Osprey

User's Manual

Redmond, WA USA

January 17, 2003

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MANUAL INFORMATION

Examples in the middle of the text (`like this`) will be set off in special type.

This document applies to the all versions of the Osprey coprocessor and the two operating systems that it runs under. The versions include the Osprey, Osprey/ISA, and Osprey/PCI. The two operating systems are DOS and NT.

There are a few differences between the Osprey/DCJ11, the Osprey/ISA, and the Osprey/PCI. There are also a few differences between DOS and NT. When something applies only to one version, a superscript notation will indicate the version. For example:

X86CPU = {Generic DX}(ISA)

X86CPU = {TI TI2 TIF TI2F INTEL IBM}(DCJ11)

PriorityClass = {Idle Normal High RealTime}(NT)

The Osprey uses several default filenames. If you rename the OSPREY.EXE file, those default names change to the same base name as the OSPREY.EXE was renamed to.

The following files will change from a base name of OSPREY to the same base name of the .EXE file.

Filename	Defined on page
OSPREY.X86	40
OSPREY.J11	34
OSPREY.BIN	30
OSPREY.CNF	28
OSPREY.CLD	31
OSPREY.FWQ	32
OSPREY.FWU	32
OSPREY.UCO	38
OSPREY.IOT	33
OSPREY.PRM	36
OSPREY.EEP	32
OSPREY.UMR	39

For example, if you rename OSPREY.EXE to STROBE.EXE then the default filenames will be STROBE.X86, STROBE.J11, etc. Since this name change affects only the default name, there will be no effect if the configuration file contains a specific call to a file. That means `J11File = OSPREY.J11` is unaffected and still looks for OSPREY.J11 in spite of what the .EXE is named. The files must reside in the .EXE file directory, the current directory, a directory listed in the OSPREY environment variable, or in the PATH. The Osprey searches for its files in that order.

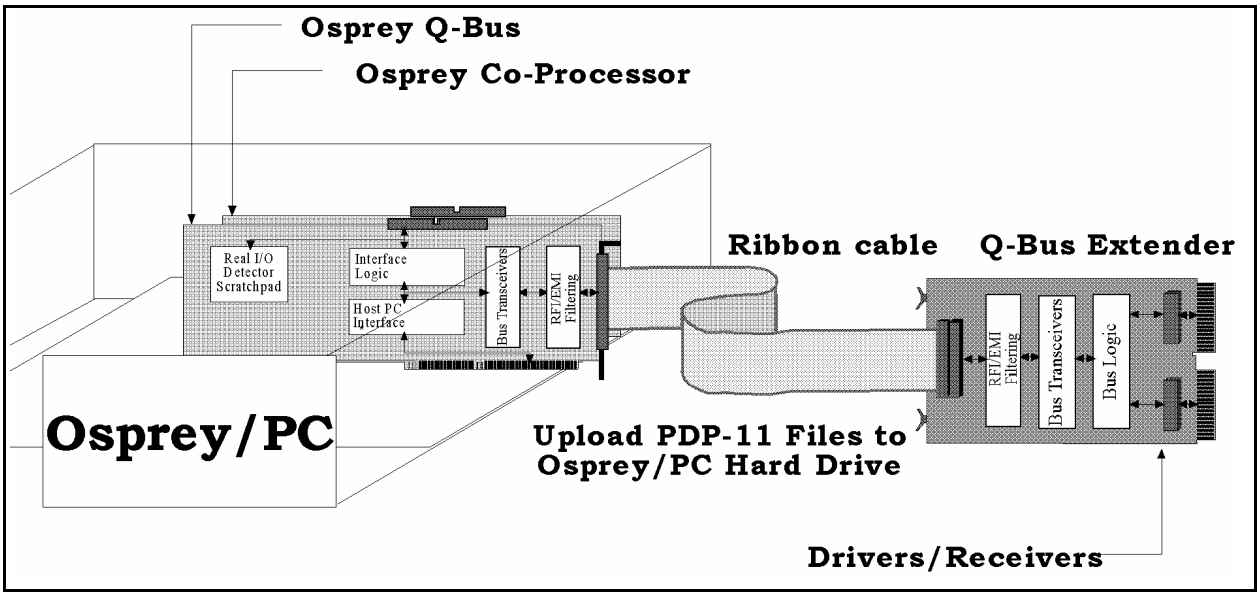
PRODUCT OVERVIEW

The Osprey Co-Processor is a PC add-in card, which allows any standard ISA, EISA, or PCI based PC to replace a Digital Equipment Corporation 16-bit PDP minicomputer. The system uses PC hardware devices to replace corresponding minicomputer peripherals in a manner transparent to the PDP software. Thus PDP operating systems and applications run without modification on the Osprey/PC platform.

Most PDP instructions are executed directly out of local memory by the Osprey's CPU. Traditional PDP hardware floating point is available through the use of either an optional onboard FPJ11 processor(DCJ11) or through the standard microcode(ISA/PCI).

I/O instructions are handled by a local 80X86 microprocessor. This processor serves as the interface between the host PC software and the Osprey CPU. On the Osprey side, it provides the low level register, status, and interrupt functions which the PDP software expects for each device. On the host side, it provides a high level interface for the routing of I/O requests to the appropriate host device.

Not every PDP device has a counterpart in the PC environment. Also, some devices used in data collection and process control are not well suited to device emulation. The Osprey board addresses this issue by allowing physical PDP devices to be supported through the use of the Osprey I/O bus adapter card. This card connects to the main Osprey card and provides the required QBUS or UNIBUS backplane signals in response to I/O instructions executed by the Osprey's J11 processor. In this configuration, the Osprey hardware is initialized on startup to route specified I/O instructions to the bus adapter.



The Osprey board is available in several configurations.

Board type	Speed compared to 11/93	Bus type
DCJ11	1.0	ISA
SX	1.0	ISA/PCI
DX	2.0	ISA/PCI
TX	3.0	PCI
QX	4.0	PCI

INSTALLATION

Hardware installation

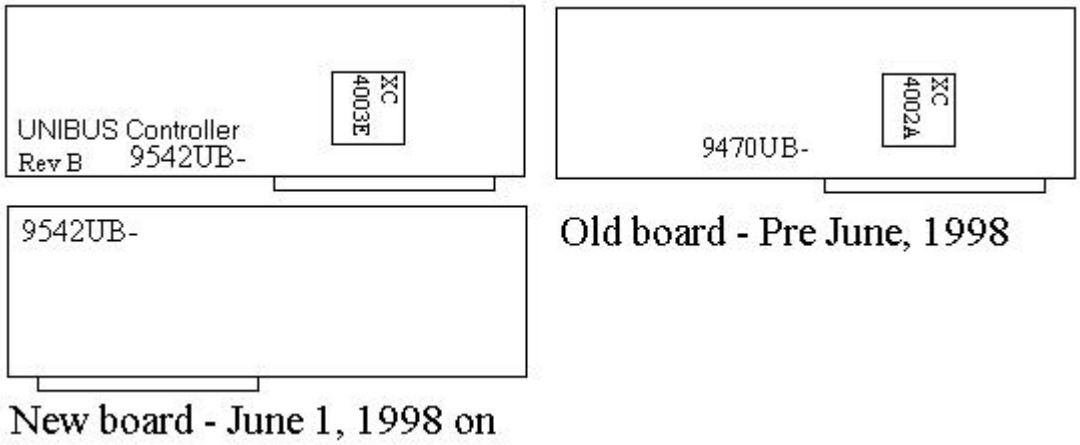
FCC Class A Radio Frequency Interference Statement
Note:
This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

DCJ11 and ISA Installation

New Unibus versus Old Unibus

Starting June 1, 1998, a new Unibus board has been included with Osprey/Unibus systems. You must install the software for the correct board. If you install the wrong software, the HWDIAG program (see page 11) will fail. Install the correct software and run HWDIAG again.

Characteristic	Old Boards	New Boards
Date	Before June 1, 1998	June 1, 1998 and after
Engraved serial number	9470UB-	9542UB-
White sticker on the back	None	Serial number 9542UB-
XILINX part number	XC4002A	XC4003E
Fan / edge connector	Plain	Orange sticker inside and out
Rev on lower left corner	Missing or “Rev A”	“Rev B” or later

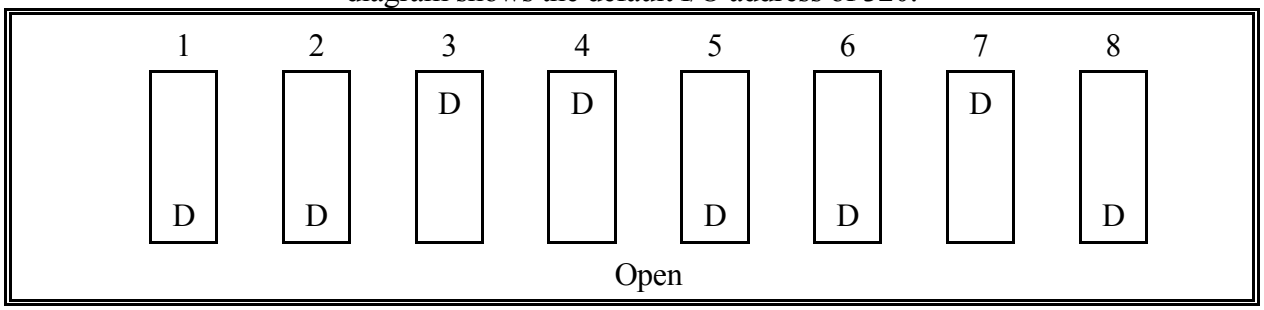


The Osprey must be plugged into a 16-bit ISA.

By default, the Osprey board uses PC interrupt 2 and PC I/O address range 320-32F. The cards can be configured with interrupt of 2 through 15 and I/O address range from 100 to FF0. Warning: most I/O cards do not decode all ranges up to FF0. Therefore, you should only use 100-3F0 for your I/O base unless you have **detailed** knowledge of the I/O decode procedure of your other add in cards. Most I/O cards will cause these ranges to be the same.

Set 1: *0xx 4xx 8xx and Cxx This set is illegal*
Set 2: 1xx 5xx 9xx and Dxx
Set 3: 2xx 6xx Axx and Exx
Set 4: 3xx 7xx Bxx and Fxx

The Osprey board interrupt is software controlled and can be specified in the configuration file (see page 32). The interrupt must not be in use by another card in the system. Also, on PCI motherboards, the interrupt must be configured for ISA usage. The device I/O address range is controlled by onboard DIP switches. The switches form the most significant eight bits of a twelve-bit I/O address. The least significant four bits are always zero. Switches that are down on the open side are read as zero bits. Switches that are up on the open side are read as one bits. The following diagram shows the default I/O address of 320.



Cooling is essential to reliability, even longevity, of the Osprey. Make sure your PC has adequate airflow. If your machine has enough slots, leave an empty slot on each side of the Osprey card set to provide extra cooling.

PC considerations

We advise our VARs to exercise extreme caution in their selection of PC hosts for Strobe's line of Co-processors. Strobe suggests the use of only top-line PC's—those marketed specifically for use as file servers, for instance. For the full description, please email support@strobedata.com

PC considerations(NT)

The host PC for Windows/NT should be at a minimum a 120Mhz Pentium with 32MB of memory and a 512MB hard drive. A high performance PCI video card with a good monitor is highly recommended (required, really).

On such a system, the performance will be nearly identical to the DOS based Osprey running on the same platform.

If additional applications will be running concurrently with the Osprey, then a minimum of a 200Mhz Pentium with 64MB of memory and a 1GB hard drive is recommended.

Monitor considerations(NT)

The software uses dynamic font sizing to find the best fit for a given window size. As you size the window, you will see the screen font adjust. At a minimum, the screen resolution should be 800 x 600 and 1024 x 768 is better. At 800 x 600, each character has only seven pixels in 80 column mode and five pixels in 132 column mode. A five-pixel character is nearly unreadable. At 800 x 600, a 100 line screen (see page 61) also has only five pixels per character.

Software installation

Osprey software is delivered on 3½" diskettes. The software requires about 5mb of disk space to install.

Software installation(DOS)

Osprey/DOS requires about 400kb of free conventional memory to run.

To install the Osprey software, insert the diskette and run the installation program:

A:\INSTALL

The program will prompt for a drive and directory name. Just hit ENTER to accept the default shown inside square brackets. To install the software using default drive and directory name (C:\OSPREY), just run A:\INSTALL /D. During installation, you will be asked which Osprey model you have. There are four different models: the new Unibus model, the old Unibus model, the Qbus model, and the single board Osprey with no bus connections. If you answer the question incorrectly, wait until the rest of the installation finishes and run the WHICHBIN program (see page 14) to re-configure.

Software installation (NT)

Insert disk 1 and use any one of the standard NT installation methods:

1) Choose Start \ Run \ a:setup.exe
2) Choose Add-Remove Programs from the control panel
3) Click My Computer and then the 3½" floppy. Run setup.exe

The Osprey/NT software is also available from the Internet at http://www.strobedata.com in the Osprey support section.

The setup program will guide you through the installation process. You will need to know the following information:

- What type of Osprey board you are using (Osprey DCJ11, Osprey/ISA or Osprey/PCI)
- What type of I/O adapter you are using (Qbus, Unibus, New Unibus or None)
- The I/O address of the board (Hex 320 is the default)(DCJ11/ISA)
- The interrupt number you will use for the board(DCJ11/ISA)
- If you need the Strobe Data StrobeMux multi-line serial I/O card driver
- If you need to access RX50 diskettes using the PC 1.2MB drive
- If you need the 3C509 Ethernet card driver for DEQNA emulation
- If you need the 3C900B Ethernet card driver for DEQNA emulation
- The ID port if you have multiple 3C509 Ethernet cards
- If you are using a Boca board multi-line serial card

(DCJ11/ISA)To locate available interrupt and I/O address resources, run the 'Windows NT Diagnostics' program from within the 'Administrative Tools' program group. Select the 'Resources' tab to view a list of currently active drivers and the interrupts, I/O address, and DMA channels used by each driver.

The StrobeMux driver allows access to the StrobeMux ports via the standard NT COM interface (modem control functions are disabled as the StrobeMux ports do not support modem control signals). You will need to know the interrupt and I/O address of each StrobeMux board and to ensure that these resources are available. You also need to select a starting COM port number for the serial ports on each board and to specify a 16 or 32 port board.

To support RX50 diskettes in the PC 1.2MB floppy drive, the Osprey/NT package uses a specially modified version of the standard NT floppy driver. You can not use 360Kb diskettes in a 1.2Mb drive when the Osprey/NT floppy driver is installed.

A custom driver is required if you are using a 3COM 3C509 or 3C900B network card to provide DEQNA emulation. The 3COM 3C509 card must be configured (using 3COM's DOS based 3C5X9CFG.EXE program) to have the Plug-n-Play feature disabled and the I/O base and interrupt manually programmed into the card. This is identical to the card setup requirements of the Osprey/DOS system. The 3COM 3C900B network card does not require configuring.

Note that the Osprey/NT 3C509 driver also requires access to a card identification port, which may be any available I/O port numbered 1x0 (hexadecimal), where x represents any hexadecimal digit. The default card identification port is 110 (hexadecimal). If you have one or more other 3C509 cards in the system that are being used by the standard NT network driver, this driver will have already reserved I/O port 110 for its exclusive use. In this case, the Osprey/NT 3C509 driver will attempt to use a valid, alternate port (140, 130 or 120 hexadecimal) for this purpose. If none of these alternate ports is available, the Osprey/NT 3C509 driver will not load. To work around this, you can force the driver to use any other valid (1x0 hexadecimal) address for the card identification port by creating a DWORD registry value named IDPORT under the HKEY_LOCAL_MACHINE\System\CurrentControlSet\Services\Osp3C509\Parameters registry key and giving it the required port address.

The Osprey/NT 3C900B driver will not access a 3C900B network card which is in use by the standard NT network driver. To allow Windows NT to use one or more 3C900B cards at the same time that Osprey/NT uses one or more (different) 3C900B cards, configure the Windows NT network first; Osprey/NT can then use the remaining (unused by Windows) 3C900B cards. After the software is installed, the NT system must be restarted to load the drivers. If any driver fails to load, NT will display a message directing you to the 'Event Viewer' program to see the detailed error descriptions. The 'Event Viewer' program is found in the 'Administrative Tools' program group.

Getting new versions of the software

The most recent versions of Osprey software and utilities are available on the Strobe Data ftp site and web site.

You may also retrieve software, get technical support, or get marketing information via the Internet. All information is available via the home page.

Home Page	http://www.strobedata.com/
Anonymous ftp	ftp://mail.strobedata.com/
Marketing/sales	sales@strobedata.com
Tech support	support@strobedata.com

System verification(DOS)

Once the hardware and software have been installed, go to the OSPREY directory and type HWDIAG. This provides a quick test of all major components and data paths on the Osprey board. A simple board diagnostic will run.

When HWDIAG passes, go to the OSPREY directory and type:

OSPREY /C:EXAMPLE.CNF

The Osprey will give you several options. See the section on OSPREY.CHK (page 21) for details on how to run the diagnostics.

If HWDIAG fails with memory tests, and you have a Unibus machine, you may have installed the wrong Unibus software. See page 7 for information about determining your board type.

System verification(NT)

Once the hardware and software have been installed, click `Start \ Programs \ Osprey \ Diagnose Hardware (low level)`. This will run the HWDIAG diagnostic.

Once HWDIAG passes, click `Start \ Programs \ Osprey \ Diagnose system (high level)`

The Osprey will give you several options. See the section on OSPREY.CHK (page 21) for details on how to run the diagnostics.

PC Hardware installation

Standard disk drives, monitors, keyboards, COM ports, parallel ports and networks are used by the Osprey system.

(DOS)For most devices, you must not load the device drivers in to your CONFIG.SYS or AUTOEXEC.BAT. The Osprey program uses its own drivers and will conflict with most manufacturers' drivers.

ASPI Installation(DOS)

The ASPITAPE option (page 84) requires a SCSI controller with ASPI.SYS installed, and connected to a Digital TZ30 tape drive.

ASPI Installation(NT)

The ASPITAPE option (page 84) and the ASPIDISK option (page 84) require a SCSI controller. The ASPI device can be used whether or not there is an NT driver installed.

To specify the SCSI device unit and controller, the '/Unit:<SCSI Unit ID>' and /Adapter:<SCSIBoard>' options can only be used if the device has not been claimed by an NT class driver.

If the device has been claimed by an NT class driver, the new '/Name:<Device name>' option must be used. For example the option '/Name:Tape0' might be used to specify a SCSI tape device claimed by the NT tape class driver and '/Name:PhysicalDrive1' might be used to specify a SCSI disk claimed by the disk class driver.

A utility program, DOSDEV.EXE, has been provided which can be used to display all system device names by clicking `Start \ Programs \ Osprey \ DOSDEV`, or using the command line `DOSDEV | more`. Note that this program displays the device names in the left column; the right column shows the NT native names which give a better indication of the actual device.

Customer software/data installation

After the system has been verified with HWDIAG and EXAMPLE.CNF, you are ready to move the original PDP-11 software and data to the PC.

Each physical disk on the Digital minicomputer must have a corresponding disk emulation (disk image) on the PC. You can choose MS-DOS files on the hard disk, memory areas, floppy disks, network files, etc for your disk images. (See the configuration file section beginning on page 27 for a complete description.)

Most typical disk drives can be copied using the GETDISK program. See page 129 for more information.

If you can not use the GETDISK program, you will need to use the standard PDP operating system to copy your files.

Under most circumstances, Digital disk drives are emulated by means of ordinary files. Use the container file builder program ((DOS)CONTAINR) to create an MS-DOS file container file (see page 107).

Unfragmented file container files (usually created in a freshly formatted partition) will provide the best performance, although a fragmented container file will not affect reliability.

After all container files have been created by the container file builder ((DOS)CONTAINR), their names need to be added to the configuration file. (See the Configuration section beginning on page 27 for a complete description.)

An installer with Osprey Qbus or Unibus board can download the minicomputer software by means of a disk to disk copy using standard PDP operating system utilities. A GETDISK program is also provided with the Osprey software that may copy your disk as well. See page 129 for more details.
See page 8 for Qbus interrupt priority on the Strobe Qbus Chassis.
Make sure that the controller you reference for the minicomputer disk is not defined as a virtual device in the configuration file.
Two other methods that may be used to move software are by floppy or by tape. Floppies are accessible with the configuration line:

FLOPPY /Drive:0 = MSCP /Unit:1

Then put the floppy in drive A: (/Drive:0) and boot DU1.
Tapes are accessible with the configuration line:

ASPITAPE = TMSCP /Unit:0

Then put the tape in the Digital TZ30 drive and boot DU0.
Once all customer software and data has been installed on the PC, remember to change the configuration file for normal production use. The Osprey/PC system is then ready to run.

