 3) Apparent loss of data from one data head, or 4) Intermittent problems with the drive or the system, a possible cause could be improper grounding within the CPU Chassis.

Check the DC to DC ground. With the system running, use a meter to check for a voltage difference between each of the DC grounds on both power supplies; there should be no voltage differences between DC grounds. If there are differences, the faulty connection should be identified and the problem corrected.

The floating noise filter should also be checked. An important noise filter circuit in the switching power supplies depends upon an AC ground circuit in the frame of the power supply. As viewed from the front of the CPU Chassis, this circuit runs from the left rear PCB standoff to the left front PCB standoff. With the system running, use a meter to check for a voltage difference between the two standoffs. If there is a voltage difference, install a star washer between the standoff and the metal frame. Please note that this problem should be checked on each power supply. The isolation was caused by the anodized finish of the metal frame in some earlier units, but has since been corrected.

A shorted DC to AC ground may also cause the above problems. With all external devices disconnected from the CPU Chassis, use an ohm meter to verify that AC and DC ground are *not* common. If they are, disconnect all cables to the Winchester drive and recheck them. If the short is in the drive, it may be between the bottom mounting plate and the Head/Disk Assembly. Please note that most external devices have a common AC and DC ground.

If you have any questions concerning the installation of your system, please call the System Support Group at (714) 957-0392.



AM-900/T Magnetic Tape Interface Circuit Board

CPU Chassis Power Supply Modification

The following CPU Chassis power supply modification is recommended for AM-1020/1021 and AM-1041/1042 Integrated Systems. Those systems experiencing spurious CRC errors or Winchester drives with unexplained system malfunctions should implement this procedure. The purpose of this modification is to reduce noise between the chassis and logic ground.

Equipment Needed

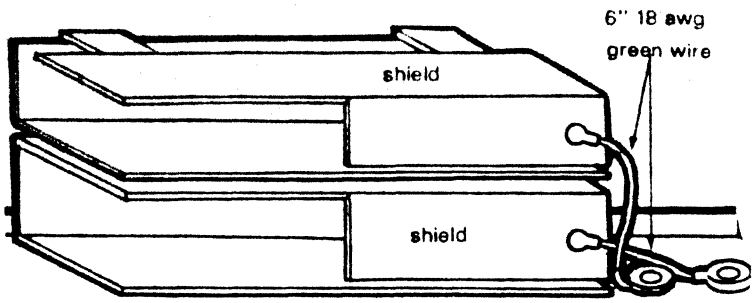
Two (2) .47 capacitors, CPN-00474-01
6" long, 18 awg green, CBW-00018-05
Ring terminals, red, CNA-00028-00
AM-900/A Chassis retrofit kit, RFK-00900-00

Procedure

Carefully follow the steps below.

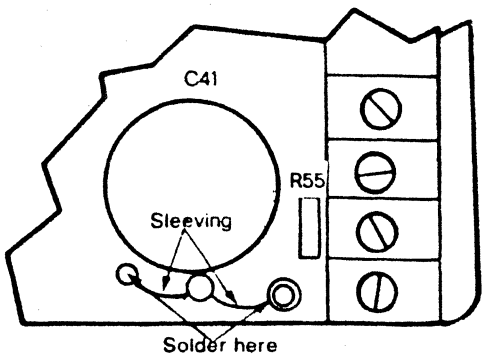
NOTE: Before beginning this procedure, check the power supplies to see if steps 17, 18, 19, 22, 23 and 24 have already been implemented at the factory. If they have, omit these steps; if they have not, include these steps in this procedure.

1. Construct two ground cable assemblies by crimping the ring terminal on each end of the wire.
2. Attach the ground cable assemblies to the power supply shields using the 8-32 x 3/8 bolts and nuts supplied in the kit. Verify the ground between the cable and the shield using an ohmmeter.
3. Cycle down the drive.
4. Turn the power to the chassis off using the key switch.
5. Remove the chassis cover.
6. Remove the boards from the mainframe.
7. Disconnect the power supply cable from the Winchester drive.

