SUPER STAR

USER'S

MANUAL

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SECTION 1

GENERAL INFORMATION

1.1 Introduction

The Advanced Digital SUPER STAR is the most advanced 8-bit or 16-bit, S-100 bus-based single user/stand-alone and multi-user/multi-processing computer system in today's marketplace for business, professional and educational applications. When configured as a single-user, stand-alone system, the CP/M Operating System allows access to a vast library of application software packages. Add the TurboDOS Operating System and from one to four SUPER SLAVE modules and the SUPER STAR becomes a multi-task networking system for up to twelve users. With either configuration, SUPER STAR offers the following features:

- 10 Mbyte 5 1/4" Winchester Hard Disk Drive (5Mbyte fixed and 5Mbyte removable cartridge)

- Separate Hard Disk Controller module for high speed data transfer

- 5 1/4", Half-high, 48 TPI Floppy Disk Drive

- Six-slot, S-100 Bus compatible motherboard

- 4 MHz, Z80A CPU , Floppy Disk Controller, 64 Kbyte RAM, 2K (or optional 4K) monitor EPROM, Optional Z80B PIO and SIO SUPER SIX with optional 128 Kbyte RAM

- Configurable for up to five users using SUPER SLAVE modules with TurboDOS or as a single-user stand-alone system with CP/M 2.2/3.0 or TurboDOS

- Slim-line, self-contained cabinet

1.2 System Configurations

Single User Systems

-SUPER QUAD or SUPER SIX (optional)
-48 TPI Floppy Disk Drive
-10 Mb Hard Disk w/Controller
    5Mb removable/5 Mb Fixed
-CP/M 2.2 or CP/M 3.0
-TurboDOS

Multi-User System

-SUPER QUAD or SUPER SIX (optional)
-One SUPER SLAVE (4 MHz or 6 MHz)
-48 TPI Floppy Disk Drive
-10 Mb Hard Disk w/Controller
5Mb removable/5Mb fixed
-TurboDOS

1.3 Purpose of Manual

This manual has been designed to supply the information needed by the stand-alone or multi-tasking user to install, configure and operate the SUPER STAR. Information is also provided for identifying and then isolating the problem, if it should occur, to determine if the problem can be solved simply by the user or if it must be refered to a qualified service organization. The manual has been written at a system level (i.e., the complete SUPER STAR) and does not attempt to discuss specific design characteristics of individual modules or the operating system software within the system. That information is contained in individual manuals also supplied with the SUPER STAR system.

1.4 How The Manual Is Organized

This manual is organized into seven sections and five Appendices. The subjects covered by each section and appendix are listed below:

Section 1, General Information - Information to the SUPER STAR and this manual.
Section 2, SUPER STAR Physical Description - Explanation of the front panel, rear panel and internal layout.
Section 3, Interface Connectors - Description of I/O ports and associated connectors as well as configuration considerations.
Section 4, System Specifications - SUPER STAR specifications at a system and module level.
Section 5, Instalation and Initialization - Information on setting up and initializing the SUPER STAR. Also information on copying system diskettes and the system hard disk.
Section 6, Operating System - How the Operating system (CP/M and TurboDOS) are structured and used.
Section 7, List of Recommended Peripherals and Software - Recommended CRT'S, printers and application software packages.
Section 8, Problem Isolation - How to isolate a problem with the SUPER STAR and what action to take.

Section 9, Host to SUPER STAR Communications - How to set up the SUPER STAR and a host system to transfer data files between systems.

Section 10, CP/M and TurboDOS Software Directories - Listings of each of different operating system directories.

Appendix A, Care and Handling of Diskettes and Cartridge Disks - Cautions on how to handle, store and prevent problems with disks and diskettes.

Appendix B, ASCII Character Set - Tabular listing of the ASCII code and the corresponding alphanumeric characters.

Appendix C, Warranty - Advanced Digital's warrenty program.

Appendix D, System Configuration - Your checklist for identifing your SUPER STAR configuration and serial numbers.

Appendix E, Internal Ribbon and Power Cable Connections - How internal ribbon connectors interface on a pin-to-pin basis with modules and power supply layout.

Appendix F, Parts List - General list of all parts which makeup the SUPER STAR system.

1.5 Related Documents

The following is a list of related documents which will help in the use and understanding of the SUPER STAR system:

SUPER QUAD S-100 Single Board Computer Technical Manual
SUPER SLAVE Technical Manual
HDC-1001 Hard Disk Controller Technical Manual
TurboDOS User's Guide
DMA Hard Disk Manual
CP/M 2.2 OR 3.0 User's Manual

SECTION 2

SUPER STAR PHYSICAL DESCRIPTION

2.1 Maintrame Front Panel

Figure 2-1 shows the front panel of the SUPER STAR maintrame. The items on the front panel are:

1. Floppy Disk Drive - 5 1/4", 48 TPI disk drive (Osborne and Xerox format compatable).

2. Cartridge Disk Drive - 5 1/4", 10Mb Winchester disk drive - 5Mb fixed and 5Mb removable.

3. Run Switch - This switch is used to power up or power the cartridge disk drive.

4. Write Protect Switch - This switch is used to write protect the fixed disk protion of the 10Mb cartridge disk drive.

5. Door Release - The release, when pressed opens the cartridge door for the insertion or removal of the cartridge disk.

6. Drive Select LED - This light when lit indicates when the drive is ready to be accessed by the SUPER STAR system.

7. Power ON LED - This light indicates that AC power is supplied to the SUPER STAR when lit.

8. Run Light LED - The light immediatly above the switch indicates when the drive is up to operational speed (solid green light).

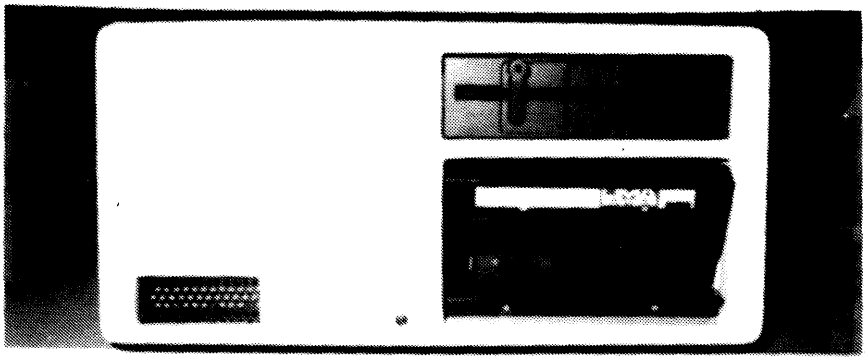
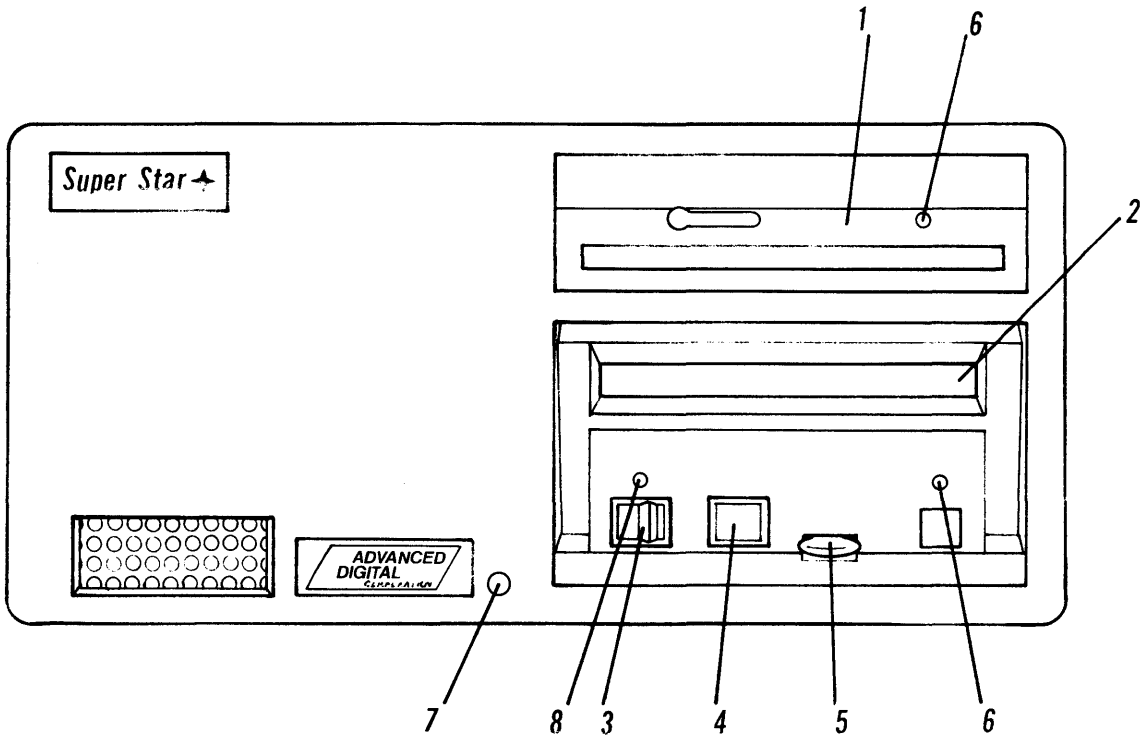


Figure 2-1. SUPER STAR Front Panel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2.2 Maintrame Internal Parts

Figure 2-2 shows the major internal parts ot the SUPER STAR system maintrame.

1. Internal Card Cage - The SUPER STAR system can support up to six ditterent modules. One SUPER QUAD or SUPER SIX CPU module, one hard disk controller, and up to tour SUPER SLAVE modules tor multi-user applications.

2. Rear Panel Connector - Ribbon cables which connect the internal modules ot the SUPER STAR system to the rear panel and external 1/O devices. The maximum number ot 1/O connectors is seven.

NOTE

Care should be taken to assure the cable connector is properly connected. The red edge ot the ribbon

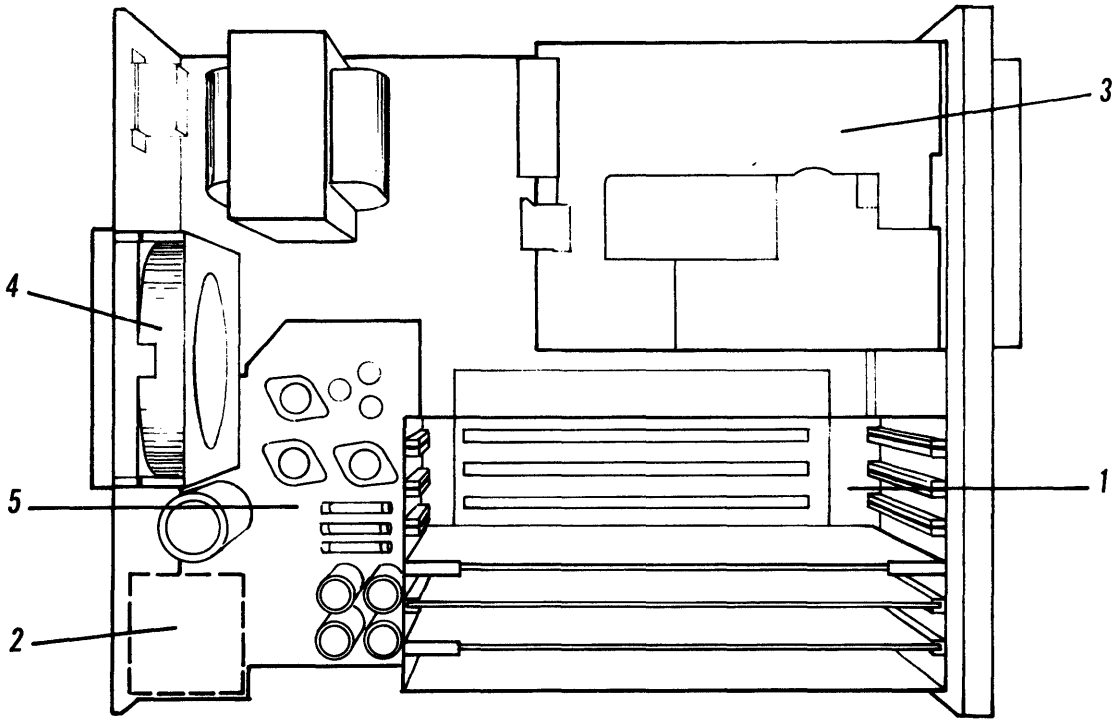
cable always denotes Pin 1. You can assure proper connection by making sure that the ribbon cable is plugged into the connector with the pin 1 edge aligned with the " " on the connector receptacle.

3. Disk Drives - 5 1/4" and 1ØMb disk drives.

4. Cooling Fan - The cooling tan circulates air to maintrame an operating temperature which averages below 115 F inside the SUPER STAR system maintrame.

5. Power Supply - The power supply provides DC power to the internal modules such as, the CPU, disk controller and any Slave modules it present. It also provides power to the disk drives.

Figure 2-2. SUPER STAR system Internal Section.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2.3 Maintrame Rear Panel

Figure 2-3 shows the rear panel ot the SUPER STAR maintrame. The items on the rear panel are:

1. Power On Switch - Turns on the AC power to the SUPER STAR system.

2. Reset Button - When this button is pressed, the system is reset by the operating system and the operating system sottware is reloaded into system memory.

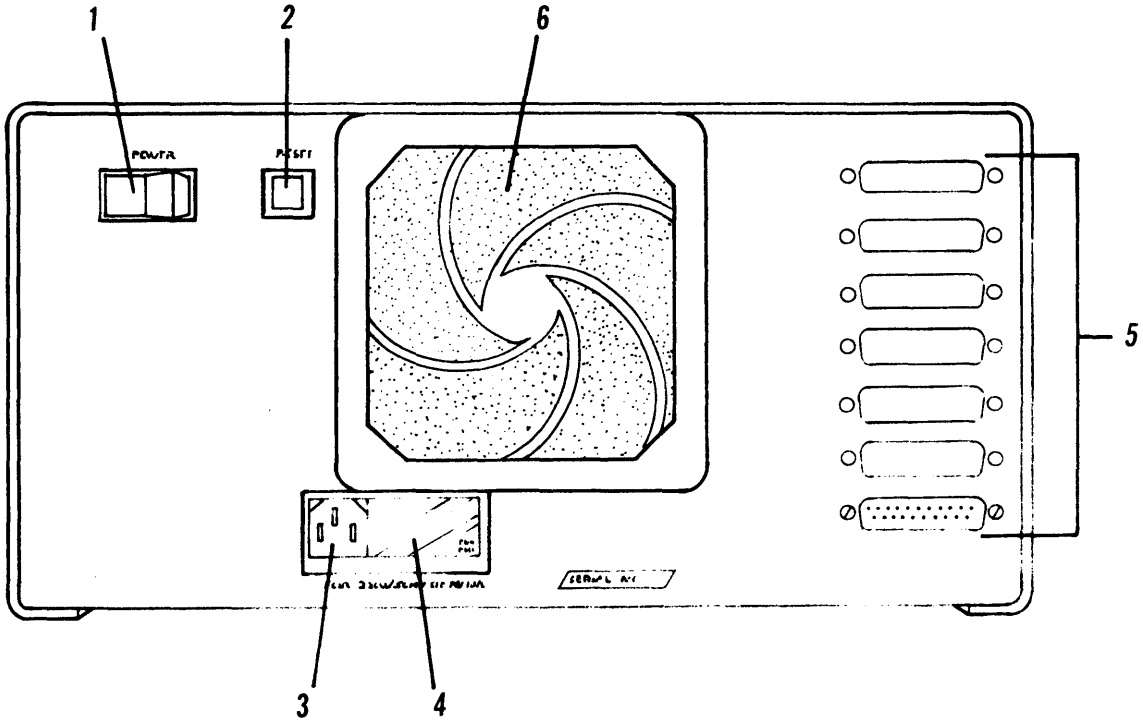
3. Power Cord Plug - Supplies AC power connection tor the SUPER STAR.

4. Fuse - The tuse provides line protection tor the SUPER STAR system. See Section 4 tor the proper type ot tuse to use and how to replace or change the power requirement. The tuse section contains a small printed-circuit board to support both 110V and 220V AC power.

5. 1/O Connectors - These seven ports can support master console, tour additional slave consoles, a printerport and communications port.

6. Cooling Fan - The cooling tan circulates air to maintain an operating temperature which averages below 115 F inside the SUPER STAR system maintrame.

Figure 2-3. SUPER STAR System Rear Panel.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SECTION 3

INTERFACE CONECTORS

3.1 Interface Connectors Location

The SUPER STAR system has seven I/O interface connectors located on the rear panel as shown in Figure 2-3. Five connectors are 25-pin type DB-25 connectors, which require a type DB-25 mating connector for interface to serial peripheral devices. These five connectors are for RS-232C compatible serial I/O interface. Two connectors are parallel interface ports (Centronics compatible) and are 25-pin type DB-25 connectors that require type DB-25 mating connectors.

NOTE

Not all of these seven I/O interface are necessarily internally wired to circuit boards in the SUPER STAR, depending upon the configuration you have ordered. See Paragraph 3.4 entitled, I/O Connector Configurations.

3.2 Serial I/O Port Connectors

One of the five serial I/O port connectors is intended for interfacing a monitor/keyboard/terminal console. This connector is intended as J1. The other four serial I/O port connectors (J2 through J5) are intended for interfacing a serial printer and/or any other serial communications peripheral devices.

All five serial I/O port connectors have the same pin assignmentssince they are all RS-232C compatibe. Table 3-1 identities the pin assignments for these connectors.

