5530 User's Manual

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OCTAGON SYSTEMS CORPORATION®

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IMPORTANT!

Please read before installing your product.

Octagon's products are designed to be high in performance while consuming very little power. In order to maintain this advantage, CMOS circuitry is used.

CMOS chips have specific needs and some special requirements that the user must be aware of. Read the following to help avoid damage to your card from the use of CMOS chips.

Using CMOS Circuitry in Industrial Control

Industrial computers originally used LSTTL circuits. Because many PC components are used in laptop computers, IC manufacturers are exclusively using CMOS technology. Both TTL and CMOS have failure mechanisms, but they are different. This section describes some of the common failures which are common to all manufacturers of CMOS equipment. However, much of the information has been put in the context of the Micro PC.

Octagon has developed a reliable database of customer-induced, field failures. The average MTBF of Micro PC cards exceeds 11 years, yet there are failures. Most failures have been identified as customer-induced, but there is a small percentage that cannot be identified. As expected, virtually all the failures occur when bringing up the first system. On subsequent systems, the failure rate drops dramatically.

■ Approximately 20% of the returned cards are problem-free. These cards, typically, have the wrong jumper settings or the customer has problems with the software. This causes frustration for the customer and incurs a testing charge from Octagon.

■ Of the remaining 80% of the cards, 90% of these cards fail due to customer misuse and accident. Customers often cannot pinpoint the cause of the misuse.

■ Therefore, 72% of the returned cards are damaged through some type of misuse. Of the remaining 8%, Octagon is unable to determine the cause of the failure and repairs these cards at no charge if they are under warranty.

The most common failures on CPU cards are over voltage of the power supply, static discharge, and damage to the serial and parallel ports. On expansion cards, the most common failures are static discharge, over voltage of inputs, over current of outputs, and misuse of the CMOS circuitry with regards to power supply sequencing. In the case of the video cards, the most common failure is to miswire the card to the flat panel display. Miswiring can damage both the card and an expensive display.

■ **Multiple component failures** - The chance of a random component failure is very rare since the average MTBF of an Octagon card is greater than 11 years. In a 7 year study,

Octagon has <u>never</u> found a single case where multiple IC failures were <u>not</u> caused by misuse or accident. It is very probable that multiple component failures indicate that they were user-induced.

■ **Testing "dead" cards** - For a card that is "completely nonfunctional", there is a simple test to determine accidental over voltage, reverse voltage or other "forced" current situations. Unplug the card from the bus and remove all cables. Using an ordinary digital ohmmeter on the 2,000 ohm scale, measure the resistance between power and ground. Record this number. Reverse the ohmmeter leads and measure the resistance again. If the ratio of the resistances is 2:1 or greater, fault conditions most likely have occurred. A common cause is miswiring the power supply.

■ **Improper power causes catastrophic failure** - If a card has had reverse polarity or high voltage applied, replacing a failed component is not an adequate fix. Other components probably have been partially damaged or a failure mechanism has been induced. Therefore, a failure will probably occur in the future. For such cards, Octagon highly recommends that these cards be replaced.

■ **Other over-voltage symptoms** - In over-voltage situations, the programmable logic devices, EPROMs and CPU chips, usually fail in this order. The failed device may be hot to the touch. It is usually the case that only one IC will be overheated at a time.

■ **Power sequencing** - The major failure of I/O chips is caused by the external application of input voltage while the Micro PC power is off. If you apply 5V to the input of a TTL chip with the power off, nothing will happen. Applying a 5V input to a CMOS card will cause the current to flow through the input and out the 5V power pin. This current attempts to power up the card. Most inputs are rated at 25 mA maximum. When this is exceeded, the chip may be damaged.

■ **Failure on power-up** - Even when there is not enough current to destroy an input described above, the chip may be destroyed when the power to the card is applied. This is due to the fact that the input current biases the IC so that it acts as a forward biased diode on power-up. This type of failure is typical on serial interface chips.

■ **Serial and parallel** - Customers sometimes connect the serial and printer devices to the Micro PC while the power is off. This can cause the failure mentioned in the above section, *Failure upon power-up*. Even if they are connected with the Micro PC on, there can be another failure mechanism. Some serial and printer devices do not share the same power (AC) grounding. The leakage can cause the serial or parallel signals to be 20-40V above the Micro PC ground, thus, damaging the ports as they are plugged in. This would not be a problem if the ground pin is connected first, but there is no guarantee of this. Damage to the printer port chip will cause the serial ports to fail as they share the same chip.

■ **Hot insertion** - Plugging cards into the card cage with the power on will usually not cause a problem. (**Octagon urges that you do not do this!**) However, the card may be damaged if the right sequence of pins contacts as the card is pushed into the socket. This usually damages bus driver chips and they may become hot when the power is applied. This is one of the most common failures of expansion cards.