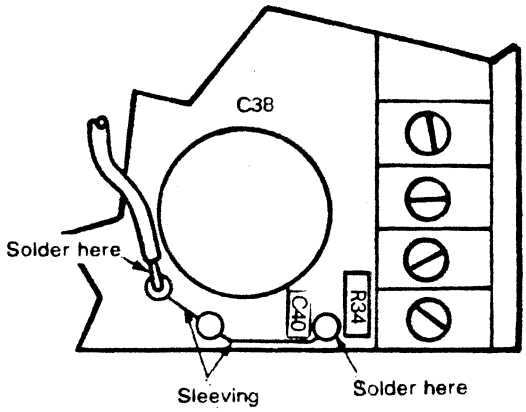


AM-900/A Chassis Switching Power Supplies

8. Using a suitable Phillips screwdriver, remove the four screws attaching the upper power supply to the lower power supply.
9. Using care not to break the AC supply leads to the upper power supply, move it aside to allow access to the lower power supply.
10. Locate the potentiometer labeled V1 Adj. on the lower power supply.
11. Check for possible electrical shorts and turn the mainframe power on using the key switch.
12. Using an analog voltmeter, attach the positive lead to pin 1 on the motherboard and attach the negative lead to pin 50 on the motherboard.
13. Adjust V1 for a voltage reading of as close to +8.25 volts as possible.
14. Disconnect the voltmeter.
15. Turn the mainframe power off using the key switch.
16. Unplug the AC power cable from the chassis.
17. Sleeve both capacitor leads with 24 awg teflon sleeving.
18. On the CPU Chassis power supply, PRF-00033-00, install and solder one capacitor lead into the feedthru located just below C41.
19. Solder the other capacitor lead to the rivet below R55.



20. Place one shield over the lower power supply.
21. Attach the ground lead from the shield to the chassis using the 8-32 x .312 bolt supplied in the shield kit.
22. Take the other .47 capacitor and sleeve both capacitor leads with 24 awg teflon sleeving.
23. On the peripheral power supply, PRF-00034-00, wrap one lead around the wire going into the large feedthru below C38. Solder this lead to the feedthru.
24. Solder the other capacitor lead to the rivet between C40 and R34. Be careful that the solder-iron tip does not come in contact with C40. Damage to the capacitor could result if this happens.



25. Place the upper power supply over the lower power supply and shield.
26. Attach the upper power supply to the lower power supply using the screws removed in step 8.
27. Place the second shield over the upper power supply.
28. Attach the ground lead from the upper shield to the chassis using the 8-32 x .312 bolt supplied in the shield kit.
29. Attach the upper shield to the power supply using the 10-32 x 3/8 bolts and nuts supplied in the shield kit.
30. Inspect the mainframe and remove any loose tools and other material.
31. Replace the boards in the mainframe.
32. Plug the AC power supply cord into the chassis.
33. Boot the system.
34. Cycle down the drive, unplug the AC power from the mainframe, attach the cover, and resume normal operations.

If you have any questions about this modification, please contact the System Support Group at (714) 957-0392.

AM-1000 Floppy Disk Drive Care and Handling

The AM-1000 may contain one or two floppy disk drives that serve as either primary or secondary storage devices. Preventive maintenance of the drives and the removable floppy diskettes will ensure that the data stored on the diskettes is reliable and will enable the system to run at peak efficiency. It is important that both the drives and the diskettes are properly maintained because the neglect of one may affect the performance of the other.