Table 3-1. Serial I/O Port Pin Assignments

Pin No.	Signal Assignments
1	System Ground
2	TxD - Transmit Data
3	RxD Receive Data
4	Not Used
5	CTS Clear To Send
6	DSR Data Set Ready
7	Signal Ground
8	Not Used
9-19	Not Used
20	DTR Data Terminal Ready
21-25	Not Used

Interface Connectors

3.2.1 Typical Three-Wire Interface

The simplest I/O port interface requires only three of the serial I/O connector be wired. These three wires are: Pin 2-TxD, Pin 3-RxD and Pin 7-Signal Ground. This three-wire configuration will satisfy many serial devices and most terminals.

3.2.2 Four-Wire Interface

Some serial devices require a "handshake" signal for normal protocol. In these cases the four-wire interface configuration will normally work. This configuration is the same as the three-wire configuration (pins 2,3 and 7 connected with the additional fourth wire being pin 20 - DTR).

3.2.3 Serial Printer Interface

Most serial printers require a "Busy" signal to maintain data flow. With such printers, the four-wire configuration will normally work where pin 20 - DTR, is used as the "Busy" signal.

3.3 Parallel I/O Port Connectors

The two parallel I/O port connectors (J6 and J7) have the same pin assignments and are Centronic printer compatible. The pin assignments for these two connectors are shown in Table 3-2.

One of the parallel I/O port 25-pin connectors is driven by the SUPER QUAD PIO channel A, the other is driven by the PIO channel B. Table 3-2 does not distinguish between A or B since both are the same.

Interface Connectors

Table 3-2. Parallel I/O Port Pin Assignments

Pin Number	PIO Signal Name	Signal Function
1	ASTRB/BSTRB	Strobe
2	PA2/PB2	Data Line 2
3	PA0/PB0	Data Line Ø
4	Not Used	
5	PA1/PB1	Data Line 1
6-8	Not Used	
9	PA3/PB3	Data Line 3
1Ø	Not Used	
11	PA4/PB4	Data Line 4
12	Not Used	
13	PA5/PB5	Data Line 5
14	Not Used	
15	PA6/PB6	Data Line 6
16	Not Used	
17	PA7/PB7	Data Line 7
18	Not Used	
19		ACKNLG
2Ø	Not Used	
21		BUSY
22-24	Not Used	
25		Select

3.4 I/O Port Configurations

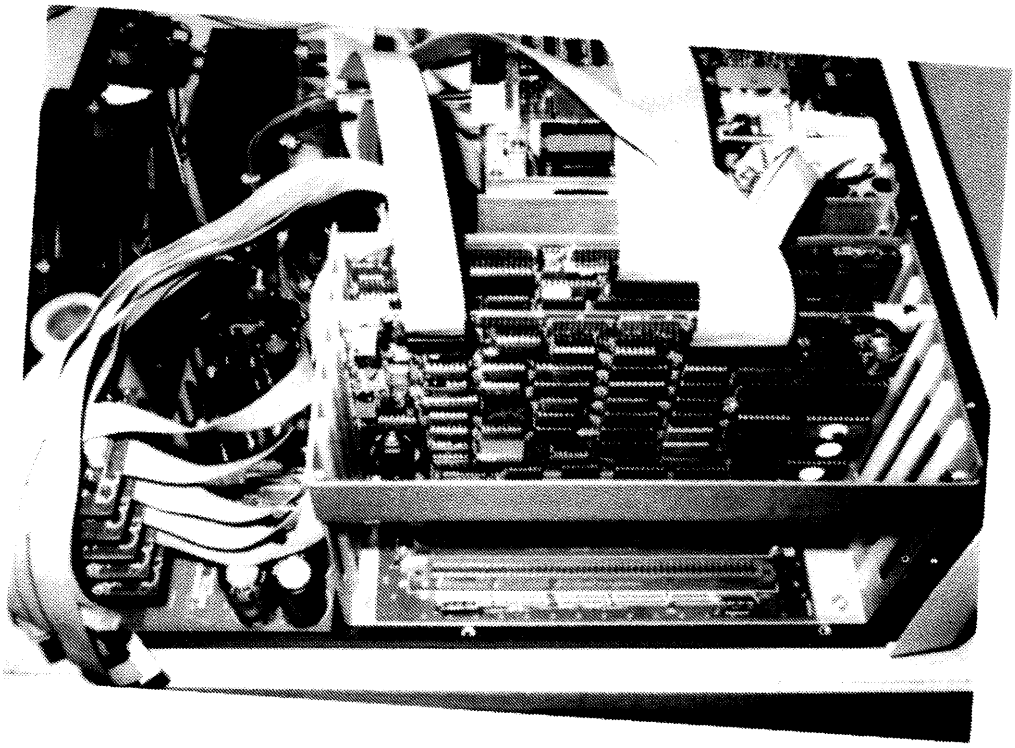
The number of the I/O port connectors that are actually connected (through ribbon cables) to printed circuit boards inside the SUPER QUAD is dependent upon the particular configuration you have selected for your SUPER STAR system.

A CP/M-based single-user SUPER STAR system has four of the seven I/O port connectors available to the user (see options). These consist of one parallel port connector and two serial ports (J1 and J2). This configuration will support a terminal/keyboard (one of the serial ports), one serial peripheral (perhaps a printer) and a parallel peripheral (printer, plotter, etc.).

A TurboDOS-based multi-user SUPER STAR system can have from five to the total seven I/O connectors available to the user depending upon the number of SUPER SLAVE modules installed in the SUPER STAR. A fully configured TurboDOS-based multi-user SUPER STAR can support a master terminal/keyboard (one of the five serial I/O ports), four remote user stations (the other serial I/O ports) and two parallel I/O peripheral devices.

3.5 Internal Ribbon Cable Connectors

In case trouble is encountered with rear chassis I/O connectors that requires an understanding of the actual pin-to-pin allocations of ribbon cables from the SUPER QUAD or SUPER SLAVE modules to the I/O connectors, refer to Appendix E. Under normal use, and during system configuration this information is not required and therefore is not presented in this section.



SECTION 4

SYSTEM SPECIFICATIONS

4.1 Introduction

This section presents specification information on the overall SUPER STAR system as well as individual subsystems (such as the floppy disk drive and the hard disk drive).

4.2 System Power Requirements

The SUPER STAR operates on 110 or 220 volts AC, 50-60 Hz power and is configured at the factory for the power requirements of the country of destination.

When configured for 110 VAC, the SUPER STAR is rated at 5 amperes max. (625 watts). When configured for 220 VAC, the SUPER STAR is rated at 2.5 amperes max. (625 watts).

NOTE

If the SUPER STAR is not configured for the AC power used at your facility, refer to section 4.4, Changing AC Voltage, for the proper procedure.

4.3 Specification Tables

The following tables present specifications (and operating parameters) for subsystems and circuit boards associated with the SUPER STAR system. The subsystems covered by these tables are as follows:

Table 4-1	SUPER QUAD CPU Module
Table 4-2	SUPER SIX CPU Module (optional)
Table 4-3	Hard Disk Drive and Controller Subsystem
Table 4-4	Floppy Disk Drive
Table 4-5	SUPER SLAVE Module
Table 4-6	SUPER STAR Overall Specifications

System Specifications

Table 4-1. SUPER QUAD CPU Module Specifications.

Parameter	Specification
Bus Structure	S-100 Compatable, IEEE 696
CPU	zilog Z-80A, 4 MHz
SIO, PIO	zilog Z-80A, 4 MHz (two Rs-232C serial ports and two parallel ports)
RAM	64K bytes, bank selectable (16K bytes)
ROM	2K (4K optional) 2716 EPROM Monitor contains BOOT routine, momory FILL, memory DUMP, PRINT, MOVE, I/O Read/Write, and Executive Address. Occupies memory address F000 through F800 (2K) or F000 through FFFF (4K). Also contains SIO and FDC initialization code.
Floppy Disk Controller	WD1793 FDC. Supports 5 1/4" or 8" Floppy disk drives.
Counter/Timer Controller	Zilog Z80A CTC for 4 MHz Real Time interrupt clock.
Motherboard Slot	Plugs into any slot.

System Specitications

Table 4-2. SUPER SIX CPU Module Specitications.

Parameter	Specitication
Bus Structure	S-100 Compatable, IEEE 696
CPU	Zilog Z-80B, 6 MHz
SIO, PIO	Zilog Z-80B, 6 MHz (two Rs-232C serial ports and two parallel ports)
RAM	64K or 128K bytes (optional), bank selectable (16K bytes)
ROM	2K (4K optional) 2716 EPROM Monitor contains BOOT routine, memory FILL, memory DUMP, PRINT, MOVE, I/O Read/Write, and Executive Address. Occupies memory address F000 through FFFF (4K). Also contains SIO and FDC initialization code.
Floppy Disk Controller	WD2793 FDC. Supports 5 1/4" or 8" Floppy disk drives simultaneously.
Counter/Timer Controller	Zilog Z80B CTC tor 6 MHz Real Time interrupt clock.
Motherboard Slot	Plugs into any slot.

Table 4-3. Hard Disk Drive and Controller Subsystem Specifications

Parameter	Specification	
Drive Type	DMA System's Micro-Magnum 5/5 or any ST506 compatible interface.	
Number of Disk Drives	Two 5 1/4" standard Winchester type drives one fixed, one removable.	
Number of Heads/Surfaces	4 (2 fixed, 2 removable)	
Storage Capacity	Formatted	Unformatted
Subsystem	10.8 Mbytes	12.8 Mbytes
Fixed Disk	5.4 Mbytes	5.4 Mbytes
Removable Disk	5.4 Mbytes	5.4 Mbytes
Sectors Per Track	32+1 spare	33
Bytes Per Sector	256	304
Bytes Per Track	8,192	10,032
Data Transfer Rate	5.0 Mbytes/sec	
Data Encoding Method	MFM	
Step Rates	35 usecs (default) Selectable for 0.5 to 7.5 usecs in 0.5 usec increments.	
Average Latency Time	8.7 usec	
Controller	HDC1001 plugs into any S100 motherboard slot.	

Table 4-4. Floppy Disk Drive Specifications.

Parameter	Specification
Disk Configuration	Double-density,double-sided 5 1/4" floppy diskette.
Diskette Format	Osborne compatable (single density) Xerox compatable KayPro compatable (single density)
Tracks per Inch	48

System Specifications

Table 45. SUPER SLAVE Module Specifications.

Parameter	Specifications
Internal CPU Control	Zilog Z80A, 4 MHz CPU 6 MHz (optional)
Serial I/O Ports	Four Serial I/O ports (RS232C or RS422 compatible)
Parallel I/O Ports	Two parallel I/O ports 25 pins each.
Interrupt Control	AMD9519 controller with vectored interrupt configuration possible.
Bus Interface	S100, IEEE696 Standard bus compatible.
Software Controll	TurboDOS multi-user operating system.
RAM	64K or 128K bytes of banked switched memory.
ROM	2K or 4K bytes of EPROM.
Power Requirements	+8 volt DC @ 1.5 Amps +16 volts DC @ < 0.5 Amps per SUPER SLAVE Module.

System Specifications

Table 4-6. SUPER STAR Overall Specifications.

Parameter	Specifications	
CPU Module	SUPER QUAD or optional SUPER SIX module	
Disk Controller	HDC1ØØ15 Hard Disk Drive Controller module	
I/O Controller Modules	Up to four SUPER SLAVE modules for peripheral controller.	
Number of Motherboard Card Slots	6	
Hard Disk Drive	DMA MicroMagnum 5/5 5 1/4" 1Ø Mbyte (5 Mbyte fixed, 5 Mbyte removable) Disk Drive.	
Floppy Disk Drive	48 TPI Floppy Disk Drive 5 1/4", low profile, 3Ø8 bytes, double density,double sided diskette.	
Operating System	Single User	MultiUser
	TurboDOS 1.3Ø CP/M 2.2 CP/M 3.Ø	TurboDOS 1.3Ø
Power Requirements	11Ø VAC, 5 A, 625 watts 22Ø VAC, 2.5 A, 625 watts	
Dimensions	Height 6.5 inches (16.51 cm) Width 13.5 inches (34.29 cm) Length 15 inches (38.1Ø cm)	

4.4 Changing AC Input Voltage from 110/220 to 220/110

1. Remove the power cord from the rear of the system if it is connected. Slide the plastic cover which is covering the fuse to the left. The plastic cover should now be covering the power plug.

2. Gently pull on the black tab to remove the fuse. The tab releases the fuse from its holder and will pivot from the left-hand end of the fuse.

3. Remove the fuse and set it aside.

4. Using a pair of small pliers, gently pull the small circuit card straight out of the slot holding it. Be careful not to bend the board as this may cause the board to malfunction, causing electrical damage to the SUPER STAR system.

5. Orient the board as shown below to set the proper AC power specification. You will notice that the number which is rightside up, is the power specificstion which the circuit board will operate under.

110 Setting 220 Setting

CAUTION

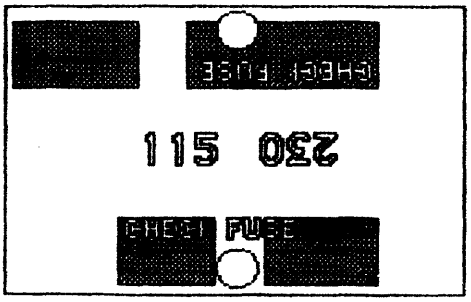
Do not use the incorrect setting on the circuit board as this may cause severe electrical damage to your system.

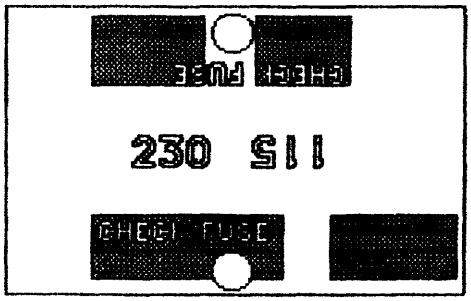
6. Gently reinsert the circuit board into the slot, again being careful not to bend the board.

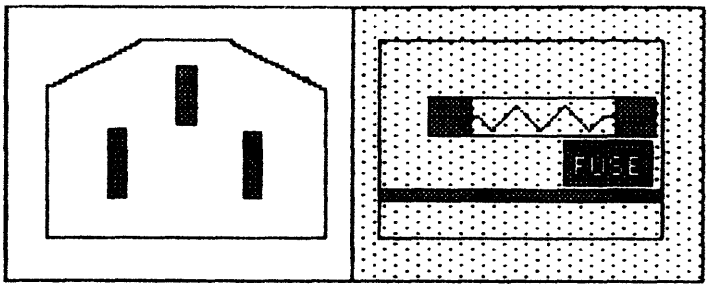
7. Press the fuse back in place. Pressing the fuse into place causes the black tab to move back into its original position and locks the fuse in place.

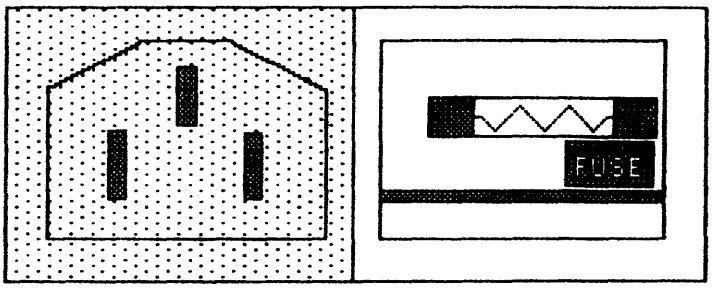
8. Slide the clear plastic window back over the fuse and replace the power cord in the socket to supply power to the system.

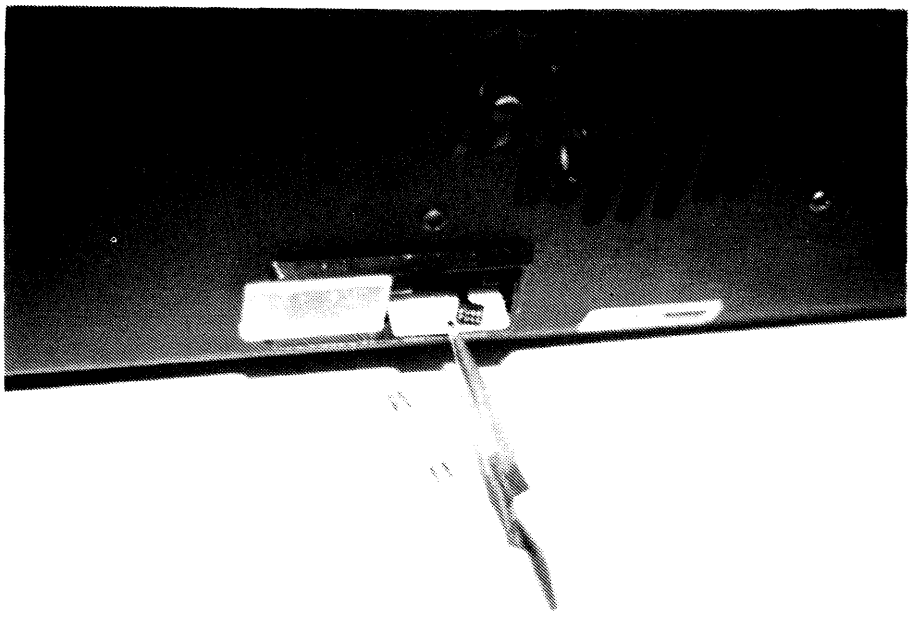
4-8
DRAWINGS











SECTION 5

INSTALLATION AND INITIALIZATION

This section explains the procedures necessary to setup and initialize the SUPER STAR system. There are operating system backup procedures given for both CP/M and TurboDOS operating systems.