Typical IRQ and I/O bases(DCJ11/ISA)

This table is provided as a reference to avoid hardware conflicts when installing the Osprey in a PC with other I/O cards.

IRQ The underlined interrupt number is recommended
I/O Most add-in cards can be reconfigured. The I/O port listed is recommended.

Hardware	IRQ	I/O	DMA
Floppy Disk	6	3F0	2
Fixed Disk	E	1F0	
80x87 Chip	D	F0	
Bus Mouse	C		
Video		3B0-3DF	
PRN1	7	370, 3BC	
PRN2	5	270	
COM1	4	3F8	
COM2 or Mouse	3	2F8	
COM3	7	3E8	
COM4	5	2E8	
Strobe Mux 1	AB F	280	
Strobe Mux 2	AB F	290	
Strobe Mux 3	AB F	2A0	

Hardware	IRQ	I/O	DMA
Strobe Mux 4	AB F		
Osprey	23456789ABCDEF	320	
WD Network Plus	2345 7 AB F	2A0	
Etherlink Plus	34567 9ABC EF	330	1 3 567

Xilinx .BIN File Selector(DOS)

The WHICHBIN program gets executed automatically during software installation. It asks for the Osprey model number and copies the correct .BIN file into OSPREY.BIN. If you change the model of Osprey you have, or you answer incorrectly, run the program again and give the correct model number.

You may get a help screen from WHICHBIN by giving the /H switch. An abbreviated form of the help screen follows.

```
WHICHBIN  Rev 3.00

General form: WHICHBIN [args]

This program will select which .BIN file to use for the
Osprey.

Argument   Meaning
/D:dir     Use this directory
/A         Do all configuration. This creates the the
           configuration files WHICHBIN.CNF and OSPREY.CLI
           You should have the following line in .CNF files
           Include WHICHBIN.CNF
```

Xilinx .BIN File Selector(NT)

Configuration takes place during installation. To change the various configuration options, simple re-install the software and choose Software Configuration Only.

PC SOFTWARE UTILITIES(DOS)

Disk caching(DOS)

All standard PC disk-caching programs will cache Osprey disk accesses. Disk intensive applications will benefit greatly from a good disk cache. Norton cache and PC-Tools cache are recommended over SMARTDRV, but SMARTDRV can be used if nothing else is available. The Osprey provides an internal cache using XMS for block devices.

Container File Access

(DOS)A special access method for files under DOS called CLUSTER access is implemented on the Osprey. This method provides more performance than using DOS to access the files. Unfortunately, SMARTDRV does not cache our cluster access and reduces the performance measurably. For best performance, you should disable SMARTDRV and enable Strobe Data's internal XMS cache when using cluster access.

(NT)CLUSTER has been replaced by the NT file system. If you specify CLUSTER in your configuration file, Osprey will instead use FILE and allow NT to handle the disk access.

CMOS setup(DOS)

A utility independent of the Osprey called FSETUP.EXE can be used to ensure that the CMOS setup is not modified inadvertently. It should be installed in the AUTOEXEC.BAT of all AT class machines.

FSETUP copies the contents of the CMOS to a file, verifying that file against the CMOS whenever requested.

To more fully protect the setup, it is a good idea to create a bootable floppy with FSETUP /V in the AUTOEXEC.BAT and boot it at least twice. This floppy can be used to restore the CMOS in the event it is lost (due to battery failure, accidental erasure, etc.).

Hard disk reliability(DOS)

Another useful PC utility, independent of Osprey operation, is a program pair called FIXWATCH.EXE and FIXSTAT.EXE, which monitor hard disk BIOS calls. FIXWATCH is the TSR. Install it in the AUTOEXEC.BAT of any PC. FIXSTAT is invoked under MS-DOS to display a report of calls to the disk drive and disk drive errors. FIXSTAT should be run regularly each time that the machine is turned off, although it can be run at any time.

Machine diagnostic(DOS)

A program called FTESTPC tests the reliability of the PC. It is initiated in one of several ways. Type:

FTESTPC /M /X /D (if the PC has XMS; e.g., HIMEM.SYS)

FTESTPC /M /E /D (if the PC has EMM; e.g., EMM386.EXE without NOEMS)
FTESTPC /M /X /E /D (if the PC has both XMS and EMM)

Status boxes are displayed while the program is running. If the large box at the left displays any errors, or does not say No errors detected, then the PC is not reliable.

The program will run indefinitely, or until the ESC key is pushed. The diagnostic should run at least a few cycles; overnight is better. For machines with very large amounts of free disk space, the /D can be replaced by /D:*bytes* where *bytes* is no more than half the free space.

STARTUP

Default Startup File

OSPREY.J11 is the default memory image loaded (see J11File on page 34) when the Osprey is invoked.

The program will initially display this screen:

Welcome to the Osprey Co-Processor

Startup code version 7.30 -- February 1, 2000

Please press the ESC key to continue

Any key other than ESC will re-display the startup code version screen. The startup code displays a menu of options after it receives ESC.

Osprey Startup/Bootstrap Menu

```
     Disk Ctlr   Drives                                    Tape Ctlr   Drives
     ----------------------------------------              ----------------------
 1.. MSCP        RAxx,RC25,RD5x,RX33,RX50           21.. TMSCP       TK50,TU81E
 2.. RH11/RH70   RP04/5/6/7,RM02/3/5/80,RS03/4      22.. TS11/TSV11  TSV05,TU80
 3.. RL11/RLV11  RL01,RL02                          23.. TM11/TMA11  TE10,TU10
 4.. RX11/RX211  RX01,RX02,RX03,RX04                24.. RHxx,TM03   TE16,TU77
                                                    25.. DL11/DLV11  TU58
```

6.. RK611/RK711 RK06,RK07

```
 7.. RK11        RK05,RK05F                              Ethernet
 8.. FWDx106     RX01/2; various Winchesters             --------
```

30.. DEQNA

Boot procedures will ask for a base address and unit number. The defaults are shown in square brackets.

```
Enter controller address..... [172150]
Enter unit number............ [0.]
```

When you start with J11File = OSPREY.CHK (as on page 11), the diagnostic startup screen is displayed instead of the boot startup screen. See page 25 for a description of the diagnostic.

STARTKEY

STARTKEY is a DOS utility that will add pre-loaded responses to the OSPREY.J11 file. The program creates a file called OSPREY.AUT that you must specify in your OSPREY.CNF file.

```
J11File = OSPREY.AUT          ;Use modified startup program
```

To use STARTKEY, boot Osprey normally first. Write down each key that you touch. Since the STARTKEY program only modifies the J11File, you may stop writing keys down after you boot any operating system. After you recorded all the keys, run the STARTKEY program and type exactly the same keys into it. When you are done, touch Alt-X. Modify your configuration file (see above) and boot Osprey again. The keys you typed should boot your system automatically.

There is a limit of 256 key values. Most keys use only one key value, but function keys and some other keys will use three key values. The program will abort if you type too many.

The sources for the Osprey startup modules OSPREY.J11 and OSDIAG.J11 are provided in the cross assembler. See page 131 for more information.

OSPREY.CHK

EXAMPLE.CNF

The Osprey is shipped with an example configuration file named EXAMPLE.CNF. This will run some base memory and disk diagnostics.

(NT)Simply choose the Diagnose system (high level) to invoke EXAMPLE.CNF. If you have installed multiple boards in your machine, this diagnostic may only be run on one board at a time.

```
;-------------------------------------------------------------------------
                      ; Example Osprey configuration file
;-------------------------------------------------------------------------
Interrupt   =   10

NumlockKey  =   F12

MemorySize  =   4MB
CON         =   Console
Startup     =   0
StrobeODT   =   ODT

CPU         =   KDJ11-E /Line:60
J11File     =   OSPREY.CHK


File /Name:TESTDISK.DU0 /Size:4096 = MSCP /Unit:0
```

When you start Osprey using example.cnf, you will see the following screen.

```
                    Osprey Diagnostics Menu

   1.. Memory
   2.. Memory size
   3.. Disk
   4.. New disk
   5.. Write signature

                  Enter option ................... [1.]
```

Option 1 -- Test memory

This test will run indefinitely unless you press a key or shut down the Osprey. If you press a key, the test may wait several seconds until it finishes an operation.

```
          Testing Memory  -- 8016 blocks.  Hit any key to exit ...
Total Blocks .        128      All Blocks      Compare Errors ..        0
```

```
                                                                Osprey.Chk
  Reads ......          0                0        Read  Errors ..        0
  Writes .....          0                1        Write Errors ..        0
```

Option 2 -- Memory size

This will set the memory size of the Osprey used during testing. The default is 4mb and should not be changed.

Option 3 -- Test disk

This test is destructive and will destroy all data contained on the disk it is testing. The test will not run on disks without the signature. See option 5 to add a signature to a disk.

This test will run indefinitely unless you press a key or shut down the Osprey. If you press a key, the test may wait several seconds until it finishes an operation.

The disk test may be configured to run with container files, DOS files, or original hardware. The example.cnf file defines a single MSCP disk on unit 0, type RD54.

If you haven't added any disks yet (option 4), then you will be prompted for disk parameters. See option 4 for a description of the questions and answers.

Option 4 -- New disk

For each question, you may type ? (as below) to see a list of options.

```
Add disk controller and units ..
Enter device class .............?
   1 - MSCP                4 - RX11/RX211   7 - FWDx106
   2 - RH11/RH70           5 - RK611/RK711  8 - DOS file
  3 - RL11/RLV12          6 - RK11
Enter device class ............. 1   MSCP
                            Enter unit class ............... ?
  1 - RA/RC/RD/RX33/RX50  4 - RX01-04      7 - FW drives
  2 - RM/RP/RS            5 - RK06/RK07    8 - DOS file
  3 - RL01/RL02           6 - RK05
Enter unit class ............... 1   RA/RC/RD/RX33/RX50
Enter vector address ........... [000154]
Enter device address ........... [172150]
Enter disk to be tested ........
0.. 0:RD54          1.. 1:----          2.. 2:----          3.. 3:----
Enter unit number ..............0
```

Option 5 -- Write signature

This option is destructive and will destroy data contained on the disk it is writing. Press ESC to cancel this option.

The disk test (option 3) requires a special signature on block zero of the disk before it will test the disk. If you have modified your .CNF file to include more disks (see the configuration section starting on page 27), then you will need to write the signature if you want to test the disks.

Both this option and option 3, disk test, will destroy data on the disk.

CONFIGURATION

Examples

Most calls to tech support involve the configuration file. Nearly all of those questions are answered in this section. These examples are provided as the first part of this section with the hopes of answering these questions early and keeping customers running.

```
;---------------------------------------------------------------------
                    ; Simple Example Osprey Configuration File
;---------------------------------------------------------------------

Interrupt = 11
CPU       = KDJ11-E
Startup   = 0
CON       = Console

StrobeODT = ODT

Cluster /Name:C:\IMAGES\RSX.DU0 = MSCP /Unit:0
```

This configuration file sets the PC IRQ to 11, and the CPU to a KDJ11-E. The PC keyboard and screen (CON) are used for the J11 console (addresses 177560-177564). An interface to the standard ODT is provided. A single disk is installed in the system. The container file in C:\IMAGES\ named RSX.DU0 will be used for the first unit on the MSCP controller.

```
;---------------------------------------------------------------------
                   ; Complex Example Osprey Configuration File
;---------------------------------------------------------------------

Interrupt = 11
CPU       = KDJ11-E
Startup   = 0
CON       = Console

StrobeODT = ODT
        Cluster /Name:C:\RSX.DU0 /Size:2048 = MSCP /Unit:2 /Adr:172154
```

The main difference with this configuration file is that the container file will be limited to 1mb (2048 blocks = 1048576 bytes), and that the MSCP controller resides at 172154. The container file will be used for the third (/Unit:2) unit on the controller at 172154.

Note that /Name: and /Size: are Cluster details, so they must be on the left side of the = sign. /Unit: and /Adr: are MSCP details and must be on the right side of the = sign.

Command line

When the OSPREY.EXE program is invoked, a number of switches can be applied to the command line.

/A	Inhibit the auto-shutdown command(NT)
/B	Display the build date and time(DOS)
/B:name	Specify the board name. Default is OSPREY0. See page 30(NT)
/C:file	Use new configuration file. Default is OSPREY.CNF. See page 1.
/H	Display help
/J:file	Override default `J11File =` (see page 34)
/K:key	Specifies the registry key under which the properties are stored. See page 98. (NT)
/N:file	Use new configuration file and registry key. See page 98. (NT)
/Q	Quiet startup mode. Suppresses initial logo(DOS) or splash(NT) screen.
/R	Display revision number only. (NT)The revision number is also available by clicking `Window \ Initialization messages`.

Configuration file

The Osprey configuration file is an ASCII file defining which PC devices are used to emulate Digital minicomputer devices. The default configuration file name is OSPREY.CNF. (See page 1.) Blank lines and comments in the configuration file are ignored. A comment is defined as anything which follows a semicolon (;). Upper case and lower case are treated equally, except when contained within quotation marks. Tabs and spaces are treated equally, except when contained within quotation marks. At least one space or tab must separate each option or specifier from other options and specifiers.

A configuration file may include other configuration files. This is a handy way to have a base configuration that is included in multiple special purpose configurations. The way to include a file is `Include filename`

You may use environment variables in the configuration file. If you have the variable `MYJ11=OSPREY.J11` set, for example, and use `J11File = %MYJ11%`, then the Osprey will replace the variable and actually use `J11File = OSPREY.J11`. If you need to include a `%` in your configuration file, put two `%` together (e.g., `%%`).

Each line in the configuration file contains a single definition. The general format is:

specifier = specifier

When the connection is defining a virtual to physical device connection, the order of the specifiers is:

physical (PC) specifier = virtual (Digital) specifier

Each device is classified by its type (eg: CHAR, BLOCK). The virtual and the physical devices in a definition must have the same type.

Some specifiers may have extra configuration information. The format for options is:

```
specifier /option:value [/option:value ...]
```

Note that the `/option:value` must be on the same side of the equals sign as the specifier that it modifies. For example:

```
ASPITAPE /Unit:1 = TMSCP
```

refers to the physical SCSI device number one, and not the TMSCP tape unit one. This flexibility allows for any physical SCSI device to be used for any TMSCP tape unit.

Quoted Strings

File names as part of an option which contain spaces must be a quoted string. Single quotes (apostrophes) should be used unless the apostrophe character is required. Strings contained in apostrophes are copied directly, with no escape characters or special handling. For example:

```
Cluster /Name:'C:\Program Files\Strobe Data\Osprey\Images\mydisk.du0' = MSCP
```

Certain strings may contain characters that are not allowed in our normal Osprey configuration file. You must enclose the entire string in quotation marks if it contains a semicolon or quotation mark. It is not necessary to use a quoted string for `J11File =` and related lines (see page 1). For example, the following three lines are functionally the same:

```
J11File = c:\Program Files\Strobe Data\Osprey\osprey.j11
J11File = 'c:\Program Files\Strobe Data\Osprey\osprey.j11'
J11File = "c:\\Program Files\\Strobe Data\\Osprey\\osprey.j11"
```

Within a quoted string, all characters are copied exactly, except the escape character. The escape character is backslash (\) and the one or more characters following define the actual character copied.

Escape sequence	Octal	Inserts
\n	0012	New line
\r	0015	Carriage return
\t	0010	Tab
\\	0134	Backslash
\nnn	nnn	Octal value
\"	0042	Quotation mark

Configuration File Scan Order

Since the configuration file is scanned multiple times, lines generally do not need to be placed in a particular order. The early passes configure information that needs to be setup before the board is initialized. Subsequent passes configure information that is required after the board is initialized. Some seemingly strange errors may appear because of the multiple pass scan. For example, the error "File not found: OSPREY.EEP" will appear if the `EEPFile` configuration is misspelled as `EEPromFile`.

Example Configuration File

```
;---------------------------------------------------------------------------
                                ; Osprey configuration file
;---------------------------------------------------------------------------
Interrupt           =     12                          ;PC IRQ number
IoAddress           =     320                         ;PC I/O address

J11File             =     G:\OSPREY\FMTTEST.PDP

Con                 =     Console                     ;Standard console
Startup             =     ODT
StrobeODT           =     ODT
CPU                 =     KDJ11-E
ASPITape /Unit:1    =     TMSCP /Unit:0
```

General Configuration Specifiers

AltKeyMode =(DOS)
{LeftShift RightShift LeftCtrl RightCtrl}

Specifies extra keys that must be held down with Alt-C to activate the inner control menu (see page 99). This is primarily useful to make it more difficult to accidentally bring up the inner control menu.

The default is no extra keys required. You may specify any number of the keys. You may not specify both LeftShift and RightShift because keyboards do not transmit the Alt-C when both shift keys are held down. The same restriction applies to LeftCtrl and RightCtrl.

```
AltKeyMode = LeftShift
```

BinFile =
A file name

Strobe Data internal command.
Specifies the downloadable Xilinx fuse file.

The default is OSPREY.BIN. See page 1.

```
BinFile = OSPREY.BIN
```

BoardName =(NT)
An Osprey service name

Specifies the name of the Osprey service for the board.

The default is Osprey0.

BusPowerCheck =
{Yes No}

Specifies whether or not the I/O bus AC and DC power levels are checked.

The default is Yes.
If No, does not check the external bus AC and DC power levels.

BusTimeout =
{13 - 49}(DCJ11)
{10 - 80}(ISA)
{10 - 255}(PCI)

Changes the I/O bus timeout

```
BusTimeout = 13
```

The default is 13(DCJ11).
The default is 40(ISA/PCI).
The number of microseconds to wait before forcing I/O timeout. The time is rounded up to the next highest valid time. The valid times are {13, 26, 32, 49}(DCJ11) or {10, 20, 40, 80}(ISA) or {10 – 255}(PCI).

CacheSize =(DOS)

(0-)

Changes the size of the internal XMS disk cache.
`CacheSize = 1024`

The default is 0.
The number of kb of XMS to use for internal disk caching. The upper limit is approximately 3600. The cache is disabled by using 0.

CldFile = (PCI)

A file name

Strobe Data internal command.
Specifies the data file that contains the cache load file.
`CLDFile = OSPREY.CLD`

The default is OSPREY.CLD. See page 1.

DMAReadCache = (PCI)

{On Off}

Specifies whether Qbus/Unibus DMA memory reads use a read-ahead cache. Some hardware devices have a very low DMA latency threshold. If any such device is on the bus, this configuration file line may be necessary.
`DMAReadCache = Off`

The default is On.
If On, DMA transfers have a higher maximum and lower average DMA latency.
If Off, DMA transfers have a lower maximum and higher average latency.

EditCommand =(NT)

A program [%%s [%%u [%%u]]].

Specifies the program used to edit the configuration file.
`EditCommand = "Wordpad %s"`

The default is `"NOTEPAD %%s"`
The %%s is replaced by the configuration file.
The first %%u, if given, will be replaced by the line number.
The second %%u, if given, will be replaced by the character number.

EEPFile =

A File name

Specifies the data file that contains the EEPROM image from the CPU board. This file is used only if CPU = …

The default is OSPREY.EEP. See page 1.

/EEPROM:size is present.
`EEPFile = OSPREY.EEP`

EnableBusResetMenu = (DOS)
{On Off}
Allows Alt-U to display the bus reset menu. Used only if `Qbus =` or `Unibus =` is present.
`EnableBusResetMenu = On`
The default is Off.

FatalX86Timeout = (PCI)
(1-4294967295)
Controls the fatal X86 timeout messages.
The default is 100
The number of milliseconds to wait before issuing the fatal X86 timeout message.

FWAFile = (PCI)
A File name
Strobe Data internal command.
Specifies firewire adapter file.
`FWAFile = OSPREY.FWQ`
The default is OSPREY.FWQ or OSPREY.FWU, depending on whether `Qbus=` or `Unibus=` is given. See page 1.

FWRespTimeout = (PCI)
(1-15000000)
Specifies the firewire timeout.
The default is about 4000.
The number of microseconds to wait before reporting an I/O bus timeout on the firewire.

GCACycles =
{On Off}
Configures dummy Unibus cycles on memory refresh. This is infrequently useful.
The default is Off.

Halt =
{ODT TRAP BKPT(ISA/PCI)}
Specifies the Kernel mode HALT option.
`Halt = ODT`
The default is ODT.
TRAP will cause TRAP 4 when user mode executes a HALT. (ISA/PCI)BKPT will always HALT, regardless of mode.

InitStepDelay =
{0-10000}
Specifies the minimum time between consecutive initialization messages.
`InitStepDelay = 100`
The default is 0.
A decimal number of milliseconds.

Interrupt = (DOS)
{2-15}

Specifies the PC IRQ number.
`Interrupt = 2`

The default is 2.
A decimal number. Note that this IRQ must not be in use by another PC device (see page 13).

