

BORSUV4 Disk System for DOS

Reference Manual

Produced by
Bits Per Second
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It supports the following removable cartridge disk systems:
Iomega Alpha 10 (SCSI interface), Half-height Alpha 10 and 20, Beta 20 (Bernoulli, Borsu) and 44, Aurora 90 and all other generic SCSI disk drives conforming to the ANSI X3.131-1986 SCSI (Small Computer System Interface) standard, CCS (Common Command Set) specification, including removable cartridge disks, super-floppies, high-capacity hard disks and erasable optical disks.

INFO for WIN9x and WIN ME: You must add the "BORSUV4.SYS" in the IOS.INI else the System ist slow.

Contents

Overview of the BORSUV4 Disk System

Software Summary

Hardware Summary

Installation & Use

BORSUV4.SYS - The DOS Driver

BORSUV4.EXE - The Disk Manager

BDEVICE.COM - The Dynamic Driver Loader

BFILE.EXE - The File Manager

Overview

The BORSUV4 Disk System is a high-performance data storage sub-system in which many different types of SCSI data storage devices can be integrated into the personal computer environment according to a user's system requirements.

The Borsu Disk System harnesses two vital system components:

- o Computer Architectures
- o SCSI Storage Devices

It has the following key ingredients:

- o Free choice of storage devices
- o A wide range of configurations
- o A range of host computer interface adapters
- o Comprehensive support software
- o High performance
- o Special features such as system boot support and data encryption

It supports the following removable cartridge disk systems:

- lomega Alpha 10 (SCSI interface)
- lomega Half-height Alpha 10
- lomega Half-height Alpha 20
- lomega Beta 20
- lomega Beta 44
- lomega Aurora 90

and all other generic SCSI disk drives conforming to the ANSI X3.131-1986 SCSI (Small Computer System Interface) standard, CCS (Common Command Set) specification, including removable cartridge disks, super-floppies, high-capacity hard disks and erasable optical disks.

It can be used with all the ISA (Industry Standard Architecture) PC/XT/AT-compatible 88/86/286/386SX/386/486-based machines currently on the market. It can also be used with MCA (Micro Channel Architecture) machines, including all the current IBM PS/2 models (50/50Z/60/70/80/90). An EISA (Extended Industry Standard Architecture) interface adapter is under development.

It includes a software driver for the Microsoft DOS operating system, together with comprehensive utilities for formatting, copying and checking disks, and for backing up and restoring files to and from disk.

High-performance has been a major criterion in the design of the Borsu software and the associated host computer SCSI adapters. Because Borsu has designed both components itself, maximum utilisation of hardware resources is guaranteed.

Data security and encryption is an important topic nowadays. Borsu have worked with third-party encryption experts to provide an interface within the Borsu software to their encryption systems, and Borsu's own hardware-based encryption facilities are currently under development.

The BORSUV4 Disk System contains the following software items. Together they provide a comprehensive set of tools for making best use of the Borsu system under DOS.

BORSUV4.SYS for MS-DOS & PC-DOS

BORSUV4.SYS for DOS is an installable block device driver for use with MS-DOS & PC-DOS. It supports removable cartridge disks, super-floppy disks, high-capacity fixed disks and erasable optical disks.

BORSUV4.SYS is capable of handling all types of SCSI fixed/removable, random-access disk drives under DOS 3.x, 4.x and 5.x.

Prior to DOS 4, the DOS operating system had an effective limit of 32 MB per single drive letters. The BORSUV4.SYS driver cleverly overcomes this constraint, allowing a high-capacity fixed disk's entire capacity to be available as a single DOS drive letter. This avoids the arbitrary partitioning of a disk into a number of sub-32 MB DOS volumes.

Special attention has been given to the handling of removable drives. In addition to automatically informing DOS of media-changes, BORSUV4.SYS provides a facility for keeping drive doors locked while files are open, thus preventing the possibility of data corruption if a user were to unwittingly swap disks while files were open and being updated.

BORSUV4.SYS has a wide range of configurable options, invoked via software switches in DOS's CONFIG.SYS file.

BORSUV4.SYS supports all the Borsu SCSI interface adapters.