Drive Maintenance Procedures

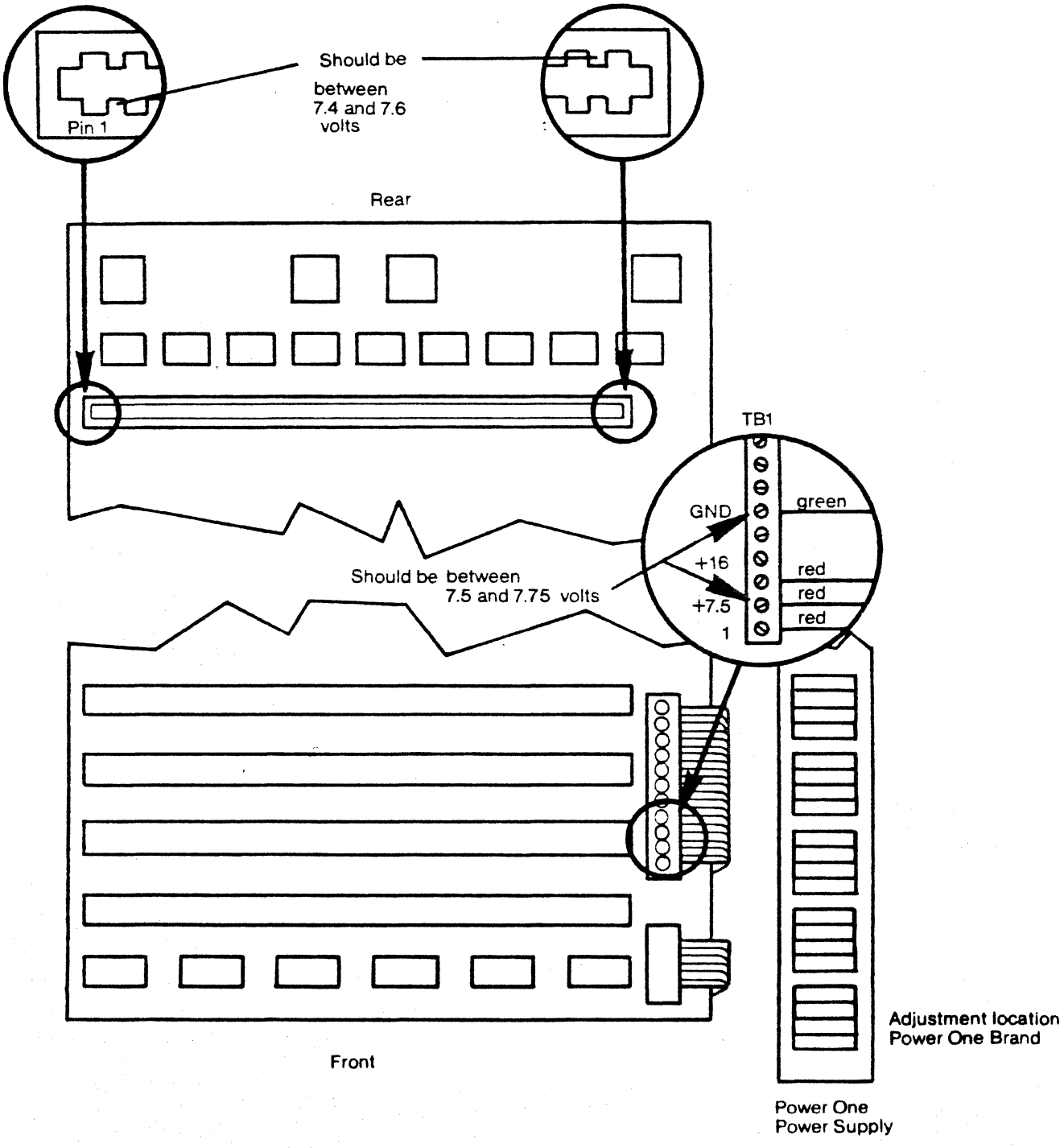
Floppy disk drives rapidly store and retrieve information by positioning the read/write head over a section of the diskette. Since each 5 1/4" floppy diskette contains a great deal of stored information (800K bytes), the read/write head must be positioned exactly over the area of the

8.1.1 AM-900 Rework Enhancement Procedure

AM-900 Rework Enhancement Procedure

The following check and adjustments have been suggested by the Alpha Micro Engineering Department to enhance the performance of the 19 slot AM-900 CPU Chassis. This is a check and possible adjustment of the +7.5 voltage supply. In some cases, modifications to the AM-919 motherboard are also suggested. This adjustment may reduce the system's sensitivity to external power and noise problems and applies to revisions C00, D01 and earlier AM-919 motherboards (DWB-00919-00). If this procedure has already been implemented at the factory, the Revision C02 or later or D02 or later will be marked on the front left-hand side of the motherboard. You will find a seven digit number; the last three digits indicate the revision level of the motherboard.

This check should be made on all AM-919 motherboards, revision D01 and earlier, which are drawing over



Location of Test and Adjustments for AM-900

Figure 4

8 amps. The typical short Alpha Micro circuit board, such as the AM-100, draws 0.5 to 1 amps; the typical tall Alpha Micro circuit board, such as the AM-100/T, draws 1 to 1.5 amps. AM-1030, AM-1031, AM-1050 and AM-1051 systems should be checked carefully according to the following instructions.

