PART 18

THE DOS/BATCH DISK INITIALIZATION PROGRAM

DSKINT

PART 18

CHAPTER 1

INTRODUCTION TO DSKINT

DSKINT supports only RPØ3 disks with a standard DOS/BATCH file structure. Either DSKINT or SYSLOD must be used to initialize an RPØ3 disk that has not previously been written upon.

DSKINT performs the following functions on a specified RPØ3 disk:

1. Zeroing -- writing zeros over the entire disk surface.

2. Verification -- writing a test pattern to the disk, then reading the disk to verify that the pattern was written correctly. The procedure is then repeated with a second test pattern. The two test patterns used are "worst-case" patterns as used in diagnostics.

3. Bad Block Identification -- creating a bad block file (BADB.SYS) on the disk's [1,1] user area. This file contains the addresses of bad blocks encountered during the current initialization and/or past initializations of the disk. The file BADB.SYS can be either listed to an output device or updated with operator-entered bad block addresses.

4. Initialization -- verifying and zeroing disk blocks Ø and 1, then zeroing the remainder of the disk. In addition, initialization entails writing file directories, bit maps, and BADB.SYS on the disk, and entering [1,1] and the current user UIC into the Master File Directory (MFD).

NOTE

DSKINT cannot be used for formatting purposes, consequently SYSLOD should be used to format a system disk pack.

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CHAPTER 2

DSKINT COMMANDS AND FUNCTIONS

The DSKINT program is requested through the $RUN command. After it has been loaded, DSKINT identifies itself and prints a # character at the keyboard terminal to indicate readiness to accept commands. This sequence is illustrated below.

```
$RUN DSKINT
DSKINT Vxxx                    (xxx is the current DSKINT version)
#
```

The response to the # character is a command in the following format:

```
dev:[/sw.../sw]
```

where: dev = the mnemonic specifying the disk to be initialized (for example DP, DP2, etc.), and

sw = a switch name that specifies the type of initialization to be performed.

If no switch is specified in this first command, a default of /Z is assumed (see Section 16-2.1.1.1).

2.1 DSKINT COMMAND SWITCHES

DSKINT can be run in either of two modes: Normal or Mark. In Normal mode, initialization (verifying and zeroing processes) is performed; in Mark mode, bad block identification (through the BADB.SYS file) is performed.

2.1.1 Normal Mode Command Switches

The following switches can be used in Normal mode (the initial situation when running DSKINT):

/Z Zero
/V Verify
/R Retain
/L List
/M Enter Mark Mode

2.1.1.1 /Z Switch

The /Z (Zero) switch instructs DSKINT to perform basic initialization of the specified disk, which entails the following:

1. Verify blocks Ø and 1 of the disk; verify any other disk blocks reserved for the DOS/BATCH file structure.
2. Zero the entire disk.
3. Write file directories, bit maps, and BADB.SYS onto the disk.
4. Enter [1,1] and the current UIC into the MFD.

An example of the use of the /Z switch is shown below.

```
#DP3:/Z
```

This command requests that basic initialization be performed on an RPØ3 disk on drive 3.

2.1.1.2 /V Switch

The /V (Verify) switch instructs DSKINT to verify and zero an entire disk. An example of the use of the /V switch is shown below.

```
#DP:/V
```

This command requests that verification and zeroing be performed on an RPØ3 disk on drive Ø.

2.1.1.3 /R Switch

The /R (Retain) switch instructs DSKINT to retain the file BADB.SYS on a disk that has previously been initialized and to transfer information from that file into the new BADB.SYS file when initializing the disk. The /R switch is used in conjunction with the /Z or /V switch; it has no effect when used for a disk that has not previously been initialized. An example of the use of the /R switch is shown below.

```
#DP2:/V/R
```

This command requests that verification and zeroing be performed on an RPØ3 disk on drive 2, and that the old BADB.SYS file be retained and included in the new BADB.SYS file.

2.1.1.4 /L Switch

The /L (List) switch instructs DSKINT to list the contents of the BADB.SYS file for the specified disk. If BADB.SYS is empty (i.e., if there are no bad blocks on the disk), DSKINT prints the following message at the printer:

```
NO BAD BLOCKS ON THIS DISK
```

If there are one or more bad blocks on the disk, DSKINT lists the contents of BADB.SYS at the printer as shown below:

```
                    BADB.SYS

   BLOCK      CYLINDER      TRACK      SECTOR

   bbbbbb     cccccc        tttttt     ssssss
     .          .             .          .
     .          .             .          .
     .          .             .          .
END OF FILE BADB.SYS
```

where: bbbbbb = the block address of the bad block,
ccccccc = the cylinder containing the bad block,
tttttt = the track containing the bad block, and
ssssss = the sector containing the bad block.