BORSUV4.EXE for MS-DOS & PC-DOS

This program, which is used in conjunction with the BORSUV4.SYS device driver, provides the following functions for managing SCSI disks under DOS:

- o Format & Initialisation
- o Copy
- o Verify
- o Display
- o Diagnostics
- o Sundry drive-specific utility options

One of BORSUV4.EXE's most powerful features is that its COPY function is capable of making a high-speed image copy of one disk to another, optionally copying only those parts of the source disk actually containing data, and handling the remapping necessary when media defects exist in conflicting areas of the source and target disks.

BORSUV4.EXE can be used both interactively and in batch-mode.

In interactive mode it has full in-context help available at every prompt.

BDEVICE.COM for MS-DOS & PC-DOS

This program provides a method for loading the BORSUV4.SYS device driver at run time. Normally a device driver has to be loaded at boot time by providing a "DEVICE=BORSUV4.SYS" statement in CONFIG.SYS, BDEVICE.COM allows the installation and de-installation of the device driver at any time.

Once the driver is loaded, the drives can be accessed as normal from either DOS or via BORSUV4.EXE.

This ability to load the device driver when ever it is required can be useful when temporarily attaching an extra drive via the parallel port to perform a backup.

BFILE.EXE for MS-DOS & PC-DOS

This program provides a general-purpose, high-speed file copy function for any DOS drives. Although an important part of the Borsu disk software, its use is not limited to use with disks handled by the Borsu device driver.

BFILE.EXE can be used both interactively and in batch-mode, and has a particularly powerful feature for handling removable media - when copying files to a removable disk it will prompt for continuation disks when each target disk becomes full.

In interactive mode it has full in-context help available at every prompt.

Help Files

Both of the above utility programs have in-context help facilities provided by specially prepared text files. These files have the name extension .HLP. They are designed so as to make it easy to provide national language versions of the Borsu software.

Boot ROMs

Boot ROMs are provided on board all the Borsu SCSI adapters.

This ROM-resident software provides the necessary Bios functionality to allow a computer to boot directly from a Borsu drive under all versions of DOS.

It cooperates with the BORSUV4.SYS driver such that both hard disk emulation and disk exchangeability is fully supported. There is no need to take any special action whether the Borsu system is being installed in a machine containing a hard disk or not - the Borsu software adjusts itself internally according to existing system resources.

An interlock in the BORSUV4.SYS DOS driver enables the driver to 'capture' the drive back from the boot ROM. This is an especially important feature when removable drives are being used, since when controlled simply through a boot ROM there is no provision for DOS to be informed of media changes.

SCSI Host Interface Adapters

In the IBM PC/XT/AT, PS/2 and compatible environment, the Borsu software can be used in conjunction with a variety of host adapter cards:

- Borsu/BPS DMA/IRQ/ROM adapter (#101)
- Advanced Borsu/BPS ISA adapter (#102)
- Borsu/BPS PS/2 Microchannel adapter (#103)
- Advanced Borsu/BPS PS/2 Micro Channel adapter (#104)
- Borsu/BPS Parallel Port adapter (#105)
- Advanced Borsu/BPS 16-bit ISA adapter (#106)
- lomega Combo adapter
- lomega PC2/PC2B adapter
- lomega PC4/PC4B PS/2 Micro Channel adapter
- lomega Parallel Port adapter

There are six Borsu SCSI adapters currently in production - three for ISA (Industry Standard Architecture) machines (IBM PC/XT/AT and compatibles), two for MCA (Micro Channel Architecture) machines (IBM PS/2 and compatibles), and a parallel port adapter for either architecture.

#101 Borsu/BPS ISA SCSI interface adapter

- o options selected via links
- o link-selectable port address
- o DMA, with link-selectable channel
- o Boot ROM, with link-selectable memory address
- o parity generation
- o DMA completion interrupt, with link-selectable IRQ level
- o Additional 'Data Request' interrupt for multi-tasking support in non-DMA environments
- o very high performance possible due to cpu 'hold' facility, which synchronises cpu with disk speed when using 286-style block I/O
- o 2 software-readable option links (currently not used)
- o fixing bracket integral with card
- o fitted as standard with two connectors -
 - o external 37-way D connector
 - o internal 50-way IDC connector (standard SCSI)

#102 Borsu/BPS ISA SCSI interface adapter (enhanced)

- o options selected via switches
- o uses the NCR 53C90 SCSI controller chip for high performance and future flexibility
- o Boot ROM, with configurable memory address
- o full burst-mode DMA capability for high performance & low cpu overhead, especially when used in environments where overlapped I/O is required
- o configurable DMA channel
- o full interrupt capability, with configurable IRQ level
- o parity generation & checking
- o supplies terminator power via an option jumper
- o activity LED connector
- o fitted as standard with two connectors -
 - o external 50-way centronics style connector
 - o internal 50-way IDC connector (standard SCSI)