■ **Using desktop PC power supplies** - Occasionally, a customer will use a regular desktop PC power supply when bringing up a system. Most of these are rated at 5V at 20A or more. Switching supplies usually require a 20% load to operate properly. This means 4A or more. Since a typical Micro PC system takes less than 2A, the supply does not regulate properly. Customers have reported that the output can drift up to 7V and/or with 7-8V voltage spikes. Unless a scope is connected, you may not see these transients.

■ **Terminated backplanes** - Some customers try to use Micro PC cards in backplanes that have resistor/capacitor termination networks. CMOS cards cannot be used with termination networks. Generally, the cards will function erratically or the bus drivers may fail due to excessive output currents.

■ **Excessive signal lead lengths** - Another source of failure that was identified years ago at Octagon was excessive lead lengths on digital inputs. Long leads act as an antenna to pick up noise. They can also act as unterminated transmission lines. When 5V is switch onto a line, it creates a transient waveform. Octagon has seen submicrosecond pulses of 8V or more. The solution is to place a capacitor, for example 0.1 μF, across the switch contact. This will also eliminate radio frequency and other high frequency pickup.

TABLE OF CONTENTS

PREFACE

This manual is a guide to the proper configuration, installation, and operation of your 5530 SCSI Card. The 5530 expansion card is part of the Octagon Micro PC system. It is designed to be used with any other Micro PC Control Cards. You can use your 5530 card in conjunction with other Micro PC expansion cards, tailoring your system for a wide variety of applications. The 5530 card can also be used in an IBM-compatible PC. Micro PC cards are too tall to fit in an XT, but will fit in AT industrial size and other AT-size cases. All Micro PC products are modular, so creating a system is as easy as selecting and plugging in the products you need.

CONVENTIONS USED IN THIS MANUAL

1. Information which appears on your screen (output from your system or commands or data that you key in) is shown in a different type face (note: the line breaks may not match those on your screen, but the message will be similar).

    Example 1:

    ```
    Octagon 5025 ROM BIOS Vers X.XX
    Copyright (c) 1992, 1993 Octagon Systems, Corp.
    All Rights Reserved
    ```

    Example 2:

    ```
    Press the <ESC> key.
    ```

2. Italicized refers to information that is specific to your particular system or program. For example:

    Enter *filename*

    means enter the name of your file. Names of other sections or manuals are also italicized.

3. Warnings always appear in this format:

    WARNING: The warning message appears here.

---

4. Paired angle brackets are used to indicate a specific key on your keyboard. For example, <ESC> means the escape key; <CTRL> means the control key; <F1> means the F1 function key.

5. All addresses are given in hexadecimal.

SYMBOLS AND TERMINOLOGY

Throughout this manual, the following symbols and terminology are used:

W[-]   Denotes a jumper block and the pins to connect.

NOTE   Information under this heading presents helpful tips for using the 5530 Card.

WARNING: Information under this heading warns you of situations which might cause catastrophic or irreversible damage.

H   The suffix "H" denotes a hexadecimal number. For example, 1000H in hexa-decimal equals 4096 in decimal.

TTL Compatible   Transistor-transistor-logic compatible; 0-5V logic levels.

TECHNICAL SUPPORT

If you have a question about the 5530 expansion card and cannot find the answer in this manual, call Technical Support. They will be ready to give you the assistance you need.

When you call, please have the following at hand:

Your *5530 SCSI Card User's Manual*

A description of your problem

The direct line to Technical Support is 303-426-4521.

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CHAPTER 1   OVERVIEW

DESCRIPTION

The 5530 SCSI Card combines both hardware and software that allows you to connect up to seven SCSI devices to a single card. The 5530 can communicate with devices that use the SCSI standard X3.31–1986. Devices supported include optical drives such as CD–ROM, WORM, WARM (rewritable), and multifunction drives; tape drives and hard drives. Other peripherals such as floppy disk drives, printers and scanners are also supported.

The 5530 BIOS contains drivers which support SCSI hard drives. Other SCSI devices such as tape drives, WARM drives, CD audio, etc. can be accessed with CorelSCSI software. In addition to supporting SCSI peripherals, a floppy controller option is available which supports up to two floppy disk drives.

MAJOR FEATURES

- ANSI X3.131–1986 Compatible

- Asynchronous data transfer rate up to 2.0 MB which results in higher throughput.

- On–chip 48 mA drivers.

- Initiator or target roles for optimized performance.

- Direct control of all bus signals.

- Parity generation with optional checking for data integrity.

- CorelSCSI version 1.2 compatible.

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CHAPTER 2   INSTALLATION

The 5530 SCSI Card uses one slot of the Micro PC card cage. It may be used with any Micro PC Control Card.