5.1 Installation Procedure

1. Before removing the SUPER STAR mainframe from its shipping container, inspect the outside of the container. If any damage is found, notify the shipping company and Advanced Digital immediately.

2. Carefully remove the SUPER STAR from the shipping container. Inspect the exterior of the mainframe for any damage. If any damage is found, notify the shipping company and Advanced Digital immediately.

3. Place the SUPER STAR mainframe on a level counter or desk top.

4. Open the SUPER STAR mainframe by removing the cover and check the seating of the boards and cable connections.

5. Connect the master console to the proper rear panel I/O connector marked "1" at the rear of the SUPER STAR system.

CAUTION

> Check the fuse package at the rear of the SUPER STAR system. You should be able to read the lettering on the small circuit board which is inserted under the fuse. If the number which you can read rightside up is not the proper voltage STOP STOP STOP!!! Turn to Section 4.4, Changing AC Voltage and following the procedure listed there.

5.1 Installation Procedure (continued)

6. Turn the power switch to the OFF position on the console and SUPER STAR it it is not already in that position. Connect the AC power cord to the rear ot the SUPER STAR system. Connect the AC power cord to the rear ot the console and plug it into a power source, but do not power up the system console.

NOTE

> The power switch on the SUPER STAR system is in the OFF position it the power switch light is not lit and ON when the the light in the power switch is lit.

7. Press the power switch ot the SUPER STAR into the ON position. The LED on the switch should light. The LED on the tloppy disk drive should also be lit. This indicates that the SUPER STAR is trying to access data trom the tloppy disk drive.

8. Open the cartridge drive door by pressing the disk release button (see Figure 2-1) and gently lowering the cartridge drive door.

9. Insert a cartridge, either blank (it using CP/M) or an operating system (it using TurboDOS or CP/M 3.Ø) into the drive. Make sure that the red write protect tab is in the lower right-hand corner tacing you. The bottom ot the cartridge is the side which ahs the circular metal plate, this side must be tacing down when the cartridge is inserted into the drive. See Appendix A it you are not tamiliar with diskettes and cartridge disks. Gently slide the cartridge into the drive, pressing on the lett tront side ot the cartridge disk, until it is properly seated.

1Ø. Close the drive door. The cartridge should drop into position as the drive door is closed.

11. Set the Write Protect Switch to the ON position. The switch is in the "ON" position when the right-hand side ot the switch is tlush with the tront ot the disk drive. This protects the data on the cartridge trom being damaged or being written on.

12. Press the RUN button to the ON position. The switch is in the "ON" position when the right-hand side ot the switch is tlush with the tront ot the drive. The green run light should begin to blink as the drive comes up to operating speed. When the drive is up to operating speed, the green light stops blinking and remains lit and the red light or "ready" light comes on to indicate that the drive is ready.

5.1 Installation Procedure (continued)

13. If you are using thr CP/M 2.2 operating system with the SUPER STAR, you could at this time insert a system diskette into the floppy disk drive and load the system software into memory. However, if you do not follow the rest of the procedure listed here you will not know if the hard disk drive is operational.

14. Turn on the power to the system console if you have not already done so.

15. Press the reset button on the back of the SUPER STAR system (see Figure 2-3). The system then access the disk system in the following manner:

1. Checks the floppy drive for a disk containing a system boot. This would be the drive which would have the CP/M operating system if you are using that operating system.

2. Checks the fixed hard disk for a system boot. This may be where you would normally like to store your operating system whether it be CP/M 2.2, CP/M 3.Ø or TurboDOS.

3. The system then retires in the sequence lidted above, floppy, fixed disk, and back to the floppy.

If you wish to boot from the cartridge you must use the following procedure:

IMPORTANT - This procedured must be followed when booting the TurboDOS or CP/M 3.Ø system contained on a cartridge for the first time, it is suggested that you copy the operating system to the fixed disk to save time under normal operation.

1. Hold the SPACE bar down and press the RESET button.

2. The system boots and calls a system monitor routine followed with a prompt >.

3. Type H. When the menu is displayed, press C for cartridge boot followed by a RETURN.

4. The system reads the cartridge and loads the operating system from the cartridge disk.

5.1 Installation Procedure (continued)

CP/M 2.2 Signon Message:

```
>ADVANCED DIGITAL CORPORATION
Monitor Version n.n
April - 1983
Press "H" for help
Attempting to boot.....
Press any key to abnort boot

Super BIOS vn.nn
Typeahead installed

60K CP/M 2.2 Installed

Default console is serial port 1
Default printer is parallel driver

A>
```

CP/M 3.0 Signon Message:

```
>ADVANCED DIGITAL CORPORATION
Monitor Version n.n
April - 1983
Press "H" for help
Attempting to boot.....
Press any key to abort boot

CP/M V3.0 Loader
Copyright (C) 1982, Dic Res

BIOS3  SRP  E500 1100
BIOS3  SPR  C600 1F00

49K TPA

Super BIOS v.3.0
CP/M 3.0 Installed

Default console is serial device 0
Default printer is parallel device

A>
```

TurboDOS Single-User Terminal Signon Message:

```
>ADVANCED DIGITAL CORPORATION
Monitoer Version 3.6
April - 1983
Press "H" for help
Attempting to boot.....
Press any key to abort boot

Copyright 1983, Sottware 2000, Inc. (21/serial no.)
A:OSMASTER,SYS loading trom EFF4 to FFFF, size 400C
TurboDOS 1.30, Copyright 1983, Sottware 2000, Inc. (serial no.)
Super Six [or Quad] up.
OA}
```

NOTE

If the system is being booted trom the cartridge the prompt is OB}. The message "Super Six up" or "Super Quad up" indicates the type of CPU module you are using.

5.1 Installation Procedures (continued)

TurboDOS Multi-User Master Terminal Message:

```
>ADVANCED DIGITAL CORPORATION
Monitor Version 3.6
April - 1983
Press "H" for help
Attempting to boot.....
Press any key to abort boot

Copyright 1983, Software 2000, Inc. (21/serial no.)
A:OSMASTER.SYS loading from BFF4 to FFFF, size 400C
TurboDOS 1.30, Copyright 1983, Software 2000, Inc. (21/serial no.)
Super Six [ or Quad] up.
OA}
```

TurboDOS Multi-User Slave Terminal Signon Message:

```
>ADVANCED DIGITAL CORPORATION
Monitor Version n.n
April - 1983
Press "H" for help
Attempting to boot.....
Press any key to abort boot

Copyright 1983, Software 2000, Inc. (21/serial no.)
Advanced Digital Copr. Super Slave Bank up.
OA}
```

NOTE

The message "Super Slave Bank up" or "Super Slave Non-bank up" is displayed depending on whether you are running a banked system or not. If the system does not display the signon message within 10 seconds, press the reset button again. If this does not correct the problem, check all of steps listed above and try again. If this routine still fails refer to Section 8.

5.2 Initial System Power-Up

When you first receive the Super Star system, a copy of the system softwareshould be made by placing a blank cartridge into the 10 MMb drive (hard disk) or a blank diskette into the floppy disk drive. The actual backup procedure for both the TurboDOS and CP/M operating systems are discussed in Sections 5.3 and 5.4, respectively.

The Super Star system is designed to first, access the floppy disk drive to locate an operating system to be loaded into system memory. If a disk or operating system is not found in the floppy drive, the system then accesses the fixed portion of the 10 Mb hard disk drive.

When the Super Star is shipped to you, a copy of the operating system is provided on the cartridge disk for TurboDOS or cartridge for CP/M 3.0 users, or floppy disk for CP/M 2.2 users. The startup procedure discussed in Section 5.1 is the general startup procedure for either operating system (TurboDOS or CP/M).

It is suggested by Avanced Digital that you use the fixed portion of the hard disk as your normal operating system disk. The cartridge disk and floppy diskettes can be used for storage of development software, applications and operating system backup software.

The cartridge disk is always used in the upper half of the hard disk drive and must be inserted with the red write protect tab in the lower right-hand corner. The side of the cartridge with the metal disc is termed the bottom side of the cartridge. Appendix A provides further information on the proper use and care of cartridge disks.

NOTE

> The following paragraph applies to SUPER STAR systems which are developed with CP/M 2.2 operating system or if you intend to use floppy distettes with your system.

The floppy diskettes are always used in the upper drive of the SUPER STAR and must be inserted with the level up. The lable side of the diskette is termed, the top side of the diskette. Read Appendix A for the proper care and handling of floppy diskettes. All diskettes used in the SUPER STAR system must be certified for use with double density, double-sided 48 TPI, 5 1/4" drives.

5.3 Copying The System Disk (TurboDOS)

This section describes the protcedure tor copying the operating system trom the cartridge disk to the tixed portion ot the hard drive using the TurboDOS system. This procedure can also be tollowed it the operating system on your tixed disk is damaged and must be reloaded trom a backup cartridge or tloppy. It you have a "SUPER STAR" system with the CP/M operating system, skip to Section 5.4 tor the proper copy procedure.

To copy the system disk, proceed as tollows:

1. Power the system.

2. Power up the hard drive by pressing the run button on the hard drive. When the drive is up to operating speed, reboot the system by pressing the reset button on the back panel ot the SUPER STAR system. Press the Run button and the R/W button on the hard disk drive.

3. Insert a cartridge disk containing the operating system into the 1Ø Mb drive it you have not already done so. This must be done in order tor the system to boot.

4. Hold the SPACE bar down and press the RESET button.

5. The system boots and calls a system routine tollow with a prompt - >.

6. Typy H. When the menu is displayed, press C tor cartridge boot tollowed by a RETURN.

7. The system reads the cartridge and loads the operating system trom the cartridge disk.

8. The logon message is displayed and the TurboDOS command prompt is displayed:

```
OB}
```

9. Type, BUFFERS N2. This command initializes your terminal as the master terminal or console.

```
OB} BUFFER2 N2[RETURN]
OB}  BANK  O[RETURN]   (only it you are running with a SUPER
                        SIX in banked mode in either a multi-
                        user or single-user sysetem.)
```

5.3 Copying The System Disk (TurboDOS) (continued)

10. Enter the command, FORHDC A. This command displays a menu of different types of drives to format. This command formats the fixed portion of the hard disk. TurboDOS assigns the csrtridge portion of the hard disk as drive B, the fixed portion drive A and the floppy drive as drive C. NOTE: When running TurboDOS with slaves this operation must be done from the master terminal. The following set of prompts shows the system displays:

```
OB}FORHDC A: [RETURN]

*** Hard Disk selection choices ***
0  =ST503       1 =ST506        ;Seagate  Technology
2  =TM6015      3 =TM602S       ;Tandon Magnetics
4  =TM603S      5 =TM603SE
6  =TM501       7 =TM502
8  =TM503
9  =SA602       10 =SA604       ;Shugart Associates
11 =SA606
12 =SA1002      13 =SA1004
14 =Q2010       15 =Q2020       ;Quatum
16 =Q2030       17 =Q2040
18 =M4010       19 =M4020       ;MiniScribe
20 =DMA5/5                      ;DMA System
?(for DMA drive, you would enter 20 here)
INSERT DISK TO BE FORMATTED IN DRIVE A
ENTER <CR> TO BEGIN FORMATTING
.........................
.........................
.........................
Start verify
.........................
.........................
.........................
OB}
```

11. Enter the command, ERASEDIR A:. This command clears or initializes a directory that may have been previously written on the disk. Press RETURN:

```
OB}ERASEDIR A:[RETURN]
```

12. The system displays a series of questions, answers in the following manner:

```
Hashed directory desired (Y/N)? Y
OK to erase directory on drive A? Y
Erasing directory
```

5.3 Copying The System Disk (TurboDOS) (continued)

13. The system then erases the directory and then displays:

```
Directory erased, hashed
OB}
```

14. Enter the command, BACKUP B: A:. This command copies all of the data currently stored on the cartridge disk (B) to the fixed disk (A):

```
OB}COPY B: A: [RETURN]
```

15. The system then displays the following and waits for you to press RETURN:

```
Insert source disk in drive A
Insert destination disk in drive B
Enter <cr> to begin copying:
```

16. Enter TKOBOOT TRKOMA.LDR A: to copy the track zero loader onto the fixed disk.

```
OB}TKOBOOT TRKODMA.LDR A: [RETURN]
```

This completes the copy procedure. Power down the drive and remove your cartridge with the operating system from the drive. Store this cartridge away in a safe location in case it is ever needed.

5.4 Copying The System Disk (CP/M 3.Ø)

This section describes the procedure for copying the operating system from the cartridge disk to the fixed portion of the hard drive using the CP/M 3.Ø systems. This procedure can also be followed if the operating system on your fixed disk is damaged and must be relocated from a backup cartridge or floppy. If you have a SUPER STAR system with the CP/M 2.2 operating system, skip to Section 5.5 for additional information.

To copy the system disk, proceed as follows:

1. Insert a cartridge disk containing the operating system into the 1Ø Mb drive if you have not already done so.

2. Power up the hard drive by pressing the run button on the hard drive. When the drive is up to operating speed, reboot the system.

3. Hold the SPACE bar down and press the RESET button.

4. The system boots and calls a system monitor routine follow with a prompt - >.

5. Type HELP. when the menu is displayed, press C for cartridge boot followed by a RETURN.

6. The system reads the cartridge and loads the operating system from the cartridge disk.

7. The logon message is displayed and the CP/M command prompt is displayed:

```
A>
```

5.4 Copying The System Disk (CP/M 3.0) (continued)

8. Enter the command, FMTHD. This command formats the fixed portion of the hard disk. CP/M assigns the cartridge portion of the hard disk as drive A, the fixed portion drive B and the floppy drive as drive C. The following prompts are displayed by the system:

```
A>FMTHD [RETURN]

*** Hard Disk selection choices ***
0  =ST503       1  =ST506            ;Seagate Technology
2  =TM6015      3  =TM602S           ;Tandon Magnetics
4  =TM603S      5  =TM603SE
6  =TM501       7  =TM502
8  =TM503
9  =SA602       10 SA604             ;Shugart Associates
11 =SA606
12 =SA1002      13 =SA104
14 =Q2010       15 =Q2020            ;Quantum
16 =Q2030       17 =Q2040
18 =M4010       19 =M4020            ;MiniScribe
20 =DMA5/5                           ;DMA Systems
Enter Drive to Format: 20 (selection)
Do you want to fromat the Cartridge, Fixed or Both [C, F or B]?F
Which physical disk do you want to format (0-3)?0
This operation will destroy all data on drive 0.
Hit return to continue or Control-C to abort.
OA>
```

9. The system formats the fixed portion of the hard disk and displys the followint message:

```
Format complete
```

10. Enter the comand, ERA B:*.*. This command erases any entry in the current directory. This system asks it you want to erase all files:

```
A>ERA B:*.*[RETURN]
ALL(Y,N) Y
```

5.4 Copying The System Disk (CP/M 3.Ø) (continued)

11. When the system has completed the formatting of the disk, enter the LDRGEN command. This command should only be used if you intend to boot from the fixed drive when powering up the system. If you do not want the system to boot from the fixed disk then skip to Step 13. The LDRGEN command puts a track zero loader onto the hard disk you are creating:

```
A>LDRGEN T3ODMA55.LDR[RETURN]
Physical drive no. of loader destination (Ø-3):Ø
Write loader to cartridge or fixed [C or F]:F
```

12. Press RETURN. The system copies the loader from the cartridge drive to the fixed hard disk.

13. Copy the file CPM.SYS from the cartridge to the fixed disk as follows:

```
A>PIP B:CPM.SYS=:CPMH.SYS[RETURN]
```

14. The file CPM.SYS is copied to the fixed hard disk.

15. Next, set the file CPM.SYS to read-only status:

```
A>STAT B:CPM.SYS $R/O[RETURN]
```

16. Once the CPM.SYS file is set to read-only, copy the rest of the system disk to the fixed disk.

```
A>PIP B:A:*.*[v][RETURN]
```

[v] - alows verification

17. When this is complete compare the two disks, master and new copy using the directory command:

```
A>DIR A:[RETURN]
```

Directory A is displayed by the system

```
A>DIR B:[RETURN]
```

Directory B is displayed by the system

This completes the copy procedure. Power down the drive and remove your cartridge with the operating system from the drive. Store this in a safe location.

5.5 Copying The System Disk (CP/M 2.2)

This section describes the procedure for copying the operating system from the floppy disk to the fixed portion of the hard drive using the CP/M system. This procedure can also be followed if the operating system on your fixed disk is damaged and must be reloaded from a backup floppy.

To copy the system disk, proceed as follows:

1. Insert a floppy disk containing the operating system into the floppy disk drive if you have not already done so.

2. Power up the hard drive by pressing the run button on the hard drive. Remember that you must have a cartridge disk inserted before the hard drive will operate. When the drive is upto operating speed, reboot the system by pressing the reset button on the back panel of the SUPER STAR system.