#103 Borsu/BPS MCA SCSI interface adapter

- o no switches or links, all configuration via @583D.ADF configuration file
- o option bit in @583D.ADF file (currently not used)
- o Boot ROM, with configurable memory address
- o parity generation
- o no DMA capability
- o 'Data Request' interrupt capability for multi-tasking support, with configurable IRQ level
- o very high performance possible due to cpu 'hold' facility, which synchronises cpu with disk speed when using 286-style block I/O
- o fitted as standard with two connectors -
 - o external 37-way D connector
 - o internal 50-way IDC connector (standard SCSI)

#104 Borsu/BPS MCA SCSI interface adapter (enhanced)

- o no switches or links, all configuration via @583E.ADF configuration file
- o uses the NCR 53C90 SCSI controller chip for high performance and future flexibility
- o Boot ROM, with configurable memory address
- o full burst-mode DMA capability for high performance & low cpu overhead, especially when used in multi-tasking environments, or where overlapped I/O is required
- o configurable arbitration level (DMA channel)
- o full interrupt capability, with configurable IRQ level
- o parity generation & checking
- o fitted as standard with two connectors -
 - o external 37-way D connector
 - o internal 50-way IDC connector (standard SCSI)

#105 Borsu/BPS Parallel Port SCSI interface adapter

- o requires no slot, simply attaches to the parallel port
- o increased data throughput on machines with a bi-directional parallel port
- o fitted as standard with 50-way centronics style connector for attaching direct to the target device
- o supplies terminator power via an option jumper

#106 Borsu/BPS 16-bit ISA SCSI interface adapter

- o options selected via switches
- o uses the NCR 53C94 SCSI controller chip for high performance and future flexibility
- o Boot ROM using FLASHROM technology giving field upgradability, with configurable memory address
- o full burst-mode 16-bit DMA capability for high performance & low cpu overhead, especially when used in environments where overlapped I/O is required
- o configurable DMA channel
- o full interrupt capability, with configurable IRQ level
- o parity generation & checking
- o supplies terminator power via an option jumper
- o activity LED connector
- o fitted as standard with two connectors -
 - o external 50-way centronics style connector
 - o internal 50-way IDC connector (standard SCSI)
- o floppy disk controller for 5 1/4" and 3 1/2" disks
- o encryption chip and software available as an option

This section describes briefly the procedure for installing and using the Borsu Disk System in the context of DOS.

The typical components of a Borsu Disk System are:

One or more disk drives, either for internal mounting or in an external box complete with their own power supply. If the drives are of the removable cartridge type, then you will also have been provided with some disk cartridges.

A Borsu SCSI interface adapter. If it is an ISA-style adapter it will be accompanied by a reference card explaining the meaning of its various link options. If it is an MCA adapter it will have an associated .ADF file on diskette.

A cable for connecting the drive(s) to the SCSI adapter.

The BORSUV4 software on diskette.

The precise details of installation will vary according to the exact type of Borsu Disk System - whether it includes fixed or removable drives, the number of drives, whether they are for mounting internally or contained in a free-standing external unit etc. However, some basic principles are common to all types, the main difference being whether the host computer is ISA (Industry Standard Architecture) or MCA (Micro Channel Architecture) based.

First run the INSTALL program on the supplied diskette. This will create a directory on your boot disk and copy all of the Borsu disk software into it. It will also, if required, update your CONFIG.SYS and AUTOEXEC.BAT files.

Using the reference card provided with the Borsu SCSI adapter, check the link options settings - they should be set to the factory defaults.

Switch off your computer. This is important - inserting an adapter into a computer which is switched on can damage both the adapter and the machine.

Open the computer and fit the Borsu SCSI adapter into a spare expansion slot - it doesn't matter which one.

If your Borsu drive is for internal mounting, fix it in place and connect it to a spare lead from the computer's power supply. If it an external unit, then connect it to a mains supply.

Connect the drive to the SCSI adapter with the cable supplied - the cable is normally keyed to ensure it cannot be plugged in the wrong way round.

Switch on the computer. When it boots up you will see a display from the BORSUV4.SYS driver showing the drive type and the DOS drive letters the Borsu drives have been assigned.