WARNING: The 5530 contains static sensitive CMOS components. The greatest danger occurs when the card is plugged into a card cage. The 5530 becomes charged by the user and the static discharges to the backplane from the pin closest to the card connector. If that pin happens to be an input pin, even TTL inputs may be damaged. To avoid damaging your card and its components:

1. Ground yourself before handling the 5530 SCSI Card.
2. Disconnect power before removing or inserting the 5530 Card.

EQUIPMENT

You will need the following equipment (or equivalent) to use your 5530.

- 5530 SCSI Card and Utility Disk
- Micro PC Control Card
- Micro PC Card Cage
- Power Supply
- PC SmartLINK or other communications software
- Your SCSI peripheral(s)

SYSTEM CONFIGURATION

Before installing the 5530 SCSI Card, refer to Figure 2–1 for the location of various connectors and jumpers. Figure 2–2 is a functional diagram for the 5530 and gives an overview of the card's operation.
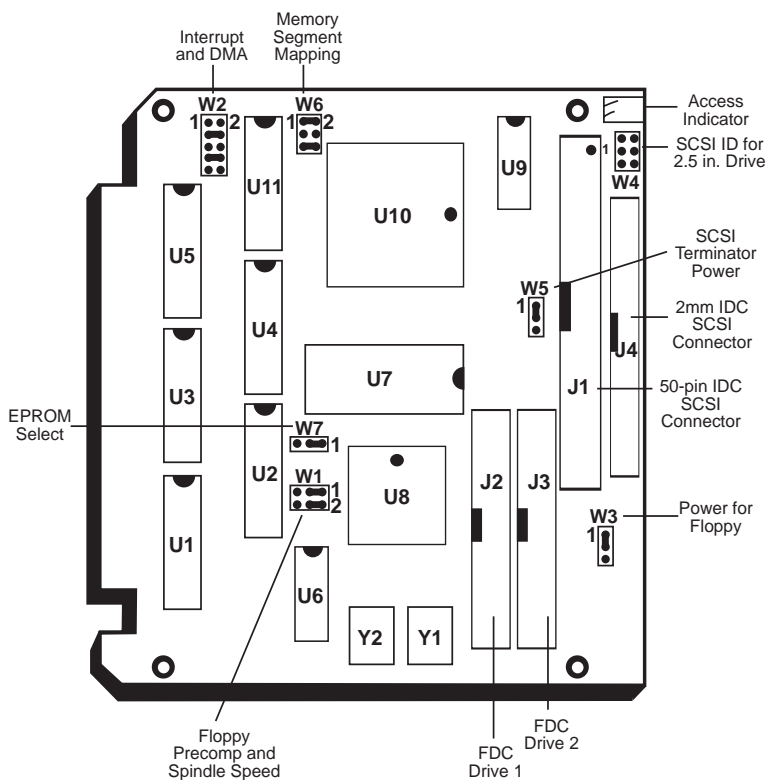
Figure 2–1—5530 Component Diagram

Termination
Resistors

Data
Buffer

SCSI
Boot
Rom Ext.
U7

53C400
SCSI
Controller

RN2

RN3

RN4

J1
or
J2

PC Bus

Address
Buffers &
Decode
Logic

W7

EPROM
Size

W6

SCSI
Memory
Map

W5

Termination
Power

Address &
Control

Floppy A

Floppy
Control

J2

W3 Floppy
+5V

W2

IRQ,DRQ

W1

Floppy PreComp
Spindel Speed

J3

Floppy B
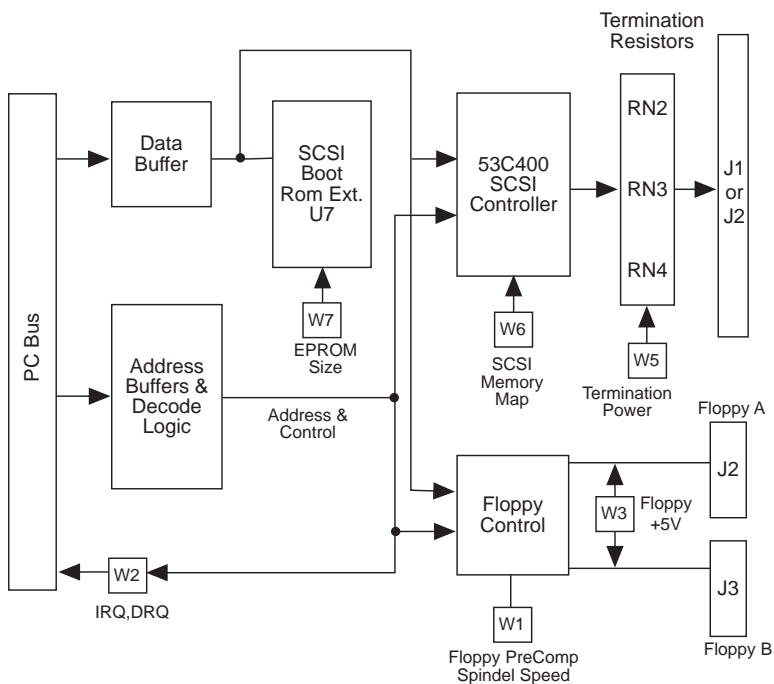
Figure 2–2—5530 Functional Diagram

Base Address

The 5530 is configured at the factory to operate in most systems
without any jumper changes. Jumper block W6 defines the
memory base address. As shipped, the base address is CC00H.
When using the 5530 with a Micro PC Control Card, the shadow
RAM option must be **disabled** through the SETUP configuration
for your Micro PC Control Card. Please refer to the SETUP
program in your Control Card User's Manual for more information.
Refer to the following table for other memory options.