This enhancement procedure will entail the following:

1. Testing and Adjustment of the AM-900
2. Rework as necessary of the DWB-00919-00

Equipment Required:

1. Hexhead screwdriver for removing the cover; 1/8 in. for the table-top model, and 1/16 inch for the rack-mount model.
2. Screw drivers for removing the side of the rack-mount chassis.
3. Flat screw driver for the adjustment of the Power One brand power supply.
4. One volt meter with an accuracy of +/- 0.05 at +7.5 VDC.
5. An S-100 extender (optional).
6. 30 inches of #22 gauge gray or blue wire if the rework is required.
7. Soldering tools, 40 watts or more if the rework is required.
8. AM-900 Technical Manual, DWM-00900-XX.

Test and Adjustment of the AM-900 CPU Chassis

Step 1. Remove the power cord from the back of the AM-900 CPU Chassis.

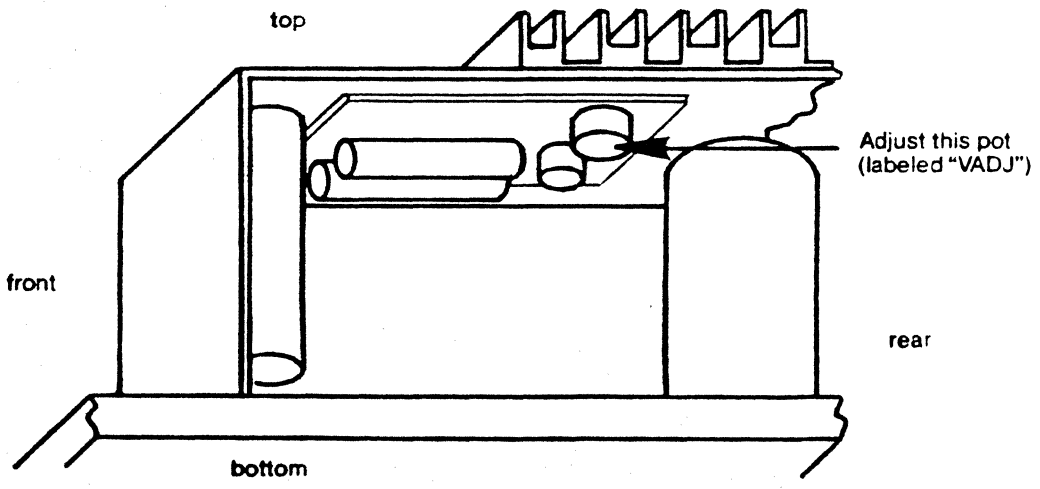
Step 2. Remove the cover of the AM-900 CPU Chassis. For rack-mount models, remove the power supply panel for any chassis that uses a Power One power supply.

Step 3. Make sure that all circuit boards to be used in this configuration are inserted in the motherboard. Install the card extender, if available, at the rear of the motherboard and allow enough room to access the edge connector. In placing the circuit boards, leave enough room to access TB1 near the front, left-hand side of the motherboard.

Step 4. Measure the voltage between pin 1 and pin 50 on the card extender, or rear edge connector, of the motherboard. If this voltage is above +7.4, then no adjustment is required.

Step 5. If the above voltage measurement is under +7.4 volts, then first locate the proper voltage adjustment pot.

Step 6. Identify which type of power supply is in the AM-900 CPU Chassis. Most are Power One with aluminum colored heat sinks on the top (see Figure 5). Some are made by Power Components and may be identified by the large black heat sink on the top (see Figure 6).



Power One +7.5 Voltage Adjustment

Figure 5

Step 7. On Power One brand power supplies, the adjustment pot is directly below the forward most heat sink. As this pot is mounted on the PC card attached to the roof of the power supply, it must be accessed from the outside of the CPU Chassis. Refer to Figure 5 for details. The pot itself is metallic, about 1 inch in diameter and 1/2 inch thick.