An example of the use of the /L switch is shown below.

```
#DPØ:/L
```

This command requests that the contents of BADB.SYS on an RPØ3 disk on drive Ø be listed on the printer.

2.1.1.5 /M Switch

The /M (Enter Mark Mode) switch instructs DSKINT to enter Mark mode. In Mark mode, the user can enter or delete bad block addresses for BADB.SYS (by block address or by cylinder:track:sector address). Listings of BADB.SYS can also be obtained at the printer while in Mark mode. An example of the use of the /M switch is shown below.

```
#DP1:/M
*
```

This command requests that DSKINT enter Mark mode during the initialization of an RPØ3 disk on drive 1. DSKINT indicates that Mark mode has been entered by printing an asterisk (*) at the keyboard terminal.

2.1.2 Mark Mode Command Switches

After DSKINT prints an asterisk to indicate it is operating in Mark mode, the user specifies one of the following switches:

/M Mark
/U Unmark
/L List
/D Done

2.1.2.1 /M Switch

The /M (Mark) switch instructs DSKINT to enter a specified address into the BADB.SYS file. The /M switch can be specified in either of two formats:

Format 1: *bbbbbb[/M]
where bbbbbb is an octal Block address or

Format 2: *ccc:tt:ss[/M]

where ccc is an octal cylinder address, tt is an octal track address, and ss is an octal sector address.

Note that /M is a default value, even if the switch specification is omitted. Two examples of the use of the /M switch are provided below.

Example 1: *43

This command instructs DSKINT to enter block 43 (octal) into the BADB.SYS file of the disk being initialized.

Example 2: *43:32:3/M

This command instructs DSKINT to enter the address specified (cylinder 43, track 32, sector 3) into the BAD.SYS file.

2.1.2.2 /U Switch

The /U (Unmark) switch instructs DSKINT to (1) delete a specified address from the BADB.SYS file, or (2) ignore a previously specified /M switch on a keyboard line. The /U switch, like the /M switch, can be specified in either of two formats:

Format 1: *bbbbbb/U

where bbbbbb is an octal block address or

Format 2: *ccc:tt:ss/U

where ccc is an octal cylinder address, tt is an octal track address, and ss is an octal sector address.

Three examples of the use of the /U switch are:

Example 1: *64/U

This command instructs DSKINT to delete block address 64 (octal) from BADB.SYS.

Example 2: *47:4:2/U

This command instructs DSKINT to delete the specified address (cylinder 47, track 4, sector 2) from BADB.SYS.

Example 3: *73/M/U

This command initially instructs DSKINT to enter octal block address 73 into BADB.SYS (/M switch), but then deletes the address (/U switch). When several /M and /U switch specifications appear on the same keyboard line, the last one specified takes precedence. This can be useful if the operator mistypes an address in a command string.

2.1.2.3 /L Switch

The /L switch performs the same function in Mark mode that it does in Normal mode; i.e., it instructs DSKINT to list the contents of the BADB.SYS file at the printer. See Section 18-2.1.1.4 for details.

2.1.2.4 /D Switch

The /D (Done) switch instructs DSKINT to exit from Mark mode, and continue initialization of the disk. An example is shown below.

*65/M/D

This command instructs DSKINT to enter octal block address 65 into BADB.SYS, and then exit from Mark mode to continue initialization of the disk. When initialization has been completed, DSKINT prints the following message at the keyboard

INITIALIZATION COMPLETE

and exits to the Monitor.

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CHAPTER 3

SAMPLE EXECUTIONS

In the following sample executions of the DSKINT program, the left-hand column illustrates the keyboard dialogue, while the right-hand column explains the meaning of each user input or DSKINT output.

SAMPLE 1:

Dialogue	Explanation
$RUN DSKINT	Operator requests DSKINT.
DSKINT VØØ1	Version ØØ1 of DSKINT loaded.
#DPØ:/L	Listing of BADB.SYS file for disk on drive Ø requested.
$	Listing has been produced at printer; DSKINT exits to Monitor.