5530 Memory Base Address: W6	
Pins Jumpered	**Segment (Hex)**
[5-6]	C800-CBFF
[1-2][5-6]	CC00-CFFF*
[3-4][5-6]	D000-D3FF
[1-2][3-4][5-6]	D400-D7FF
No jumpers	D800-DBFF
[1-2]	DC00-DFFF
[3-4]	E000-E3FF
[1-2][3-4]	E400-E7FF

* = default

NOTE: Only memory addresses CC00 and
C800 are available with Micro PC Control
Cards.

SCSI ROM BIOS

The 5530 comes with a boot BIOS in a 27C256 EPROM. This
BIOS allows you to boot your Micro PC system from a SCSI hard
drive.

SCSI ROM BIOS: W7	
Pins Jumpered	**ROM Type**
[1-2]	BIOS disabled
[2-3]*	BIOS enabled

* = default

Floppy Disk Controller

The 5530 can interface directly to one or two 3.5 in. or 5.25 in.
floppy drives via connectors J2 and J3. J2 is the interface connec-
tor for the first drive and J3 is the interface for the second drive.

Both floppy drives use DMA channel 2. The Micro PC 5814 Floppy Disk Drive is configured for use with the 5530 default configuration. If you are using a non–Octagon disk drive, refer to the manufacturer's literature for disk write precompensation and speed spindle specifications.

Disk Write Precompensation: W1	
Pins Jumpered	**Description**
[2-4]*	125 nS - high density drive
[4-6]	187 nS - low density drive
Speed Spindle: W1	
Pins Jumpered	**Description**
[1-3]*	Single
[3-5]	Dual

* = default

Interrupt Request and DMA

Jumper block W2 enables the appropriate IRQ line to be used by the 5530. The default setting enables the on–card floppy controller.

Interrupt and DMA: W2	
Pins Jumpered	**Description**
[1-2]	IRQ7 SCSI
[3-4]**	IRQ6, Floppy
[5-6]	IRQ5 SCSI
[7-8]**	DRQ2, Floppy
None*	No floppy/SCSI interrupts/DMA enabled

* = default for 5530 without floppy
** = default for 5530 with floppy

Floppy Disk Drive Power Requirements

If you are connecting a floppy disk drive to the 5530, power for the floppy disk is supplied through the FC–7–3 ribbon cable (included with the 5814) and no external supply is required. If you are connecting non–Octagon floppy drives, power must be supplied to the drive through an external source. Jumper block W3 determines the floppy drive power options.

Floppy Disk Power: W3	
Pins Jumpered	**Description**
[1-2]*	+5V supplied through floppy cable
[3-4]	Ground through cable (separate power needed)

 * = default

WARNING:	If [1–2] is jumpered and the floppy does not use +5V from the cable, serious damage will result to the card and/or floppy. The Octagon 5814 Floppy Disk Drive uses +5V from the cable.

SCSI Hard Drives

The 5530 supports SCSI hard drives via a 50–pin IDC connector at J1 and/or a 50–pin, 2 mm IDC connector at J4. J4 is used to interface a 2.5 in. SCSI hard drive to the 5530.

ONE SCSI DEVICE

Attach the single SCSI device to the 5530 using a 50–pin IDC connector at J1. Set the SCSI ID on the device. Refer to the SCSI device manual.

If a 2.5 in. SCSI hard drive is the only SCSI device attached to the 5530, the SCSI network ID of the hard drive is configured using jumper block W4 and a 50–pin, 2 mm IDC connector and cable.

1. Connect one end of the cable into J4 on the 5530 and the other end into the hard drive.

2. To configure the SCSI ID, jumper the approriate pins at W4.

Refer to the following table and your SCSI hard drive manual for information on determing the ID.

SCSI ID - 2.5 in. Drive: W4	
Pin #	**Description**
1, 3, 5	Gnd
2	J4, pin 5
4	J4, pin 6
6	J4, pin 7

TWO OR MORE SCSI DEVICES

If a 2.5 in. SCSI hard drive is installed in addition to other SCSI devices, the SCSI network ID of the hard drive is configured by setting switches on the hard drive. You must use a 40–pin, 2 mm IDC connector and cable to interface the hard drive and the 5530.

