DATA TECHNOLOGY
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INSTALLATION GUIDE

FOR THE

5280CRA PC/AT

HARD DISK & FLOPPY DISK CONTROLLER

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*** * * WARNING * * ***

The equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

* Reorient the receiving antenna.

* Relocate the computer with respect to the receiver.

* Move the computer away from the receiver.

* Plug the computer into a different outlet so that computer and receiver are on different branch circuits.

* If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful:

  "How to Identify and Resolve Radio-TV Interference Problems".

  This booklet is available from the U.S. Government Printing Office,
  Washington, DC 20402.
  Stock No. 004-000-00345-4

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1.0 INTRODUCTION

The DTC 5280CRA controller is designed to function as a combination hard drive and floppy drive controller in "AT" type systems that do not have the floppy drive function on the motherboard or on another board in the system.

The 5280CRA is able to control two 5.25" or 3.5" Winchester or removable cartridge hard disks and two floppy disk drives.

2.0 EQUIPMENT NEEDED TO DO INSTALLATION

The following equipment is needed to install the DTC 5280CRA controller:

For one hard disk and one or two floppies
- 1 ea 20 pin data cable
- 1 ea 34 pin cable
- 1 ea 34 pin daisy chain calbe

For two hard disks and one or two floppies
- 2 ea 20 pin data cables
- 2 ea 34 pin daisy chain cables

Software:
IBM Advanced Diagnostics Program diskette or a similar formatting utility.

3.0 JUMPER SETTINGS

Refer to diagram 3.1 for jumper locations.

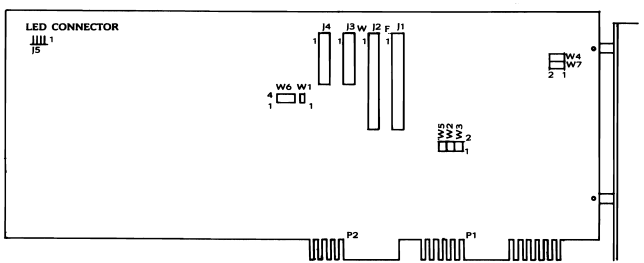

DIAGRAM 3.1 - 5280CRA JUMPER LOCATIONS

3.0 JUMPER SETTINGS (cont.)

3.1 RESERVED JUMPER (W1)

Jumper W1 is for internal use only and must be open (removed) for the controller to operate properly.

3.2 PRIMARY/SECONDARY PORT ADDRESS JUMPER (W2 & W3)

The W2 and W3 jumpers are for the floppy and hard drive port addresses. They should be set as follows:

W2 and W3 and installed = Primary port address (1F0 to 1F7, 3F2 to 3F7)
W2 and W3 installied = Secondary port address (170 to 177, 372 to 377)

3.3 INITIAL DATA RATE CONTROL JUMPER (W4)

Jumper W4 controls the power-up data transfer rate for floppy drive.

W4 installed = 250KHz
W4 not installed = 500KHz (default)

3.4 FIRMWARE/HARDWARE DRIVE SELECT JUMPER (W5&W6)

Jumpers W5 and W6 determines firmware select mode or hardware select mode is enabled.

Hardware select mode (as shipped): W5 installed and W6 2-3 installed, 5-6 installed.

Firmware select mode: W5 not installed and W6 1-2 installed, 4-5 installed.

3.5 FLOPPY PRECOMPENSATION CONTROL JUMPER (W7)

Two modes of precompensation for the floppy drive are supported on this controller.

W7 installed = precompensation at 125ns
W7 removed = precompensation is scaled by the data rate floppy drive is running on (125ns for 500KHz, 208ns for 300KHz, and 250ns for 250KHz).

W7 is not installed at the factory.

4.0 INSTALLATION AND FORMATTING OF THE HARD DISK

4.1 FLOPPY DRIVES

Installation of the floppy drives requires a 34 pin twisted type cable. Both drives should be set for drive select 2 (this assumes drive selects are numbered 1,2,3, 4). Install the header pin end of the cable onto J1 of the controller with the colored edge of the cable aligned with pin1 as shown in Diagram 3.1. The connector at the other end of the cable should be connected to drive A: and the middle connector to drive B:, both with pin 1 aligned with pin 1 of the drive connector. Only drive A: should have the terminator installed.