IOAddress =(DOS)

Specifies the PC I/O base which is set in the switch block on the Osprey card.
`IOAddress = 320`

{100-FF0}

The default is 320
A hexadecimal number, excluding 0xx, 4xx, 8xx, and Cxx. Note that this I/O range must not be in use by another PC device (see page 13). See page 8 for a description of the I/O switches, and page 13 for a warning about ranges. This value affects the default for `UMRAddress` (see page 38).

IOTFile(ISA/PCI) =

Strobe Data internal command.
Specifies the internal I/O register map file.
`IOTFile = OSPREY.IOT`

A File name

The default is OSPREY.IOT. See page 1.

J11Crystal =

This has been superceded by `Performance =`, but is still supported. See page 36 for more information.
Specifies the J11 clock rate.
(PCI)Some motherboards will not allow Osprey PCI cards with firmware before version 2 to run at the slowest performance settings. Using this configuration line may cause a PC lockup for those machines. See HWDIAG on page 11 for the firmware revision.
(PCI)On the PCI card, virtual I/O and bus I/O processor speed is related to the J11Crystal. When the J11Crystal divides into 72 the I/O will perform fastest. When the J11Crystal is just slightly larger than a perfect divisor, the I/O will perform the slowest. In order to maximize I/O performance, pick a J11Crystal that is 8, 9, 10.28,

{1.0-18.0}(DCJ11)
{0.3125-10.0}(SX)
{0.3125-20.0}(DX)
{0.3125-30.0}(TX)
{0.3125-36.0}(QX)

The default is 9.0(SX)
The default is 18.0(DCJ11, DX)
The default is 27.0(TX)
The default is 36.0(QX)
This decimal number indicates the megahertz of the J11 clock. The actual rate used by the board is determined by a function, but will be as close as possible to the value given. All whole megahertz will match exactly.
The following values for J11Crystal are used for the `Performance =` option with Osprey/ISA and Osprey/PCI. Crystal rates must be multiplied by two for the Osprey/DCJ11 (E.g. `J11Crystal=0.4` for `Performance=11/03`).

12, 14.4, 18, 24 or 36. J11Crystal rates below 8 have little effect on the I/O speed. In particular, the I/O processor speed can be calculated by dividing 72 by the J11Crystal, dropping any fractional portion. Multiply that integer by the J11Crystal and divide by two. The result is the I/O processor speed.

```
J11Crystal = 18.0
```

J11Crystal	Performance
0.2	11/03
0.6	11/04
0.5	11/05
0.5	11/10
0.7	11/15
0.7	11/20
1.5	11/23
1.5	11/24
0.7	11/34
1.5	11/34c
0.8	11/35
0.8	11/40
5.3	11/44
8.5	11/45
3.8	11/53
8.5	11/55
5.6	11/60
7.5	11/70
5.3	11/73
9.0	11/83
9.0	11/93
9.0	11/94
0.5	LSI/11

J11File =

Specifies the initial contents of J11 processor memory.

```
J11File = OSPREY.J11
```

A File name

The default is OSPREY.J11. See page 1.

See page 28 for another way to set the J11File.

LogBuffers =

Strobe Data internal command.
Specifies the number of log buffers.

```
LogBuffers = 2
```

A number

The default is 2.

LogFile =

Strobe Data internal command.
Specifies the log filename.
Special characters will generate time information. An asterisk, followed by a letter will insert date or time information. *d = day 01-31, *H is

A File name

The default is none.

hour 00-23, *j is day of year 001-366, *m is month 01-12, *M is minute 00-59, *S is second 00-59, *y is year 00-99, and *Y is the four digit year.
LogFile = OSPREY.LOG

LogLimit =
{2048-4294967295}
Strobe Data internal command.
Specifies the log file limit in bytes
LogFile = OSPREY.LOG
The default is no limit.
Limits the allowable byte size of the log file.

MaxWHOALoops(DCJ11) =
{1-1000}
Specifies the number of times that the J11 will be allowed to accesses the I/O page before checking for timer, host, and other services.
The default is 2.

MemorySize =
{special(PCI) 256KB(ISA/PCI) 1MB(ISA/PCI) 2MB 4MB}
Specifies the total memory supported.
MemorySize = 2MB
MemorySize = 1.5MB
The default is 4MB.
Special: The PCI boards can specify a large number of memory sizes, given in KW, KB, MW, MB, or B (bytes). If you specify an illegal value, the system will give you the two nearest valid values. You may specify whole numbers, or halves or quarters.

NumLockKey =
A PC key name
(DOS)Specifies the key to swap with NumLock. This is used with the key mapping feature in the terminal emulators. See page 119 for VT100 configuration details.
NumLockKey = F12
The default is the keypad NumLock key.
Use KEYNAME (page 117) to see valid names.
(NT)This has been replaced by the NumLock command in VT100.CNF (see page 119).

ParityCheck(DCJ11) =
{On Off}
Allows the parity circuits to be disabled. This is normally used only on an aged product where the parity circuit has failed. In our experience, the parity circuit fails long before the
The default is On.

memory circuits are unreliable. In a situation where the Osprey must keep running until a replacement arrives, this will disable the parity circuit.

PasteDelays(NT) =

{0-1000 [0-10000]}

Specifies the delay between characters when `Edit \ Paste` is selected from the menu.

The default is 10 100.

The first decimal number specifies the number of milliseconds to delay between characters. The second decimal number, if given, specifies the delay after a carriage return.

Performance =

{Default Maximum 11/03 11/04 11/05 11/10 11/15 11/20 11/23 11/24 11/34 11/34c 11/35 11/40 11/44 11/45 11/53 11/55 11/60 11/70 11/73 11/83 11/84 11/93 11/94 LSI/11} [/Factor:x]

Specifies the J11Crystal speed to run the Osprey (see page 33).

(PCI)Some motherboards will not allow the Osprey/PCI cards with firmware version before 2 to run at the slowest performance settings (e.g., 11/03). Using this configuration line may cause a PC lockup for those machines. See HWDIAG on page 11 for the firmware revision.

(PCI)On the PCI card, virtual I/O and bus I/O processor speed is related to the J11Crystal. See page 33 for a complete discussion.

`Performance = 11/70 /Factor:2`

The default is Default.

This affects the CPU speed of the Osprey.

You may specify /Factor to adjust the base rate of the CPU. /Factor may not be given with Default or Maximum.

PriorityClass =(NT)

{Idle Low Normal High RealTime}

Specifies the priority in the NT task manager.

The default is Normal.

Idle and Low are synonyms.

WARNING: setting `PriorityClass = RealTime` may disable the Windows NT task manager.

PRMFile =

A file name

Specifies the data file that contains the PROM image from the CPU board. This file is used only if `CPU = KDJ11-E /PROM:size` is present.

`PRMFile = OSPREY.PRM`

The default is OSPREY.PRM. See page 1.

The default OSPREY.PRM will boot a DOS file as specified from the keyboard or from startkey (page 22). Note that DosDevice (page 76) must be enabled.

Qbus =

{ALL IoRange}

Specifies an I/O address range that will use the Qbus.

```
Qbus = ALL
Qbus = 177510 2
```

The default is no Qbus present in the system.

If you specify ALL, then any I/O address that is not explicitly used by another line in the configuration file will use the Qbus.

If you specify IoRange, you must give the initial I/O address and the count. Both are octal numbers, and the count is a count of words.

QuietMode =

{On Off}

(DOS)Inhibits the initialization mode messages.

(NT)Inhibits the splash screen

```
QuietMode = On
```

The default is Off.

RestoreOnHalt =(NT)

{Yes No}

If Yes, will restore the Osprey screen from a minimized state whenever the Osprey processor HALTs.

```
RestoreOnHalt = No
```

The default is No.

RXDelayDefault =

{0-1000000}

Specifies the default value for all lines which accept /RXDelay

```
RXDelayDefault = 1042
```

The default is 0.

SplashBorder =(NT)

{Yes No}

Specifies whether or not a border is drawn around the SplashGraphic.

The default is Yes.

SpashGraphic =(NT)

A filename

Specifies the .BMP file to use for the splash screen. The BMP file may be of any size.

The default is an internal Osprey .BMP file.

Startup =

{ODT TRAP24 173000 addr}

Specifies where the J11 will begin execution.
`Startup = 0`

The default is ODT.
173000 causes the J11 to begin execution at the beginning of the PROMFile (page 36).
addr must be an octal address that is an exact multiple of 1000.

Title =(NT)

"text"

Specifies the text in the title line of the Osprey window.

The default is "Osprey/NT" followed by the board number and the name of the configuration file.

TXDelayDefault =

{0-1000000}

Specifies the default value for all lines which accept /TXDelay
`TXDelayDefault = 1042`

The default is 0.

UCOFile(ISA/PCI) =

A file name

Specifies the microcode file.
`UCOFile = OSPREY.UCO`
To emulate the 11/23, you must use the following lines.
`UCOFile = 1123.UCO`
`IOTFile = 1123.IOT`
To emulate the 11/44, you must use the following lines.
`UCOFile = 1144.UCO`
`IOTFile = 1144.IOT`

The default is OSPREY.UCO. See page 1.

UMRAddress =

{100-FF0}

Specifies the PC I/O base that is set in the switch block on the Osprey unibus adapter.
`UMRAddress = 720`

The default is based on the IoAddress (see page 33).

IoAddress	Default
1xx	5xx
2xx	6xx
3xx	7xx
5xx	1xx
6xx	2xx
7xx	3xx
9xx	Dxx
Axx	Exx
Bxx	Fxx
Dxx	9xx
Exx	Axx

Fxx Bxx

A hexadecimal number, excluding 0xx, 4xx, 8xx, and Cxx. Note that this I/O range must not be in use by another PC device (see page 13). See page 8 for a description of the I/O switches, and page 13 for a warning about ranges.

UMRFile =

Strobe Data internal command.

Specifies the downloadable Xilinx fuse file to load on the Osprey Unibus adapter.

```
UMRFile = OSPREY.UMR
```

A file name

The default is OSPREY.UMR. See page 1.

(DCJ11) The files `OSPREYON.UMR` and `OSPREYOO.UMR` are the normal files for the new and old Unibus adapters.

(ISA) The files `OSPREYDN.UMR` and `OSPREYDO.UMR` are the normal files for the new and old Unibus adapters.

See page 7 for descriptions of the new and old Unibus adapters.

Unibus =

Specifies an I/O address range that will use the Unibus. For machines with the Osprey Unibus adapter connected to Unibus devices which use the Unibus map, you must also include `= KDJ11-E /UnibusMap:On` in your configuration file.

```
Unibus = ALL
Unibus = 177510 2
```

{ALL IoRange}

The default is no Unibus present in the system.

If you specify `ALL`, then any I/O address that is not explicitly used by another line in the configuration file will use the Unibus.

If you specify IoRange, you must give the initial I/O address and the count. Both are octal numbers, and the count is a count of words.

WinExec =

Launches a co-dependent process.

```
WinExec = NOTEPAD
```

[/Delay:n] command

The default delay is 20000.

The optional /Delay:n specifies the maximum number of milliseconds to wait for the launched process to go idle. /Delay:0 does not wait for idle. The given command is launched in a co-dependency with the Kestrel. If either the Kestrel or the launched program terminates, the other will terminate. Some files (like CMD) will not go idle and you must use

/Delay:0 to launch them.

UseBIOSBell(DOS) =

{Yes No}

Uses the BIOS to make a bell sound. If set to No, uses a timer. Scheduling may be disrupted if Yes is configured and many bells are sent to the PC console.

The default is Yes.

```
UseBIOSBell = Yes
```

X86CPU =

{TI2 INTEL IBM TI TIF TIF2}(DCJ11)
{GENERIC DX}(ISA/PCI)

Strobe Data internal command.
Specifies type of the onboard X86 CPU.

The default is TI2(DCJ11).
The default is DX(ISA/PCI)

```
X86CPU = TI2
```

X86File =

A file name

Strobe Data internal command.
Specifies the X86 hyperspace file

The default is OSPREY.X86. See page 1.

```
X86File = OSPREY.X86
```

Device Configuration

Block Devices

Physical Devices (See page 45)	=	Virtual Devices (See page 50)
ASPIDisk		FW11
Cluster		FWV11
EMS		MSCP
File		RF11
Floppy		RH11
MEM		RH70
XMS		RK11
		RK611
		RK711
		RL11
		RL211
		RLV12
		RX11
		RX211
		RXV11
		RXV21

Character Devices

Physical Devices (See page 57)	=	Virtual Devices (See page 65)

Physical Devices (See page 57)	=	Virtual Devices (See page 65)
BB1004(DOS) BB1008(DOS) BB2016(DOS) CHARPIPE(NT) COM CON DIGI(DOS) LPT SMX(DOS) WRQ (NT)		CONSOLE CS11 DH11 DHU11 DHV11 DLV11 DLV11-J DZ11 DZQ11 DZV11 LP11 LPV11 TU58 VRU11

Calendar Devices

Physical Devices (See page 57)	=	Virtual Devices (See page 65)
CALENDAR		KWV11-CAL

Clock Devices

Physical Devices (See page 57)	=	Virtual Devices (See page 65)
CLOCK		KW11P

CPU Devices

Physical Devices (See page 71)	=	Virtual Devices (See page 71)
CPU		KB11-C KDJ11-E

DOS Devices

Physical Devices (See page 76)	=	Virtual Devices (See page 76)
DOSDevice		DOSDevice

GPIB Devices

Physical Devices (See page 79)	=	Virtual Devices (See page 80)
AT-GPIB-TNT(DOS)		IEQ11 IEU11

Net Devices

Physical Devices (See page 80)	=	Virtual Devices (See page 82)
NA509 NA900B(NT)		DEQNA

ODT Devices

Physical Devices (See page 82)	=	Virtual Devices (See page 83)
StrobeODT		ODT

PROM Devices

Physical Devices (See page 84)	=	Virtual Devices (See page 84)
FlatPROM		FlatPROM

TAPE Devices

Physical Devices (See page 84)	=	Virtual Devices (See page 86)
ASPITape FileTape QICTape		MSV05 MSV05B RH11-TM03 RH70-TM03 TM11 TMA11 TMSCP TS04 TS11 TSV11 TSV05 TU58*

DMA General Purpose Interface Devices(NT)

Physical Devices (See page 76)	=	Virtual Devices (See page 76)
DCI1109		DR11W DRV11

PIO General Purpose Interface Devices(NT)

Physical Devices (See page 76)	=	Virtual Devices (See page 76)
DIO48		DR11C

Common Options for Virtual Device Configuration

Some operating systems will report the CSR address of a controller. For many controllers, this is the same as the /Adr: required in the configuration file. Some devices do not have the CSR at offset 0, so be sure to read the relation between the CSR and the /Adr: for the Virtual Devices.

Instance Options

/Adr:value

Specifies the base I/O address. The octal number must be between 160000 and 177777 inclusive.

/Vct:{0-1774}

Specifies the vector address. The octal number must be a multiple of 4.

/Pri:{4-7}

Specifies the interrupt priority.

/Slot:{1-255}

Specifies the slot number. For devices of equal priority (see /Pri:, above), the device with the lower slot has priority.

Drive Options

Instance Options (page 42) are allowed.

/Cylinders:{1-32767}

The default is specified by /Type:

Overrides the number of cylinders.

/Delay:{0-1000}

The default is 0.

A decimal number indicating the minimum number of milliseconds allowed for disk operations. Any host operation that would normally finish before the specified number of milliseconds has elapsed is delayed until the time minimum is satisfied. Host operations that take longer than the /Delay: value are not affected. This is used to simulate slow hardware when the existing code can not handle very fast peripherals.

/DriveType:{0-177777}

The default is dependent on the controller.

An octal number that specifies the drive type.

/Sectors:{1-255}

The default is specified by /Type:

Overrides the number of sectors.

/SectorSize:{1-4096}

The default is 512.

Specifies the number of bytes per sector.

/Tracks:{1-255}

The default is specified by /Type:

Overrides the number of tracks.

/Unit:{0-255}

The default is 0.

Specifies the unit number.

/WriteProtect:{On Off}

The default is Off.

Controls write protect.

Character Options

/TXDelay:microseconds

Specifies the minimum amount of time to delay between transmitting characters. The decimal number of microseconds must be between 0 and 1,000,000 inclusive. The delay

will be rounded up to the next highest 250 microseconds. The effective baud rate can be estimated by calculating 10,000,000 / TXDelay. Or, if you want to know what TXDelay to use, divide 1,000,000 by your desired baud rate and multiply by the number of bits per character. See page 131 for information on /TXDelay and CPU loading.

TXDelay	Effective baud rate (No parity, 8 data bits, 1 stop bit)
1042	9600
2083	4800
4167	2400
8333	1200

/RXDelay:microseconds
Specifies the minimum amount of time to delay between receiving characters. The decimal number of microseconds must be between 0 and 1,000,000 inclusive. The delay will be rounded up to the next highest 250 microseconds. See the table above for approximate baud rates.
/TXBuff:bytes[,stop[,start]]
Bytes specifies the size of the transmit buffer. The decimal number must be between 2 and 1024 inclusive. See page 131 for information on /TXBuff and CPU loading.
`/TXBuff:16,15,8`
Stop specifies the number of bytes in the transmit buffer that are allowed before the transmitter will become off-line. The decimal number must be greater than or equal to 1 and less than the number of bytes in the buffer. The default is 15/16 of bytes.
Start forces the transmitter on-line whenever the number of bytes in the buffer is less than this value. The decimal number must be greater than or equal to 0 and less than stop. The default is half of bytes.
/RXBuff:bytes[,stop[,start]]
Bytes specifies the size of the receive buffer. The decimal number must be between 2 and 1024 inclusive.
`/RXBuff:16,15,8`
Stop specifies the number of bytes that are allowed in the receive buffer before the receiver will become off-line. The decimal number must be greater than or equal to 1 and less than the number of bytes in the buffer. The default is 15/16 of bytes.
Start forces the receiver on-line whenever the number of bytes in the buffer is less than this value. The decimal number must be greater than or equal to 0 and less than stop. The default is half of bytes.
/Mode:baud[,parity[,bits[,stop]]]
Specifies the initial line conditions.
The default is 9600,N,8,2.
`/Mode:9600,N,8,2`

Baud must be {110 150 300 600 1200 2400 4800 9600 19200 38400}
Parity must be {N E O 1 0}
Bits must be {5-8}
Stop must be {1-2}

Output Modem Options
/RTS:{On Off}
Specifies the initial state of the RTS line.
/DTR:{On Off}
Specifies the initial state of the DTR line.

Common Options for Physical Device Configuration

Input Modem Configuration
/CD:{On Off}
The default is Off.
Specifies the initial condition of carrier detect.
/CTS:{On Off}
The default is Off.
Specifies the initial condition of clear to send.
/DSR:{On Off}
The default is Off.
Specifies the initial condition of data set ready.
/RI:{On Off}
The default is Off.
Specifies the initial condition of ring indicator.

BLOCK Type Physical Devices

ASPIDisk =

Uses the ASPI interface. See page 12 for installation requirements.

ASPIDisk /Adapter:0 /Drive:1 = MSCP /Unit:0

/Adapter:{0-7}
The default is 0.
This is not allowed with /Name:(NT)
Specifies the SCSI controller number. The first adapter is 0. This is only used if more than one SCSI controller is present in the system.
/Buffer:{512-4294966784}(DOS)
The default is 64512.
Specifies the disk transfer buffer size. This number must be a multiple of 512.
/Cache:{On Off}(DOS)
The default is On.
Controls the internal XMS cache. See CACHESIZE (page 31)
/Drive:{Generic}
The default is Generic.
Specifies the drive type.

/Name:aspiname(NT)

This is required if NT has assigned a name.
Specifies the NT name for the disk drive. You may need to use DOSDEV to determine the correct /Name. (Page 12)
/Unit:{0-15}
This is required.(DOS)
This is required unless you have /Name.(NT)
Specifies the SCSI device number. Typically set by jumpers on the device.
/UnitName:string(NT)
Specifies the logical device name, used for user clarification.

Cluster =

(DOS)Specifies a DOS file for use as a disk image container file. Osprey bypasses DOS and accesses the file directly. The file must reside on a local (non-network) disk. See the note on page 17 if using SMARTDRV. File = should be used when the container file is on a network drive or other drive which does not support a FAT. Cluster = provides significantly better performance.
(NT)A synonym for File =, provided to maintain compatibility with DOS configuration files.