1. Connect one end of the cable into J4 on the 5530 beginning at pin 50. Connect the other end into the hard drive.

2. Refer to your hard drive manual for information on configuring the SCSI ID.

Terminator Resistors

The 5530 has three terminator resistors installed at RN2, RN3 and RN4. If the 5530 is the end device on the SCSI network, the resistors must remain installed. However, if the 5530 is not an end device, remove all three resistors. The following diagram illustrates several typical SCSI networks using the 5530, a standard SCSI device and 2.5 in. SCSI device.
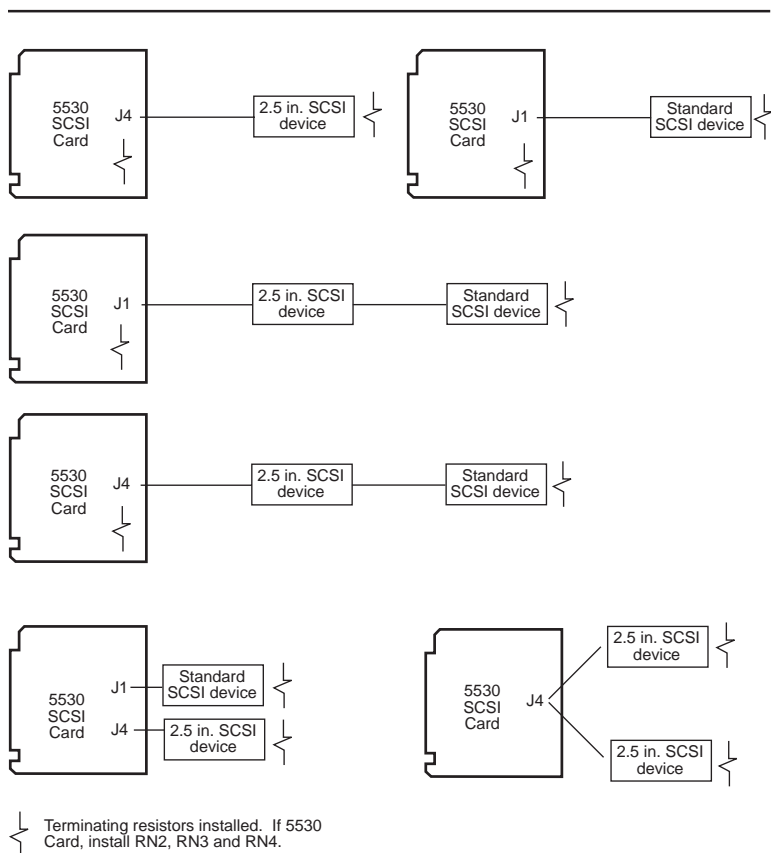
Figure 2–3—Typical 5530 SCSI Networks

SCSI Bus Power

Jumper block W5 determines the power source for the SCSI network:

SCSI Power Termination: W5	
Pins Jumpered	**Description**
[1-2]*	Termination enabled
[2-3]	Termination disabled

* = default

CHAPTER 3   BOOT OPTIONS

INTRODUCTION

With a 5530 SCSI BIOS you can access a SCSI hard drive and boot your Micro PC system in one of three ways:

- Boot from a SCSI hard drive
- Boot from an IDE hard drive
- Boot from the Control Card SSD1

The following procedures discuss how to setup your system for each of the boot options. These procedures require a serial communications link between your PC and the Micro PC Control Card.

BOOTING A SCSI HARD DRIVE

Equipment
- Micro PC Control Card
- 5530 SCSI Card
- SCSI Hard Drive

The following steps assume that you are using a Micro PC Control Card and that only a SCSI hard drive is installed in your system. If you have both a SCSI and IDE hard drive installed, refer to the section "Booting From an IDE Hard Drive".

1. Make sure power to the card cage is off.

2. Set the base address of the 5530 to either C800 or CC00 using jumper block W6.

3. Connect a 50–pin cable from the SCSI hard drive to the 5530 at J1. Make sure pin 1 on the cable is properly connected on the SCSI drive.

4. Connect a power supply cable to the SCSI hard drive.

5. Slide the 5530 into the card cage. The components on the card should face to the left or up depending on the type of card cage.

WARNING:	Take care to correctly position the 5530 in the card cage. The Vcc and ground signals must match those on the backplane. Figure 3–1 shows the relative position of the 5530 as it is installed in the card cage.

Figure 3–1—Card Edge Orientation

6. Connect a serial cable from your Micro PC Control Card COM1 to your PC.

7. Start PC SmartLINK on your PC.

8. Power on your Micro PC system and establish a communications link with your PC. (Refer to your Control Card user's manual.)

9. Some Micro PC Control Cards allow you to shadow different memory address locations using SETUP. When configuring your system, do not shadow the address location that you have configured for the 5530 e.g. C800 or CC00.