3. The logon message is displayed and the CP/M command is displayed:

```
A>
```

4. Enter the command, FMTHD. This command formats the fixed portion of the hard disk. CP/M assigns the cartrige portion of the hard disk as drive C, the fixed portion drive B and the floppy drive as drive A>

```
A>FMTHD [RETURN]
Do you want to format Cartridge, Fixed or Both[C, F or B]?F
Which physical disk do you want to formay (Ø-3)?Ø
This operation will destroy all data on drive Ø.
Hit return to continue or Control-C to abort.
OA>
```

5. The system formats the fixed portion of the hard disk and displays the following message:

```
Format complete
```

6. Enter the command, ERA B:*.*. This command erases any entry in thr current directory. This system asks if you want to erase all files:

```
A>ERA B:*.*[RETURN]
ALL(Y,N)Y
```

5.5 Copying The System Disk (CP/M 2.2) (continued)

7. When the system has completed the formatting of the disk, enter the LDRGEN command. This command should only be used if you intend to boot from the fixed drive when powering up the system. If you do not want the system to boot from the fixed disk then skip to Step 10. The LDRGEN command puts a tract zero loader ono the hard disk you are creating:

A>LDRGEN TRKODMA55.LDR[RETURN]

8. The system displays a series of questions which must be answered as follows:

Physical drive no. of loader destination (0-3):0
Write loader to cartridge or fixed [C or F]:F

9. Press RETURN. The system copies the loader from the floppy drive to the fixed disk.

10. Copy the file CPM.SYS from the floppy to the fixed disk as follows:

A>PIP B:CPM.SYS=A:CPMH.SYS[RETURN]

11. The file CPM.SYS is copied to the fixed hard disk.

12. Next, set the file CPM.SYS to read-only status.

A>STAT B:CPM.SYS $R/O[RETURN]

13. Once the CPM.SYS file is set to read-only, copy the rest of the system disk to the fixed disk:

A>PIP B:A:*.*[v][RETURN]

[v] - allows verification

5.5 Copying The System Disk (CP/M 2.2) (continued)

14. When this is complete compare the two disks, master and new copy using the directory command:

A>DIR A:[RETURN]

Directory A is displayed by the system

A>DIR B:[RETURN]

Directory B is displayed by the system

This completes the copy procedure. Power down the drive and remove your floppy with the operating system from the drive. Store this floppy away in a safe location.

SECTION 6

THE OPERATING SYSTEM

6.1 Introduction

This section describes the operating system software packages under which the SUPER STAR system performs both internal and external functions or operations. When configured as a single-user system, SUPER STAR operates under the control of CP/M, a Digital Research-developed software system. When configured as a multi-user system, the SUPER STAR operates using TurboDOS, a CP/M-like operating system which supports multi-user operations.

These two operating system packages are briefly described in this section. Each SUPER STAR system is delivered with a separate user's document for the system you have selected. In addition, this section covers configuration considerations and initialization procedures, such as, copying of diskettes and transfering data from one drive media to another.

6.2 Configuring the SUPER STAR System

This section describes the standard configuration of the SUPER STAR system under CP/M and TurboDOS. This section also provides you with some helpful setup procedures you may want to use when running TurboDOS. If you are presently running the CP/M operating system on your SUPER STAR system, these setup ideas are not needed. This section also provides some necessary information about configuring the SUPER SLAVE modules for use in the multi-user system.

6.2.1 SUPER STAR CP/M Hardware Configuration

One SUPER QUAD CPU Module (CP/M 2.2 Operating System)
One Hard Disk Controller Module
One Floppy Disk Drive, 5 1/4", 48TPI
One 10Mb Hard Disk Drive, 5Mb removable, 5Mb fixed
Optional - SUPER SIX CPU Module (CP/M 3.0 OPerating System)

The placement of the modules within the SUPER STAR card cage is not bus dependent and therefore, can be places in any slot you wish.

6.2.2 SUPER STAR TurboDOS Hardware Configuration

Standard:

One SUPER QUAD CPU Module
One Hard Disk Controller Module
One Floppy Disk Drive, 5 1/4", 48TPI
One 10Mb Hard Disk Drive, 5Mb removable, 5Mb fixed

Optional:

SUPER SIX CPU Module
Up to four additional SUPER SLAVE Modules

As in the case of the CP/M system, the placement of the modules within the SUPER STAR card cage is not bus dependent and therefore, can be placed in any slot you wish.

Table 6-1 shows the switch settings for the four SUPER SLAVE modules. The S1-1 through S1-8, located on the SUPER SLAVE module, assigns a hardware address to each slave port.

Table 6-1. SUPER SLAVE Switch S1 Address Settings

Slave and Port Number	S1-8	S1-7	S1-6	S1-5	S1-4	S1-3	S1-2	S1-1
Slave #1 Port hex 70	ON	ON	OFF	OFF	OFF	ON	ON	ON
Slave #2 Port hex 72	ON	ON	OFF	OFF	ON	ON	ON	OFF
Slave #3 Port hex 74	ON	ON	OFF	OFF	OFF	ON	OFF	ON
Slave #4 Port hex 76	ON	ON	OFF	OFF	OFF	ON	OFF	OFF

6.2.3 Helpful Hints When Setting Up a TurboDOS Multi-User System

The following is a list of items which should implement prior to using the SUPER STAR system in a multi-user environment (i.e, TurboDOS operating system). All of the items mentioned here are discussed in greater detail in the TurboDOS User's Manual.

USERID.SYS File - This file should be created, using any text editor, and placed in the master console directory, user id, password, for each user on the system. The format of the file is shown in Table 6-2.

Table 6-2. USERID.SYS File Layout

Field	Field Name	Maximum # of Characters	Character Types
1	USER ID	8	Alphanumeric
2	Password	8	Alphanumeric
3	User Number & Privilage Flag	2	Numeric Ø-3Ø, P or blank

Example: USERID,PASSWORD,0,P

SYSLOG.SYS File - This file is used by the system to record the logon of each user, name, time, date and process of each user logon. The system also records the logoff time for each session, thus providing a complete log of the system activites. Like the USERID.SYS file, this file can be created using any text editor and should be copied into the User 31 or master system file.

COLDSTRT.AUT - Rename "LOGON.COM" to this file in User 31 for WARMSTRT.AUT.

6.2.3 Helpful Hints When Setting Up a TurboDOS Multi-User System (cont.)

WARMSTRT.AUT File - This file is simply a file with the LOGON command copied into it. When this file is present in the master system file (User 31), the system automatically executes the LOGON command at system start-up and at the end of each LOGOFF command sequence. Simply copy the LOGOFF command into this file and store it in the USER 31 system file.

A sample dialog for setting up your system with a user id file:

1. Using a text editor create a file called: USERID.SYS

2. Insert records for each user, Examples:

```
JIM,SAMPLE,0,P
SUSAN,MYFILE,10,P
```

3. Copy the USERID,SYS file to User 31 and LOGON.COM to WARMSTRT.AUT in User 31.

```
COPY USERID.SYS,D31
COPY LOGON.COM,WARMSTRT.AUT:D31
```

4. Edit the file called SSLAVENBNK.PAR. Find the lable AUTOUSER and change as shown:

```
AUTOUSER = 80 ------> AUTOUSER = OFF
```

5. Close this file and enter the command:

```
GEN SSLAVEBNK OSSLAVE.SYS
```

6.3 Basic Operating System Structure

This section provides a brief description of the two operating systems which are available to the user of the SUPER STAR computer system.

The Operating System

6.3.1 CP/M

CP/M, Control Program for Microprocessors, is the operating system which you will be using if you have a single-user SUPER STAR system. This operating system has been commersially available since 1975 and become a standard in the microcomputer industry. It has been a wide variety of disk management commands and useful I/O commands for the user. Because CP/M has become so popular there is an extencive library of software, both business and scientific available to you, the user. CP/M 2.2 is the standard operating system available with the SUPER STAR system, CP/M 3.Ø are available as an option for the SUPER STAR system.

6.3.2 TurboDOS

TurboDOS, like CP/M, is a computer operating system. TurboDOS is the system you will be using if you are going to operate the SUPER STAR system in a multi-user environment. This operating system is totally CP/M-compatable, thereby allowing you to load and execute any CP/M programs which you have developed. TurboDOS also provides increased disk storage capacity of 25% to 35% over that of the single user CP/M SUPER STAR system.

6.4 Single User System (CP/M 2.2)

The following sections describe functions and the commands that execute those functions using the CP/M 2.2 operating system. If you are currently using the CP/M 3.Ø operating system skip to Section 6.7 for the TurboDOS operating system.

6.4.1 Copying Hard Disk to Diskettes

This section describes the procedure for copying data from the hard disk to a floppy disk.

To copy the hard disk to a diskette, proceed as follows:

1. Power up the system if it is not already running. The operating system is assumed to be currently loaded on the fixed portion of the hard disk drive.

2. Insert a floppy disk you want to copy data into the floppy disk drive if you have not already done so.

6.4.1 Copying Hard Disk to Diskette (continued)

3. The logon message is displayed and the CP/M command prompt is displayed:

A> - Where A is the fixed disk. The system assigns A to the fixed disk when the system is booted from the fixed disk. The system assigns the floppy disk as drive C and cartridge disk as B.

4. Enter the command, FMT548. This command formats the diskette currently installed in the floppy disk drive. CP/M assigns the floppy disk drive C.

```
A>FMT548[RETURN]
Enter Disk Drive to be cormatted (Ø-3):Ø
Format Single or Double Sided (S,D):D
Format System Tracts only (Y:N):N
Surpress Format Verification (Y;N):N
Insert Diskette Into Drive Ø and Press The Return Key
```

5. The system formats the diskette installed in the floppy disk drive and displayes the following message:

```
Format complete
```

6. Use the PIP command to copy all of the files from your source diskette to the new one:

```
A>PIP C:=A:*.*[v][RETURN]
```

[v] - allows verification

7. In order to assure that the copy was successful, check both directories using the DIR command and compare them:

```
A>DIR A:[RETURN]
A>DIR C:[RETURN]
```

This completes the copy procedure. Remove the copy and store this floppy away in a safe location until it is needed.

6.4.2 Copying Hard Disk to Cartridge (continued)

6. In order to assure that the copy was successful, check both directories using the DIR command and compare them:

```
A>DIR B:[RETURN]
A>DIR A:[RETURN]
```

7. If you want to make the cartridge bootable use LDRGEN to write the track Ø loader:

```
A>LDRGEN TODMA5.LDR[RETURN]

Physical drive no. of loader destination (Ø-3):Ø
Write loader to cartridge or fixed (C or F):C
```

This completes the copy procedure. Remove the copy and store this cartridge away in a safe location until it is needed.

6.4.3 Copying Cartridge to Diskette

This section describes the procedure for copying data from the cartridge to the diskette drive.

To copy the cartridge disk, proceed as follows:

1. Insert the cartridge to be copied into the hard disk drive if you have not already done so.

2. Power up the hard drive by pressing the run button on the hard drive. Wait for the run drive to come up to operating speed.

3. The logon message is displayed and the CP/M command is displayed:

A> - Where A is the fixed disk. The system assigns A to the fixed disk when the system is booted from the fixed disk. The systems assigns the floppy disk as drive C and cartridge disk as B.

6.4.2 Copying Hard Disk to Cartridge

This section describes the procedure for copying data from the hard disk to a cartridge disk.

To copy the hard disk to a cartridge, proceed as follows:

1. Power up the system if it is not already running. The operating system is assumed to be currently loaded on the fixed portion of the hard disk drive.

2. The logon message is displayed and the CP/M command is displayed:

   A> - Where A is the fixed disk. The system assigns A to the fixed disk when the system is booted from the fixed disk. The system assigns the floppy disk as drive C and cartridge disk as B.

3. Enter the command, FMTHD. This command formats the cartridge currently installed in the hard disk drive. CP/M assigns the cartridge disk drive B.

```
A>FMTHD [RETURN]
[MENU DISPLAYED]
Enter drive to format: 20 (selection)
Do you want to format the Cartridge, Fixed or Both [C,F orB]:C
Which physical disk do you want to format (0-3)? 0
This operation will destroy all data on drive 0.
Hit return to continue or Control-C to abort.
```

4. The system formats the cartridge installed in the fixed disk drive and displays the following message;

```
Format complete
```

5. Erase any entries in the directory and use the PIP command to copy all of the files from your fixed disk to the cartridge:

```
A>ERA B:{+[RETURN]
ALL(Y,N) Y[RETURN]
A>PIP B:=A:*.*[v][RETURN]
```

[v] - allows verification

6.4.3 Copying Cartridge to Diskette (continued)

4. Enter the command, FMT548. This command formats the diskette currently installed in the floppy disk drive. CP/M assigns the floppy disk drive C.

```
A>FMT548 [RETURN]
Enter Disk Drive to be formatted (0-3):0
Format Single or Double Sided (S,D):D
Format SYstem Tracts only (Y,N):N
Suppress Format Verification (Y,N):N
Insert Diskette Into Drive 0 and Press The Return Key
```

5. The system formats the diskette installed in the floppy disk drive and displays the following message:

```
Format complete
```

6. Copy the cartridge data to the floppy disk using the PIP command:

```
A>PIP C:=B:*.*[v][RETURN]
```

[v] - allows verification

7. When this is complete compare the two disk, master and new copy using the directory command, all of the files from the cartridge disk should now also be listed in the floppy disk directory:

```
A>DIR B:[RETURN]
A>DIR C:[RETURN]
```

This completes the copy procedure.

6.4.4 Copying Cartridge to Fixed Disk

This section describes the procedure for copying data from the cartridge to fixed portion of the hard disk drive.

To copy the cartridge disk, proceed as follows:

1. Insert the cartridge to be copied into the hard disk drive if you have not already done so.

6.4.4 Copying Cartridge to Fixed Disk (continued)

2. Power up the hard drive by pressing the run button on the hard drive. Wait for the drive to come up to operating speed.

3. Enter the command, FMTHD. This command formats the hard disk drive. CP/M assigns the cartridge disk drive B.

```
A>FMTHD [RETURN]
[MENU DISPLAYED]
Enter drive to format: 2Ø (selection)
Do you want to format the Cartridge, Fixed or Both [C,F orB]?F
Which physical disk do you want to format (Ø-3)?Ø
This operation will destroy all data on drive Ø.
Hit return to continue or Control-C to abort.
```

4. The system formats the fixed disk and displays the following message:

```
Format complete
```

5. Enter the command, ERA A:*.*. This command erases any entry in the current directory. This system asks if you want to erase all files:

```
A>ERA A:*.*[RETURN]
ALL(Y,N) Y
```

6. Copy the cartridge data to the fixed disk using the PIP command:

```
A>PIP A:=B:*.*[v][RETURN]
```

[v] - allows verification

7. When this is complete compare the two disk, master and new copy using the directory command, all of the data files from the cartridge disk should now also be listed in the fixed disk directory:

```
A>DIR A:[RETURN]
A>DIR B:[RETURN]
```

This completes the copy procedure.

6.4.5 Copying Diskettes to Fixed Disk

This section describes the procedure for copying data stored on diskette to the fixed disk portion of the 10Mb hard disk drive. If it is necessary to create a backup system diskette read Section 5.4 of this manual. The CP/M operating system designates the cartridge disk as drive B and the fixed portion of the fixed drive as drive A when the system is booted from the fixed disk.

To copy a diskette to the fixed disk, proceed as follows:

1. Insert a floppy disk containing the data you want to save or copy into the floppy disk drive if you ahve not already done so.

NOTE

> The system must already be running prior to loading the source diskette into the floppy disk drive. If this is not done, the system attempts to read the operating system from the floppy disk which will cause error if it is not a system disk.

2. The CP/M command prompt is displayed:

```
A>
```

3. Copy the floppy disk data to the hard disk, using the PIP command:

```
A>PIP A:=C:*.*[v][RETURN]
```

[v] - allows verification

4. When this is complete compare the two disk, master and new copy using the directory command:

```
A>DIR A:[RETURN]
A>DIR C:[RETURN]
```

This completes the copy procedure. Remove the floppy from the drive. Store this floppy away in a safe location in case it is ever needed.

6.4.6 Copying Diskettes to Cartridge

This section describes the procedure for copying data stored on diskette to the cartridge portion of the 10Mb hard disk drive. If it is necessary to create a backup system diskette read Section 5.4 of this manual. The CP/M operating system designates the cartridge disk as drive B and the fixed portion of the fixed drive as drive A when the system is booted from the fixed disk.

To copy a diskette to the cartridge disk, proceed as follows:

1. Insert a floppy disk containing the data you want to save or copy into the floppy disk drive if you have not already done so.

NOTE

> The system must already be rumming prior to loading the source diskette into the floppy disk drive. If this is not done, the system attempts to read the operating system from the floppy disk which will cause an error if it is not a system disk.

2. The logon message is displayed and the CP/M command prompt is displayed:

A> - Where A is the fixed disk. The system assigns A to the fixed disk when the system is booted from the fixed disk. The system assigns the floppy disk as drive C and cartridge disk as B.

3. Enter the command, FMTHD. This command formats the cartridge currently installed in the hard disk drive. CP/M assigns the cartridge disk drive B.

```
A>FMTHD [RETURN]
[MENU DISPLAYED]
Enter drive to format: 20 (selection)
Do you want to format the Cartridge, Fixed or Both [C,F or B]?C
Which physical disk do you want to format (0-3)?0
This operation will destroy all data on drive 0.
Hit return to continue or Control-C to abort.
```

4. The system formats the cartridge installed in the fixed disk drive and displays the following message:

```
Format complete
```

6.4.6 Copying Diskettes to Cartridge (continued)

5. Copy the floppy disk data to the hard disk, using the PIP command:

A>PIP B:=C:*.*[v][RETURN]

[v] - allows verification

6. When this is complete compare the two disk, master and new copy using the directory command:

A>DIR B:[RETURN]
B>DIR C:[RETURN]

This completes the copy procedure. Remove the floppy from the drive. Store this floppy away in a safe location in case it is ever needed.