Cluster /Name:C:\IMAGES\BIGDISK.DU0 = MSCP /Unit:2

/Cache:{On Off}(DOS)
The default is On.
Controls the internal XMS cache. See CACHESIZE (page 31)
/Flush:{Yes No}(NT)
The default is No.
When set to Yes, forces NT to flush data to the disk as soon as possible after a write. Normally, NT uses a lazy writer to flush data when the system is otherwise idle.
/Mount:{Yes No}(NT)
The default is Yes.
Controls whether the disk is mounted during startup.
/Name:filename
This is required.(DOS)
See page 29 for details about filenames with spaces.
This is required unless you specify /Mount:No.(NT)
/RX50:{On Off}
The default is Off.

Enables RX50 style sector numbers.

/Size:blocks
The default is the current file size.
Specifies the maximum number of 512 byte blocks to be used. This may be used to limit the container file.
/UnitName:string(NT)
Specifies the logical device name, used for user clarification.
/WriteProtect:{On Off}

The default is Off.
Controls write protect.

EMS =

(DOS)Specifies EMS memory for use as a RAM disk. EMS memory is typically provided by EMM386.
(NT)A synonym for Mem =, provided to maintain compatibility with DOS configuration files.

EMS /Name:C:\IMAGES\UTILDISK.DU0 = MSCP /Unit:2

/Mount:{Yes No}(NT)
The default is Yes.
Controls whether the disk is mounted during startup.
/Name:filename
Specifies a container file used to initialize the RAM disk. Also, if /WriteBack:On is present, the RAM disk will be written back to this file when the system shuts down.
See page 29 for details about filenames with spaces.
/RX50:{On Off}
The default is Off.

Enables RX50 style sector numbers.

/Size:blocks
The default is all available memory, or the size of /Name: if specified.
Specifies the maximum number of 512 byte blocks to be used.
/UnitName:string(NT)
Specifies the logical device name, used for user clarification.
/WriteBack:{On Off}
The default is Off.
If /Name:filename is present, turning WriteBack on will write the contents of the RAM disk to the file when the Osprey shuts down.
/WriteProtect:{On Off}
The default is Off.
Controls write protect.

File =

Specifies a DOS file for use as a disk image container file. See the section on page 107 for a container file builder. File = should be used when the container file is on a network drive or other drive which does not support a FAT. (DOS) Cluster = provides significantly better performance.

File /Name:Z:\OSPREY\IMAGES\NETFILE.DU0 = MSCP /Unit:1

/Cache:{On Off}(DOS)
The default is On.
Controls the internal XMS cache. See CACHESIZE (page 31)

/Flush:{Yes No}(NT)
The default is No.
When set to Yes, forces NT to flush data to the disk as soon as possible after a write. Normally, NT uses a lazy writer to flush data when the system is otherwise idle.
/Mount:{Yes No}(NT)
The default is Yes.
Controls whether the disk is mounted during startup.
/Name:filename
This is required.(DOS)
See page 29 for details about filenames with spaces.
This is required unless you specify /Mount:No.(NT)
/RX50:{On Off}
The default is Off.

Enables RX50 style sector numbers.

/Size:blocks
The default is the current file size.
Specifies the maximum number of 512 byte blocks to be used. The number of bytes can either limit a current container file or extend the container file. Write protected files can not be extended.
/UnitName:string(NT)
Specifies the logical device name, used for user clarification.
/WriteProtect:{On Off}
The default is Off.
Controls write protect.

Floppy =

Specifies a floppy drive accessible through the BIOS.

Floppy /Drive:0 = MSCP /Unit:2

/Drive:{0-127}
This is required, unless /Name:(NT) is given.
Specifies the floppy drive by BIOS drive number.
/Drive:0 is A:, and /Drive:1 is B:.
/Cache:{On Off}(DOS)
The default is On.
Controls the internal XMS cache. See CACHESIZE (page 31)
/ForceOnline:{Yes No}
The default is No.
Some operating systems will refuse to re-test the floppy if the initial request to bring it online fails. This ensures that the floppy will be reported as online, even if the diskette is not in the drive.
/Mount:{Yes No}(NT)
The default is Yes.

Controls whether the disk is mounted during startup.

/Name:{A: B:}(NT)

This is required, unless /Drive: is given.

Specifies the floppy drive by name.

/UnitName:string(NT)

Specifies the logical device name, used for user clarification.

/WriteProtect:{On Off}(NT)

The default is Off.

Controls write protect.

MEM =

(DOS)Specifies base memory for use as a RAM disk. Base memory limited to 640kb, minus all DOS devices, TSRs, etc. This physical block device has extremely limited uses, and may make the shell to dos feature unavailable. See page 100 for more about the shell to dos feature.

(NT)Specifies a memory disk. NT's virtual memory manager may actually manage all memory-based disks on the disk, depending on your computer's free memory, etc.

MEM /Name:C:\IMAGES\SMALDISK.DU0 = MSCP /Unit:2

/Mount:{Yes No}(NT)

The default is Yes.

Controls whether the disk is mounted during startup.

/Name:filename

Specifies a container file used to initialize the RAM disk. Also, if /WriteBack:On is present, the RAM disk will be written back to this file when the system shuts down. See page 29 for details about filenames with spaces.

/RX50:{On Off}

The default is Off.

Enables RX50 style sector numbers.

/Size:blocks

The default is all available memory, or the size of /Name: if specified.

Specifies the maximum number of 512 byte blocks to be used. The practical limit for /Size: is probably between `/Size:400` and `/Size:600`.

/UnitName:string(NT)

Specifies the logical device name, used for user clarification.

/WriteBack:{On Off}

The default is Off.

If `/Name:filename` is present, turning `WriteBack` on will write the contents of the RAM disk to the file when the Osprey shuts down.

/WriteProtect:{On Off}

The default is Off.

Controls write protect.

XMS =

(DOS)Specifies XMS memory for use as a RAM disk. XMS memory is typically provided by HIMEM.SYS.

(NT)A synonym for Mem =, provided to maintain compatibility with DOS configuration files.

XMS /Name:C:\IMAGES\UTILDISK.DU0 = MSCP /Unit:2

/Mount:{Yes No}(NT)

The default is Yes.

Controls whether the disk is mounted during startup.

/Name:filename

Specifies a container file used to initialize the RAM disk. Also, if /WriteBack:On is present, the RAM disk will be written back to this file when the system shuts down.

See page 29 for details about filenames with spaces.

/RX50:{On Off}

The default is Off.

Enables RX50 style sector numbers.

/Size:blocks

The default is all available memory, or the size of /Name: if specified.

Specifies the maximum number of 512 byte blocks to be used.

/UnitName:string(NT)

Specifies the logical device name, used for user clarification.

/WriteBack:{On Off}

The default is Off.

If /Name:filename is present, turning WriteBack on will write the contents of the RAM disk to the file when the Osprey shuts down.

/WriteProtect:{On Off}

The default is Off.

Controls write protect.

BLOCK Type Virtual Devices

= FW11

Specifies the RX211 double density disk with FWD0106 and FWD1106 extensions. Drive Options (page 43) are allowed.

The default is /Adr:177170 /Vct:264 /Pri:5 /Slot:0

The CSR is the /Adr:

Cluster /Name:MYFILE.IMG = FW11 /Drive:RX01

/Deinterleave:{ON OFF}

The default is ON for units 0 and 1, OFF for other units.

Creates non-interleaved physical media.

/Drive:{RX01 RX02 RX03 RX04 ST506 ST406 ST412 ST419 ST1100 RO204}
This is required.
Specifies the drive type.

/Unit:{0-3}
Specifies the unit number.

= FWV11

Specifies the RX211 double density disk with FWD0106 and FWD1106 extensions.
Drive Options (page 43) are allowed.
The default is /Adr:177170 /Vct:264 /Pri:5 /Slot:0
The CSR is the /Adr:

`Cluster /Name:MYFILE.IMG = FWV11 /Drive:RX01`

/Deinterleave:{ON OFF}
The default is ON for units 0 and 1, OFF for other units.
Creates non-interleaved physical media.
/Drive:{RX01 RX02 RX03 RX04 ST506 ST406 ST412 ST419 ST1100 RO204}
This is required.
Specifies the drive type.

/Unit:{0-3}
Specifies the unit number.

= MSCP

Specifies an MSCP controller.

`Cluster /Name:MYFILE.DU0 = MSCP /Cntrl:RQDX1 /Unit:2`
Instance Options (page 42) are allowed.
The default is /Adr:172150 /Vct:200 /Pri:5 /Slot:0
The CSR is the /Adr:
/Cntrl:{RQDX3 RQDX1 RQDX2 RQDZ1 HSC50 UDA50 RC25 VMS UDA50 RUX50}

The default is RQDX3.

Specifies the controller to determine the class and model.
/Copies:{1-255}
The default is no replacement control tables (RCT).
Number of copies of the RCT. The size of each RCT must be specified with the /RCTSize: parameter.
/Delay:{0-1000}
The default is 0.
See the discussion of /Delay on page 43.

/Drive:{RD54 RD51 RD52 RD53 RX50 RX33 RZL23 RZL24 RZ24 RA60}

The default is RD54.

Specifies the drive to determine the type, class and model.

/Logging:{On Off}
Strobe Data internal option.
The default is Off.
Controls data logging.

/RBNs:{1-255}
The default is no replacement blocks.
Number of replacement blocks per track. Purely informational. The size of each RCT must be specified with the /RCTSize: parameter.
/RCTSize:{1-10000}
The default is no replacement control table.
Specifies the size of a single replacement control table in blocks. All the RCT blocks are subtracted from the actual physical media size. If you do not specify /RBNs: or /Count:, /RCTSize: sets the values to 1.
/Step1Delay:{0-5000000}
The default is 50000.
Number of microseconds to delay before completing step 1 initialization. Some systems (RSX with UNIBUSMAP:ON) require a very slow step 1 initialization. If /Step1Delay is not specified, there are actually two interrupts posted; one very quickly and the other one at the default time. Setting /Step1Delay to any value disables the first interrupt. The first, very fast interrupt, is required for some systems (RSTS) and not allowed for some others (RSX V2.1).
/Unit:{0-255}
Specifies the unit number.

= RF11

Specifies the RF11, 18-bit disk controller.

Cluster /Name:MYFILE.IMG = RF11

Drive Options (page 43) are allowed.
The default is /Adr:177460 /Vct:204 /Pri:5 /Slot:0
The CSR is the /Adr:
/Drive:{RS11}

The default is RS11.

Specifies the drive to determine the type, class and model.

= RH11

Specifies the RH11, 18-bit disk controller. The RH11 and the RPJ04 controllers are the same for /Type:RP04.

Cluster /Name:MYFILE.IMG = RH11 /Drive:RS03

Drive Options (page 43) are allowed.
The default is /Adr:176700 /Vct:254 /Pri:5 /Slot:0
The CSR is the /Adr:

/Drive:{RS03 RS04 RP04 RP05 RP06 RP07 RM03 RM02 RM80 RM05}
This is required.
Specifies the drive type.

/SW2:{0-377}
The default is 0.
An octal number representing the internal serial version of the controller.

/Unit:{0-7}
Specifies the unit number.

= RH70

Specifies the RH70, 22-bit disk controller.

Cluster /Name:MYFILE.IMG = RH70 /Drive:RS03

Drive Options (page 43) are allowed.
The default is /Adr:176700 /Vct:254 /Pri:5 /Slot:0
The CSR is the /Adr:
/SW2:{0-377}
The default is 0.
An octal number representing the internal serial version of the controller.
/Drive:{RS03 RS04 RP04 RP05 RP06 RP07 RM03 RM02 RM80 RM05}
This is required.
Specifies the drive type.

/Unit:{0-7}
Specifies the unit number.

= RK11

Specifies the RK11, 18-bit disk controller.

Cluster /Name:MYFILE.IMG = RK11

Drive Options (page 43) are allowed.
The default is /Adr:177400 /Vct:220 /Pri:5 /Slot:0
The CSR is the /Adr: plus 4
/Drive:RK05
The default is RK05
Specifies the drive type.
/NoWriteLock:{On Off}
The default is Off.
If On, disables the Write Lock ability.

/Unit:{0-7}
Specifies the unit number.

= RK611

Specifies the RK611, 18-bit disk controller.

Cluster /Name:MYFILE.IMG = RK611

Drive Options (page 43) are allowed.
The default is /Adr:177440 /Vct:210 /Pri:5 /Slot:0
The CSR is the /Adr:
/Drive:{RK06 RK07}

This is required

Specifies the drive type.
/Unit:{0-7}
Specifies the unit number.

= RK711

Specifies the RK711, 18-bit disk controller.

Cluster /Name:MYFILE.IMG = RK711

Drive Options (page 43) are allowed.
The default is /Adr:177440 /Vct:210 /Pri:5 /Slot:0
The CSR is the /Adr:
/Drive:{RK06 RK07}

This is required

Specifies the drive type.
/Unit:{0-7}
Specifies the unit number.

= RL11

Specifies the RL11/RL05, 18-bit disk controller.

Cluster /Name:MYFILE.IMG = RL11 /Drive:RL01

Drive Options (page 43) are allowed.
The default is /Adr:174400 /Vct:160 /Pri:5 /Slot:0
The CSR is the /Adr:
/Drive:{RL01 RL02}
This is required.
Specifies the drive type.

/Unit:{0-3}
Specifies the unit number.

= RL211

Specifies the RL211, 18-bit disk controller.

Cluster /Name:MYFILE.IMG = RL211 /Drive:RL01

Drive Options (page 43) are allowed.
The default is /Adr:174400 /Vct:160 /Pri:5 /Slot:0
The CSR is the /Adr:
/Drive:{RL01 RL02}
This is required.
Specifies the drive type.

/Unit:{0-3}
Specifies the unit number.

= RLV12

Specifies the RLV12, 22-bit disk controller.

Cluster /Name:MYFILE.IMG = RLV12 /Drive:RL01

Drive Options (page 43) are allowed.
The default is /Adr:174400 /Vct:160 /Pri:5 /Slot:0
The CSR is the /Adr:
/Drive:{RL01 RL02}
This is required.
Specifies the drive type.

/Unit:{0-3}
Specifies the unit number.

= RX11

Specifies the RX11 disk.

Cluster /Name:MYFILE.IMG = RX11 /Drive:RX01

Drive Options (page 43) are allowed.
The default is /Adr:177170 /Vct:264 /Pri:5 /Slot:0
The CSR is the /Adr:
/Deinterleave:{ON OFF}
The default is ON for units 0 and 1, OFF for other units.
Creates non-interleaved physical media.
/Drive:{RX01 RX03 RX04 ST506 ST406 ST412 ST419 ST1100 RO204}
This is required.
Specifies the drive type.

/Unit:{0-1}
Specifies the unit number.

= RX211

Specifies the RX211 double density disk.

Cluster /Name:MYFILE.IMG = RX211 /Drive:RX01

Drive Options (page 43) are allowed.
The default is /Adr:177170 /Vct:264 /Pri:5 /Slot:0
The CSR is the /Adr:
/Deinterleave:{ON OFF}
The default is ON for units 0 and 1, OFF for other units.
Creates non-interleaved physical media.
/Drive:{RX01 RX02 RX03 RX04 ST506 ST406 ST412 ST419 ST1100 RO204}
This is required.
Specifies the drive type.

/Unit:{0-1}
Specifies the unit number.

= RXV11
Specifies the RXV11 double density disk.

Cluster /Name:MYFILE.IMG = RXV11 /Drive:RX01

Drive Options (page 43) are allowed.
The default is /Adr:177170 /Vct:264 /Pri:5 /Slot:0
The CSR is the /Adr:
/Deinterleave:{ON OFF}
The default is ON for units 0 and 1, OFF for other units.
Creates non-interleaved physical media.
/Drive:{RX01 RX02 RX03 RX04 ST506 ST406 ST412 ST419 ST1100 RO204}
This is required.
Specifies the drive type.

/Unit:{0-1}
Specifies the unit number.

= RXV21
Specifies the RXV21 double density disk.

Cluster /Name:MYFILE.IMG = RXV21 /Drive:RX01

Drive Options (page 43) are allowed.
The default is /Adr:177170 /Vct:264 /Pri:5 /Slot:0
The CSR is the /Adr:
/Deinterleave:{ON OFF}
The default is ON for units 0 and 1, OFF for other units.
Creates non-interleaved physical media.
/Drive:{RX01 RX02 RX03 RX04 ST506 ST406 ST412 ST419 ST1100 RO204}
This is required.
Specifies the drive type.

/Unit:{0-1}
Specifies the unit number.

= TU58

Specifies a TU58 controller. The original TU58 devices were a serial interface tape device with fixed block formatting. The implementation of the TU58 uses a physical block device.

Cluster /Name:MYFILE.IMG = TU58 /Unit:1

Instance Options (page 42) are allowed.
The default is /Adr:176500 /Vct:300 /Pri:4 /Slot:0
The CSR is the /Adr:
/Unit:{0-1}
The default is 0.
Specifies the unit number.

/WriteProtect:{On Off}
The default is Off.
Controls write protect.

CHAR Type Physical Devices

BB1004 =(DOS)

Specifies the Boca BB1004 four port serial card. This card uses RJ11 jacks that have only six lines. Thus only two modem control signals, CTS and RTS, are supported. The card comes with cables and DB25 adapters that connect these signals to DSR and DTR. See the Boca manual, appendix A for detailed connector information.
Note that this board can be upgraded to the BB1008 to provide eight lines if necessary.
Replaced by COM =(NT)

BB1004 /Port:1 = DLV11

/Port:{1-4}
This is required.
Specifies which port to use.

/Flow:{CTS XON}
The default is no flow control.
Enables CTS/RTS flow control or XON/XOFF flow control.
/16550:{On Off}
The default is Off.
Enables the 16550 fifo.

/IoAddress:address
The default is 100.
A hexadecimal base I/O address for the /Port.
/Interrupt:irq

The default is 4. If you have a COM1 port, you will need to change the IRQ on the BOCA.

Specifies the PC IRQ that the board is configured for.

BB1008 =(DOS)

Specifies the Boca BB1008 eight port serial card. This card uses RJ11 jacks that have only six lines. Thus only two modem control signals, CTS and RTS, are supported. The card comes with cables and DB25 adapters that connect these signals to DSR and DTR. See the Boca manual, appendix A for detailed connector information.

Replaced by COM =(NT)

BB1008 /Port:2 = DLV11

/Port:{1-8}

This is required.

Specifies which port to use.

/Flow:{CTS XON}

The default is no flow control.

Enables CTS/RTS flow control or XON/XOFF flow control.

/16550:{On Off}

The default is Off.

Enables the 16550 fifo.

/IoAddress:address

The default is 100.

A hexadecimal base I/O address for the /Port.

/Interrupt:irq

The default is 4.If you have a COM1 port, you will need to change the IRQ on the BOCA.

Specifies the PC IRQ that the board is configured for.

BB2016 =(DOS)

Specifies the Boca BB2016 sixteen port serial card. Note that the BB2016 uses an external box to provide the 16 RJ45 connections. This box contains the logic that is powered from the PC I/O bus through the connector cable. This cable MUST be connected when the system is powered up. The RJ45 connectors have 10 signals, so this board provides full modem control.

Replaced by COM =(NT)

BB2016 /Port:2 = DLV11

/Port:{1-16}

This is required.

Specifies which port to use.

/Flow:{CTS XON}

The default is no flow control.

Enables CTS/RTS flow control or XON/XOFF flow control.

/16550:{On Off}

The default is Off.

Enables the 16550 fifo.

/IoAddress:address

The default is 100.

A hexadecimal base I/O address for the /Port.

/Interrupt:irq

The default is 4. If you have a COM1 port, you will need to change the IRQ on the BOCA.

Specifies the PC IRQ that the board is configured for.

CharPipe =(NT)

Specifies a named pipe.

CharPipe /Name:mypipe = DLV11

Input Modem Options (page 45) are allowed.

/LSRMST:{00-FF}

The default is no LSRMST (line status/modem status) support. The hexadecimal number represents the LSRMST escape character. A value of zero indicates the driver should disable LSRMST-insertion mode. A nonzero value is the caller-supplied LSRMST escape character. Please see page 131 for a more complete description of LSRMST.

/Name:{pipe name}

This is required.

Specifies the name of the pipe to create and use.

See page 29 for details about filenames with spaces.

/ReadTime:{0-4,294,967,295 INFINITE}

Specifies the number of milliseconds to wait after the attached virtual device character buffer is full before discarding subsequent read data. The default is 100 milliseconds.

/WriteTime:{0-4,294,967,295 INFINITE}

Specifies the number of milliseconds to allow for a pending write to complete before discarding data from a subsequent write. The default is 1000 milliseconds.

COM =

(DOS)Specifies a PC serial port.

(NT)Specifies one of many serial devices that is configured as a COM port in NT.

COM /Port:1 = DLV11

/16550:{On Off}(DOS)

The default is Off.

Enables the 16550 fifo.