10. Transfer the program FDISK.COM from your Control Card utility disk to the control CPU. (Refer to your Control Card user's manual.)

11. Run FDISK and format an active partition on the SCSI hard drive. After creating a new DOS partition, reset the Micro PC system by pressing the reset button. The system now recognizes the SCSI hard drive.

12. Transfer FORMAT.EXE from the Control Card utility disk to the Control Card and format the SCSI drive:

    FORMAT D: (Booting the Control Card from the BIOS drive)

    or

    FORMAT C: (Booting the Control Card from the floppy drive)

13. Use the following steps to add ROM–DOS to the SCSI drive:

    • Transfer SYS.COM and ROM–DOS.SYS to the Control Card. These files are located on the Control Card utility disk.

    • Execute the following commands:

      SYS D: (Booting the Control Card from the BIOS drive)

      or

      SYS C: (Booting the Control Card from a floppy drive)

    • When prompted, enter the drive designator for the virtual drive containing the ROM–DOS.SYS file.

    • The system copies COMMAND.COM as well as a hidden file to the SCSI hard drive.

    NOTE: When using the 5010 Control Card, you cannot boot from the SCSI hard drive. However, you can still access the hard drive from the SSD and access the hard drive on power–up.

14. Transfer the following device drivers from the 5530 Utility Disk to the SCSI hard drive:

    DOSCAM.SYS
    SCSIDISK.SYS

15. Create a CONFIG.SYS file on the SCSI hard drive which contain the device drivers:

    ```
    DEVICE=DOSCAM.SYS
    DEVICE=SCSIDISK.SYS
    ```

16. Run the SETUP program on your Control Card:

    • Change the boot from option to "floppy/hard drive"

17. Reboot your system. The system boots from the SCSI hard drive.

BOOTING AN IDE HARD DRIVE

Equipment
• Micro PC Control Card
• 5530 SCSI Card
• SCSI Hard Drive
• 5800A Floppy/Hard Disk Controller
• 16–bit formatted and partitioned IDE Hard Drive

NOTE: When you have an IDE hard drive installed in your Micro PC system, you **cannot boot** your system from a SCSI hard drive.

1. Make sure power to the card cage is off.

2. Set the base address of the 5530 to CC00 (using jumper block W6) and the 5800A card for C800.

3. Connect a 50–pin cable from the SCSI hard drive to the 5530 at J1. Make sure pin 1 on the cable is properly connected on the SCSI drive.

4. Connect a power supply cable to the SCSI hard drive.

5. Slide the 5530 into the card cage. The components on the card should face to the left or up depending on the type of card cage.

WARNING: Take care to correctly position the 5530 in the card cage. The Vcc and ground signals must match those on the backplane. Figure 3–1 shows the relative position of the 5530 as it is installed in the card cage.
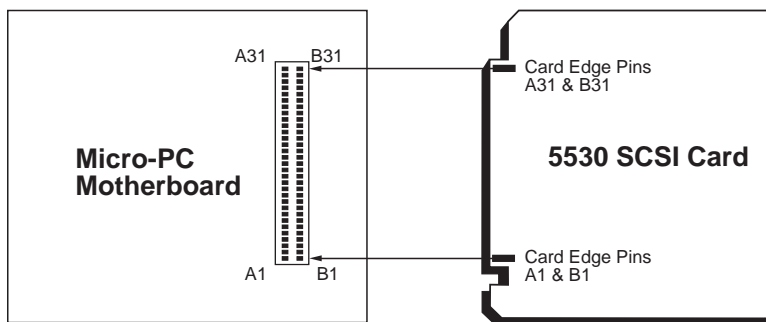
Figure 3–1—Card Edge Orientation

6. Connect a serial cable from your Micro PC Control Card COM1 to your PC.

7. Start PC SmartLINK on your PC.

8. Power on your Micro PC system and establish a communications link with your PC. (Refer to your Control Card user's manual.)

9. Some Micro PC Control Cards allow you to shadow different memory address locations using SETUP. When configuring your system, do not shadow the address location that you have configured for the 5530 e.g. CC00H.

10. Run the 5800A HDSETUP program and configure the system for one hard drive — drive 0 using the HDSETUP program. (Refer to your 5800A manual for more information.)

11. Transfer the program FDISK.EXE from your Control Card utility disk to the control CPU. (Refer to your Control Card user's manual.)

12. Run FDISK and format a DOS partition on the second hard drive which is the SCSI hard drive.

13. Reboot your system. The system now recognizes the IDE and SCSI hard drives.

14. Transfer FORMAT.EXE from the Control Card utility disk to the Control Card.

15. Format the SCSI hard drive:

    FORMAT D:(**Booting Control Card from floppy disk or IDE drive**)

    or

    FORMAT E: (**Booting Control Card from BIOS drive.**)

    NOTE: You cannot boot from the SCSI hard drive when an IDE hard drive is present.