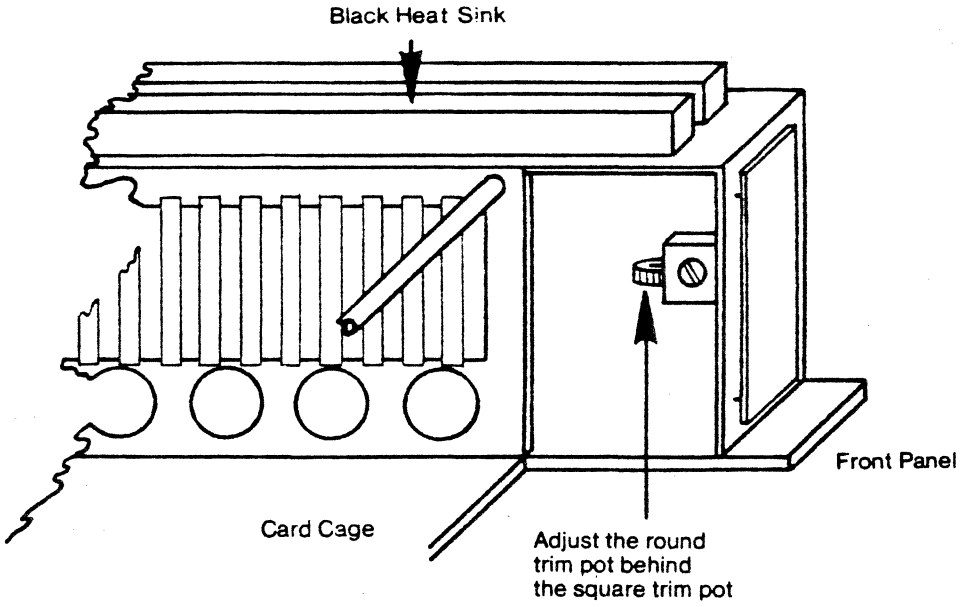
Step 8. On the Power Components brand power supply, the adjustment pot may be accessed from inside the CPU Chassis. It is mounted horizontally on a vertically mounted PC card. When viewed from the inside of the CPU Chassis, as per figure 6, it is just behind the vertically mounted square trim pot. The voltage adjustment trim pot is usually blue plastic.

Step 9. While measuring the voltage between TB1-2 (+7.5 or +8) and TB1-6 (ground) as indicated in Figure 5, adjust the pot until the voltage is +7.75. When looking along the screw driver shaft at the adjustment pot, a clockwise turn will increase the voltage.

Step 10. Again check the voltage between pin 1 and pin 50 at the rear edge connector or extender. If the voltage there is still less than +7.4, then the rework outlined below should be performed.

Step 11. If the voltage at the rear edge connector of the motherboard is now above +7.4, then mark the board DI-319A in indelible ink at the front of the motherboard.

IMPORTANT: If you plan to increase the number of circuit boards in the AM-900 CPU Chassis in the near future, it is advisable to perform the following rework.



Power Components +7.5 Voltage Adjustment

Figure 6

Rework of the DWB-00919-00 Motherboard

If the voltage at the rear edge connector of the motherboard is not at least +7.4 when the voltage at TB1 is +7.75, then this rework should be done.

Step 1. Unplug the AC cord to the AM-900 CPU Chassis.

Step 2. Remove all circuit boards.

Step 3. Disconnect plug P20 from J20 located on the front, left-hand side of the motherboard.

Step 4. Disconnect the cables from the power supply to TB1, noting the location and color coding of each.

Step 5. Disconnect P21 from J21 located on the rear, left-hand side of the motherboard.

Step 6. To remove the card cage, remove the four screws on the rear of the mainframe that hold the card cage to the back panel. Next remove the six screws that secure the motherboard and the card cage to the mainframe base plane.

Step 7. Remove the card cage and motherboard from the chassis.

Step 8. Using 22 gauge wire, install three jumpers, as illustrated in Figure 7, between TB1 pins 1, 2 and 3, and pins 1 and 51 of the first, second and fourth edge connectors.

Step 9. Carefully inspect each connection. A poor solder connection or a short can cause serious problems.