SAMPLE 2:

Dialogue	Explanation
$RUN DSKINT	Operator requests DSKINT.
DSKINT VØØ1	Version ØØ1 of DSKINT loaded.
#DPØ:/V/L	Operator requests verification of disk on drive Ø, followed by listing of BADB.SYS.
INITIALIZATION COMPLETE	Verification has been performed; listing has been produced at printer.
$	DSKINT exits to Monitor.

SAMPLE 3:

Dialogue	Explanation
$RUN DSKINT	Operator requests DSKINT.
DSKINT VØØ1	Version ØØ1 of DSKINT loaded.
#DPØ:/M	Operator requests basic initialization of disk on drive Ø; operator also requests DSKINT to enter Mark Mode to alter BADB.SYS file.

SAMPLE 3 (Cont)

Dialogue	Explanation
*1ØØ	Enter octal block address 1ØØ into BADB.SYS.
*37:23:4	Enter octal address (cylinder 37, track 23, sector 4) into BADB.SYS.
*44	Enter octal block address 44 into BADB.SYS.
*45	Enter octal block address 45 into BADB.SYS.
*43	Enter octal block address 43 into BADB.SYS.
*3Ø7:23:11/M/U	Operator decides not to enter the address (cylinder 3Ø7, track 23, sector 11) into BADB.SYS.
*44/U/L	Delete block address 44 from BADB.SYS, then list contents of BADB.SYS at printer (see Figure 18-1 for listing produced).
*22:22:Ø	Enter octal address (cylinder 22, track 22, sector Ø) into BADB.SYS.
*/L	List contents of BADB.SYS at printer (see Figure 18-2 for listing produced).
*3Ø7:23:11	Enter octal address (cylinder 3Ø7, track 23, sector 11) into BADB.SYS.
*1:Ø:Ø	Enter octal address (cylinder 1, track Ø, sector Ø) into BADB.SYS.
*2	Enter octal block address 2 into BADB.SYS.
*3	Enter octal block address 3 into BADB.SYS.
*6	Enter octal block address 6 into BADB.SYS.
*7/M/L	Enter octal block address 7 into BADB.SYS then list contents of BADB.SYS at printer (see Figure 18-3 for listing produced).
*33	Enter octal block address 33 into BADB.SYS.
*/L	List contents of BADB.SYS at printer (see Figure 18-4 for listing produced).
*/D	Exit from Mark mode, continue initialization.
INITIALIZATION COMPLETE	DSKINT has completed basic initialization of the disk.
$	DSKINT exits to the Monitor.

Figures 18-1, 18-2, 18-3, and 18-4 illustrate listing of the BADB.SYS file based on the dialogue shown in sample 3.

BAD.SYS

BLOCK	CYLINDER	TRACK	SECTOR
ØØØØ43	ØØØØØØ	ØØØØØ7	ØØØØØØ
ØØØØ43	ØØØØØØ	ØØØØØ7	ØØØØØ1
ØØØØ45	ØØØØØØ	ØØØØØ7	ØØØØØ4
ØØØØ45	ØØØØØØ	ØØØØØ7	ØØØØØ5
ØØØ1ØØ	ØØØØØØ	ØØØØ14	ØØØØ1Ø
ØØØ1ØØ	ØØØØØØ	ØØØØ14	ØØØØ11
ØØ6175	ØØØØ37	ØØØØ23	ØØØØØ4
ØØ6175	ØØØØ37	ØØØØ23	ØØØØØ5

END OF FILE BADB.SYS

Figure 18-1 First Listing Produced in Sample DSKINT Execution (RPØ3)

BADB.SYS

BLOCK	CYLINDER	TRACK	SECTOR
ØØØØ43	ØØØØØØ	ØØØØØ7	ØØØØØØ
ØØØØ43	ØØØØØØ	ØØØØØ7	ØØØØØ1
ØØØØ45	ØØØØØØ	ØØØØØ7	ØØØØØ4
ØØØØ45	ØØØØØØ	ØØØØØ7	ØØØØØ5
ØØØ1ØØ	ØØØØØØ	ØØØØ14	ØØØØ1Ø
ØØØ1ØØ	ØØØØØØ	ØØØØ14	ØØØØ11
ØØ3542	ØØØØ22	ØØØØ22	ØØØØØØ
ØØ3542	ØØØØ22	ØØØØ22	ØØØØØ1
ØØ6175	ØØØØ37	ØØØØ23	ØØØØØ4
ØØ6175	ØØØØ37	ØØØØ23	ØØØØØ5

END OF FILE BADB.SYS

Figure 18-2 Second Listing Produced in Sample DSKINT Execution (RPØ3)