16. Make the IDE hard drive a boot drive. (Refer to the 5800A manual for information on making the IDE hard drive bootable.)

17. Transfer the following device drivers from the 5530 utility disk to the IDE hard drive:

    DOSCAM.SYS
    SCSIDISK.SYS

18. Create a CONFIG.SYS file on IDE hard drive which contain the device drivers:

    ```
    DEVICE=DOSCAM.SYS
    DEVICE=SCSIDISK.SYS
    ```

19. Run the SETUP program on your Control Card:

    • Change the boot from option to "hard drive"

20. Reboot your system. The system boots from the IDE hard drive as drive C and recognizes the SCSI hard drive as drive D.

BOOTING FROM THE CONTROL CARD SSD1

Equipment
• Micro PC Control Card
• 5530 SCSI Card
• SCSI Hard Drive

1. Make sure power to the card cage is off.

2. Set the base address of the 5530 to either C800 or CC00 using jumper block W6.

3. Connect a 50–pin cable from the SCSI hard drive to the 5530 at J1. Make sure pin 1 on the cable is properly connected on the SCSI drive.

4.   Connect a power supply cable to the SCSI hard drive.

5.   Slide the 5530 into the card cage. The components on the card should face to the left or up depending on the type of card cage.

WARNING: Take care to correctly position the 5530 in the card cage. The Vcc and ground signals must match those on the backplane. Figure 3–1 shows the relative position of the 5530 as it is installed in the card cage.

6.   Connect a serial cable from your Micro PC Control Card COM1 to your PC.

7.   Start PC SmartLINK on your PC.

8.   Power on your Micro PC system and establish a communications link with your PC. (Refer to your Control Card user's manual.)

9.   Some Micro PC Control Cards allow you to shadow different memory address locations using SETUP. When configuring your system, do not shadow the address location that you have configured for the 5530 e.g. C800 or CC00.

10. Transfer the program FDISK.COM from your Control Card utility disk to the control CPU. (Refer to your Control Card user's manual.)

11. Run FDISK and format an active partition on the SCSI hard drive. After creating a new DOS partition, reset the Micro PC system by pressing the reset button. The system now recognizes the SCSI hard drive.

12. Transfer FORMAT.EXE from the Control Card utility disk to the Control Card.

13. Format the SCSI hard drive with the system boot files:

    `FORMAT D:` (**Booting Control Card from BIOS drive**)

    or

    `FORMAT C:` (**Booting Control Card from floppy disk**)

14. Save the following device drivers to SSD1 on the Control Card:

    DOSCAM.SYS
    SCSIDISK.SYS

    (Refer to the ControlCard user's manual for more information on saving files to SSD1.)

15. Create a CONFIG.SYS file on SSD1 which contain the device drivers:

    ```
    DEVICE=DOSCAM.SYS
    DEVICE=SCSIDISK.SYS
    ```

16. Run the SETUP program on your Control Card and change the boot from option to "SSD1"

17. Reboot your system. The system boots from SSD1. You can now access the SCSI hard drive.

USING COREL SCSI SOFTWARE

If you are using CorelSCSI software, you must disable the 5530 BIOS by changing W7 to pins [1–2]. Once the BIOS is disabled, you cannot boot from a SCSI hard drive. However, you can access the hard drive after booting from another device such as SSD1 on your Control Card. To access the hard drive, include the appropriate CorelSCSI driver in the CONFIG.SYS file on the boot device.

NOTE: CorelSCSI software requires a video card/monitor attached to the system. Once formatted, the WARM drive or other device can be used in a system which does not contain the video monitor.

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TECHNICAL SPECIFICATIONS

Operating Voltage: 4.75 to 5.25V

Host Bus: ISA

Host Data Buffering: 128 byte FIFO

Clock Frequency: Up to 20 MHz

SCSI Bus Transfer: Asynchronous/Synchronous

SCSI Bus Drive: 48 mA

Termination: Single–ended

SCSI Outputs
Signal Asserted: 0.0 to0.4V
Minimum Drive: 48 mA sinking @ 0.5V
Signal Negated: 2.5 to 5.25V

SCSI Inputs:
Signal Asserted: 0.0 to 0.8V
Maximum Input Load: –0.4 mA @ 0.4V
Signal Negated: 2.0V to 5.25V
Minimum Input Hysteresis: 0.2V

Environmental Specifications:
–40° to 85° C operating
–55° to 90° C nonoperating
RH 5% to 95%, non condensing

Power Requirements: –5V at 250 mA typical

Size: 4.5 in. x 4.9 in.