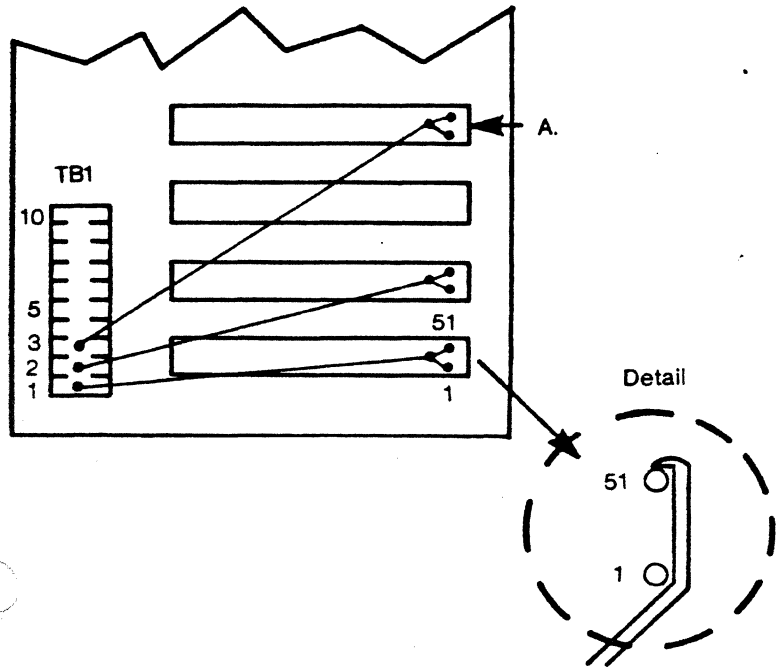
Step 10. Reinstall the AM-919 motherboard, making sure each wire is properly connected.

Step 11. Perform the installation voltage checkout as per Section IV, pages 4-1 and 4-2 of the AM-900 Technical Manual, DWM-00900-XX.

Step 12. Mark the board DI-319B in indelible ink at the front of the motherboard.

Step 13. Referring to the Test and Adjustment procedure above, readjust the power supply.

If any problems are encountered when trying to implement this procedure, please contact the System Support Group at (714) 957-0392.



19 Slot Motherboard, Solder Side
Figure 7

AM620 POWER SUPPLY PIN OUTS

PIN 1 +24 VOLTS DC - WITH IN 1/2 VOLT
PIN 2 +24 VOLT RETURN (GROUND)
PIN 3 NOT USED
PIN 4 +7.5 VOLTS DC UNREGULATED - 8.00 OR SO
PIN 5 +5.0 VOLTS DC REGULATED - WITH IN 1/8 VOLT
PIN 6 +5 VOLTS RETURN (GROUND)

JUMPER W1 INSTALLED - INSTALLED WITH +7.5 VOLTS (PIN4)
JUMPER W1 REMOVED - WITH +5.0 VOLTS (PIN5)

JUMPER W1 CONTROLS THE REGULATOR ON THE AM620 BOARD, INSTALLED THE 7.5 VOLTS (PIN 4) IS THEN REGULATED, REMOVED THE AM620 BOARD IS EXPECTING TO RECIVE A REGULATED +5 VOLTS (PIN 5). YOU USE +7.5 VOLTS WHEN YOU USE ONE POWER SUPPLY FOR BOTH THE CPU AND STREAMER, YOU USE +5 VOLTS WHEN YOU HAVE A SEPERATE POWER SUPPLY FOR THE CPU AND THE STREAMER.

Boot Up Procedure For A Winchester Drive

During bootup from a Winchester drive that includes an AM-960 Status Code Display, a "b" is displayed on the status display when the Winchester drive has completed the booting procedure. In some instances, a "3" will appear on the status display first, indicating that there was a device error during bootup. The "3" will then disappear, followed by either a blank display panel, or a "b".

If a "3" does appear as the first code on the status display, a device error is not necessarily indicated. The "3" may also appear indicating that at the time the Winchester drive was checked by the controller, the drive was not ready. If the "3" does not disappear after 30 seconds, a true device error during bootup could be indicated.

If the display goes blank after the "3" instead of displaying a "b" to indicate a bootup, the status register in the controller has gone past the spin up code at the time the operating system attempted to access it. Thus the status display will go blank instead of displaying a "b", even though the drive is ready for operation.

If you have any questions concerning the status display indicators during a Winchester boot up procedure, please call the System Support Group at (714) 957-0392.