If, instead of this, you see a message indicating something is wrong, recheck all your connections and try again.

If the problem persists, it may be that the Borsu SCSI adapter is in conflict with another adapter - for example they are both attempting to use the same port address. In this situation you may have to change the port address of the Borsu adapter. To do this switch off your computer and remove the adapter. Referring to your reference card, change the port address to another value by moving the appropriate links.

If you cannot resolve the problem yourself, contact Borsu's technical support department for assistance.

Once the BORSUV4.SYS driver is installed successfully, you can use the Borsu drives just as you would any other disk drives. If you have removable cartridge drives you will probably have to format them before use. To do this run the BORSUV4.EXE Disk Manager utility program and select the FORMAT function.

Installation in a PS/2 MCA computer is slightly different in that an MCA adapter does not have links or switches, but instead is supplied with a .ADF file which contains details of its configuration options. ADF files are used by the IBM (or compatible) Reference Diskette software to set up the correct options. In this way potential conflicts with other adapters are avoided.

The installation procedure is as follows:

First run the INSTALL program on the supplied diskette. This will create a directory on your boot disk and copy all of the Borsu disk software into it. It will also, if required, update your CONFIG.SYS and AUTOEXEC.BAT files.

Copy the Borsu adapter's .ADF file onto a copy of the reference diskette that came with your PS/2.

Switch off the machine and install the adapter card.

Switch on the machine with the reference diskette loaded in the A drive. You will be told that an unknown card has been detected and asked if you wish to run automatic configuration. Reply Y to this question. After automatic configuration has completed, re-boot the machine from the hard disk.

Installation is now complete.

BORSUV4.SYS is an installable device driver containing support for two DOS devices - one block device and one named character device. The block device supports normal DOS access to the drive(s), while the character device supports 'privileged' access to the drive(s) for use by the utility software for non-DOS operations such as formatting, image copying etc. This technique means that all device-dependent software is located in the device driver. In turn, this both reduces support/upgrade problems and enhances the portability of the software.

BORSUV4.SYS automatically detects the type of drive attached to its SCSI interface adapter. Some drive types, particularly older ones such as the ALPHA 10's, have certain features which have to be handled in a special way. Most modern, CCS-compatible drives, however, can be handled in a standard fashion.

BORSUV4.SYS is configurable via software switches in your CONFIG.SYS file (although usually this is not necessary).

For example

```
device = BORSUV4.SYS /d /b1024
```

enables diagnostic error displays (full CCS error code handling is implemented) and provides support for 1024 byte physical sectors. There are around 20 different switch types, primarily for engineering/support use, which are described in full in the next section.

A variety of I/O techniques is supported - iAPX 286 block I/O, DMA, PIO etc such that the driver can tune itself to match both machine and drive performance.

The Borsu driver supports a data encryption interface, enabling third-party data encryption products to interface directly to Borsu drives.

If the DOS utility SHARE is loaded, then for removable SCSI drives only, the driver will automatically lock the drive doors while files are open, thus preventing invalid cartridge changes from occurring.

Normally, SHARE is only used in the context of network applications, but there is no reason not to install it in a single-user PC in order to achieve the automatic door-lock feature - it has only a small memory /performance overhead. Technically, the presence of SHARE causes DOS to inform the driver every time a file is opened/closed, thus allowing the driver to prevent disk changes unless there are no files open.

Prior to DOS 4, DOS had an effective limit of 32 MB per single DOS volume (or drive letter). BORSUV4.SYS for DOS automatically overcomes this constraint, allowing a high-capacity fixed disk's entire capacity to be available as a single DOS drive letter under 3.x.

A 'hot-fix' feature is standard within the Borsu driver. This means that if an error is detected when data is being written to disk, any sector in error will be replaced automatically by a good one and the data written again.

The following notes describe in detail all the switches which may be appended to the DEVICE = BORSUV4.SYS line in CONFIG.SYS in order to configure the Borsu driver's behaviour (the same switches can be appended to the BDEVICE BORSUV4.SYS command line).

Switches may be specified in upper or lower case, must start with the switch lead-in character (- or /) and may optionally be separated by one or more spaces.

The following description has been split into three sections.

The first section describes switches that affect the driver as a whole.

The second section describes switches that are appropriate to a specific adapter.

The third section describes switches that are appropriate to a specific drive.