JUMPER SETTINGS

Disk Write Precompensation: W1	
Pins Jumpered	**Description**
[2-4]*	125 nS - high density drive
[4-6]	187 nS - low density drive
Speed Spindle: W1	
Pins Jumpered	**Description**
[1-3]*	Single
[3-5]	Dual

* = default

Interrupt and DMA: W2	
Pins Jumpered	**Description**
[1-2]	IRQ7 SCSI
[3-4]**	IRQ6, Floppy
[5-6]	IRQ5 SCSI
[7-8]**	DRQ2, Floppy
None*	No floppy/SCSI interrupts/DMA enabled

* = default for 5530 without floppy
** = default for 5530 with floppy

Floppy Disk Power: W3	
Pins Jumpered	**Description**
[1-2]*	+5V supplied through floppy cable
[3-4]	Ground through cable (separate power needed)

* = default

SCSI ID - 2.5 in. Drive: W4	
Pin #	**Description**
1, 3, 5	Gnd
2	J4, pin 5
4	J4, pin 6
6	J4, pin 7

SCSI Power Termination: W5	
Pins Jumpered	**Description**
[1-2]*	Termination enabled
[2-3]	Termination disabled

* = default

5530 Memory Base Address: W6	
Pins Jumpered	**Segment (Hex)**
[5-6]	C800-CBFF
[1-2][5-6]	CC00-CFFF*
[3-4][5-6]	D000-D3FF
[1-2][3-4][5-6]	D400-D7FF
No jumpers	D800-DBFF
[1-2]	DC00-DFFF
[3-4]	E000-E3FF
[1-2][3-4]	E400-E7FF

* = default

NOTE: Only memory addresses CC00 and C800 are available with Micro PC Control Cards.

SCSI ROM BIOS: W7	
Pins Jumpered	**ROM Type**
[1-2]	27C128
[2-3]*	27C256 (Only 16K is addressable)

* = default

CONNECTOR PINOUTS

5530 SCSI Connector : J1	
Pin #	Signal
2	DB0*
4	DB1*
6	DB2*
8	DB3*
10	DB4*
12	DB5*
14	DB6*
16	DB7*
18	DBP*
20	Gnd
22	Gnd
24	Gnd
26	TERMPWR
28	Gnd
30	Gnd
32	ATN*
34	Gnd
36	BSY*
38	ACK*
40	RST*
42	MSG*
44	SEL*
46	C/D*
48	REQ*
50	I/O*

* = active low

5530 Floppy Disk Drive Connectors: J2 & J3			
Pin #	**Signal**	**Pin #**	**Signal**
1	NC	2	NC
3	NC	4	NC
5	NC	6	NC
7	+5V/NC	8	INDEX*
9	+5V/NC	10	MTR2 ON*
11	+5V/NC	12	DS1*
13	Gnd	14	DS2*
15	Gnd	16	MTR1 ON*
17	Gnd	18	DIR IN*
19	Gnd	20	STEP*
21	Gnd	22	WR DATA*
23	Gnd	24	WR GATE*
25	Gnd	26	TRK 00*
27	Gnd	28	WP*
29	Gnd	30	RD DATA*
31	Gnd	32	SIDE 1*
33	Gnd	34	NC

* = active low

5530 SCSI Connector: J4			
Pin #	Signal	Pin #	Signal
1	NC	2	NC
3	NC	4	NC
5	ID 1	6	ID 2
7	ID 3	8	NC
9	NC	10	NC
11	+5	12	+5
13	Gnd	14	Gnd
15	Gnd	16	SDB0*
17	Gnd	18	SDB1*
19	Gnd	20	SDB2*
21	Gnd	22	SDB3*
23	Gnd	24	SDB4*
25	Gnd	26	SDB5*
27	Gnd	28	SDB6*
29	Gnd	30	SDB7*
31	Gnd	32	SDBP*
33	Gnd	34	Termination Power
35	SANT*	36	SBSY*
37	Gnd	38	SACK*
39	SRTS*	40	SMSG*
41	Gnd	42	SSEL*
43	SI/O*	44	SC/D*
45	Gnd	46	SREQ*
47	Motor +5	48	Motor +5
49	Motor Return	50	Motor Return

* = active low

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3. Customers that return products for repairs, within the warranty period, and the product is found to be free of defect, may be liable for the minimum current repair charge.

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Upon determining that repair services are required, the customer must:

1. Obtain an RMA (Return Material Authorization) number from the Customer Service Department, 303-430–1500.
2. If the request is for an out of warranty repair, a purchase order number or other acceptable information must be supplied by the customer.
3. Include a list of problems encountered along with your name, address, telephone, and RMA number.
4. Carefully package the product in an antistatic bag. (Failure to package in antistatic material will VOID all warranties.) Then package in a safe container for shipping.
5. Write RMA number on the outside of the box.
6. For products under warranty, the customer pays for shipping to Octagon. Octagon pays for shipping back to customer.
7. Other conditions and limitations may apply to international shipments.

NOTE: PRODUCTS RETURNED TO OCTAGON FREIGHT COLLECT OR WITHOUT AN RMA NUMBER CANNOT BE ACCEPTED AND WILL BE RETURNED FREIGHT COLLECT.

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