/Flow:{CTS XON}
The default is no flow control.
Enables CTS/RTS flow control or XON/XOFF flow control.
/IoAddress:address(DOS)
The default is taken from the BIOS configuration.
A hexadecimal base I/O address for the /Port.
/Interrupt:irq(DOS)
This is required for /Port:3 or /Port:4.
The default is 4 for /Port:1 and 3 for /Port:2.
Specifies the PC IRQ that the /Port is configured for.
/Logging:{On Off}
The default is Off.
Strobe Data internal option.

/Overrun:{On Off}(NT)
The default is Off.
If Off, relies on NT and X86 buffering to avoid overrun errors. If On, will lose data if the user program can not respond quickly enough. Note that /RxBuff:1 (see below) will probably also be necessary.
/Port:{1-4}(DOS)
/Port:{1-256}(NT)
This is required.
Specifies which serial port.
(NT)Any number of multiplexors, including Strobe Multiplexor, Digiboard, and standard COM ports may provide COM ports under NT.
/RIPolling:{On Off}(NT)
The default is On.
Since the standard PC COM hardware does not provide Ring Indicator (RI) signals compatible with the virtual character devices, RI polling is normally turned on. The DigiBoard driver correctly supports RI, so RIPolling:Off can be specified on those COM lines to lighten the host CPU burden.
/RxBuff:{1-1000}(NT)
The default is 16.
Specifies the buffer between the NT COM driver and our code. This should be set to 1 if using /Overrun:On
/Timeout:{0-1000}(NT)
The default is 0.
Specifies the number of milliseconds to wait after receiving a character from the COM port before a signal is sent.
A system with a large number of serial lines and high traffic may need this set to 5 or 10 in order to block the characters and reduce the burden on the host CPU.
/TxBuff:{1-1000}(NT)
The default is 16.
Specifies the buffer between the NT COM driver and our code. See page 131 for information on /TXBuff and CPU loading.

CON =

Specifies the PC keyboard and screen.

Con /Unit:1 = Console

Input Modem Options (page 45) are allowed.

/8Bit:{On Off}

The default is Off.

Enables 8 bit mode.

/Autowrap:{Yes No}

The default is No.

If Yes, makes the console wrap to the next line from the right margin instead of pegging at the right margin.

/Capture:{Yes No}(NT)

The default is Yes if /Name is given and No if /Name is omitted.

Enables or disables capturing to /Name:

/Cursor:{On Off}(NT)

The default is On.

Enables or disables the blinking cursor.

/Height:{2-254}(NT)

The default is 24.

Specifies the number of lines on the screen. Using a number larger than 24 only makes sense for a "glass TTY" application. This will provide more lines of history on the screen. Numbers substantially larger than 24 will need higher screen resolutions. See page 9 for more information.

/Logging:{On Off}

The default is Off.

Strobe Data internal option.

/Mode:{Create Truncate New Append Extend Write Overwrite}(NT)

The default is Create.

Specifies the method used to open and verify the /Name.

Create	Create file (truncate if exists)
Truncate	Truncate file (must exist)
New	Create file (must not exist)
Append	Create file (append if exists)
Extend	Extend file (must exist)
Write	Write to file (must exist)
Overwrite	Create file (overwrite if exists)

/Name:filename(NT)

This is required if /Capture:Yes is given.

See page 29 for details about filenames with spaces.

Specifies the file that will capture data.

Special characters will generate time information. An asterisk, followed by a letter will insert date or time information. *d = day 01-31, *H is hour 00-23, *j is day of year 001-366, *m is month 01-12, *M is minute 00-59, *S is second 00-59, *y is year 00-99, and *Y is the four digit year.

/Unit:{0-9(DOS) 0-99(NT)}

The default is 0.

Specifies which logical console is used. For consoles numbered 0-9, Alt-n switches to console /Unit:n.

/UnitName:string(NT)

Specifies the logical device name, used for user clarification.

/Width:{80 132}

The default is 80.

Specifies the initial width of the console.

DIGI =(DOS)

Specifies a Digiboard C/X or Digiboard Xem multi-line serial card. **Note: Do not install any DOS drivers for the Digiboard.**

Replaced by COM =(NT)

Please see http://www.strobedata.com/html/digiboard.html for part numbers.

`Digi /Port:1 /Conc:16,16,16,16 = DLV11`

/Conc:ports1[, ports2...]

The default is 16.

This is not used on the Digiboard Xem.

The number of ports are per concentrator, in the order of their IDs. Used as a replacement for /CxConfig if all communication modes are 0E. This generates a /CxConfig string of "000E<ports1>0E<ports2>0E...FF". The example above shows a 64 port system. Only the last one of /Conc and /CxConfig will be used.

/CxConfig:string

The default is 000E100EFF.

This is not used on the Digiboard Xem.

A hex string up to 48 bytes long. This should not be used unless the DIGI is failing, and you have evidence from the technical reference manual that this string should be changed, because connections are non-standard. Only the last one of /Conc and /CxConfig will be used. The /Conc is easier to use and read.

/Flow:{CTS XON}

The default is no flow control.

Enables CTS/RTS flow control or XON/XOFF flow control.

/IoAddress:address

The default is 204.

A hexadecimal base I/O address for the /Port. This must match the switches as set on the Digiboard. Later model Digiboards may come factory configured at 324. That address

will conflict with the default IoAddress of the Osprey, 320. You must change one or the other. See page 33 for details on IoAddress.

/Interrupt:irq

The default is 11.

Specifies the PC IRQ to configure for the board. This is software configurable by the configuration file.

/Port:{1-64}

The default is 1.

/RxBuff:{16 32 64 128 256 512 1024}

The default is set by the Digiboard, depending on the number of lines on the Digiboard. Used to reduce the size of the receiver buffer.

/Segment:{A000-E800}

The default is D800.

Hexadecimal segment of the memory window. The segment must end with 800 or 000. This is software configurable by the configuration file.

/TxBuff:{16 32 64 128 256 512 1024}

The default is set by the Digiboard, depending on the number of lines on the Digiboard. Used to reduce the size of the transmitter buffer.

LPT =

(NT)Specifies a file or device to capture data.

(DOS)Specifies a BIOS printer.

(DOS)The LPT access uses the BIOS printer drivers so that utilities which reroute the LPTn files in DOS will affect the LPTn files as well. E.g.: Novell CAPTURE.

LPT /Port:1 = LPV11

Input Modem Options (page 45) are allowed.

/Connect:{Yes No}(NT)

The default is Yes.

Specifies whether the printer is initially connected.

/IgnoreSelect:{Yes No}(DOS)

The default is No.

Specifies whether the printer must raise the *select* line and the *ready* line or just the *ready* line when it is able to receive another character.

/Mode:{Create Truncate New Append Extend Write Overwrite}(NT)

The default is Create.

Specifies the method used to open and verify the /Port or /Name.

Create	Create file (truncate if exists)
Truncate	Truncate file (must exist)
New	Create file (must not exist)
Append	Create file (append if exists)
Extend	Extend file (must exist)
Write	Write to file (must exist)
Overwrite	Create file (overwrite if exists)

/Name:filename(NT)
Either /Name: or /Port: is required with /Connect:Yes.
Specifies the file or device name that will receive the data.
See page 29 for details about filenames with spaces.
If your filename is a printer UNC name, NT will not print any data until it knows the print job is complete. Since the Osprey can not tell when individual operating system jobs might complete, it can not tell NT that the job is complete until either the Osprey is shut down or the user explicitly disconnects and reconnects the LPT via the tool bar.
Not used with /Port:
You may use either /Name:LPT1 or /Port:1 to access the first printer.
/Port:{1-4}
This is required.(DOS)
Either /Name: or /Port: is required with /Connect:Yes.(NT)
(NT)/Port: reserves the printer for the Osprey and prohibits all other machines and tasks on the Osprey machine from accessing the printer. NT will only allow one task access to a printer via the /Port method.
Specifies which LPTn BIOS printer.
Not used with /Name:
/UnitName:string(NT)
Specifies the logical device name, used for user clarification.

SMX =(DOS)

Specifies a Strobe Mux.

Replaced by COM =(NT)

SMX /Port:0 = DLV11

/Flow:{CTS XON}
The default is no flow control.
Enables CTS/RTS flow control or XON/XOFF flow control.
/IoAddress:address
The default is 280.
A hexadecimal base I/O address for the /Port.
/Interrupt:irq
The default is 10.
Specifies the PC IRQ that the Strobe Mux is configured for.
/Port:{0-31}
This is required.
Specifies which serial port.

WRQ =(NT)

Specifies a filter to WRQ's Reflection package, a terminal emulator.

WRQ /Conn:filter = Console

/8bit:{On Off}
The default is Off.
Enables 8 bit mode.

/Conn:name
The default is filter.
Specifies the filter name to WRQ.

/Delay:{1-60000}
The default is 20000.
Specifies the maximum number of milliseconds to wait between starting the /WinExec and connecting to it.
/Pipe:{pipe name}
The default is no parallel pipe.
Specifies the name of the pipe to create and use.
See page 29 for details about filenames with spaces.
This specifies a parallel pipe. WRQ sessions can be monitored with VTPIPE.

/WinExec:command line
Specifies the command line to start the Reflection program. Typically, this will be:
`/WinExec:"C:\\Program Files\\Reflection\\r4win.exe /N /s osprey.r4w"`

CHAR Type Virtual Devices
= CONSOLE

Specifies the standard J11 console.

Con /Unit:1 = Console /Slot:0

Character Options (page 43) are allowed.
Output Modem Options (page 45) are allowed.
The implied instance values are /Adr:177560 /Vct:060 /Pri:4 /Slot:0

/RXBreak:{ON OFF}
The default is OFF.
Causes a HALT when the BREAK signal is received. This requires /RXStatus:On.
/RXStatus:{ON OFF}
The default is OFF.
Sets the high order eight bits of the receive data buffer to the line status.
/Slot:{0-255}
Specifies the slot number. For devices of equal priority the device with the lower slot has priority.
/Width:{80 132}
The default is 80.
Specifies the startup width of the console.

= CS11

Specifies CS11 type multiplexer.

Con /Unit:2 = CS11 /Unit:0

Instance Options (page 42) are allowed.
The default is /Adr:160020 /Vct:300 /Pri:5 /Slot:0
The CSR is the /Adr:
Character Options (page 43) are allowed, except for /Mode:. The CS11 requires the baud rate to be set under program control. The baud rates supported, as in the original device, are 50, 75, 110, 134.5, 150, 200, 300, 600, 1200, 1800, 2400, 4800, and 9600.
/Flush:{On Off}
The default is Off.
If On, forces a flush of the internal I/O buffers whenever the LPR is updated. If Off, the buffers are only flushed when the LPR is set to zero.
/Unit:{0-15}
Specifies the line number.

= DH11

Specifies DH11 type multiplexer.

Con /Unit:2 = DH11 /Unit:0

Instance Options (page 42) are allowed.
The default is /Adr:160020 /Vct:300 /Pri:5 /Slot:0
The CSR is the /Adr:
Character Options (page 43) are allowed, except for /Mode:. The DH11 requires the baud rate to be set under program control. The baud rates supported, as in the original device, are 50, 75, 110, 134.5, 150, 200, 300, 600, 1200, 1800, 2400, 4800, and 9600.
/Flush:{On Off}
The default is Off.
If On, forces a flush of the internal I/O buffers whenever the LPR is updated. If Off, the buffers are only flushed when the LPR is set to zero.
/Unit:{0-15}
Specifies the line number.

= DHU11

Specifies DHU11 type multiplexer.

Con /Unit:2 = DHU11 /Unit:0

Instance Options (page 42) are allowed.
The default is /Adr:160440 /Vct:300 /Pri:4 /Slot:0
The CSR is the /Adr:
Character Options (page 43) are allowed.
/Flush:{On Off}
The default is Off.

If On, forces a flush of the internal I/O buffers whenever the LPR is updated. If Off, the buffers are only flushed when the LPR is set to zero.
/Unit:{0-15}
Specifies the line number.

= DHV11

Specifies DHV11 type multiplexer.

Con /Unit:2 = DHV11 /Unit:0

Instance Options (page 42) are allowed.
The default is /Adr:160440 /Vct:300 /Pri:4 /Slot:0
The CSR is the /Adr:
Character Options (page 43) are allowed.
/Flush:{On Off}
The default is Off.
If On, forces a flush of the internal I/O buffers whenever the LPR is updated. If Off, the buffers are only flushed when the LPR is set to zero.
/Unit:{0-15}
Specifies the line number. The DEC DHV11 only has units 0-7, and most sofware will only recognize units 0-7.
/TXDMADelay:microseconds
Specifies the amount of time to delay the DMA transmission after receiving the DMA start signal. The decimal number of microseconds must be between 0 and 10,000,000 inclusive. The delay will be rounded up to the next highest 250 microseconds. This might be necessary for code that does not write the count, low address, and start signal in the proper order.

= DLV11

Specifies DLV11 type multiplexer.

Con /Unit:3 = DLV11 /Slot:0

Instance Options (page 42) are allowed.
The default is /Adr:176500 /Vct:300 /Pri:5 /Slot:0
The CSR is the /Adr:
Each additional DLV11 configured adds 10 to the previous /Adr: and 10 to the previous /Vct:
Character Options (page 43) are allowed.
Output Modem Options (page 45) are allowed.

= DLV11-J

Specifies DLV11-J type multiplexer.

Con /Unit:3 = DLV11-J /Slot:0

Instance Options (page 42) are allowed.
The default is /Adr:176500 /Vct:300 /Pri:5 /Slot:0
The CSR is the /Adr:
Each additional DLV11-J configured adds 10 to the previous /Adr: and 10 to the previous /Vct:
Character Options (page 43) are allowed.
Output Modem Options (page 45) are allowed.

= DZ11

Specifies DZ11 type multiplexer.

Con /Unit:4 = DZ11 /Unit:0

Instance Options (page 42) are allowed.
The default is /Adr:160010 /Vct:300 /Pri:5 /Slot:0
The CSR is the /Adr:
Character Options (page 43) are allowed.
/Flush:{On Off}
The default is Off.
If On, forces a flush of the internal I/O buffers whenever the LPR is updated. If Off, the buffers are only flushed when the LPR is set to zero.
/Unit:{0-7}
Specifies the line number.

= DZQ11

Specifies DZQ11 type multiplexer.

Con /Unit:1 = DZQ11 /Unit:0

Instance Options (page 42) are allowed.
The default is /Adr:160010 /Vct:300 /Pri:5 /Slot:0
The CSR is the /Adr:
Character Options (page 43) are allowed.
/Flush:{On Off}
The default is Off.
If On, forces a flush of the internal I/O buffers whenever the LPR is updated. If Off, the buffers are only flushed when the LPR is set to zero.
/Unit:{0-3}
Specifies the line number.

= DZV11

Specifies DZV11 type multiplexer.

Con /Unit:1 = DZV11 /Unit:0

Instance Options (page 42) are allowed.
The default is /Adr:160010 /Vct:300 /Pri:5 /Slot:0
The CSR is the /Adr:
Character Options (page 43) are allowed.
/Flush:{On Off}
The default is Off.
If On, forces a flush of the internal I/O buffers whenever the LPR is updated. If Off, the buffers are only flushed when the LPR is set to zero.
/Unit:{0-3}
Specifies the line number.

= LP11

Specifies LP11 type printer interface.

Con /Unit:9 = LP11 /Slot:0

Instance Options (page 42) are allowed.
The default is /Adr:177514 /Vct:200 /Pri:4 /Slot:0
The CSR is the /Adr:
Character Options (page 43) are allowed.
Output Modem Options (page 45) are allowed.

= LPV11

Specifies LPV11 type printer interface.

Con /Unit:9 = LPV11 /Slot:0

Instance Options (page 42) are allowed.
The default is /Adr:177514 /Vct:200 /Pri:4 /Slot:0
The CSR is the /Adr:
Character Options (page 43) are allowed.
Output Modem Options (page 45) are allowed.

= VRU11

Specifies VRU11 type video RAM and DLV11 compatible multiplexor. The output from a VRU11 is VT100 compatible. The DLV11 multiplexor resides at the /Adr and /Vct.

Con /Unit:3 = VRU11

Instance Options (page 42) are allowed.
The default is /Adr:175610 /Vct:300 /Pri:5 /Slot:0
The CSR is the /Adr:
Character Options (page 43) are allowed.
/Bell:{160000-177776}

The default is 177726.
Specifies the base address of the audible bell port.

/CRT:{160000-177774}

The default is 177730.
Specifies the base address of the CRT controller registers.

/TXBuff:{848-32768}

The default is about 25000.
Specifies the size of the transmit buffer.

/LFDetect:{Yes No}

The default is No.
If Yes, blanks the remainder of a line when a LF character is stored in the RAM, and the remainder of the screen when a FF character is stored. This is a jumper option on a VRU11.

/UnitSelect:{Yes No}

The default is Yes.
Enables the Unit Select bit.

If No, the video RAM is always visible. If Yes, the video RAM is only visible when the Unit Select bit is set. This is a jumper option on a VRU11.

/RAM:{160000-174000}

The default is 160000.
Specifies the base address of the video RAM.

CALENDAR Type Physical Devices

CALENDAR =

Specifies the calendar device.

Calendar = KWV11-CAL

/NVRAM:{Filename}

This is required.
Specifies the file to use for NVRAM.

CALENDAR Type Virtual Devices

= KWV11-CAL

Specifies the calendar option of a KWV11-C.

Calendar = KWV11-CAL

Instance Options (page 42) are allowed.
The default is /Adr:170400 /Vct:450 /Pri:4 /Slot:0
The CSR is the /Adr:

CLOCK Type Physical Devices

CLOCK =

Specifies the periodic clock.

Clock = KW11P

CLOCK Type Virtual Devices

= KW11-P

Specifies the programmable clock

Clock = KW11-P /Resolution:1000

Instance Options (page 42) are allowed.
The default is /Adr:172540 /Vct:104 /Pri:6 /Slot:0
The CSR is the /Adr:
/Rate:{0-3}
The default is 0.
Specifies the default rate. The rates represent 100k hertz, 10k hertz, line frequency, and external.
/Resolution:{1-1000000}
The default is the lowest legal limit, as defined by the board.
Specifies the granularity of the timer. The lowest legal limit is approximately 250 microseconds. Smaller numbers cause a heavier burden on the Osprey. In busy systems, it may be better to raise this number.

= KWV11-C

KWV11-C programmable real-time clock

Clock = KWV11-C /Resolution:1000

Instance Options (page 42) are allowed.
The default is /Adr:170420 /Vct:440 /Pri:4 /Slot:0
The CSR is the /Adr:
/Rate:{0-7}
The default is 0.
Specifies the default rate. The rates represent n/a, 1mhz, 100khz, 10khz, 1khz, 100hz, line frequency, and external.
/Resolution:{1-1000000}
The default is the lowest legal limit, as defined by the board.
Specifies the granularity of the timer. The lowest legal limit is approximately 250 microseconds. Smaller numbers cause a heavier burden on the Osprey. In busy systems, it may be better to raise this number.

CPU Type Physical Devices

CPU =

Specifies the processor type.

CPU = KDJ11-E

CPU Type Virtual Devices

= KB11-C

Specifies the supported CPU type. The KB11-C is the CPU type for the PDP 11/70.

CPU = KB11-C /Line:50

The implied instance values are:

CPU	/Adr:177744 /Vct:0 /Pri:0 /Slot:0
Clock	/Adr:177546 /Vct:100 /Pri:6 /Slot:0
SWR	/Adr:177570 /Vct:n/a /Pri:n/a /Slot:n/a
TOY	/Adr:177520 /Vct:n/a /Pri:n/a /Slot:n/a
Switches	/Adr:177524 /Vct:n/a /Pri:n/a /Slot:n/a

/EEPROM:value
The default is 0, meaning no EEPROM available.
Specifies the EEPROM size in kbytes. The decimal number must be 2, 4, or 8. For the EEPROM contents, see page 31. /EEPROM:value uses 256 I/O locations beginning at both /Adr:173000 and /Adr:165000. It also has four control registers at /Adr:177520.
/Exit:CSR
The default is 0, meaning no Exit CSR available.
Specifies the CSR of the special Exit device. If enabled, writing an octal 123456 to the Exit CSR causes the Osprey program to terminate. Note that this is equivalent to turning off the power on the PDP-11 machine. The Strobe utilities use /Exit:176460.
/Line:{Event frequency}
The default is 60.
Specifies the real time clock line frequency in hertz. The decimal number must be from 1 to 1000. If you specify /Line:Event, you must have a Qbus, and it must supply the line frequency.
/MemCSR:{On Off}
The default is Off.
Disables the partial emulation of the memory CSR. This is required for RSTS version 10 and possibly other operating systems. The MemCSR uses /Adr:172100.
/MemoryErrorAddress:{On Off}
The default is On.
If Off, disables the memory error address register at 177740
/MicroProgramBreak:{On Off}
The default is On.
If Off, disables the micro program break register at 177770
/MMR3:{On Off}
The default is On.
If Off, disables the Osprey knowledge of the MMR3 during configuration parsing. This does **not** actually disable the MMR3. It will allow other devices to be configured over the MMR3 addresses (e.g. FlatProm).
(ISA)/PowerFail:{On Off BPOK}
The default is Off.
Supports INT 24 power fail on an external I/O bus. On specifies full power fail support. BPOK only tracks BPOK and not BDCOK. This does not provide power fail support on the Osprey PC.
/PROM:value
The default is 0, meaning no PROM available.