6.5 Single User System (CP/M 3.0)

The following sections describe functions and the commands that execute those functions using the CP/M 3.0 operating system. If you are currently using the TurboDOS operating system, then you may skip to Section 6.7 for these same functions and their associated commands using the TurboDOS operating system.

6.5.1 Copying Fixed Disk to Diskette

This section describes the procedure for copying data from the hard disk to a floppy disk.

To copy the fixed disk to a diskette, proceed as follows:

1. Power up the system if it is not already running. The operating system is assumed to be currently loaded on the fixed portion of the hard disk drive.

2. Insert a floppy disk you want to copy data into the floppy disk drive if you have not already done so.

6.5.1 Copying Fixed Disk to Distette (continued)

3. The logon message is displayed and the CP/M command prompt is displayed:

A> - Where A is the fixed disk. The system assigns A to the fixed disk when the system is booted from the fixed disk. The system assigns the floppy disk as drive C and cartridge disk as B.

4. Enter the command, FMT548 C:. This command formats the diskette currently installed in the floppy disk drive. CP/M assigns the floppy disk drive C.

```
A>FMT548 C:[RETURN]
Enter Disk Drive to be formatted (0-3):0
Format Single or Double Sided (S,D):D
Format System Tracks only (Y,N):N
Suppress Format Verification (Y,N):N
Insert Diskette Into Drive 0 and Press The Return Key
```

5. The system formats the diskette installed in the floppy disk drive and displayes the following message:

```
Format complete
```

6. Use the PIP command to copy all of the files from your source diskette to the new one:

```
A>PIP C:A:*.*[v][RETURN]
```

[v] - allows verification

7. In order to assure that the copy was successful, check both directories using the DIR command to compare them:

```
A>DIR A:[RETURN]
A>DIR C:[RETURN]
```

This completes the copy procedure. Remove the copy and store this floppy away in a safe location until it is needed.

6.5.2 Copying Fixed Disk to Cartridge

This section describes the procedure for copying data from the hard disk to a cartridge disk.

To copy the fixed disk to a cartridge, proceed as follows:

1. Power up the system if it is not already running. The operating system is assumed to be currently loaded on the fixed portion of the hard disk drive.

2. The logon message is displayed and the CP/M command is displayed:

   A> - Where A is the fixed disk. The system assigns A to the fixed disk when the system is booted from the fixed disk. The system assigns the floppy disk as drive C and cartridge disk as B.

3. Use the PIP command to copy all of the files from your fixed disk to the cartridge:

   A>PIP B:=A:*.*[v][RETURN]

   [v] - allows verification

4. In order to assure that the copy was successful, check both directories using the DIR command and compare them:

   A>DIR B:[RETURN]
   A>DIR A:[RETURN]

This completes the copy procedure.

6.5.3 Copying Cartridge to Diskette

This section describes the procedure for copying data from the cartridge to the diskette drive.

To copy the cartridge disk, proceed as follows:

1. Insert the cartridge to be copied into the hard drive if you have not already done so.

2. Power up the hard drive by pressing the run button on the hard drive. Wait for the drive to come up to operating speed.

6.5.3 Copying Cartridge to Diskette (continued)

3. The logon message is displayed and the CP/M command prompt is displayed:

A> - Where A is the fixed disk. The system assigns A to the fixed disk when the system is booted from the fixed disk. The system assigns the floppy disk as drive C and cartridge disk as B.

4. Enter the command, FMT548 C:. This command formats the diskette currently installed in the floppy disk drive. CP/M assigns the floppy disk drive C.

```
A>FMT548 C:[RETURN]
Enter Disk Drive to be formatted (0-3):0
Format Single or Double Sided (S,D):D
Format System Tracks only (Y,N):N
Suppress Format Verification (Y,N):N
Insert Diskette Into Drive 0 and Press The Return Key
```

5. The system formats the diskette installed in the floppy disk drive and displays the following message:

```
Format complete
```

6. Copy the cartridge data to the floppy disk using the PIP command:

```
A>PIP C:=B:*.*[v][RETURN]
```

[v] - allows verification

7. When this is complete compare the two disk, master and new copy using the directory command, all of the data files from the cartridge disk should now also be listed in the floppy disk directory:

```
A>DIR A:[RETURN]
A>DIR C:[RETURN]
```

This completes the copy procedure.

6.5.5 Copying Diskette to Fixed Disk

1. Inset a floppy disk containing the data you want to save or copy into the floppy disk drive if you have not already done so.

NOTE

> The system must already be running prior to loading the source diskette into the floppy disk drive. If this is not done, the system attempts to read the operating system from the floppy disk which will cause an error if it is not a system disk.

2. The CP/M command prompt is displayed:

```
A>
```

3. Copy the floppy disk data to the hard disk, using the PIP command:

```
A>PIP A:=C:*.*[v][RETURN]
```

[v] - allows verification

4. When this is complete compare the two disk, master and new copy using the directory command:

```
A>DIR A:[RETURN]
A>DIR C:[RETURN]
```

This completes the copy procedure. Remove the floppy from the drive. Store this floppy away in a safe location in case it is ever needed.

6.5.6 Copying Diskettes to Cartridge

This section describes the procedure for copying data stored on diskette to the cartridge portion of the 10Mb hard disk drive. If it is necessary to create a backup system diskette read Section 5.4 of this manual. The CP/M operating system designates the cartridge disk as drive B and the fixed portion of the fixed disk as drive A when the system is booted from the fixed disk.

To copy a diskette to the cartridge disk, proceed as follows:

6.5.4 Copying Cartridge to Fixed Disk

This section describes the procedure for copying data from the cartridge to the fixed portion of the hard disk.

To copy the cartridge disk, proceed as follows:

1. Insert the cartridge to be copied into the hard disk drive if you have not already done so.

2. Power up the hard disk drive by pressing the run button on the hard drive. Wait for the drive to come up to operating speed.

3. Copy the cartridge data to the fixed disk using the PIP command:

```
A>PIP A:=B:*.*[v][RETURN]
```

[v] - allows verification

4. When this is complete compare the two disk, master and new copy using the directory command, all of the data files from the cartridge disk should now also be listed in the fixed disk directory:

```
A>DIR A:[RETURN]
A>DIR B:[RETURN]
```

This completes the copy procedure.

6.5.5 Copying Diskettes to Fixed Disk

This section describes the procedure for copying data on diskette to the fixed disk portion of the 10Mb hard disk drive. If it is necessary to create a backup system diskette read Section 5.4 of this manual. The CP/M operating system designates the cartridge disk as drive B and the fixed portion of the fixed drive as drive A when the system is booted from the fixed disk.

To copy a diskette to the fixed disk, proceed as follows:

6.5.6 Copying Diskettes to Cartridge (continued)

1. Insert a floppy disk containing the data you want to save or copy into the floppy disk drive if you have not already done so.

NOTE

> The system must already be running prior to loading the source diskette into the floppy disk drive. If this is not done, the system attempts to read the operating system from the floppy disk which will cause an error if it is not a system disk.

2. The logon message is displayed and the CP/M command prompt is displayed:

A> - When A is the fixed disk. The system assigns A to the fixed disk when the system is booted from the fixed disk. The system assigns the floppy disk as drive C and cartridge disk as B.

3. Copy the floppy disk data to the cartridge, using the PIP command:

```
A>PIP B:=C:*.*[v][RETURN]
```

[v] - allows verification

4. When this is complete compare the two disk, master and new copy using the directory command:

```
A>DIR B:[RETURN]
B>DIR C:[RETURN]
```

This completes the copy procedure. Remove the floppy from the drive. Store this floppy in a safe location in case it is ever needed.

6.6 Setting Real Time Clock

This section describes the command to setup the system date and clock using the CP/M operating system.

The command format is as follows:

A>TOD MM/DD/YY HH:MM:SS[RETURN]

Where:

TOD - The CP/M command for date and time

MM - Month 01 through 12

DD - Day 01 through 31

YY - Year 00 through 99

HH - Hours 00 through 23

MM - Minutes 00 through 59

SS - Seconds 00 through 59

6.7 Multi-User System (TurboDOS)

The following sections describe functions and the commands that execute those functions using the TurboDOS operating system.

6.7.1 Copying Fixed Disk to Diskette

This section describes the procedure for copying data from the hard disk to a floppy disk.

To copy the fixed disk to a diskatte, proceed as follows:

1. Power up the system if it is not already running. The operating system is assumed to be currently loaded on the fixed portion of the hard disk drive.

2. Insert a floppy disk you want to copy data into the floppy disk drive if you have not already done so.

6.7.1 Copying Fixed Disk to Diskette (continued)

3. The logon message is displayed and the TurboDOS command prompt is displayed:

OA} - Where A is the fixed disk. The system assigns A to the fixed disk when the system is booted from the fixed disk. The system assigns the floppy disk as drive C and cartridge disk as B.

4. Enter the command, FMTWD5 C:;2DT4. This command formats the diskette currently installed in the floppy disk drive. TurboDOS assigns the floppy disk drive C.

```
OA}FMTWD5 C:;2DT4[RETURN]
Insert disk to be formatted in drive C
Enter <CR> to begin formatting.
```

5. The system formats the diskette installed in the floppy disk drive and displays the following message:

```
Format complete
```

6. Use the COPY command to copy all of the files from your source diskette to the destination:

```
OA}COPY A: C:;N[RETURN]
```

7. Following this command, each file name is listed to the display as it is copied.

This completes the copy procedure. Remove the copy and store this floppy away in a safe location until it is needed.

6.7.2 Copying Fixed Disk to Cartridge

This section describes the procedure for copying data from the hard disk to a cartriddge disk.

To copy the fixed disk to a cartridge, proceed as follows:

1. Power up the system if it is not already running. The operating system is assumed to be currently loaded on the fixed portion of the hard disk drive.

6.7.2 Copying Fixed Disk to Cartridge (continued)

2. The logon message is displayed and the TurboDOS command prompt is displayed:

OA} - Where A is the fixed disk. The system assigns A to the fixed disk when the system is booted from the fixed disk. The system assigns the floppy disk as drive C and cartridge disk as B.

3. Use the COPY command to copy all of the files from your source disk to the destination:

OA}COPY A: B:;N[RETURN]

7. Following this command, each file name is listed to the display as it is copied.

This completes the copy procedure.

6.7.3 Copying Cartridge to Diskette

This section describes the procedure for copying data from the cartridge to the diskette drive.

To copy the cartridge disk, proceed as follows:

1. Insert the cartridge to be copied into the hard disk drive if you have not already done so.

2. Power up the hard drive by pressing the run button on the hard drive. Wait for the drive to come up to operating speed.

3. The logon message is displayed ant the TurboDOS command prompt is displayed:

```
OA}FMTWD5 C:;2DT4[RETURN]
Insert disk to be formatted in drive C
Enter <CR> to begin formatting.
```

5. The system formats the diskette installed in the floppy disk drive and displays the following message:

Format complete

6.7.3 Copying Cartridge to Diskette (continued)

6. Use the COPY command to copy all of the files from your source cartridge to the destination:

```
A>COPY A: C:;N[RETURN]
```

7. Following this command, each file name is listed to the display as it is copied.

This completes the copy procedure.

6.7.4 Copying Cartridge to Fixed Disk

This section describes the procedure for copying data from the cartridge to fixed portion of the hard disk drive.

To copy the cartridge disk, proceed as follows:

1. Insert the cartridge to be copied into the hard disk drive if you have not already done so.

2. Power up the hard drive by pressing the run button on the hard drive. Wait for the drive to come up to operating speed.

3. Use the COPY command to copy all of the files from your source cartridge to the fixed disk:

```
A>COPY B: A:;N[RETURN]
```

4. Following this command, each file name is listed to the display as it is copied.

This completes the copy procedure.

6.7.5 Copying Diskettes to Fixed Disk

This section describes the procedure for copying data stored on diskette to the fixed disk portion of the 10Mb hard disk drive. If it is necessary to create a backup system diskette read Section 5.3 of this manual. The TurboDOS operating system designates the cartridge disk as drive B and the fixed portion of the fixed drive as drive A when the system is booted from the fixed disk.

To copy a diskette to the fixed disk, proceed as follows:

6.7.5 Copying Diskette to Fixed Disk (continued)

1. Insert a floppy disk containing the data you want to save or copy into the floppy disk drive if you have not already done so.

NOTE

> The system must already be running prior to loading the source diskette into the floppy disk drive. If this is not done, the system attempts to read the operating system from the floppy disk which will cause an error if it is not a system disk.

2. The TurboDOS command prompt is displayed:

```
0A}
```

3. Use the COPY command to copy all if the files from your source diskette to the fixed disk:

```
0A}COPY C: A:;N[RETURN]
```

4. Following this command, each file name is listed to the display as it is copied.

This completes the copy procedure. Remove the floppy from the drive. Store this floppy away in a safe location in case it is ever needed.

6.7.6 Copying Diskettes to Cartridge

This section describes the procedure for copying data stored on diskette to the cartridge portion of the 10Mb hard disk drive. If it is necessary to create a backup system diskette read Section 5.3 of this manual. The TurboDOS operating system designates the cartridge disk as drive B and the fixed portion of the fixed drive as drive A when the system is booted from the fixed disk.

To copy a diskette to the cartridge disk, proceed as follows:

1. Insert a floppy disk containing the data you want to save or copy into the floppy disk drive if you have not already done so.

6.7.6 Copying Diskettes to Cartridge (continued)

NOTE

The system must already be running prior to loading the source diskette into the floppy disk drive. If this is not done, the system attempts to read the operating system from the floppy disk which will cause an error if it is not a system disk.

2. The logon message is displayed and the TurboDOS command prompt is displayed:

A} - Where A is the fixed disk. The system assigns A to the fixed disk when the system is booted from the fixed disk. The system assigns the floppy disk as drive C and cartridge disk as B.

3. Use the COPY command to copy all of the files from your source diskette to cartridge disk:

A}COPY C: B:;N[RETURN]

4. Following this command, each file name is listed to the display as it is copied.

This completes the copy procedure. Remove the floppy from the drive. Store this away in a safe location in case it is ever needed.

6.8 Error Message Summary

This section provides a brief list and explanation of the more common error messages which may be displayed when using the two operating systems, CP/M and TurboDOS. A complete list and explanation of error messages is provided in the two operating system user's manuals.

6.8.1 CP/M

The four most common errors that occur in the CP/M operating system are all displayed using the same error message format:

BDOS ERR d:error message

Where:

d - The disk drive number that the error occured on

error message - BAD SECTOR
SELECT
READ ONLY
FILE R/O

BAD SECTOR - occurs when the disk controller cannot read information from a diskette or disk. The disk may be worn or the controller is malfunctioning. If the diskette or disk is missing from the drive, this will cause this error message.

SELECT - occurs when a drive is selected which does not exist.

READ ONLY - occurs when you try to write to a disk or diskette which has been designated as a "read-only" disk.

FILE R/O - occurs when you try to write, update or delete a file which has been specified as a "read-only' $R/O attribute file using the STAT command.

6.8.2 TurboDOS

While there are a many more error messages which are displayed in the TurboDOS system, the following are some of the frequently encountered:

File Not Found - occurs when a file named in a command cannot be found on disk

Command Not Found - occurs when an invalid command is input

Read Error, Drive x, Track x, Selector x - occurs during a read operation

6.8.2 TurboDOS (continued)

Write Error, Drive x, Track x, Selector x - occurs during a write operation

Invalid user id - occurs when a user id is input which is not in the system user file

Incorrect password - occurs when a password is not found in the system user file

Invalid date - occurs if an incorrect date is entered i.e., 34 JAN 84

SECTION 7

LIST OF RECOMMENDED PERIPHERALS AND SOFTWARE

7.1 Reaommended Peripherals

CRT: QUME, TELEVIDEO, HAZELTINE, LIBERTY
PRINTERS: QUME, NEC, OKI-DATA,C-ITOH, DIABLO

7.2 Recommended Software

1. DBASEII,MARKETFAX,WORD SATR, ACCOUNTING PLUS, MEDICAL MGR, SANTIAGO DATA DENTAL MANAGER, MICRO SOFT M8Ø,L8Ø, INFORMA.

SECTION 8

PROBLEM ISOLATION

8.1 Introduction

In the unlikely event an apparent malfunction should occur with the SUPER STAR, it will be necessary to isolate the problem to a specitic piece ot hardware or sottware. Otten, determining whether a problem is hardware or sottware-oriented is an easy task. In tact, once a sottware package is established and has been working in a system, it can't "tail". It can be accidently erased, or moditied, but the chances that a tailure in the sottware has suddenly occured is too remote to even consider as a possible symptom.

8.2 The First Step

When isolating a problem with the SUPER STAR, your tirst task should be to absolutely remove any possibility ot a "pilot error", (i.e., you did not accidently erase a tile or modity some sottware, etc.). To prove that this did not happen, reset or "shut-down" the system and execute a new boot ot the operating system (CP/M 2.2, 3.Ø or TurboDOS). Reutrn to where you were when the problem occured, while caretully checking each step to make sure you have not introduced an error. Chances are, you will discover that there really isn't a system problem. However, there may be a situation where there really has been a tailure in the system; in which case you will have to isolate the problem so that the SUPER STAR can be put back into an operating condition as soon as possible.

8.3 Aids To Troubleshooting

To aid in isolating a problem with the SUPER STAR, several sources ot information are provided in this manual.

1. This section ot the manual which presents certain procedures that can help in isolating a problem with hardware.

2. Appendix E which provides information on internal cables, pin assignments tor connectors, as well as information on the power supply.