The BORSUV4.SYS device driver, under normal circumstances, automatically detects any of the supported SCSI adapters present in the machine at initialisation time and automatically detects all drives attached to those adapters. The ability to support multiple adapters and multiple drives per adapter requires a fairly complex switch syntax to be able to distinguish between drives on the same adapter and different adapters.

Under normal circumstances adapter switches need not be specified since the adapter and drive auto-detection copes with most cases.

The basic structure of the switch syntax can be specified as follows:

```
device = BORSUV4.SYS <driver> [ <adapter> [ <drive> ]... ]
```

where <driver> are driver specific switches

<adapter> are adapter specific switches

<drive> are drive specific switches

The first adapter switch must always be the /An switch to specify the adapter type. The first drive switch must always be the /Sn switch to specify the SCSI ID of the drive. The parentheses ([[..]]) must always be present.

A typical command line might look like:

```
device = BORSUV4.SYS /D /M [/A1 /@2E0 [/S0 /2] [/S1 /T30]]
```

The driver switches (/D, /M) enable diagnostic error messages and disable auto-detection.

The adapter switches (/A1, /@2E0) specify a Borsu 101 adapter with an i/o base address of 2E0h.

The first set of drive switches (/S0, /2) specify that the drive with SCSI ID 0 has two logical units.

The second set of drive switches (/S1, /T30) sets the dwell time of the drive with SCSI ID 1 to 30 minutes.

A more complex command line might look like:

```
device=BORSUV4.SYS /M [/A1/@2E0 [/S0/1]] [/A1/@2A0 [/S0/2]]
```

The /M driver switch disables auto-detection.

The first set of adapter switches (/A1, /@2e0) specifies a Borsu 101 adapter with an i/o base address of 2E0h.

The drive switches following (/S0, /1) specify that the drive with SCSI ID 0, attached to the first adapter, has a single logical unit.

The second set of adapter switches (/A1, /@2A0) specify a second Borsu 101 adapter this time with an i/o base address of 2A0h.

The drive switches following (/S0, /2) specify that the drive with SCSI ID 0, attached to the second adapter, has two logical units.

- /Bnnnn** Big sectors. The **/B** switch is used to support devices that have a physical sector size greater than 512 bytes. The **nnnn** parameter specifies the maximum physical sector size that the driver will support. Some magneto-optical drives have 1K physical sectors and so **/B1024** should be specified.
- /D** Display flag. Enables on-screen diagnostic error messages if errors occur or if automatic sector remapping is used.
- /Knn** Encryption enable. This switch enables the use of the Eracom data encryption interface built into the BORSUV4 driver. It should only be used when Eracom encryption hardware and firmware is present. The optional **nn** parameter specifies the software interrupt number, in hexadecimal, which will be used by the interface. If omitted, the default interrupt will be used.
- /M** Manual override. This switch disables the auto-detection of adapters and drives. When used, at least one adapter must be specified.
- /V** Enable verify after write. This switch has a similar effect to issuing the DOS command **VERIFY ON**, i.e. disk writes are verified by a post-write read. This results in a higher level of data integrity at the cost of a slight reduction in performance. By using the **/V** switch instead of the **VERIFY** command, however, disk write verification is restricted to only those drives supported by **BORSUV4.SYS** - writes to other DOS drives are not verified and thus their performance is not affected.
- /W** Wait. This switch causes the driver to wait for a key press after performing its initialisation and displaying its drive and adapter details.

`/Ann` Adapter type. This switch specifies the adapter type being used. It must be the first switch after the first '['. The `nn` parameter specifies the adapter type, valid values are:

- 1 Borsu 101 ISA SCSI interface
- 2 Borsu 102 Advanced ISA SCSI interface
- 3 Borsu 103 MCA SCSI interface
- 4 Borsu 104 Advanced MCA SCSI interface
- 5 Borsu 105 Parallel Port interface
- 6 Borsu 106 16-bit ISA SCSI interface

- 10 Iomega PC2
- 11 Iomega PC4
- 12 Iomega PPI

`/@nnnn` I/O base address. This switch is used to specify the i/o base address of the adapter. The `nnnn` parameter specifies in hexadecimal the i/o base address of the adapter. The value must match that set up on the adapter card by the option links or switches.