Specifies the PROM size. The decimal number must be a power of 2 between 2 and 64 inclusive. For the PROM contents, see page 36. /PROM:value uses 256 I/O locations beginning at both /Adr:173000 and /Adr:165000. It also has four control registers at /Adr:177520.

/PROMEnable:{On Off}

The default is On.

If Off, disables the following KDJ-11 CPU board devices:

177520 Control / status register
177522 Page Control register
177524 Configuration and display register
177526 Additional Status register

See KDJ11-E CPU Module *User Guide* for complete register descriptions.

/PROMType:{Internal BDV11}

The default is Internal, meaning the internal KDJ11 PROM. BDV11 specifies the M8012 bootstrap and terminator card.

/PROMWrite:{On Off}

If On, enables write access to the PROM.

/StackLimit:{On Off}

The default is On.

If Off, disables the stack limit register at 177774

/Switches:value

Specifies the 8 position DIP on a KDJ11-E CPU board. This is **not** the equivalent of the toggle switches, which are specified throught the /SWR: option. The octal number must be between 0 and 377 inclusive.

/SWR:value

Specifies the initial value for the front panel toggle switches. The octal number must be between 0 and 177777 inclusive. See page 100 for information on changing the switches at run-time. /Adr:177570 references this value.

/SystemID:{0-177777}

The default is 73551.

Uses the system registers at 177760-177764

/SystemLowerSize:{0-177777}

The default is 170000 if 4MB are on-board, and 100000 otherwise.

Uses the system registers at 177760-177764

/SystemUpperSize:{0-177777}

The default is 0.

Uses the system registers at 177760-177764

/UnibusMap:{On Off}

The default is Off.

Enables the Unibus map registers. /UnibusMap:On uses 62 words beginning with /Adr:170200. The Unibus map is enabled with this command. For machines with the Osprey Unibus adapter connected to Unibus devices, you must also include Unibus = in your configuration file.

/UnibusMemoryParity:{On Off}

The default is On.
If Off, disables the Unibus memory parity register at 172110

= KDJ11-E

Specifies the supported CPU type.

CPU = KDJ11-E /Line:50

The implied instance values are:

CPU	/Adr:177744 /Vct:0 /Pri:0 /Slot:0
Clock	/Adr:177546 /Vct:100 /Pri:6 /Slot:0
SWR	/Adr:177570 /Vct:n/a /Pri:n/a /Slot:n/a
TOY	/Adr:177520 /Vct:n/a /Pri:n/a /Slot:n/a
Switches	/Adr:177524 /Vct:n/a /Pri:n/a /Slot:n/a

/EEPROM:value
The default is 0, meaning no EEPROM available.
Specifies the EEPROM size in kbytes. The decimal number must be 2, 4, or 8. For the EEPROM contents, see page 31. /EEPROM:value uses 256 I/O locations beginning at both /Adr:173000 and /Adr:165000. It also has four control registers at /Adr:177520.

/Exit:CSR
The default is 0, meaning no Exit CSR available.
Specifies the CSR of the special Exit device. If enabled, writing a 123456 to the Exit CSR causes the Osprey program to terminate. Note that this is equivalent to turning off the power on the PDP-11 machine.
/Line:{Event frequency}
The default is 60.
Specifies the real time clock line frequency in hertz. The decimal number must be from 1 to 1000. If you specify /Line:Event, you must have a Qbus, and it must supply the line frequency.

/MemCSR:{On Off}
The default is Off.
Disables the partial emulation of the memory CSR. This is required for RSTS version 10 and possibly other operating systems. The MemCSR uses /Adr:172100.
/MemoryErrorAddress:{On Off}
The default is Off.
If On, enables the memory error address register at 177740
/MicroProgramBreak:{On Off}
The default is Off.
If On, enables the micro program break register at 177770
/MMR3:{On Off}
The default is On.

If Off, disables the Osprey knowledge of the MMR3 during configuration parsing. This does **not** actually disable the MMR3. It will allow other devices to be configured over the MMR3 addresses (e.g. FlatPROM).

/Module:{0-15}

The default is 5, which corresponds to E in KDJ11-E. The module types are:

Value	*CPU type*
1	KDJ11-A PDP 11/73
2	KDJ11-B PDP 11/83
5	KDJ11-E PDP 11/93
Other	*Reserved*

Specifies the CPU module type.

(ISA)/PowerFail:{On Off BPOK}

The default is Off.

Supports INT 24 power fail on an external I/O bus. On specifies full power fail support. BPOK only tracks BPOK and not BDCOK. This does not provide power fail support on the Osprey PC.

/PROM:value

The default is 0, meaning no PROM available.

Specifies the PROM size. The decimal number must be a power of 2 between 2 and 64 inclusive. For the PROM contents, see page 36. /PROM:value uses 256 I/O locations beginning at both /Adr:173000 and /Adr:165000. It also has four control registers at /Adr:177520.

/PROMEnable:{On Off}

The default is On.

If Off, disables the following KDJ-11 CPU board devices:

177520	Control / status register
177522	Page Control register
177524	Configuration and display register
177526	Additional Status register

See KDJ11-E CPU Module *User Guide* for complete register descriptions:

/PROMType:{Internal BDV11}

The default is Internal, meaning the internal KDJ11 PROM. BDV11 specifies the M8012 bootstrap and terminator card.

/PROMWrite:{On Off}

If On, enables write access to the PROM.

/StackLimit:{On Off}

The default is Off.

If On, enables the stack limit register at 177774

/Switches:value

Specifies the 8 position DIP on a KDJ11-E CPU board. This is **not** the equivalent of the toggle switches, which are specified throught the /SWR: option. The octal number must be between 0 and 377 inclusive.

/SWR:value

Specifies the initial value for the front panel toggle switches. The octal number must be between 0 and 177777 inclusive. See page 100 for information on changing the switches at run-time. /Adr:177570 references this value.

/SystemID:{0-177777}

The default is 73551.

If specified, enables the system registers at 177760-177764

/SystemLowerSize:{0-177777}

The default is 0.

If specified, enables the system registers at 177760-177764

/SystemUpperSize:{0-177777}

The default is 0.

If specified, enables the system registers at 177760-177764

/UnibusMap:{On Off}

The default is Off.

Enables the Unibus map registers. /UnibusMap:On uses 62 words beginning with /Adr:170200. The Unibus map is enabled with this command. For machines with the Osprey Unibus adapter connected to Unibus devices, you must also include Unibus = in your configuration file.

/UnibusMemoryParity:{On Off}

The default is Off.

If On, enables the Unibus memory parity register at 172110

DOS Type Physical Devices

DOSDEVICE =

Specifies the DOS interface. See the DOS Device Manual for programming information.

DOSDevice = DOSDevice

DOS Type Virtual Devices

= DOSDevice

Specifies the custom DOS interface. See the DOS Device Manual for programming information.

DosDevice = DosDevice /Slot:0

Instance Options (page 42) are allowed.

The default is /Adr:176470 /Vct:240 /Pri:4 /Slot:0

The CSR is the /Adr:

DMA General Purpose Interface Type Physical Devices

DCI1109 =(NT)

Specifies the Logical Company DCI-1109 16 bit DMA Interface.

DCI1109 = DR11W

/Port:{0-15}

This is required.
Specifies the DCI1109 device number within the system.

/CFG:{0-0xFFFF}

Specifies a 16 bit device configuration register option value. See the DCI-1109 vendor documentation for details.

The default value is dependent on the virtual device type.

/DIRCMD:0xaabb

Specifies a DMA direction control field.

aa represents a mask of the DR11 function bits used to determine the transfer direction.

bb represents the value which the mask has to match for a write from memory to the user device.

The default is 0x0200 (Func1 = 0 for write to device).

/MinSize:{256-65536}

Specifies the minimum required buffer size in 16 bit words.
The default is 32768.

The actual buffer is defined by a registry setting loaded by the driver during startup. /MinSize guarantees that at least the amount specified will be supported. If a user program tries to transfer more than the size allocated by the driver, the Osprey will crash at run time. This option should be set to the maximum size the user program will actually transfer in a single DMA burst.

/Logging:{On Off}

The default is Off.

Controls the logging of DMA transfer error messages.

DMA General Purpose Interface Type Virtual Devices
= DR11W(NT/ISA NT/PCI)

Specifies the DR-11W 16 bit Unibus DMA controller.

DCI1109 = DR11W

Instance Options (page 42) are allowed.
The default is /Adr:172410 /Vct:124 /Pri:5 /Slot:0
The CSR is the /Adr: plus 4

/CERD:{On Off}

The default is Off.
This option specifies special behavior required by the CERD device.

/EIR:{On Off}

The default is Off.

Enables the Error Information Register. This option emulates the function of E105 sw 5 on the actual device.

/INHA00:{On Off}

The default is Off.

Enabling this option Inhibits the A00 bit in the BAR from reflecting the User READY signal. This option emulates the function of E105 sw 4 on the actual device.

= DRV11(NT/ISA NT/PCI)

Specifies the DRV-11 16 bit Qbus DMA controller.

DCI1109 = DRV11

Instance Options (page 42) are allowed.
The default is /Adr:172410 /Vct:124 /Pri:5 /Slot:0
The CSR is the /Adr: plus 4

/CERD:{On Off}
The default is Off.
This option specifies special behavior required by the CERD device.
/Q22:{On Off}
The default is Off.
This option enables 22-bit address mode on the device (including the BAE Register).
This option emulates the function of E40 sw 10 on an actual DRV-11WA device.
/RevC:{On Off}
The default is On.
This option enables 22-bit address mode on the device (including the BAE Register).
This option enables the feature on actual DRV-11WA devices where as of CS Revision C, BAE bit 15 always reads as a “one”.
/ATTN:{On Off}
The default is On.
Enabling this option enables the Independent Attn Interrupt feature of the DRV-11WA.
This option emulates the function of jumper W5/W6 on the actual device.

PIO General Purpose Interface Type Physical Devices

DIO48 =(NT)

Specifies the Acces I/O Products PCI-DIO-48S Digital Input/Output Card.
Note: The interface has 3 option jumpers, which must be set as follows:

IEN0	Open
TST/BEN	TST
IEN1	Open

DIO48 = DR11C

/DLLVersion:n
The default is 17.
A decimal version number.
Normal Osprey software installs the proper custom version of the Acces I/O driver. If Acces I/O standard software is installed after the Osprey, it is possible that a version check error message will occur. Use of this switch without prior approval of Strobe Data could result in system crash and/or data loss.
/Unit:{0-7}
The default is 0.
The unit number as reported by the Acces I/O driver

PIO General Purpose Interface Type Virtual Devices

= DR11C(NT/ISA NT/PCI)

Specifies DR-11C 16 bit PIO Interface.

DIO48 = DR11C

Instance Options (page 42) are allowed.
The default is /Adr:167770 /Vct:300 /Pri:5 /Slot:0
The CSR is the /Adr:
/Sync:{On Off}
The default is Off.
If On, pauses the J11 CPU such that I/O reads from the DR11C device give instantaneous physical device information. Some diagnostics might expect sequential write/read instructions to return updated information.
If Off, reads from the DR11C give the most recent status reported by the physical device.

GPIB Type Physical Devices

AT-GPIB-TNT =(DOS)

Specifies the National Instruments TNT4882 IEEE controller.

AT-GPIB-TNT /TimeBytes:Off = IEQ11

/HighSpeedT1:{On Off}
The default is Off.
If On, ultra short T1 delay

/Interrupt:irq
The default is 11.
Specifies the PC IRQ that the TNT4882 is configured for.
/IoAddress:address
The default is 2C0.
A hexadecimal base I/O address for the board.
/PP1:{On Off}
The default is Off.
If On, Parallel poll remotely configurable.

/SPEOI:{On Off}
The default is Off.
If Off, EOI sent false in SPAS.

/TimeBytes:{On Off}
The default is On.
If On, byte I/O restarts the timer.

/Timeout:{0-15}
The default is 0.
Specifies the TNT4882 time out factor.

/Unit:{1 2}
The default is 1.
Specifies which unit.

GPIB Type Virtual Devices

= IEQ11

Specifies IEQ11 GPIB IEEE 488 TNS 9914A controller

AT-GPIB-TNT = IEQ11 /Unit:0

Instance Options (page 42) are allowed.
The default is /Adr:164100 /Vct:270 /Pri:4 /Slot:0
The CSR is the /Adr: plus 10
/Unit:{0-1}
Specifies the line number.

= IEU11

Specifies IEU11 GPIB IEEE 488 TNS 9914A controller

AT-GPIB-TNT = IEU11 /Unit:0

Instance Options (page 42) are allowed.
The default is /Adr:164100 /Vct:270 /Pri:4 /Slot:0
The CSR is the /Adr: plus 10
/Unit:{0-1}
Specifies the line number.

NET Type Physical Devices

NA509 =

Specifies a 3COM 3C509 network card.

NA509 = DEQNA

/Address:address
The default is the actual card address.
A six-byte hex string which represents the (PROM) address of the card as reported to the CPU. The string must be in the format XX-XX-XX-XX-XX-XX or XXXXXXXXXXXX.
/DECnet:{Yes No}
The default is No.
DECnet receive frame filtering option. Suppresses passing of frames with source addresses that do not begin with ‘AA-00-‘. Filtering spares DECnet of having to do it when it is running on an ethernet LAN with other non-DECnet systems that use broadcasts. /DECnet:Yes will cause DECnet to fail if it expects to receive frames from source addresses that do not begin with AA-00-.
/ForceXsum:{Yes No}

The default is No.
Forces valid length and checksum fields into the ROM image. The default assumes the ROM image already has valid fields or does not require them.
/IoAddress:address(DOS)
This is required if more than one 3COM 509 card physically present in the PC.
If there is only one 3COM 509 card installed in the PC, the default is the address of that card. Typically in the 200-300 range.
A hexadecimal base I/O address.
/Name:device name(NT)
This is required.
Specifies the NT device name for the 3COM 509 card. You may need to use DOSDEV to determine the device name. See page 12 for more information.
/PortID:{0-FFFF}(DOS)
The default is 110.
The I.D. port address. Note that this is not the I/O port address that typically is configured in the 200-300 range. Use /IoAddress to specify that value.
/ROM:filename

The default is XHBOOT.ROM

Specifies the boot ROM. The source to this file is available in the cross assembler at http://www.strobedata.com/osprey/pdpxasm.exe
/RxPkts:{1-1000}
The default is 10.
Specifies the number of simultaneous receive packets.
/W3:{On Off}
The default is On, which disables the sanity timer.
Controls the W3 jumper. The W3 jumper controls the sanity timer disable.

NA900B(NT) =

Specifies a 3COM 3C900B network card.

NA900B = DEQNA

/Address:address
The default is the actual card address.
A six-byte hex string which represents the (PROM) address of the card as reported to the CPU. The string must be in the format XX-XX-XX-XX-XX-XX or XXXXXXXXXXXX.
/DECnet:{Yes No}
The default is No.
DECnet receive frame filtering option. Suppresses passing of frames with source addresses that do not begin with 'AA-00-'. Filtering spares DECnet of having to do it when it is running on an ethernet LAN with other non-DECnet systems that use broadcasts. /DECnet:Yes will cause DECnet to fail if it expects to receive frames from source addresses that do not begin with AA-00-.
/ForceXsum:{Yes No}

The default is No.
Forces valid length and checksum fields into the ROM image. The default assumes the ROM image already has valid fields or does not require them.
/Name:devicename
Specifies the NT device name. You may need to use DOSDEV to determine the correct /Name. (See page 12.)
/ROM:filename

The default is XHBOOT.ROM

Specifies the boot ROM. The source to this file is available in the cross assembler at http://www.strobedata.com/osprey/pdpxasm.exe
/RxPkts:{1-1000}
The default is 10.
Specifies the number of simultaneous receive packets.
/W3:{On Off}
The default is On, which disables the sanity timer.
Controls the W3 jumper. The W3 jumper controls the sanity timer disable.

NET Type Virtual Devices
= DEQNA

Specifies DEQNA network.

NA509 = DEQNA /Delay:off

Instance Options (page 42) are allowed.
The default is /Adr:174440 /Vct:000 /Pri:4 /Slot:0
The CSR is the /Adr: plus 16
/Delay:{On Off}
The default it OFF.
Delays the CSR read time. Some diagnostics will fail without this artificial delay.

ODT Type Physical Devices
StrobeODT =
Specifies the Strobe PC console ODT interface. See page 103 for information about the StrobeODT interface. This is required for the ISA and PCI cards.

StrobeODT = ODT

/Capture:{Yes No}(NT)
The default is Yes if /Name is given and No if /Name is omitted.
Enables or disables capturing to /Name:

/Logging:{On Off}
The default is Off.

Strobe Data internal option.

/Mode:{Create Truncate New Append Extend Write Overwrite}(NT)
The default is Create.
Specifies the method used to open and verify the /Name.

Create	Create file (truncate if exists)
Truncate	Truncate file (must exist)
New	Create file (must not exist)
Append	Create file (append if exists)
Extend	Extend file (must exist)
Write	Write to file (must exist)
Overwrite	Create file (overwrite if exists)

/Name:filename(NT)
This is required if /Capture:Yes is given.
See page 29 for details about filenames with spaces.
Specifies the file that will capture data.

/ODTBootsPROM:{Yes No}
The default is No.
Forces address 173000 to be executed every time the ODT is entered. This is especially useful for a site with a remote terminal and limited or no access to the PC console. You must set /PROM: on the CPU line (see page 75) to enable the PROM, unless you have a boot PROM on an I/O bus. There is potential for bad behavior if your PROM does not boot or behave well, or the system HALTs but must not be rebooted.
/UnitName:string(NT)
Specifies the logical device name, used for user clarification.

ODT Type Virtual Devices
= ODT

Specifies the ODT provided by the J11.

StrobeODT = ODT /Slot:1

/DTR:{ON OFF}
The default is OFF.
Sets the modem line status.

/RTS:{ON OFF}
The default is OFF.
Sets the modem line status.
/Slot:{0-255}
Specifies the slot number. For devices of equal priority the device with the lower slot has priority.
Character Options (page 43) are allowed.

PROM Type Physical Devices

FlatPROM =

Specifies a non-paged prom.

```
FlatProm /Name:OSPREY.PRM = FlatPROM
```

/Name:filename

The default is OSPREY.PRM.

See page 29 for details about filenames with spaces.

Specifies the initial contents of the PROM.

PROM Type Virtual Devices

= FlatPROM

Specifies a non-paged PROM. To use the paged PROM, see page 75.

FlatPROM = FlatPROM /Size:1024

Instance Options (page 42) are allowed.

The default is /Adr:170000 /Vct:000 /Pri:0 /Slot:0

There is no CSR.

/Size:{1-4096}

The default is 1024.

Specifies the size in words of the PROM.

TAPE Type Physical Devices

ASPITape =

Uses the ASPI interface. See page 12 for installation requirements.

ASPITape /Adapter:0 /Unit:0 = TMSCP /Unit:0

/Adapter:{0-7}

The default is 0.

Specifies the ASPI controller number.

/BlockSize:{0 512 1024}

The default is 0.

Controls the blocking mode. Blocked tapes contain a header block for each record written.

If 0, tries to set the mode (in order) to variable length records, then 512 byte records, then 1024 byte records. If none succeed, generates an error.

If 512 or 1024, tries to set the mode to the value specified and generates an error if it fails.

/Buffer:{512-4294966784}(DOS)

The default is 64512.

Specifies the tape transfer buffer size.

/Drive:{Generic TZ30}

The default is Generic.

Specifies the drive type.

/Name:aspiname(NT)
This is required if NT has assigned a name.
Specifies the NT name for the tape drive. You may need to use DOSDEV to determine the correct /Name. (See page 12.)
/Poll:{0-60}
The default is 3.
Specifies the interval in seconds to poll the tape drive for status changes.
/Unit:{0-15}
The default is 0.
Specifies the SCSI device number.
/UnitName:string(NT)
Specifies the logical device name, used for user clarification.

FileTape =

Uses DOS files. For operational information see the filetape section on page 113.