3. Appendix F which provides a parts list ot the major components ot the various sub-assemblies whithin the SUPER STAR.

8.3 Aids To Troubleshooting (continued)

4. Appendix G which provides schematic and/or logic diagrams of the major components and sub-assemblies whithin the SUPER STAR.

8.4 Look At The Symptoms

The symptom can tell a great deal about where the problem may be found in the system. As an example, if one particular 5 1/4-inch diskette cannot be read by the SUPER STAR system even though other 5 1/4-inch diskettes can, it is very likely that the disk drive has failed. Obviously, you say, well maybe but it's this sort of logical thinking that will help find the problem. Table 8-1 lists symptoms and suggests possible problems and corrective actions.

Table 8-1. Problem Symptoms And Solutions

Symptoms	Possible Cause	Corrective Action
A. Total system will not run, indicator lights are lit.	1. System unplugged from AC outlet	1. Don't laugh. This can happen. Ask any technician.
	2. Main fuse blown	2. Unplug SUPER STAR from AC outlet. Refer to Section 4 for procedures to remove the fuse. If fuse is blown, replace it, power up the SUPER STAR again. If the same symptom occurs (the fuse has blown again) do not go any further. Contact the SUPER STAR service representative.

8.4 Look At The Symptoms (continued)

Table 8-1. Problem Symtpoms And Solutions (continued)

Symptom	Possible Cause	Corrective Action
B. SUPER STAR will not boot CP/M 2.2 trom tloppy disk atter second attempt.	1. Diskette loaded into drive wrong.	1. Reter to Appendix A it you have any doubt about how to handle tloppy diskettes.
	2. Diskette has been damaged by mishandling.	2. Reter to Appendix A so as not to repeat whatever may have caused damage to the diskette. Then, locate the master CP/M 2.2 tloppy diskette shipped with the SUPER STAR and reboot (You were supposed to make a copy see Section 5). It this diskette won't boot either, look at Possible Cause 3.
	3. Diskette drive has tsiled.	3. Contact nearest SUPER STAR service center or distributor.
C. SUPER STAR won't boot CP/M 3.Ø trom the cartridge.	1. You did not tollow procedures tor booting CP/M 3.Ø	1. Read Section 5, Paragraph 5.1 entitled, Installation Procedure. The SUPER STAR must be operator "torced" to boo CP/M 3.Ø trom the cartridge.
	2. Cartridge has been loaded into hard disk drive improperly.	2. Read Section 5 tor cartridge installation procedures.

8.4 Look At The Symptoms (continued)

Table 8-1. Problem Symptoms And Solutions (continued)

D. When trying to copy a floppy diskette to the hard disk drive fixed disk error message is displayed.	1. The hard disk drive fixed disk was never formatted.	1. Read Section 5, Copying The System Disk (TurboDOS CP/M 2.2 or CP/M 3.Ø)
	2. You are not using the proper "copy" command for the media you are trying to copy.	2. Refer to the Operating System Reference Manual for the media you are using. Look at "copy" command.
	3. The directory was never initialized.	3. Type "ERA A:" (CP/M) Type "ERASEDIR A:" (TurboDOS)
E. Serial printer won't accept data and give a printout.	1. The interface cable is plugged into the wrong serial interface connector on the back panel.	1. Refer to Figure 2-3 for location of interface connectors. Check your system configuration against the interface cable requirements. As an example, is the serial printer being driven by the SUPER QUAD, SIX or SLAVE board?
	2. Your serial printer interface cable may not provide all signals required by the printer.	2. Read Section 3 of this manual and the installation section of the manufacture's manual.
F. CRT will not display any data. The screen is blank but the SUPER STAR system is running.	1. A fuse has blown on the display terminal.	1. Check the display terminal's manufacturer's manual for location and size of the fuse.

8.4 Look At The Symptoms (continued)

Table 8-1. Problem Symptoms And Solutions (continued)

	2. The CRT interface cable has been plugged into the wrong connector on the back panel.	2. Look at Figure 2-3 for location of the terminal connector.
	3. The SUPER QUAD or SIX circuit board has a problem.	3. Contact the SUPER STAR distributor or factory representative for servic instructions. If you have a second SUPER STAR system you can try replacing SUPER QUAD (or SUPER SIX) circuit boards.

SECTION 9

HOST TO SUPER STAR COMMUNICATION

To be supplied at a later date.

SECTION 10

CP/M AND TURBODOS SOFTWARE DIRECTORIES

10.1 Introduction

This section is simply a list of the different operating system directories. These lists match the directory that you would see if you listed the directory from the system disk.

10.2 CP/M 2.2 Directory

A>

10.3 CP/M 3.0 Directory

0A>

10.4 TurboDOS Directory

0A)

CP/M 2.2 BOOTABLE DISK

ASM	.COM	8K	CPM	.SYS	11K	DDT	.COM	5K	DEBLOCK	.ASM	12K
DISKDEF	.LIB	7K	DUMP	.ASM	5K	DUMP	.COM	1K	ED	.COM	7K
FMT8	.COM	3K	LDRGEN	.COM	2K	LOAD	.COM	2K	MOVCPM	.COM	10K
PIP	.COM	8K	STAT	.COM	6K	SUBMIT	.COM	2K	SYSGEN	.COM	1K
TRK0	.LDR	3K	XSUB	.COM	1K						

DRIVE D, USER 0 CONTAINS 92K IN 18 FILES WITH 149K FREE

CP/M 2.2 SOURCE DISK

CPMZ	.SYS	11K	FMT548	.COM	3K	FMT596	.COM	3K	FMT8	.COM	3K
FMTHD	.COM	3K	FMTHD	.MAC	23K	FORMAT	.MAC	17K	LDRBDOS	.MAC	13K
LDRDBIOS	.MAC	16K	LDRGEN	.COM	2K	LDRGEN	.MAC	13K	LODRBIOS	.MAC	33K
SBCBOOT	.MAC	3K	SBCDBOOT	.MAC	3K	SBCHBOOT	.MAC	3K	SUPRBIOS	.LIB	18K
SUPRBIOS	.MAC	56K	TRK0	.LDR	3K	TRK048	.LDR	4K	TRK096	.LDR	3K

DRIVE D, USER 0 CONTAINS 235K IN 20 FILES WITH 6K FREE

CP/M 3.0 Bootable disk

#1

```
BDOS3    .SPR  10K : B.BS3    .SPR   5K : BNKBDOS3.SPR  14K : BNKB.BS3.SPR   6K
DDP      .CDM   4K : CPM3     .SYS  13K : CPM3BNK .SYS  19K : FMT8     .CDM   3K
LDRBEN   .COM   2K : LIB      .COM   7K : LINK    .COM  15K : MAC     .COM  12K
OSLOAD   .SYS   8K : PIP      .COM   9K : RESBDOS3.SPR   2K : RMAC    .COM  14K
SID      .COM   8K : TRK30    .LDR   3K
```

DRIVE D. USER 0 CONTAINS 155K IN 18 FILES WITH 86K FREE

#2

```
COPYSYS  .COM   2K : CPMLDR   .REL   3K : DATE    .COM   3K : DEVICE  .COM   8K
DIR      .COM  15K : DIRBL    .RSX   2K : DUMP    .COM   1K : ED      .COM  10K
ERASE    .COM   4K : GENCOM   .COM  15K : GENCPM   .COM  21K : GET     .COM   7K
INITDIR  .COM  32K : PATCH    .COM   3K : PUT     .COM   7K : RENAME  .COM   3K
SAVE     .COM   2K : SET      .COM  11K
```

DRIVE D. USER 0 CONTAINS 149K IN 18 FILES WITH 92K FREE

#3

```
BIOSKRNL.ASM  16K : BOOT     .ASM   3K : CALLVERS.ASM   1K : CHARIO   .ASM   5K
CPM3     .LIB   4K : DRVTBL   .ASM   1K : DUMP    .ASM   4K : ECHOVERS.ASM   1K
FD1797SD.ASM  11K : HELP     .COM   7K : HELP    .HLP  61K : HEXCOM  .COM   2K
 IST     .LTL   2K : MODEBAUD.LIB   1K : MOVE    .ASM   1K : PORTS   .LIB   2K
RANDOM   .ASM  11K : SCB      .MAC   3K : SETDEF  .COM   4K : SHOW    .COM   9K
SUBMIT   .COM   6K : TRACE    .LTL   2K : TYPE    .COM   3K : XREF    .COM  16K
Z80      .LIB   6K
```

DRIVE D. USER 0 CONTAINS 182K IN 25 FILES WITH 59K FREE

#4

```
C3       .LIB  20K : C3BBOOT  .MAC   3K : C3BKRNL .MAC  17K : C3EMOV   .MAC   4K
C3BOOT   .MAC   2K : C3CHR    .MAC   8K : C3CLK   .MAC   2K : C3DPBL  .MAC   2K
C3FDSK   .MAC  18K : C3HDSK   .MAC   5K : C3INIT  .MAC   9K : C3KRNL  .MAC  17K
C3LCHR   .MAC   2K : C3LKRNL  .MAC   9K : C3MOV   .MAC   1K : FMTHD   .MAC  23K
FORMAT   .MAC  17K : LDRBDOS  .MAC  12K : LDRBIOS .MAC  35K : LDRGEN  .MAC  14K
SBCBOOT  .MAC   3K : SBCDBOOT.MAC   3K : SBCHBOOT.MAC   2K
```

DRIVE D. USER 0 CONTAINS 228K IN 23 FILES WITH 13K FREE

#5

```
C3BGEN   .DAT   3K : C3BGEN   .SUB   1K : C3BLINK .SUB   1K : C3GEN   .DAT   3K
C3GEN    .SUB   1K : C3LINK   .SUB   1K : C3LLINK .SUB   1K : C3MAC   .SUB   1K
C3SYS    .SUB   1K : CPM30    .DOC  34K : FMT548  .COM   3K : FMT5SS  .COM   3K
FMT8     .COM   3K : FMTHD    .COM   3K : LDRGEN  .COM   2K : OSLOAD48.SYS   8K
OSLOAD8  .SYS   8K : OSLOAD96.SYS   8K : SUPRBIOS.LIB  10K : TRK30    .LDR   3K
TRK3048  .LDR   2K : TRK3096  .LDR   2K
```

DRIVE D. USER 0 CONTAINS 111K IN 22 FILES WITH 130K FREE

APPENDIX A

CARE AND HANDLING OF DISKETTES AND CARTRIDGE DISK

A.1 Floppy Diskettes

Diskettes must be handled with care. It is very easy to distroy data stored on a diskette or damage the diskette itselt it you are not caretul. Some things to remember when handling diskettes are:

1. Never try to remove the plastic disk trom the sealed cardboard envelope. The disk is surroundsed by a special lubricant and cleaning solution within the cardboard envelope.

2. Do not set the diskettes near (closer than 3Ø cm) to a strong magnetic tield such as can be tound near motors, some television sets, telephones and various devices which have ringing ciruits.

3. Never let your tingers come in contact with the surtace ot the disk itselt such as at the acces slot or the index hole in the cardboard envelope. Oils trom your tinger can distroy the surtace ot the magnetic recording material on the disk.

4. Never write on the indentitication lable on the diskette. Write the lable and then attix it to the cardboard envelope. It you must write on the lable while it is attixed to the cardboard envelope, do so only with a sott telttip pen.

5. Always replace the diskette cardboard envelope in the proper jackette provided, when the diskette is not in use. When storing

diskettes, keep them in a dry reasonably cool, dust-tree environment.

6. Never bend, crease, or otherwise stress the diskette cardboard envelope.

7. Never remove the Write Protect Tab (see Figure A-1) trom a diskette that already has data stored on it unless you intend to write new data onto that diskette.

Figure A-1. Floppy Diskettes.

A.2 Cartridge Disks

Cartridge disks must be handled with care. It is not as easy to distroy data stored on a cartridge disk as it is a diskette, but it is possible it you are not caretul. Some things to remember when handling cartridges are:

1. Never try to remove the disk trom the sealed plastic cartridge. The disk is surrounded by a special plastic lubricant and cleaning solution within the plastic cartridge.

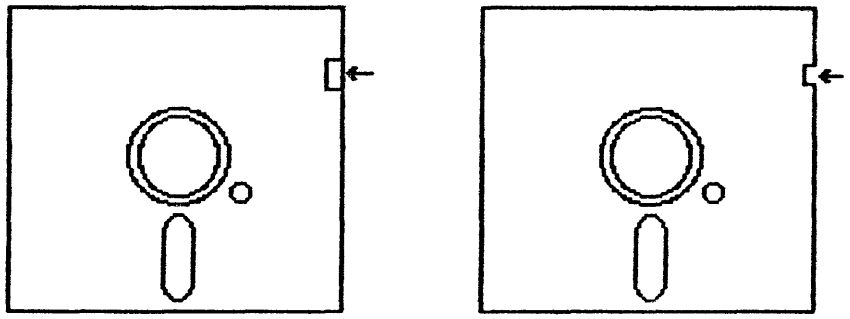
2. Do not set the cartridge near (closer than 3Ø cm) to a strong magnetic tield such as can be tound near motors, some television sets, telephones and various devices which have ringing circuits.

3. Always replace the cartridge in the proper jacket provided, when the cartridge is not in use. When storing cartridges, keep them in a dry, reasonably cool, dust-tree environment.

4. Never damage or otherwise stress the plastic cartridge.

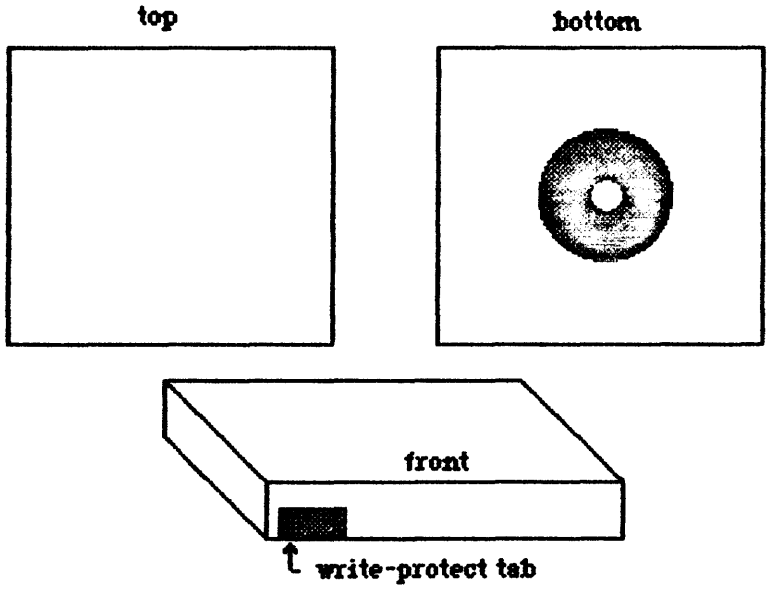
5. Never remove the Write Protect Tab (see Figure A-2) trom the cartridge that already has data stored on it unles you intend to write new data onto that cartridge.

Figure A-2. Cartridge Disks.



write-protected

write-protect tab removed



APPENDIX B

ASCII CHARACTER SET

CODE	CHAR	CODE	CHAT	CODE	CHAR	CODE	CHAR
ØØ	NUL	2Ø	SP	4Ø	@	6Ø	`
Ø1	SOH	21	!	41	A	61	a
Ø2	STX	22	"	42	B	62	b
Ø3	ETX	23	#	43	C	63	c
Ø4	EOT	24	$	44	D	64	d
Ø5	ENQ	25	%	45	E	65	e
Ø6	ACK	26	&	46	F	66	f
Ø7	BEL	27	'	47	G	67	g
Ø8	BS	28	(	48	H	68	h
Ø9	TAB	29	)	49	I	69	i
ØA	LF	2A	*	4A	J	6A	j
ØB	VT	2B	+	4B	K	6B	k
ØC	FF	2C	,	4C	L	6C	l
ØD	CR	2D	-	4D	M	6D	m
ØE	SO	2E	.	4E	N	6E	n
ØF	S1	2F	/	4F	O	6F	o
1Ø	DLE	3Ø	Ø	5Ø	P	7Ø	p
11	DC1	31	1	51	Q	71	q
12	DC2	32	2	52	R	72	r
13	DC3	33	3	53	S	73	s
14	DC4	34	4	54	T	74	t
15	NAK	35	5	55	U	75	u
16	SYN	36	6	56	V	76	v
17	ETB	37	7	57	W	77	w
18	CAN	38	8	58	X	78	x
19	EMB	39	9	59	Y	79	y
1A	SUB	3A	:	5A	Z	7A	z
1B	ESC	3B	;	5B	[	7B	{
EC	FS	3C	<	5C	\	7C	|
1D	GS	3D	=	5D	]	7D	}
1E	RS	3E	>	5E	^	7E	~
1F	US	3F	?	5F	_	7F	DEL

APPENDIX C

WARRANTY

All products which are manufactured by Advanced Digital carry a full one year warranty on all parts and labor. Products used in the SUPER STAR system which are not manufactures by Advanced Digital are subject to the original manufacturer's warranty. Contact Advanced Digital for a complete explanation of the warranty specifications.

Products used in the SUPER STAR system are menufactured by Advanced Digital are:

SUPER SIX CPU Module
SUPER QUAD CPU Module
SUPER SLAVE Module
HDC-1001/5 Controller Module
HDC-1001/8 Controller Module
PS/NET I Interface
PS/NET PAR Interface
System power supply
System Chassis

Products used in the SUPER STAR system which are not manufactured by Advanced Digital are:

5 1/4" Mini Floppy Disk Drive
DMA Micro-Magnum 5/5 Hard Disk
DMA Micro-Magnum 5Mb Removable Hard Disk

APPENDIX D

SYSTEM CONFIGURATION

This table of items should be filled out when you receive your SUPER STAR system. It should be used to store the various serial numbers of your system. These serial numbers should be recorded so that the information is available if a part must be returned for repair or replacement.