Front Panel Status Display Codes

The following is the list of front panel status display codes:

Status Code	Definition
Blank	System Functioning Normally
1	No DSK0:[1,4] found during boot
2	No DSK0::AMOSL.MON[1,4] during boot
3	Device Error During Boot
4	System Out of Queue Blocks
5	AM-100/T CPUs, before Rev. F00, System Halted Due To an Error in a 32K-word or AM-710 128KB Memory Boards. AM-100/T CPUs, after Rev. F00, System Halted Due To an Error in a 32K-word Memory Board.
6	Bootstrap Loader Checksum Error (Bad PROM or memory)
7	Bootstrap Device Did Not Pass Self-Test
8	AC Power Fell Below the Minimum Level
9	Memory Error
A	Second Device Table Search Failed
b	Winchester Drive is Spinning Up
c	AlphaLINK System Tried to Boot Over the Link From System #0's System Disk, but the NETWRK job on System #0 Did Not Acknowledge the Boot Request.
d	AlphaLINK System Tried to Boot Over the Link, but the NETWRK Job on System #0 Reports that it cannot Boot.
E	AlphaLINK Code Indicating that System #0 Finished the Bootup Procedure, but the Local System Still Cannot Boot.
F	Clearing Memory
10	Interface Driver for the First Terminal Was Not Found
11	Terminal Driver for the First Terminal Was Not Found

27 (MEMORY PROBLEM ?)

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Editor ..... Susan Poyer
Assistant Editor ..... Cindy Geisbush

The ISSG Service Newsletter is published monthly by the International Support/ Service Group. Please address all correspondence to: ISSG Newsletter, Alpha Microsystems, 17881 Skypark North, P.O. Box 18347, Irvine, CA. 92713.

.7 Interrupts Used in AM-100/L Based Systems

If problems are encountered when integrating new boards into an AM-100/L system, it is worth checking to see if there is an interrupt conflict. For example: if when running Alpha CP/M or AlphaRJE (which use the AM-330 communications board) and an AM310A buffered I/O controller, you must change the interrupt vector on one of the boards to keep the interrupts from affecting each other.

The interrupts currently used are:

Interrupt Number	Boards Using This Interrupt
0	AM-610 video controller
1	AM-310 buffered I/O controller AM-330 communications controller
2	AM-415 disk controller AM-410 disk controller
3	AM-300 serial I/O controller
4	AM-500 disk controller
5	AM-420 disk controller
6	AM-316 serial I/O controller
7	AM-120 auxiliary I/O controller

NOTE: Clockwise adjustment of R4 increases the voltage threshold.

This completes the adjustment. Turn off the AC power and mechanically restore the unit to its original condition.

Table 3-1. Exceptions to Resistor Terminated Lines.

Bus Pin	Function
1, 51	+7.5v
2	+16.v
12	Real Time Clock
13	Power Fail Detect
20, 50, 53, 70, 100	Ground
52	−16v
75	Reset

The above lines have no bus terminators.

FILE

DMA LEVELS

0

1

2

3

4

5 AM-600/T Mag Tape Controller

6 AM-~~200 Floppy~~ 610 VCR Controller

7

INTERRUPT LEVELS

0 CPU Link

1 AM-310 4 Port Communications Board

2 AM-410 Disk Controller/AM 415

3 AM-300 6 Port Serial I/O ALL SYS ALL 300 BOARDS

4 AM-500 Disk Controller

5 AM-420 Winchester Controller

6 Second AM-300 Board in Intergrated Systems AND AM316 IF TBASED SYS.

7 AM-120 or 3rd AM-300 Board IF TBASED SYS

BOOT ADDRESSES (HEX)

F400 AM-500 Boot Address

AM-410 Boot Address / AM-415 / AM-420

FC00 AM-200 Boot Address

AM-210 Boot Address

AM-400 Boot Address

ALPHA MICRO I/O ADDRESSES

ADDRESSES (HEX)	INTERFACE
FF 00	I/O check out
01 - 02	Reserved
03 - 0F	On board CPU ports (AM-100T) and AM-120 Standard Address.
10 - 14	Link
15 - 1F	Unassigned
20 - 2F	Aux I/O board option (AM-120 with AM-100T) or (Second AM-120 with AM-100)
30 - 37	Memory Management board (AM-100T compatible)
38 - 3F	Unassigned
40 - 4F	Memory Bank Switching (1 port/memory bd)
50 - 6F	Unassigned
70 - 7F	Phone Link (DC Hayes bd)
80 - 83	Imsai PIO (parallel port,Data I/O control, etc.)
84 - 9F	Unassigned
A0 - A7	AM-600 Mag Tape I/F
A8	Memory Error Register
A9 - AF	Unassigned
B0 - BF	AM-310 4 port communications bd (4 ports required/bd)
C0 - C1	AM-500 Disk Controller
C2 - C3	AM-320 Line Printer Controller
C4 - CF	AM-420 Winchester Controller
D0 - D3	AM-410 Disk Controller
D4 - D7	Unassigned

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17 See PAGE 3-3 in AM 100/6 CPU

ALPHA MICRO I/O ADDRESSES(Continued)

D8 - DF	3rd AM-300 Board
E0 - E7	AM-400 Trident Formatter I/F
E8 - EF	AM-300 Alternate (2nd Board)
F0 - F7	AM-200 Floppy Controller or AM-210 Floppy Controller
F8 - FF	AM-300 6 Port Serial I/O Board

More UP DATED Version.