FileTape /Name:BKUPTAPE = TMSCP /Unit:1

/Name:filename
This is required.
See page 29 for details about filenames with spaces.
Specifies the filename base. No extension is allowed. The two files, filename.TAP and filename.TIX are used for the emulation.
/MaxSize:{1-10240}
The default is free space on the disk.
Limits the size of the .TAP file. The decimal number represents the number of kbytes that are allowed.
/Notify:{On Off}
The default is Off.
Signals the user if a program unloads the tape.
/UnitName:string(NT)
Specifies the logical device name, used for user clarification.
/WriteProtect:{On Off}
The default is Off.
Controls write protect.

QICTape =

Uses the ASPI interface for QIC SCSI tape drive. See page 12 for installation requirements.

QICTape = TMSCP /Unit:1

/Adapter:{0-7}
The default is 0.
Specifies the ASPI controller number.
/Unit:{0-7}

The default is 0.
Specifies the SCSI device number.

/UnitName:string(NT)
Specifies the logical device name, used for user clarification.

TAPE Type Virtual Devices
= MSV05

Specifies an MSV05 controller

Filetape /Name:BKUPTAPE = MSV05 /Buf:on

Instance Options (page 42) are allowed.
The default is /Adr:172520 /Vct:224 /Pri:5 /Slot:0
The CSR is the /Adr:
/Buf:{On Off}
The default is On.
Enables buffering.

/PhEnc:{On Off}
The default is On.
Enables phase encoded

/Unit:{0-7}
The default is 0.
Specifies the unit number.

= MSV05B

Specifies an MSV05B controller

ASPITape = MSV05B /Unit:1

Instance Options (page 42) are allowed.
The default is /Adr:172520 /Vct:224 /Pri:5 /Slot:0
The CSR is the /Adr:
/Buf:{On Off}
The default is On.
Enables buffering.

/PhEnc:{On Off}
The default is On.
Enables phase encoded

/Unit:{0-7}
The default is 0.

Specifies the unit number.

= RH11-TM03

Specifies a TM03 tape on an RH11 controller.

ASPITape = RH11-TM03 /Unit:2

Instance Options (page 42) are allowed.
The default is /Adr:172440 /Vct:224 /Pri:5 /Slot:0
The CSR is the /Adr:

/Drive:{TU77 TU45 TU16 TE16}

The default is TU77.

Specifies the drive to determine the type, class and model.
/Formatter:{0-7}
The default is 0.
Specifies the formatter number.

/Serial:{0-9999}
The default is 9999.
Specifies the serial number.

/Space:{0-65535}
The default is 10.
Specifies the number of blocks per SPACE command processed before forcing the tape status back. /Space:0 will process the entire SPACE command. Some operating systems (RSX in particular) have problems if slow tape drives take a long time with SPACE commands. In these cases, the value may need to be smaller.
/Unit:{0-7}
The default is 0.
Specifies the unit number.

/WriteProtect:{On Off}
The default is Off.
Controls write protect.

= RH70-TM03

Specifies a TM03 tape on an RH70 controller.

ASPITape = RH70-TM03 /Unit:2

Instance Options (page 42) are allowed.
The default is /Adr:172440 /Vct:224 /Pri:5 /Slot:0

The CSR is the /Adr:

/Drive:{TU77 TU45 TU16 TE16}

The default is TU77.

Specifies the drive to determine the type, class and model.

/Formatter:{0-7}

The default is 0.

Specifies the formatter number.

/Serial:{0-9999}

The default is 9999.

Specifies the serial number.

/Space:{0-65535}

The default is 10.

Specifies the number of blocks per SPACE command processed before forcing the tape status back. `/Space:0` will process the entire SPACE command. Some operating systems (RSX in particular) have problems if slow tape drives take a long time with SPACE commands. In these cases, the value may need to be smaller.

/Unit:{0-7}

The default is 0.

Specifies the unit number.

/WriteProtect:{On Off}

The default is Off.

Controls write protect.

= TM11

Specifies a TM11 controller

`ASPITape = TM11 /Unit:1`

Instance Options (page 42) are allowed.

The default is /Adr:172520 /Vct:224 /Pri:5 /Slot:0

The CSR is the /Adr: plus 2

/Unit:{0-7}

The default is 0.

Specifies the unit number.

/WriteProtect:{On Off}

The default is Off.

Controls write protect.

= TMA11

Specifies a TMA11 controller

ASPITape = TMA11 /Unit:0

Instance Options (page 42) are allowed.
The default is /Adr:172520 /Vct:224 /Pri:5 /Slot:0
The CSR is the /Adr: plus 2
/Unit:{0-7}
The default is 0.
Specifies the unit number.

/WriteProtect:{On Off}
The default is Off.
Controls write protect.

= TMSCP

Specifies a TMSCP controller.

ASPITape = TMSCP /Cntrl:TQK50

Instance Options (page 42) are allowed.
The default is /Adr:174500 /Vct:260 /Pri:5 /Slot:0
The CSR is the /Adr:
/Cntrl:{TQK50 TU81}

The default is TQK50.

Specifies the controller to determine the class and model.
/Drive:{TK50}
The default is TK50.
Specifies the drive to determine the type, class and model.
/Logging:{On Off}
Strobe Data internal option.
The default is Off.
Controls data logging.

/Step1Delay:{0-5000000}
The default is 50000.
Number of microseconds to delay before completing step 1 initialization. Some systems (RSX with UNIBUSMAP:ON) require a very slow step 1 initialization.
/Unit:{0-255}
Specifies the unit number.

= TS04

Specifies a TS04 controller

ASPITape = TS04 /Buf:On

Instance Options (page 42) are allowed.
The default is /Adr:172520 /Vct:224 /Pri:5 /Slot:0
The CSR is the /Adr:
/Buf:{On Off}
The default is On.
Enables buffering.

/Ext:{On Off}
The default is On.
Enables extended features.

/PhEnc:{On Off}
The default is On.
Enables phase encoded

/Unit:{0-7}
The default is 0.
Specifies the unit number.

= TS11

Specifies a TS11 controller

ASPITape = TS11 /Buf:On

Instance Options (page 42) are allowed.
The default is /Adr:172520 /Vct:224 /Pri:5 /Slot:0
The CSR is the /Adr: plus 2
/Buf:{On Off}
The default is On.
Enables buffering.

/Ext:{On Off}
The default is On.
Enables extended features.

/PhEnc:{On Off}
The default is On.
Enables phase encoded

/Unit:{0-7}
The default is 0.
Specifies the unit number.

= TSV11

Specifies a TSV11 controller

ASPITape = TSV11 /Buf:On

Instance Options (page 42) are allowed.
The default is /Adr:172520 /Vct:224 /Pri:5 /Slot:0
The CSR is the /Adr:
/Buf:{On Off}
The default is On.
Enables buffering.

/Ext:{On Off}
The default is On.
Enables extended features.

/PhEnc:{On Off}
The default is On.
Enables phase encoded

/Unit:{0-7}
The default is 0.
Specifies the unit number.

= TSV05

Specifies a TSV05 controller

ASPITape = TSV05 /Buf:On

Instance Options (page 42) are allowed.
The default is /Adr:172520 /Vct:224 /Pri:5 /Slot:0
The CSR is the /Adr:
/Buf:{On Off}
The default is On.
Enables buffering.

/Ext:{On Off}
The default is On.
Enables extended features.

/PhEnc:{On Off}
The default is On.
Enables phase encoded

/Unit:{0-7}
The default is 0.
Specifies the unit number.

= TU58

Specifies a TU58 controller. This is not implemented as a tape device. See page 57 for the TU58 description.

OSPREY CONTROL MENU(NT)

The Osprey control menu is available through the menu bar. Click on File, Edit, Control, or Window to control various aspects of the Osprey.

File \ Dump Memory Image... is only available when the Osprey is halted. Control \ Halt is only available when the Osprey is running, and both Control \ Continue and Control \ Reboot are only available when the Osprey is halted.

Some of the control menu options are available via a CharPipe. When Osprey/NT starts, it creates the Control Pipe with the same name as the Osprey board, typically osprey0. An application can send commands to this pipe (via Strobe Data's VTPIPE or other Windows/NT named pipe program) to control the Osprey. Only advanced administrative users will need to use this feature.

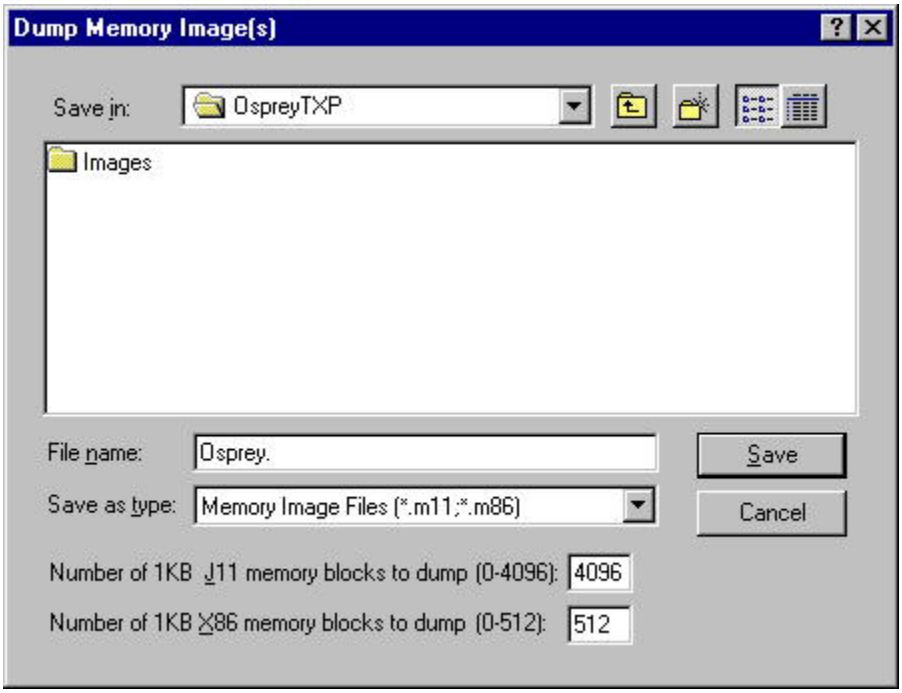
Warning: The control pipe allows the Osprey to be shutdown.

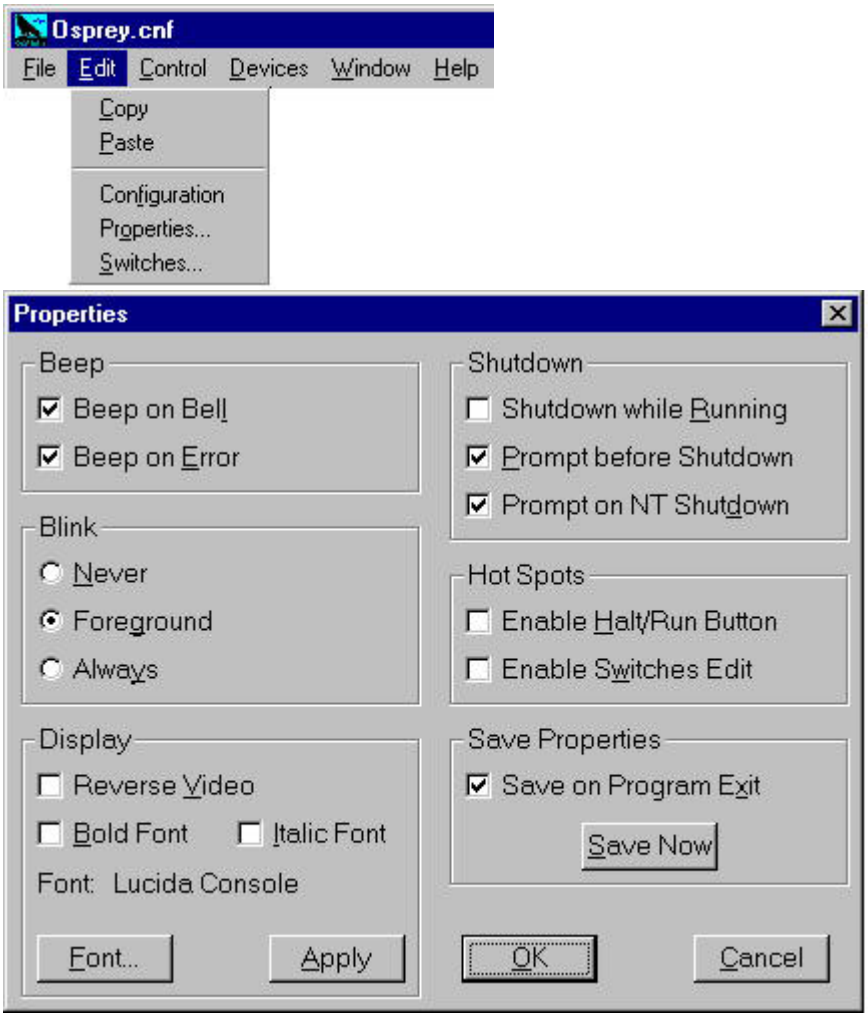
Code	Function
H	Halt the Osprey. Like clicking Control \ Halt
R	Continue the Osprey. Like clicking Control \ Continue
B	Reboot the Osprey. Like clicking Control \ Reboot
X	Shutdown the Osprey. Like clicking File \ Shutdown and exit
S	Get status from the Osprey (H=halted, R=running)
A	Maximize the Osprey parent window
I	Minimize the Osprey parent window
E	Restore the Osprey parent window

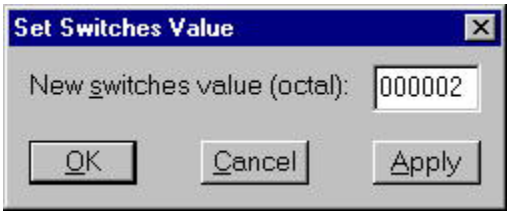
Device Menus

Disks, Tapes, Consoles, and Printers may be configured and changed while the Osprey is running. Click the type of device you wish to configure, then select the particular device. The Osprey will show you all configurable options


Osprey.cnf
File Edit Control Devices Window Help
Dump Memory Image...
Shutdown and Restart
Shutdown and Exit

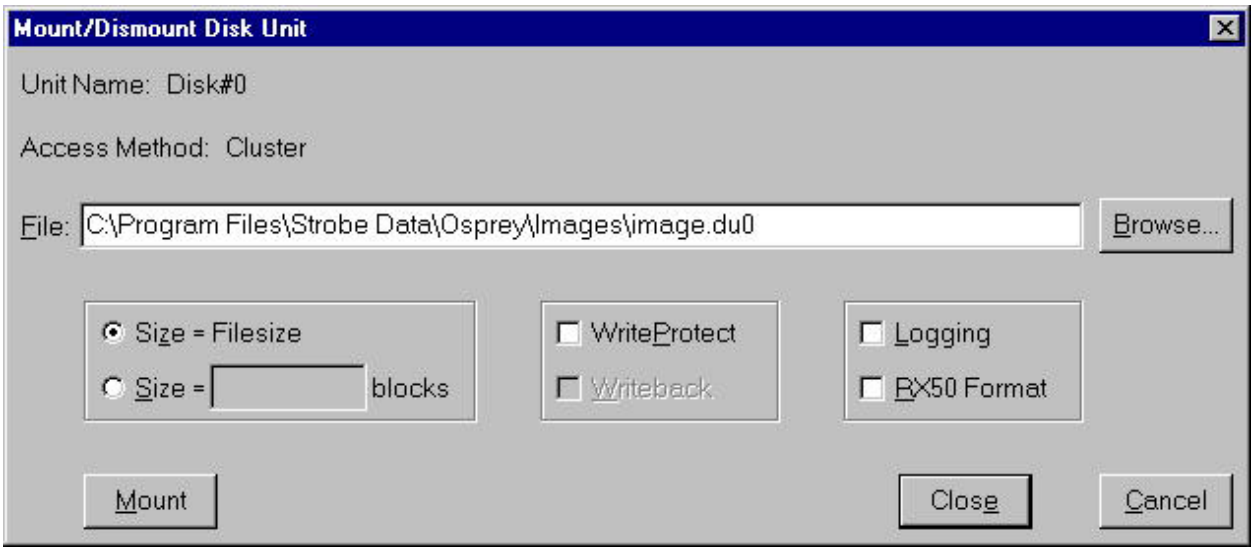

Dump Memory Image(s)
Save in:
OspreyTXP
Images
File name:
Osprey.
Save
Save as type:
Memory Image Files (*.m11;*.m86)
Cancel
Number of 1KB J11 memory blocks to dump (0-4096):
4096
Number of 1KB X86 memory blocks to dump (0-512):
512

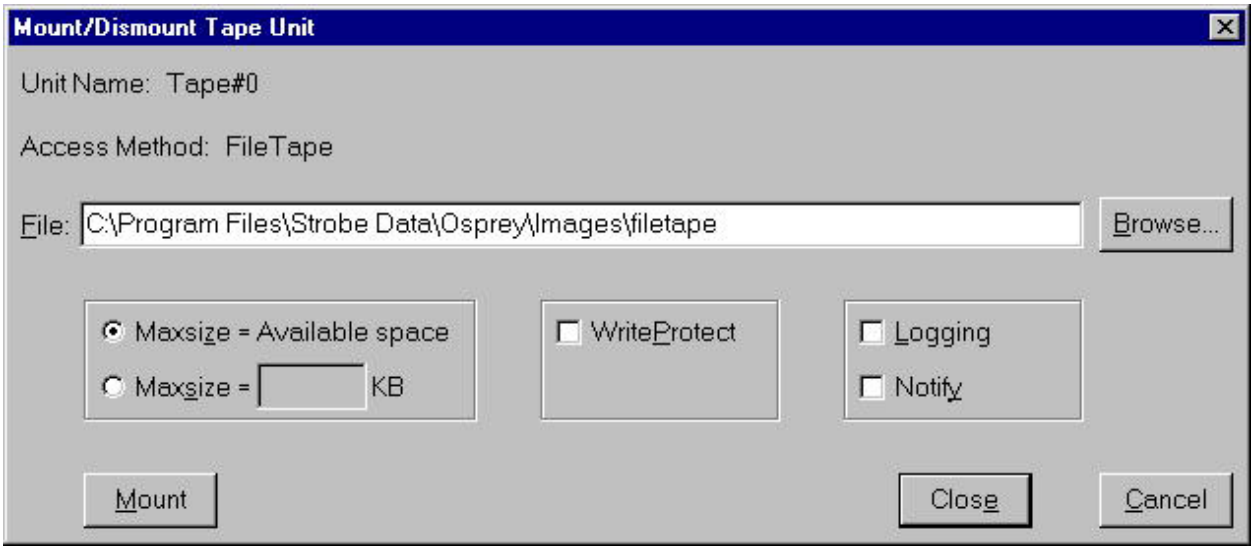

Osprey.cnf
File Edit Control Devices Window Help
Copy
Paste
Configuration
Properties...
Switches...
Properties
Beep
Beep on Bell
Beep on Error
Blink
Never
Foreground
Always
Display
Reverse Video
Bold Font
Italic Font
Font: Lucida Console
Font...
Apply
Shutdown
Shutdown while Running
Prompt before Shutdown
Prompt on NT Shutdown
Hot Spots
Enable Halt/Run Button
Enable Switches Edit
Save Properties
Save on Program Exit
Save Now
OK
Cancel