Configuration List

Item	Serial Number
SUPER S1X CPU Module	
SUPER SLAVE(s) (optional)	
HDC-1001/5 Controller Module	
CP/M 2.2 Operating System	
CP/M 3.0 Operating System	
TurboDOS 3.1 Operating System	

APPENDIX E

INTERNAL RIBBON AND POWER CABLE CONNECTIONS

E.1 Introduction

This appendix provides information that will be helpful in the event it becomes necessary to troubleshoot a problem in the SUPER STAR. Figures in this appendix show the routing of cables between the circuit boards plugged into the motherboard and with components of the system. Tables identify the pin assignments for the connectors associated with these ribbon cables. Also included in this appendix is information on the power supply, (which is an integral part of the SUPER STAR), such as voltage supplied, power connector pin assignments, routing of these connectors, and fuse ratings and locations.

E.2 Internal Ribbon Cables

Figure E-1 shows the ribbon connectors that interconnect the SUPER QUAD (or optional SUPER SIX) CPU board (hard disk drive controller) to the hard disk drive, floppy disk drive, I/O connectors and the terminal connector. This figure also shows the power cables from the power supply to the motherboard (J1), to the 5 1/4-inch floppy disk drive (J2) and to the DMA hard disk drive (J3).

Figure E-1. Internal Ribbon Cables.

E.3 Internal Cable Connector Pin Assignments

Table E-1 identifies the pin assignments for all connectors associated with the motherboard. These pin assignments conform to the S-100 bus specifications.

Table E-1. S-100 Bus Motherboard Pin Assignments

Pin Number	Function

Table E-2 identifies the pin assignments for those ribbon cable connectors associated with the SUPER QUAD (or SUPER SIX) CPU board. The table is divided into three sections, the 5 1/4-inch floppy disk controller connector, the I/O connector, and the terminal connector.

Table E-2. CPU Board Ribbon Cable Connector Pin Assignments

5 1/4-inch Floppy Disk Drive Connector

Pin Number	Function
1	GND
2	Head load
4	INDEX
6	READY
8	ABOVE TRK 43
10	DRS 0
12	DRS 1
14	DRS 2
16	DRS 3
18	DIRECTION
20	STEP
22	WRITE DAta
24	WRITE GATE
26	TRK 0
28	WRT PROTECT
30	READ DATA
32	MOTOR ON
34	N/C

Table E-2. CPU Board Ribbon Cable Connector Pin Assignments (cont.)

Parallel I/O Port Connector*

Pin Number	Function

* REFER TO SUPER QUAD MANUAL SECTION 8.2

Serial I/O Port - Terminal Connector

Pin Number	Function
1	N/C
2	DCDA
3	SYNCA
4	RxDA
5	CTSA
6	TxDA
7	RTSA
8	DTRA
9	Tx/RxCA
1Ø	GND
11	N/C
12	+16 V
13	-16 V
14	+5 V

E.3 Internal Cable Connector Pin Assignments

Table E-3 identifies the ribbon cable connector pin assignments for the DMA hard disk drive board.

Table E-3. DMA Board Ribbon Cable Connector Pin Assignments

Pin Number	Function
2	Reserved (Open)
4	Reserved (Head 2^2) (Open)
6	Write Gate
8	Seek Complete
10	Track ØØØ
12	Fault
14	Head Select 2^0
16	Sector
18	Head Select 2^1
20	Index
22	Ready
24	Step
26	Drive Select 1
28	Drive Select 2
30	Drive Select 3
32	Drive Select 4
34	Direction In

Internal Ribbon and Power Cable Connections

Table E-4 identifies the pin assignments for the three power supply cable connectors associated with the SUPER STAR. One cable connector (J1) connects power to the motherboard. A second cable connector (J2) provides power to the 5 1/4-inch floppy disk drive assembly. The third cable connector (J3) provides power to the DMA hard disk drive assembly.

Table E-4. Power Supply Cable Connector's Pin Assignments.

J1 - Motherboard Connector

Pin Number	Function
1	Return (GND)
2	Return (GND)
3	+ 8 Vdc
4	+ 8 Vdc
5	- 16 Vdc
6	+ 16 Vdc

J2 - 5 1/4-inch Floppy Disk Drive Connector

Pin Number	Function
1	+ 12 Vdc
2	Return (GND)
3	Return (GND)
4	+ 5 Vdc

J3 - DMA Hard Disk Drive Connector

Pin Number	Function
1	+ 5 Vdc
2	Return (GND)
3	Blank (not used)
4	+ 12 Vdc
5	Return (GND)
6	- 12 Vdc

E.4 Power Supply

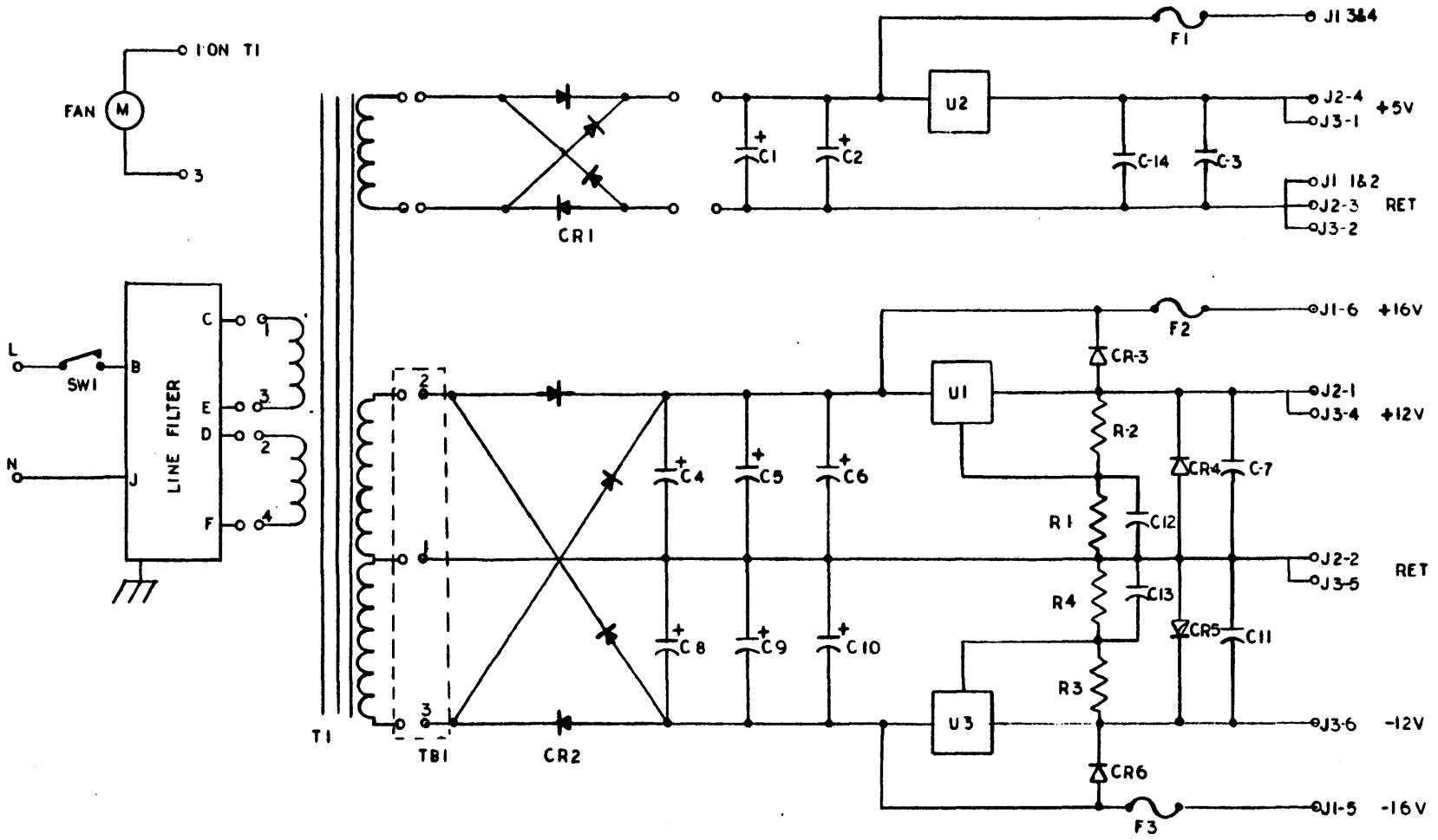
The power supply is a self-contained assembly that provides DC voltage for the SUPER STAR system. The power supply provides + 8 Vdc and both + 16 Vdc and - 16 Vdc to the SUPER STAR motherboard which in turn supplied power to all of the printed circuit boards plugged into the motherboard. The power supply also provides + 12 Vdc and + 5 Vdc to the floppy disk drive assembly and + 5 Vdc and both + and - 12 Vdc to the hard disk drive.

The three DC voltages supplied to the motherboard are fused inside the power supply as follows: + 8 Vdc has a 20 amp fuse, + 16 Vdc has a 2 amp fuse and - 16 Vdc has a 2 amp fuse.

The floppy disk drive and hard disk drive DC voltages, supplied by the power supply are not fused because the DC power input line to these assemblies have their own fuses.

Figure E-2 is a schematic diagram of the SUPER STAR power supply. The rating for fuses and output voltages are identified in the schematic. Values for resistors, capacitors and other components of the power supply can be found in Appendix F of this manual.

Figure E-2. SUPER STAR Power Supply Schematic Diagram.



J1 - MOTHER BD. CONNECTOR
J2 - 5¼ FLOPPY CONNECTOR
J3 - DMA CONNECTOR

NOTES

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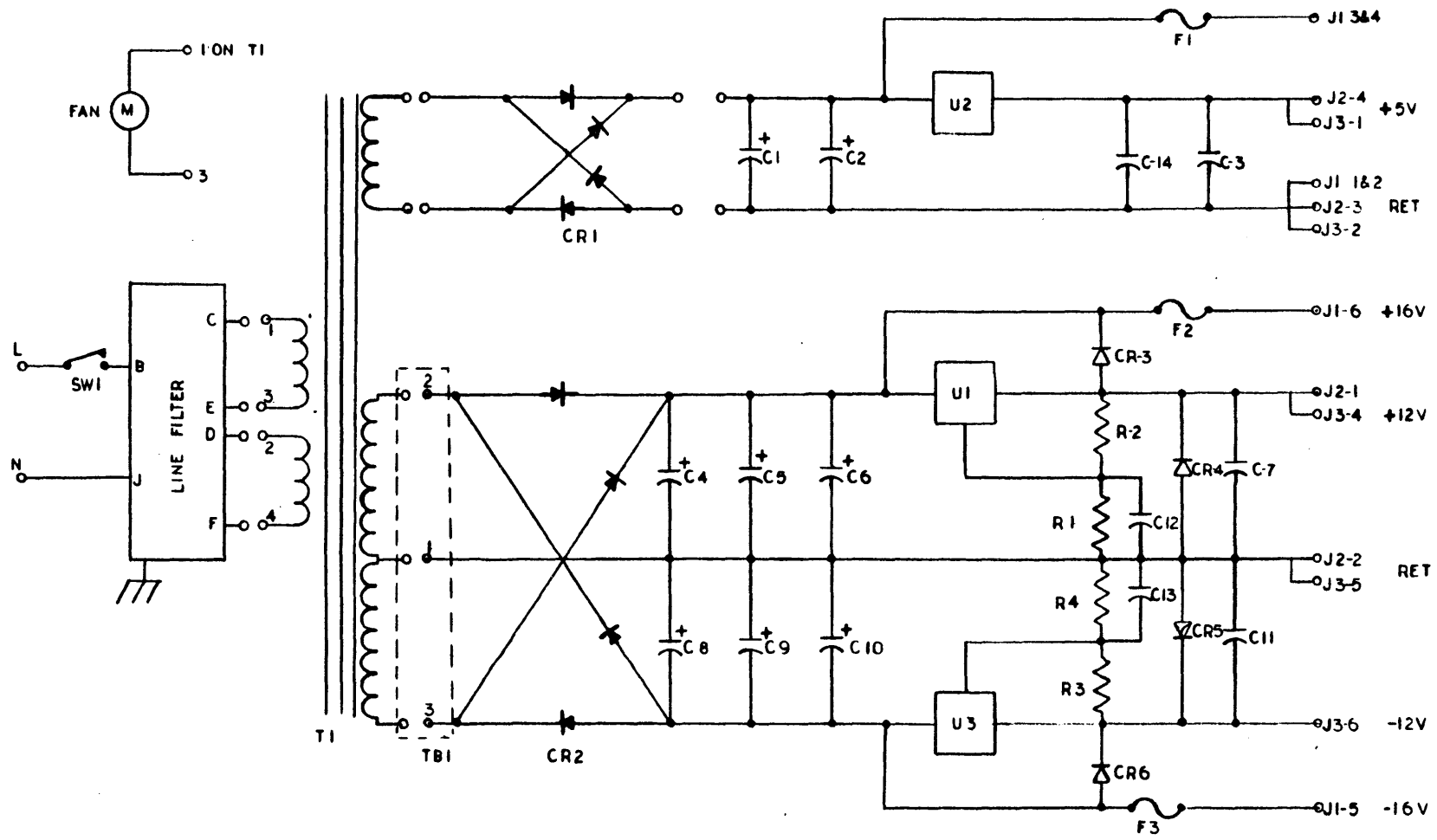
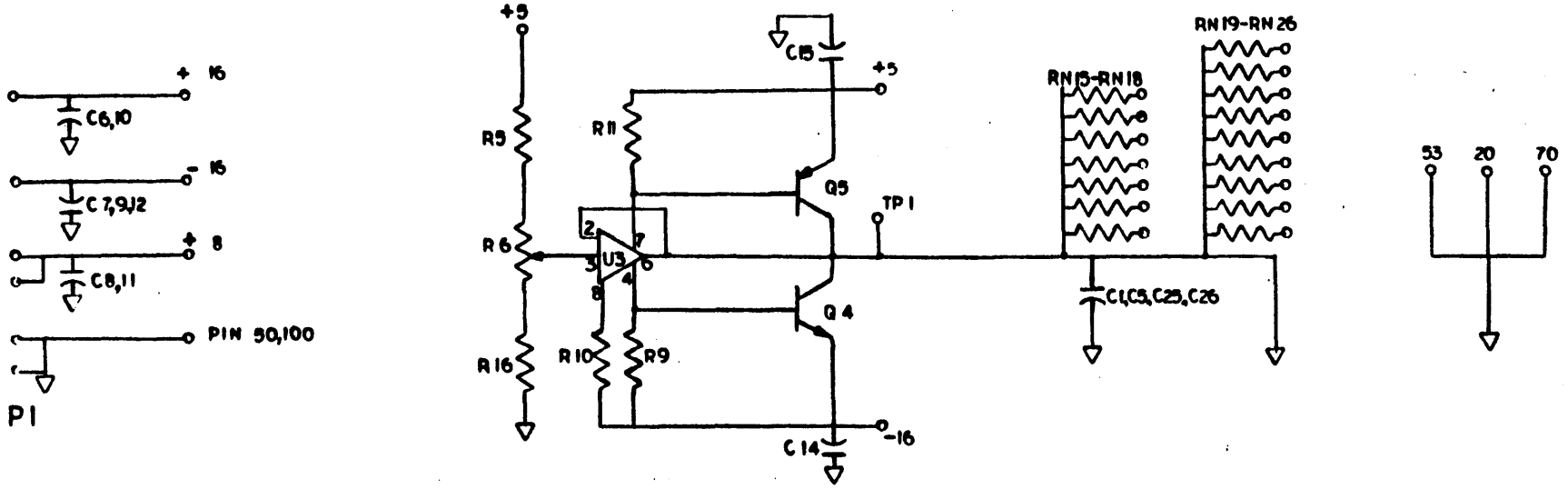
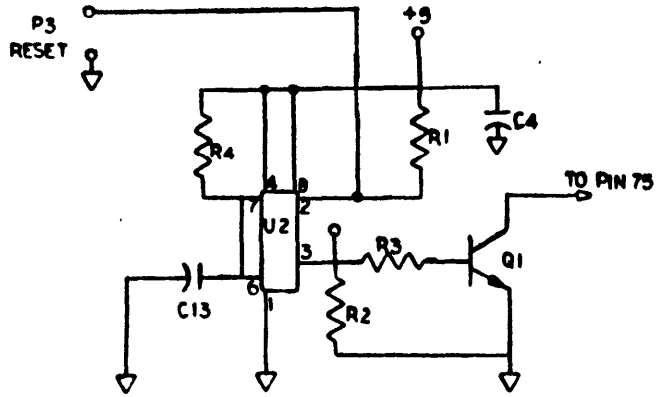