Table 3-1. Alpha Micro External I/O Addresses

ADDRESS (HEX)	INTERFACE
00	I/O Check Out
01 - 02	Not Available
03 - 0F	On Board CPU Ports (AM-100/T or AM-120)
10 - 13	AM-110 CPU Link
14 - 17	Unassigned
18 - 1F	AM-300 #11
20 - 27	AM-120 Aux I/O board Option
28 - 2F	AM-300 #10
30 - 37	AM-700 Memory Partition Controller (AM-100/T compatible only)
38 - 3F	AM-300 #9
40 - 47	Memory Bank Switching (1 port/memory bd)
48 - 4F	AM-300 #8
50 - 57	AM-300 #7
58 - 5F	AM-300 #6
60 - 67	AM-300 #5
68 - 6F	AM-300 #4
70 - 7F	Phone Link (DC Hayes board)
80 - 83	Imsai PIO (parallel port, Data I/O control, etc.)
84 - 87	Bisynchronous Communications Board (AM-330)
88 - 9F	Unassigned

Table 3-1. (Con't) Alpha Micro External I/O Addresses

ADDRESS (HEX)	INTERFACE
A0 - A7	AM-600/T Mag Tape I/F
A8 AA AC A9 - AF	Memory Error Register (Piiceon Memories only) Read AlphaLOCK Write AlphaLOCK Unassigned
B0 - BF C0 - C1 C2 - C3	AM-310 4 Port Communications Bd (4 ports required/bd, maximum of 4 boards/system) AM-500 Disk Controller AM-320 Line Printer Controller
C4 - C5 C6 - CF	AM-420 Winchester Disk Controller Unassigned
D0 - D3 D4 - D5	AM-410 Disk Controller AM-610 VCR Interface
D6 - D7 D8 - DF	VCR Remote Control 3rd AM-300 Board
E0 - E7	AM-400 Trident Formatter I/F
E8 - EF	AM-300 Alternate (2nd board)
F0 - F7	AM-210 Floppy Controller
F8 - FF	AM-300 6 Port Serial I/O Board

ALPHA MICRO EXCEPTIONS TO THE 16-BIT S-100 BUS

PIN #	SIGNAL	EXCEPTION
1	+8 Volts	+7.5v regulated power supply provided
3	XRDY	Used to optionally expand number of vectored interrupts (VIa).
12	$\overline{\text{NMI}}$	50/60 Hz AC signal from power supply utilized as a Real Time Clock interrupt for Alpha Micro computers.
13	PWRFAIL	AC power fail signal from power supply Low level indicates proper AC power condition (PWRFAIL).
14	DMA3	Used to optionally expand number of vectored interrupts.(VIb).Only three DMA lines (8 DMA devices) are supported.
21	NOT SPECIFIED	I/O disable signal from MPC.
44	SM1	Same function, but timing is one cycle later than other status signals.
49	CLOCK	Indicates a bus error condition. Duration of pulse is 1 usec minimum. (BERR)
51	+8v	See pin 1 exception.
60	SIXTN	Not Used.
65	UNDEF	Address valid used to signal that next address is present on the data bus. ($\overline{\text{ADVAL}}$)
66	UNDEF	Write disable used to suppress $\overline{\text{PWR}}$ ($\overline{\text{WRDIS}}$)
68	MWRITE	Not Used.
73	PINT	Not Used.

ALPHA MICRO EXCEPTIONS TO THE 16-BIT S-100 BUS
(Continued)

98	$\overline{\text{ERROR}}$	Used to indicate one of the following error conditions: 1. For parity memories, pulse (1 usec minimum) indicating parity error for current cycle 2. For ECC memories, interrupt level indicating a single bit error has occurred. Treated like an additional interrupt.
99	POC	Used as Bus Error signal.