`/Cn` Adapter i/o technique. This switch specifies the i/o technique to be used by BORSUV4.SYS when transferring data to or from the adapter. The `n` parameter specifies the technique to be used. Valid values for `n` are:

- 1 DMA, using dma channel 1
- 3 DMA, using dma channel 3
- 4 PIO, synchronised (slowest)
- 5 PIO, slow
- 6 PIO, medium
- 7 PIO, fast (fastest, requires 80286 or better)

`/Pn` Parallel port adapter i/o technique. This switch specifies the i/o technique to be used with a parallel port adapter. The `n` parameter specifies the technique to be used. Valid values for `n` are:

- 0 PIO, synchronised (slowest)
- 1 PIO, slow
- 2 PIO, medium
- 3 PIO, fast (fastest uni-directional)
- 4 PIO, slow bi-directional
- 5 PIO, medium bi-directional
- 6 PIO, fast bi-directional (fastest)

`/Rnn` Post reset delay. This switch is used to specify the time to wait, after issuing a SCSI reset, before trying to access a device. The `nn` parameter specifies the time to wait in seconds, the default post-reset delay is 3 seconds. This switch is useful for devices that take a long time to spin up and come ready at power up, specifying this switch can ensure that slow reset or power-up devices are auto-detected.

Drive switches

`/Sn` SCSI ID. This switch is used to specify the SCSI ID of the drive. This must be the first switch specified after the second '['. The `n` parameter specifies the SCSI ID and must be in the range 0 - 7.

`/1` Set the number of logical units of the drive to one.

`/2` Set the number of logical units of the drive to two

`/3` Set the number of logical units of the drive to three.

`/4` Set the number of logical units of the drive to four.

`/Ln` Set defect list parameter. This switch allows the parameters of the SCSI 'Format Unit' command (used by all drives except the Alpha 10/20's) to be modified. The `n` parameter can be in the range 0 - 3 and has the following effects:

- 0 Actually bypasses the 'Format Unit' command altogether.
- 1 Requests the manufacturers default formatting algorithm.
- 2 Requests that any defects found be added to the existing defect list (if any).
- 3 Requests that a new defect list be created, disregarding any existing one. This is the default option if the `/Ln` switch is omitted.

`/Tnn` Set Beta drive dwell time. This switch is used to specify how long the drive must remain unaccessed before BORSUV4.SYS spins the drive down. The `nn` parameter specifies the time in minutes the drive must be inactive before it is spun down. Valid values are 5, 15, 30 minutes. If `/T` is specified without any parameter or `/T0` is specified then the dwell timer feature is disabled and the drive will not be spun down. Note that this feature applies only to Beta 20, Beta 44 and Aurora 90 drives.

BORSUV4.EXE is the utility program which provides user management of the Borsu drives and/or cartridges. It is an interactive, 'windows'-style program with full in-context help, but can also be used in batch (or 'command tail') mode for inclusion in DOS batch files.

eg. BORSUV4 runs the program in
 interactive mode.

BORSUV4 verify c: runs the program in command
 tail mode and verifies the
 cartridge in drive C.

Optionally, BORSUV4.EXE will create a log of its actions - very useful if, for example, you wish to set up a soak-test of your drives and create a hard-copy log of any errors detected.

BORSUV4.EXE contains the following major functions:

FORMAT to format a cartridge (either full, low-level format or simply a re-initialisation), with optional operating system copy.

VERIFY to verify the integrity of a cartridge by reading every sector and checking for errors.

DISPLAY to display cartridge details such as capacity, DOS volume label, bad track/sector details (not all drive types).

DRIVE INFO to display details of all adapters and drives that are being supported by BORSUV4.SYS.

COPY to carry out a highly optimised copy function, both between two cartridges and between hard disk and cartridge, with a sophisticated volume label checking procedure to ensure correct direction of copy. The BORSUV4 COPY function is in essence an image copy function and is FAT-driven when possible, therefore minimizing unnecessary sector copying. It can, for example, copy a 40 MB hard disk onto a single Beta 44 cartridge in just a few minutes in fully usable and bootable form. It correctly handles any differences in layout, capacity etc.

DIAGS to carry out SCSI self-test diagnostics and random read/write tests on cartridges, to provide user reassurance and engineering soak test etc.

UTILS to provide special options such as drive door lock/unlock, motor stop/start (not all drive types).

SHELL to temporarily quit the program to DOS.

BORSUV4.EXE has an associated help file BORSUV4.HLP, which is an in-context, random access file used by BORSUV4.EXE to provide user assistance at every prompt.

Note that in order to run successfully, BORSUV4.EXE requires the presence of the Borsu driver, BORSUV4.SYS.