4.2 HARD DRIVES

4.2.1 Single-Drive System

4.2.2 Cable connections

Install the 34 pin connector onto J2 of the controller with the colored edge of the ribbon cable aligned to pin 1 as shown in diagram 3.1.

Install the 20 pin connector onto J3 of the controller with the colored edge of the ribbon cable aligned to pin 1 as shown in diagram 3.1.

Install the 20 and 34 pin connectors to the disk drive with the colored edge of the ribbon cable aligned with pin 1 of the drive edge connectors.

Be sure the terminator is installed and the drive select is set for drive 1. (This assumes the drive selects are numbered 1 to 4)

4.3 FORMATTING THE DRIVE

4.3.1 To initialize the drive, put the IBM Diagnostics diskette into drive A: and turn on the power. After the system goes through system test, the diagnostics menu will appear on the screen. (Bold printing is what is shown on the screen.)

This program provides functions for preparation of a new fixed disk drive, including selecting drive type, formatting (low level), verification and defect mapping of the drive. All are done in a menu driven fashion.

4.3 FORMATTING THE DRIVE (cont.)

4.3.2 The screen will show the following select options:

SELECT AN OPTION

0 - System checkout
1 - Format diskette
2 - Copy diskette
3 - Prepare system for moving
4 - Setup
9 - End diagnostics

Select the action desired
?

4.3.3 At the "?" prompt type: 4 <Enter>. One the next screen, follow the menu to set up all other options and the fixed disk drive type.

4.3.4 After completing the system setup, the system will re-boot, and the above select options menu will appear again. At the "?" prompt type: 0 <Enter>— to run system checkout.

4.3.5 The screen will show a list of all the installed devices and the following message:

Is the list correct (Y/N)

(If the list is not correct, enter "N" to run setup again.)

4.3.6 If the information is correct type: "Y". The following screen will appear:

System Checkout

0—run tests one time
1—run tests multiple times
2—log utilities
9—end system checkout

Select the action desired
?

4.3.7 At the "?" prompt type: 0 <Enter>. The screen will now show the list of the installed devices and the following message:

4.3.7 (cont.)

1—System board
2—xxx KB Memory
3—Keyboard
6—1 (2) Diskette drive(s) and adapter
9—Serial/parallel adapter
17—1 Fixed disk drive(s) and adapter

Select option number(s) to test or press "enter" to select all options?

4.3.8 At the "?" prompt type: 17 <Enter>. The following screen will appear:

FIXED DISK DIAGNOSTIC MENU

1—Write, read, compare (in test cylinder)
2—Seek test
3—Head select
4—Error detection & correction
5—Run all test
6—Read verify
7—Format menu
9—Return to control program

For option 9 type "9" and press "enter" For other options type the option number, drive ID (1, C) and press "enter"

4.3.9 At the "?" prompt type: 7,C <Enter>. The screen will show the following:

FORMAT SELECTION MENU

1—Conditional format
2—Unconditional format
3—Surface analysis
4—Change interleave
9—Return to fixed disk menu

For option 9 type "9" and press "enter" For other options type the option number, drive ID (1, C) and press "enter"

4.3.10 At the "?" prompt type: (1 or 2) <Enter>

1—for conditional format*
2—for unconditional format*

4.3.10 (cont.)

The following message will appear:

**** WARNING ****
ALL DATA ON THE FIXED DISK WILL BE DESTROYED
DO YOU WANT TO CONTINUE?
ENTER (Y/N)

*Note: Unconditional format
- runs low level format only
Conditional format
- runs surface analysis, low level format, and verification.

4.3.11 Enter "Y" to proceed with the format. After the format is done, exit the diagnostics program and proceed with the FDISK and FORMAT programs as described in the DOS manual to complete the hard disk preparation.