BADB.SYS

BLOCK	CYLINDER	TRACK	SECTOR
ØØØØØ2	ØØØØØØ	ØØØØØØ	ØØØØØ4
ØØØØØ2	ØØØØØØ	ØØØØØØ	ØØØØØ5
ØØØØØ3	ØØØØØØ	ØØØØØØ	ØØØØØ7
ØØØØØ6	ØØØØØØ	ØØØØØ1	ØØØØØ2
ØØØØØ6	ØØØØØØ	ØØØØØ1	ØØØØØ3
ØØØØØ7	ØØØØØØ	ØØØØØ1	ØØØØØ4
ØØØØØ7	ØØØØØØ	ØØØØØ1	ØØØØØ5
ØØØØ43	ØØØØØØ	ØØØØØ7	ØØØØØØ
ØØØØ43	ØØØØØØ	ØØØØØ7	ØØØØØ1
ØØØØ45	ØØØØØØ	ØØØØØ7	ØØØØØ4
ØØØØ45	ØØØØØØ	ØØØØØ7	ØØØØØ5
ØØØ1ØØ	ØØØØØØ	ØØØØ14	ØØØØ1Ø
ØØØ1ØØ	ØØØØØØ	ØØØØ14	ØØØØ11
ØØØ144	ØØØØØ1	ØØØØØØ	ØØØØØØ
ØØØ144	ØØØØØ1	ØØØØØØ	ØØØØØ1
ØØ3542	ØØØØ22	ØØØØ22	ØØØØØØ
ØØ3542	ØØØØ22	ØØØØ22	ØØØØØ1
ØØ6175	ØØØØ37	ØØØØ23	ØØØØØ4
ØØ6175	ØØØØ37	ØØØØ23	ØØØØØ5
Ø47Ø37	ØØØ3Ø7	ØØØØ23	ØØØØ1Ø
Ø47Ø37	ØØØ3Ø7	ØØØØ23	ØØØØ11

END OF FILE BADB.SYS

Figure 18-3 Third Listing Produced in Sample DSKINT Execution (RPØ3)

BADB.SYS

BLOCK	CYLINDER	TRACK	SECTOR
ØØØØØ2	ØØØØØØ	ØØØØØØ	ØØØØØ4
ØØØØØ2	ØØØØØØ	ØØØØØØ	ØØØØØ5
ØØØØØ3	ØØØØØØ	ØØØØØØ	ØØØØØ6
ØØØØØ3	ØØØØØØ	ØØØØØØ	ØØØØØ7
ØØØØØ6	ØØØØØØ	ØØØØØ1	ØØØØØ2
ØØØØØ6	ØØØØØØ	ØØØØØ1	ØØØØØ3
ØØØØØ7	ØØØØØØ	ØØØØØ1	ØØØØØ4
ØØØØØ7	ØØØØØØ	ØØØØØ1	ØØØØØ5
ØØØØ33	ØØØØØØ	ØØØØØ5	ØØØØØ4
ØØØØ33	ØØØØØØ	ØØØØØ5	ØØØØØ5
ØØØØ43	ØØØØØØ	ØØØØØ7	ØØØØØØ
ØØØØ43	ØØØØØØ	ØØØØØ7	ØØØØØ1
ØØØØ45	ØØØØØØ	ØØØØØ7	ØØØØØ4
ØØØØ45	ØØØØØØ	ØØØØØ7	ØØØØØ5
ØØØ1ØØ	ØØØØØØ	ØØØØ14	ØØØØ1Ø
ØØØ1ØØ	ØØØØØØ	ØØØØ14	ØØØØ11
ØØØ144	ØØØØØ1	ØØØØØØ	ØØØØØ0
ØØØ144	ØØØØØ1	ØØØØØØ	ØØØØØ1
ØØ3542	ØØØØ22	ØØØØ22	ØØØØØØ
ØØ3542	ØØØØ22	ØØØØ22	ØØØØØ1
ØØ6175	ØØØØ37	ØØØØ23	ØØØØØ4
ØØ6175	ØØØØ37	ØØØØ23	ØØØØØ5
Ø47Ø37	ØØØ3Ø7	ØØØØ23	ØØØØ1Ø
Ø47Ø37	ØØØ3Ø7	ØØØØ23	ØØØØ11

END OF FILE BADB.SYS

Figure 18-4 Fourth Listing Produced in Sample DSKINT Execution (RPØ3)