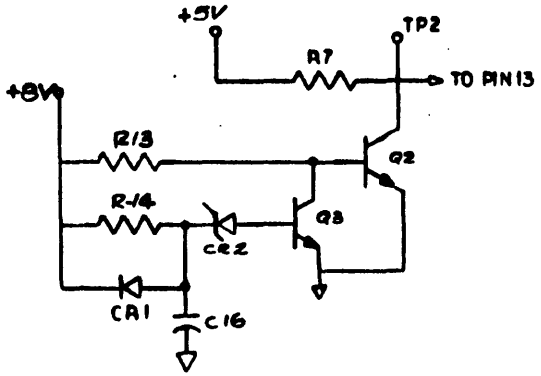
J1 - MOTHER BD. CONNECTOR
J2 - 5¼ FLOPPY CONNECTOR
J3 - DMA CONNECTOR

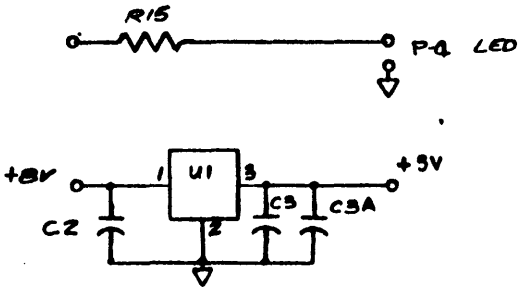
NOTES

ADVANCED DIGITAL CORPORATION









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APPENDIX F

SUPER STAR PARTS LIST

MODEL NO. 10055 PARTS LIST NO. 600015 PAGE 1 OF 2

TITLE POWER SUPPLY

S.O. NO. _____ QTY _____

ITEM	QTY	MESA POWER PART NO.	DESCRIPTION	U.S.	REF DES	PRICE	EXTENDED	REQD	PULLED	SHORT	FILLED	DATE
1	1	100022	P.C. BOARD									
2	3	1-07101512	CAP 1MF/50V		C5, C8 C16							
3	3	1-10106502	CAP .001/1KV		C6, C9, C11							
4	1	1-05471502	CAP 470/35V		C-7							
5	1	1-04221506	CAP 2200/35		C12							
6	3	2-10050914	DIODE IN914		CR, 5, 7, 10							
7	1	2-40024742	ZENER IN4742		CR6							
8	1	2-10014002	DIODE IN4002		CR9							
9	3	4-47003021	RES. 47Ω		R1, 16, 31							
10	3	4-18013021	RES 180Ω		R7, 20, 36							
11	3	4-30003021	RES 30Ω		R8, 21, 37							
12	3	4-01023021	RES 100Ω		R10, 25, 41							
13	3	4-68013021	RES 680Ω		R6, 19, 35							
14	7	4-10023021	RES 1KΩ		R5, 12, 13,							
					27, 28, 43, 44							
15	1	4-30023021	RES 3KΩ		R4							
16	4	4-36023021	RES 3.6KΩ		R22, 23, 38, 39							
17	2	4-43023021	RES 4.3KΩ		R24, 40							
18	1	4-51023021	RES 5.1KΩ		R14							
19	2	4-12033021	RES 12KΩ		R29, 45							
20	2	4-51013051	RES 510Ω		R15, 30							

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TOTAL

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MODEL NO. 10055 PARTS LIST NO. 600015 PAGE 2 OF 2

TITLE Power Supply

S.O. NO. _____ QTY _____

ITEM	QTY	MESA POWER PART NO.	DESCRIPTION	U.S.	REF DES	PRICE	EXTENDED	REQD	PULLED	SHORT	FILLED	DATE
21	1	4-15013202	RES 150Ω		R3,							
22	2	4-00223503	RES .1Ω		R17, 32							
23	1	4-00153503	RES .15Ω		R2							
24	2	4-10024107	POT 1KΩ		R26, 42							
25	1	4-50024107	POT 5KΩ		R11							
26	3	3-40030723	I.C. LM723		U1, 2, 3							
27	3	3-10013055	TRANSISTOR 2N3055		Q1, 3, 5							
28	3	3-10020029	TRANSISTOR TIP-29		Q2, 4, 6							
29	1	5-02000300	CONNECTOR		TB1							
30	1	5-01201900	CONNECTOR		J2							
31	2	1-04100507	1000/16V		C13, 14							

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TOTAL

RELEASED BY DATE

MODEL NO. 10055 PARTS LIST NO. 600015 PAGE 1 OF 2

TITLE CABINET AND ACCESSORIES

S.O. NO. _____ QTY _____

ITEM	QTY	MESA POWER PART NO.	DESCRIPTION	U.S.	REF DES	PRICE	EXTENDED	REQD	PULLED	SHORT	FILLED	DATE
1	1	9-02001604	CHASSIS									
2	1	9-01001604	COVER									
3	1	9-03001604	CAGE									
4	1	9-05001604	BRACKET (LOWER)									
5	1	9-05002604	BRACKET (UPPER)									
6	1	9-05003604	BRACKET (POWER S)									
7	1	9-09001409	MOLDED FRONT									
8	2	7-12400169	BRACKET (CAPS)									
9	1	7-12400369	BRACKET (CAPS)									
10	1											
11	4	7-13500359	FEET									
12	1	5-01000200	FAN									
13	1	5-00900200	FILTER/RECEP									
14	1	5-00100200	SWITCH POWER		S1							
15	1	5-00100600	SWITCH RESET		S2							
16	1	5-00500300	FUSE BLOCK									
17	1	6-00100800	TRANSFORMER		T1							
18	1	5-01201700	CONNECTOR (M)		P1							
19	1	5-01201000	CONNECTOR (F)		J1							
20	1	100024	MOTHER BOARD									
21	12	7-12800149	CARD GUIDE									

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TOTAL

RELEASED BY DATE

MODEL NO. 100055 PARTS LIST NO. 600015 PAGE 2 OF 2

TITLE CABINET AND ACCESSORIES

S.O. NO. _____ QTY _____

ITEM	QTY	MESA POWER PART NO.	DESCRIPTION	U.S.	REF DES	PRICE	EXTENDED	REQD	PULLED	SHORT	FILLED	DATE
22	1	2-60073500	BRIDGE		CR1							
23	1	2-60050647	BRIDGE		CR2,							
24	1	1-04801529	CAPACITOR		C2							
25	1	1-04451528	CAPACITOR		C3							
26	1	1-03340501	CAPACITOR		C1							
27	1	5-00700900	FUSE 8V 20A		F2							
28	1	5-00701200	FUSE ±16V 2A		F3, F4							
29	1	5-00701100	FUSE LINE 5A		F1							
30	1	5-01201800	CONNECTOR DMA									
31	1	5-01201000	CONNECTOR 5/4									
32												

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TOTAL

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APPENDIX G

SYSTEM SCHEMATICS

This appendix contains the following schematics:

Module Name	Drawing No.
SUPER QUAD CPU Module	
SUPER SIX CPU Module (Optional)	
SUPER SLAVE Module	
HDC-1001/5 Controller Module	

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED

U43 8T97 — (4-C6) RD, (2-C6) WR, (2-D8) IOREQ, (2-D6) MREQ, (2-B7) MI

U50 Z80 — Z80 Φ (2-D8)(3-C8), NMI (2-B7), INT (3-C6)(3-C4), HALT (2-B7), RFSH (2-A1), BUSREQ; A0–A15; D0–D7

HOLD, XRDY, PRDY; RM5, RM7, RM3, RM6; U56 LS13, U34 LS04

(2-D5) RAM RFSH, (4-C7) FDC WAIT, (2-C2) WAIT

RESET (3-D8)(4-B7)

U29 2716 — A0–A10; D0–D7; PG OE CS; A11 R; SMEMR (2-B7)

U56 LS13, U11 LS11, U22 LS32 — RESET JMP (3-B3); (3-B2) PROMEN

DØ–D7 (2-C5)(3-D8)(4-D7)

(2-A7) BUSACK — BUSACK

U25 LS373, U30 LS373 — BA0–BA7 (2-C4); BA8–BA15 (2-C4); BPSTVAL (2-C7)

J1 — AD5B, BAØ, BA7, BA8, BA15

RM3

U23 LS374 — EXT ADDR; A16, A23

U51 LS245 — DIØ, DI7

U44 LS245 — DOØ, DO7

DODS8L

A0–A15 (3-A3)(3-C6)(3-C4)(4-C6)

IOREQ, MI (2-B7), U34 LS04

U35 LS27, U36 LS138 — SIOCS (3-D8), PIOCS (3-C6), CTCCS (3-D3), FDCCS (4-C8)

U6 S04 — ON BOARD I/O

EXTADDR

U21 LS138 — DRV SEL (4-B5), BANK SW (3-B3), FDC DRQ (4-C7)

U41 LS10 — RD (1-D8), WR (1-D8)(4-C6)

J1 — +8V, GND, -16V

VR1 LM 323K — C10 10µf, C9, C3 10µf, +5V

Q5 78L12 — C27 10µf, C28 10µf, +12V

+16V, -16V

J1 — PINT, VIØ, VI7; E

U8 L5244 — RM1; B0–B7 (3-C6); J2

RM2 10K; R18 1K; R17 1K; Q4 2N2222; C15 .1µf; U18 LS04 — (3-C4) PRI-3

U49 PROM — (2-A6) PD BIN, (3-B2) PROMON, (2-B2)(3-B3) RAMEN, J1-96, (2-B7) SOUT J1-46; RM7; 2 J1-23; ON BOARD I/O

RM3 10

QTY REQD	CODE IDENT	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION

PARTS LIST

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SUPER QUAD S-100 BOARD

ADVANCED MICRO DIGITAL CORP

SCHEMATIC

SIZE	CODE IDENT NO.	DRAWING NO.	REV
D			A

SCALE — SHEET 1 OF 4

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REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED

Z80 Φ (3-B1) (1-C7)
IO REQ (1-D8)
U42 LS32
U40 LS74
U39 LS132
U34 LS04
MREQ (1-D8)
SMEMR (2-B7)
RD (1-D8)
RFSH (2-A1)
(2C2)
PSYNC (2-A7)
U13 LS00
PDBIN
Z80 Φ
PSTVAL (1-C4)
U33 LS74
PWR (4-B7)
WR (1-D8)
PSTVAL (2-A7) (1-C4)
U41 LS10
SINP (2-B7)
SINTA (2-B7)
SOUT (2-B7)
M1 (1-D8)
RD
POC (3-B4)
2 MHz (3-B1)
U15 8T98
BMWRITE (2-B2)
U32 LS32
220Ω R32
47Pf
SINP (2-C6)
U18 LS04
U59 LS240
MI (1-C3)
SINP (2-C6)
HALT (1-C7)
SINTA (2-B6)
SMEMR (1-C5) (2-D6)
RD
SOUT (2-B6)
J1
NMI (1-C7)
PRESET (3-B4)
RM-3 +5
RM2 +5
7438
POC
CLOCK Φ
MWRITE
SDSB
SMI
SINP
SHLTA
SINTA
SMEMR
FD
SOUT
PWR
PSTVAL
PSYNC
PDBIN
PHLDA
CDSB
RM3 +5
U24 LS240
PWR (4-B8)
PSTVAL (2-C7)
PSYNC (2-C6)
PDBIN
BUSACK (1-B7)
(1-A6)
220Ω R30
220Ω R31
PDBIN (1-A6)
(2-B2) RAMEN
(3-B2) PHANTOM
LS13
47pf
47pf
RAM RFSH
(1-B8) (1-C8)
(2-B3) RAM WR
(2-B1) CAS
(2-B1) RAS
RA7 RA6 RA5 RA4 RA3 RA2 RA1 RAØ
33Ω RM6
33Ω RM8
U67 U66 U65 U64 U63 U62 U61 U60
DØ D1 D2 D3 D4 D5 D6 D7
DØ-D7 (1-B6) (3-D8) (4-D7)
BAØ-BA15 (1D4) (1-C4)
U68 L5240
U69 L5240
BA8 BA9 BA10 BA11 BA12 BA13 BA14 BA15
RAØ RA1 RA2 RA3 RA4 RA5 RA6 RA7
U47 LS13
RAMEN
PHANTOM
220Ω R19
C14
RAMWR
BMWRITE (2-B8)
U46 LS132
(3-B2) (3-B1) (2-C8)
U12 LS393
U11 LS11
U33
WAIT (1-C8)
U54 TTL-DM100
8T98 U55
RAS (2-D5)
CAS (2-D5)
RAML
RFSH (1-A6)
U35 LS27
RESET (3-C3)
U42 LS32
MREQ (1-D8)
RFSH (1-C7) (2-C8)
RAM RFSH

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SIZE	CODE IDENT NO.	DRAWING NO.	REV
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SCALE | SHEET 2 OF 4

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED

D0-D7 (1-B6)

U52 Z80A-SIO (DART)

U9 Z80A-PIO

U37 Z80A-CTC

U31 (HEADER)

U53 BR1943

SW1

RM5 10K

Y2 XTAL 5.0688 MHz

Y1 8 MHz

U17 LS273

U28 LS153

U11 LS11

U16 LS132

U1 LS07

U18 LS04

U6 S04

U7 LS393

U14 7438

SIP-5

RM3 8

R5 3K

R6 27K

R7 220Ω

R8 560Ω

R9 220Ω

R10 1.5K

R11 6.8K

R12 27K

R13 10Ω

R14 220Ω

R15 1K

C7 4.7Ω

C8 10MF 25V TANT

C12 33PF

CR1 5.1 V

CR2 1N914

Q1 2N2222

Q2 2N2222

Q3 2N3906

J1

J2

J4

J5

RESET

RD

IOREQ

MI

POWER FAIL

BAUD A

BANK SW (1-B2)

RESET JMP (1-C5)

PROMEN (1-B6)

RAMEN (1-A6)

PROM ON (1-A6)(1-B5)(1-C6)

PHANTOM

1 MHz

BAUDA

INTRQ (4-C7)

2 MHz (4-D5)(2-B7)

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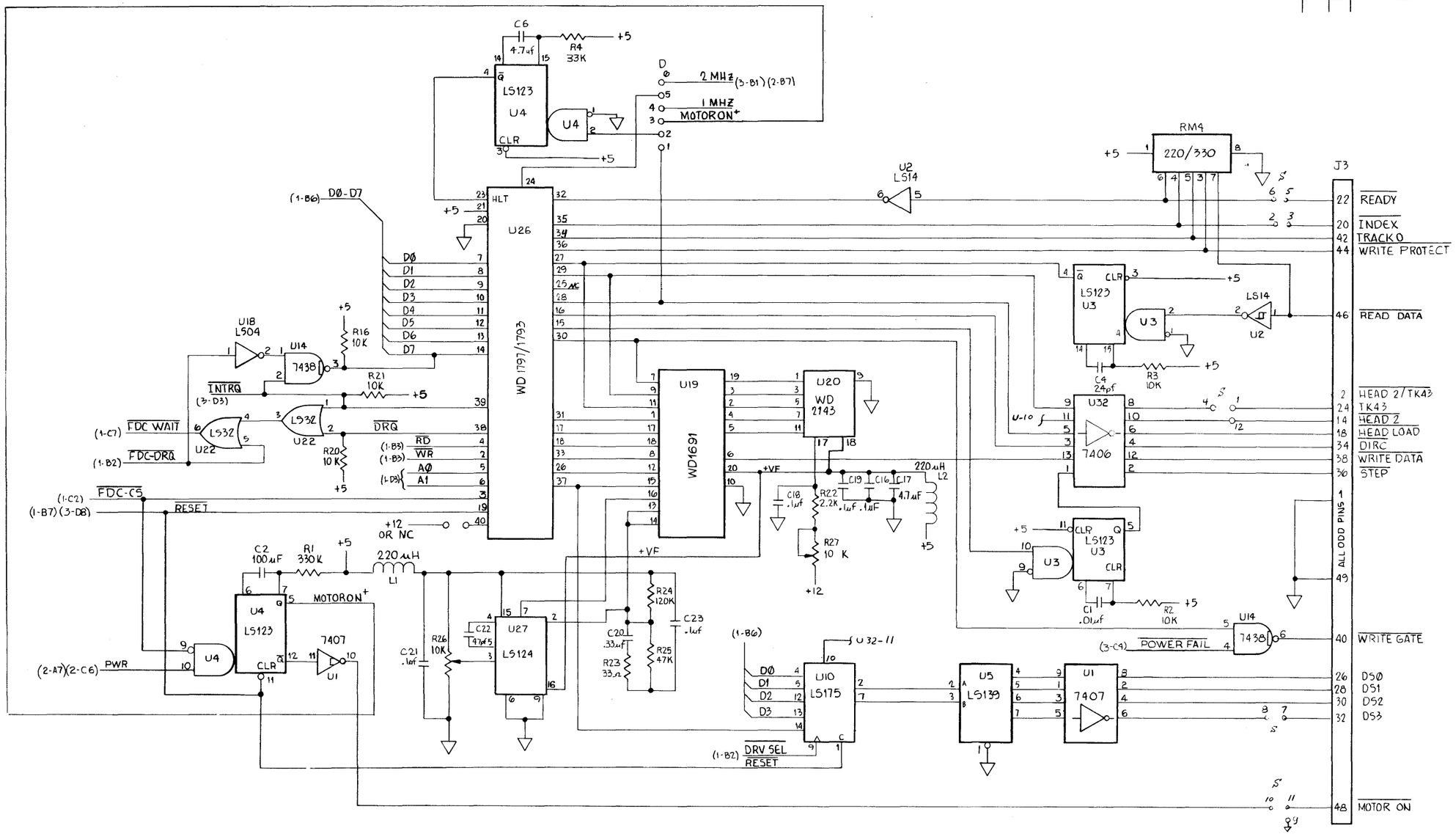
SIZE	CODE IDENT NO	DRAWING NO.	REV
D			A

SCALE

SHEET 3 OF 4

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED



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SIZE	CODE IDENT NO.	DRAWING NO.	REV
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SCALE | SHEET 4 OF 4