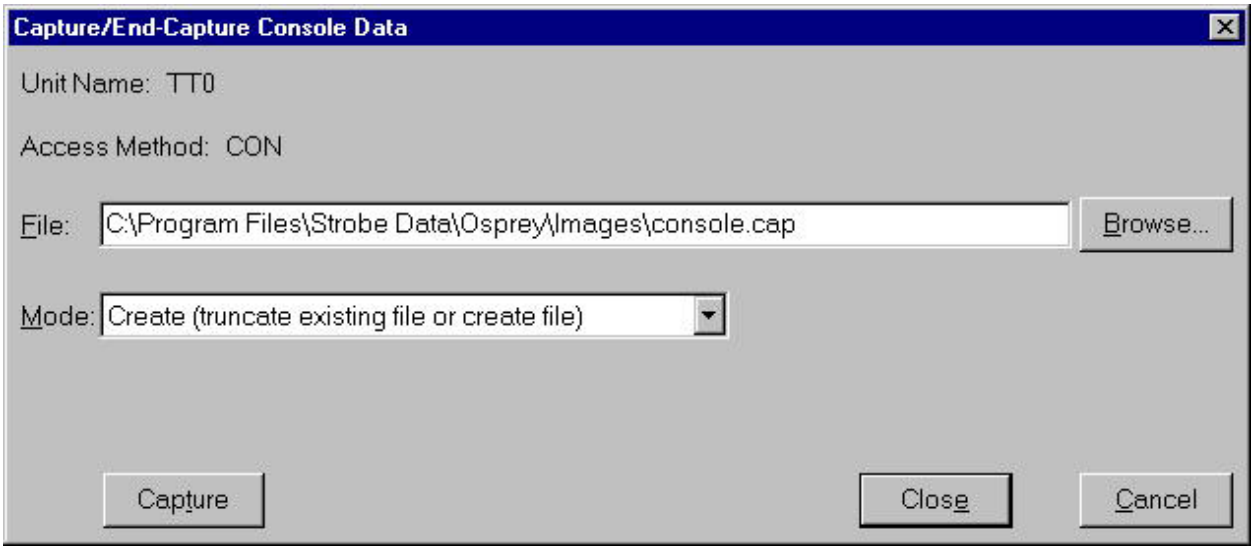

Set Switches Value
New switches value (octal):
000002
OK
Cancel
Apply

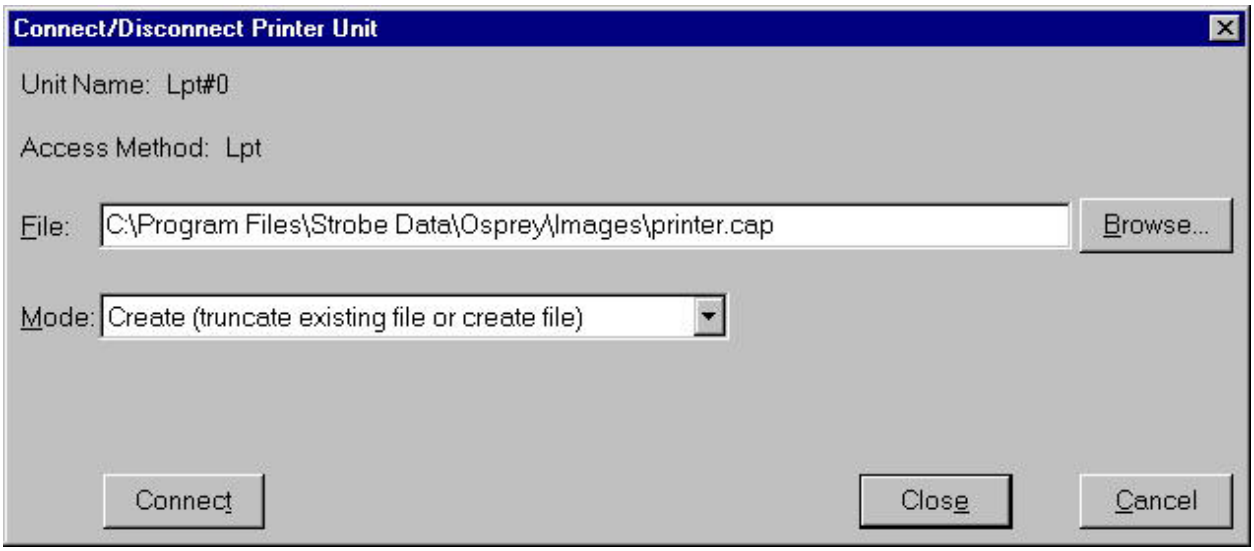

Osprey.cnf
File Edit Control Devices Window Help
Continue
Halt
Reboot

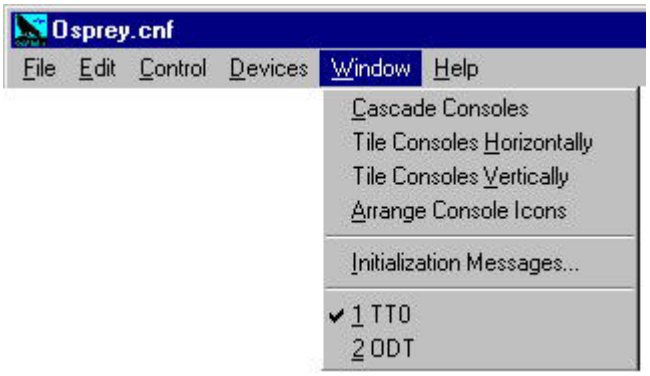

Osprey.cnf
File Edit Control Devices Window Help
Disks...
Tapes...
Consoles...
Printers...

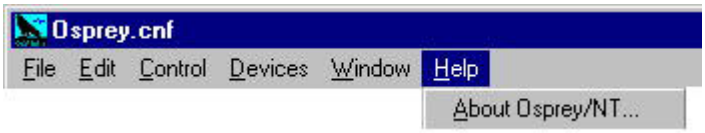

Mount/Dismount Disk Unit
Unit Name: Disk#0
Access Method: Cluster
File: C:\Program Files\Strobe Data\Osprey\Images\image.du0
Browse...
Size = Filesize
Size = blocks
WriteProtect
Writeback
Logging
RX50 Format
Mount
Close
Cancel


Mount/Dismount Tape Unit
Unit Name: Tape#0
Access Method: FileTape
File: C:\Program Files\Strobe Data\Osprey\Images\filetape
Browse...
Maxsize = Available space
Maxsize = KB
WriteProtect
Logging
Notify
Mount
Close
Cancel


Capture/End-Capture Console Data
Unit Name: TT0
Access Method: CON
File: C:\Program Files\Strobe Data\Osprey\Images\console.cap
Browse...
Mode: Create (truncate existing file or create file)
Capture
Close
Cancel


Connect/Disconnect Printer Unit
Unit Name: Lpt#0
Access Method: Lpt
File: C:\Program Files\Strobe Data\Osprey\Images\printer.cap
Browse...
Mode: Create (truncate existing file or create file)
Connect
Close
Cancel


Osprey.cnf
File Edit Control Devices Window Help
Cascade Consoles
Tile Consoles Horizontally
Tile Consoles Vertically
Arrange Console Icons
Initialization Messages...
1 TT0
2 ODT


Osprey.cnf
File Edit Control Devices Window Help
About Osprey/NT...

Properties

The properties above, along with the window positions, are saved in the registry. The key name under which they are stored is
HKEY_CURRENT_USER\Software\Strobe Data*keyname*

The *keyname* is `Osprey`, by default, though that may be selected by either the /K:*keyname* or the /N:*filename* command line switch.

/K:*keyname* simply specifies a different key name to save the properties under. This is especially useful in a multi-card installation where it is useful to specify different window positions for each Osprey installed in your machine. The *keyname* must be from one to eighty characters long, and consist entirely of the alphabet, numbers, and the following twelve special characters:
“.!@#$%^&~+-_”

/N:*filename* takes a configuration filename, exactly like /C:*filename* does. The filename specified will also set the /K:*keyname* to the base filename (no extension or drive or folder). Note that your filename must not contain illegal *keyname* characters, or the Osprey will signal an error.

OSPREY CONTROL MENU(DOS)

The Osprey control menu can be activated while the Osprey is executing by striking Alt-C (see page 30 for Alt-C modifiers). The Osprey is suspended at that point, and the inner control menu is displayed. A reverse video bar shows the current option. Select a new option by using the arrow keys to move the bar, or typing the option number, then striking the return key.

0 -- Continue
1 -- Core dump
2 -- Reboot CoProcessor
3 -- Continue to ODT mode
4 -- Abort program and return to DOS
5 -- Select new container file for disk
6 -- Enter new value for panel switches

Functions are available which can not be selected with the reverse video bar. These options are only available through function keys.

F2 -- Show caching statistics
F5 -- Temporarily shell to MS-DOS

The Osprey control menu will automatically be displayed when certain error conditions occur. If the Osprey control menu is entered because of a serious error (parity error, internal fault, etc.) options 0 and 2 are disabled.

Option 0 -- Continue

Resume the Osprey at the exact point that the inner control menu was invoked.

Option 1 -- Core dump

Create core dump files on the PC containing both the J-11 memory and X86 processor memory. The J-11 memory is in filename.M11 and X86 processor memory is in filename.M86.

Option 2 -- Reboot CoProcessor

This has the same effect as exiting the Osprey program and restarting it.

Option 3 -- Continue to ODT mode

This will immediately enter the ODT.

Option 4 -- Abort program and return to MS-DOS

Terminate the Osprey environment entirely. It is equivalent to turning off the power on the original Digital machine. Make sure any operating system running on the Osprey is ready for this.

Option 5 -- Select new container file for disk

This allows the simulation of removable disk packs. Note that you may change the container file for any disk specified with File = or Cluster =.
You will be presented with another menu similar to the one shown here.

```
Unit Selection Menu
   Return to control menu
      File      /Name:G:\NETDISKS\SYSDISK.DU0
      Cluster   /Name:C:\DISKS\DATADISK.DU1
```

Choose Return to control menu to stop switching packs. Otherwise, choose the pack you wish to change. You will then be prompted for the new container file name.

```
You are changing
/Name:C:\DISKS\DATADISK.DU1


Please type the entire pathname of the new DOS file
:
```

You may press Enter alone to abort the switch, or type the new filename.
If you do not choose a valid new file, and the original file for some reason is not available, the unit will be placed off-line and will not be available until you switch in a valid container file.

6 -- Enter new value for panel switches

Used to change the value of the switch register. The switch register must have been enabled with the /SWR: option. See page 75 for information about /SWR:.

F2 -- Show caching statistics

Displays some statistics about the internal XMS cache.

F5 -- Temporarily shell to MS-DOS

While the Osprey is suspended, you can shell to MS-DOS and return to the Osprey. If you push F5, do not get the DOS prompt, and you have MEM = in your configuration file, you may have to remove the MEM = line and replace it with another RAM disk method. See page 49 for more information about MEM =. You may not get the prompt if you were low on base (640K) memory, or your COMSPEC environment variable was set badly.

STROBEODT

The StrobeODT is an interface to the standard J11 ODT. The StrobeODT provides extra features and tools that are lacking in the J11 ODT. The StrobeODT is enabled when you add `StrobeODT = ODT` to your configuration file.

Usage Summary

The StrobeODT commands are single character commands. Some of the commands must be preceded by the ESC key, displayed as a dollar sign ($). Some of the commands take an argument that precedes the command. Some of the keys below will be spelled out, for example DownArrow means touch the down arrow key once.

Program Control Commands

[pc]$G	Issue the G command to the ODT. Begins program execution.
[pc]$P	Issue the P command to the ODT. Proceeds program execution.
[count]$T	Trace single instructions. The registers are displayed after each instruction.
$E	Reboot the Osprey.
[address]$B	Display all breakpoints or set a breakpoint at an address.
[number]$C	Clear all breakpoints or a single breakpoint.
$L	Download a core image file beginning at the low address register (see page 104).
$M	Display the current mode, e.g.:

- `$M`

```
Kernel I/D-Space
Page  PAR     PDR     Logical  Physical  Size   Dir Access
  0   177777  177514  000000   17777700  20000  DN  Unused
  1   177777  000000  020000   17777700  00100  UP  Non-resident
  2   177777  000000  040000   17777700  00100  UP  Non-resident
  3   177777  000000  060000   17777700  00100  UP  Non-resident
  4   177777  000000  100000   17777700  00100  UP  Non-resident
  5   177777  000000  120000   17777700  00100  UP  Non-resident
  6   177777  000000  140000   17777700  00100  UP  Non-resident
  7   177777  000000  160000   17777700  00100  UP  Non-resident
```

Memory or Register Access Commands

[address]/	Display 16 bit memory.
[address]\	Use ODT to display absolute 22 bit memory. I/O locations are accessible through this access method.
[address]|	Display Dspace memory. This is the same as / if Dspace is not enabled.
[register]!	Display register. The registers may be named R0-R7, SP, PC, and RS.
$R	Display all registers and the data watch variables.
[value]Enter	Close the current memory location.
[value]LineFeed	Close the current memory location and move to the next location.
[value]DownArrow	The same as LineFeed.
[value]^	Close the current memory location and move to the previous location.
[value]UpArrow	The same as ^.
[value]<	Set the low address register. Used in downloading, searching, and filling.
[value]$H	Set the high address register. Used in searching and filling.
[mask]$I	Set the mask register. Used in searching.
[value]$W	Set the word (result) register. Used in searching and filling.
[high]$S	Search from the low address to the high address for the word register.
[high]$N	Search from the low address to the high address for anything which is not the word register.
[high]$F	Fill from the low address to the high address with the word register.
[address]$D	Set a data watch address to be displayed with the register set ($R)
[number]$X	Clear a data watch address

Output Style Commands

;	Display previous value in assembly language format.
=	Display previous value in octal format.
:	Display previous value in unsigned decimal format.

- Display previous value in hexadecimal format.
- Display previous value in signed decimal format.

‘	Display previous value in ASCII two byte format.
[n]$;	Display all following values in assembly language format. If n is specified as 1-3, up to that many octal words of the instruction are displayed before the assembly language format instruction.
$=	Display all following values in octal format.
$:	Display all following values in unsigned decimal format.
$*	Display all following values in hexadecimal format.
$>	Display all following values in signed decimal format.
$’	Display all following values in ASCII two byte format.
[n]$V	Display CON /Unit:n. The default is 0.

Searching

The search will search the range beginning with the low address register and ending with the high address register. Each location is ANDed with the mask register. If this result is the same as the word register, the location is displayed. The $N displays the values that are different than the word register.

Without StrobeODT

If you do not have `StrobeODT = ODT` in your configuration file, the standard ODT is still available. You may enter either ODT from the inner control menu (page 99) or with Alt-B.

When you enter the standard ODT with either the control menu or Alt-B, the J-11 is halted. Entering the ODT is just like pressing the Halt button on the original PDP-11 front panel. Type Alt-G from the keyboard before trying to continue execution. Alt-G is the same as releasing the Halt button on the PDP-11.

CONTAINER FILE BUILDER

Starting CONTAINR

(DOS)CONTAINR is usually started without anything on the command line. CONTAINR will ask for the container filename and then display a list of drives which will fit into the container file. Drives specified in the configuration file that exceed the capacity of the DOS drive will be flagged in the menu. The container file builder can not build a single container file larger than 4,294,967,295 bytes (4GB - 1 byte).

(NT)The container file builder is started from Start \ Programs \ Osprey \ Container File Builder. The container file builder can not build a single container file larger than 2,147,483,646 bytes (2GB - 2 bytes).

Selecting a Drive from the Menu(DOS)

The up and down arrow keys select different drives. If there are too many drives to fit on one screen, the remaining ones will become visible when the cursor goes off the bottom or top of the screen. Page up and Page down will move the list a page at a time. If you want to select an option quickly, begin typing the first few letters of the drive name. CONTAINR will display the drive that begins with the letters you typed.

Selecting a Drive from the Command Line(DOS)

The drive may be fully specified on the command line. This allows batch processes to build container files.

The drive size should be specified in one of three ways. (See the help screen, page 109.)

1) Specify /D:"name". The configuration file must contain a definition with:

... Drive = "name" ...
e.g.: CONTAINR C:\MYRD54 /D:"RD54"

2) Specify /B or /L or /K or /M with the correct container file size.

e.g.: CONTAINR C:\MYRD54 /M:160

3) Specify /H and /S and /T with the desired parameters.

e.g.: CONTAINR C:\FLOPPY.IMG /H:1 /S:10 /T:80

Configuration File

CONTAINR reads a configuration file for the interactive menu, and for the /D:name command line option. The configuration file may be in the PATH= or the CNF= environment variables.

The configuration file is an ASCII file. Use the DOS program EDIT or other text editor to change the file.

Comments may be placed in the configuration file. A comment begins with a semi-colon (;) and continues to the end of the line.

Blank lines are ignored in the configuration file. Upper case letters and lower case letters are treated equally. Whenever a space is needed, one or more may be used to improve readability. Spaces, commas, tabs, colons (:), and pipes (|) are all treated equally. When a space must be part of an option value, enclose the entire value in quotation marks.

There is one option which does not specify a drive. That option, if used, must be the first one in the configuration file. Normally, the menu will be 79 characters wide. If you want to make the menu narrower, set the MENUWIDTH option to a smaller number.

Each line must fully specify a drive. That means that the Drive name must be specified, and the size must be specified.

The size may be specified in one of two ways.

1) Use HEADS and SECTORS and CYLINDERS with the desired parameters. Note that TRACKS is a synonym for CYLINDERS.
2) Use BYTES or BLOCKS or KBYTES or MBYTES with the total size.

Each option is specified with the option name, a space, an equals sign, a space, and the value for the option.

e.g.:

COMMENT = "160mb drive"

or

MBYTES = 160

Example Configuration File

```
;-------------------------------------------------------------------
;
                        ; CONTAINR configuration file example
;
;-------------------------------------------------------------------

MENUWIDTH = 50                                      ;Narrow menu
DRIVE = RD54        COMMENT = "160mb drive"         MBYTES = 160        ;Boot drive
DRIVE = RX50        COMMENT = "Floppy image"        KBYTES = 400
```

Help Screen(DOS)

A help screen is displayed from the command line switch, /H.

e.g.:

CONTAINR /H

```
╔═══════════════════════════════════════════════════════════════════════╗
║                        Containr Rev 1.02                              ║
╠═══════════════════════════════════════════════════════════════════════╣
║              General form: Containr [args] [destination]              ║
╠═══════════════════════════════════════════════════════════════════════╣
║  This program will build a container file for use with the            ║
║Osprey. If the file is not fully specified on the command              ║
║line, an interactive menu will finish the build process.              ║
║                                                                       ║
║To specify the drive on the command line, use one method:              ║
║1) Use /D:"name" as found in the .CNF file.                            ║
║2) Use /B /K /L or /M to specify the total size.                       ║
║3) Use /H /S and /T to specify the drive parameters.                   ║
╠═══════════════════════════════════════════════════════════════════════╣
║Argument   Meaning                                                     ║
║@file      Insert the file into the command line                       ║
║/B:bytes   Number of bytes in the file                                 ║
║/C:cnfile  Use this for the config file      [CONTAINR.CNF]            ║
║/D:drive   Drive name as specified in .CNF file                        ║
║/E:erase   YES or NO to erase contents of container file.              ║
║/H:heads   Number of heads to use                                      ║
║/K:kbytes  Number of Kbytes in the file                                ║
║/L:blocks  Number of 512 byte blocks in the file                       ║
║/M:mbytes  Number of Mbytes in the file                                ║
║/S:sectors Number of sectors to use                                    ║
║/T:tracks  Number of tracks (cylinders) to use                         ║
║Dest       Destination. A valid DOS filename.                          ║
╠═══════════════════════════════════════════════════════════════════════╣
║The .CNF file must follow these rules:                                 ║
║1) A comment begins with a semi-colon (;) and goes to the              ║
║   end of the line.                                                    ║
║2) Blank lines are ignored.                                            ║
║3) Upper case and lower case are treated equally.                      ║
╠═══════════════════════════════════════════════════════════════════════╣
║4) The MENUWIDTH option, if used, must be the first option             ║
║   specified.                                                          ║
║5) All options have the format   TYPE = VALUE                          ║
║6) Each option must be on one line                                     ║
║7) Space, comma, tab, pipe (|), colon (:) are treated                  ║
║   equally.                                                            ║
║8) Valid options are:                                                  ║
║                                                                       ║
║   Option     Value/Usage                                              ║
║   BYTES      Number of bytes for this DRIVE                           ║
║   BLOCKS     Number of 512 byte blocks for this DRIVE                 ║
║   KBYTES     Number of kilobytes for this DRIVE                       ║
║   MBYTES     Number of megabytes for this DRIVE                       ║
╚═══════════════════════════════════════════════════════════════════════╝
```

```
   HEADS       Number of heads for this DRIVE
   SECTORS     Number of sectors per track for this DRIVE
   CYLINDERS   Number of cylinders for this DRIVE
   TRACKS      Synonym for CYLINDERS
   DRIVE       A title to use for the interactive menu and
               for /D:name.
   COMMENT     Displayed with the DRIVE in the interactive
               menu. If the comment is more than one word,
               enclose it in quotes (e.g. "2mb drive")

Example:
 DRIVE = "RD54"    MBYTES = 160
```

FILETAPE

Filetape is used to emulate a tape drive using DOS files. See the configuration section on page 85 to install filetape.
Filetape is a convenient way to dump data from one system and move it to another system, since DOS files are so easily portable in a number of different ways.

Filetape Control Menu(NT)

The filetape menu is available from the toolbar under Devices.

Filetape Control Menu(DOS)

The filetape control menu can be activated while the Osprey is executing by striking Alt-F. The Osprey is suspended at that point, and the filetape control menu is displayed. A reverse video bar shows the current option. Select a new option by using the arrow keys to move the bar, or typing the option number, then striking the return key.

0 -- Continue
1 -- Close File
2 -- Rewind Tape
3 -- Open New File
4 -- Toggle Write Protect

In addition to the filetape control menu, some other information is displayed.

Tape Filename:	a filename
Current Object:	the object number. 0 indicates fully rewound.
User Protect:	{On Off}
File Protect:	{On Off}
Status Message:	the last status message

Option 0 -- Continue

Resume the Osprey at the exact point that the inner control menu was invoked.

Option 1 -- Close File

This is the same as dismounting a physical tape. The files may be copied or deleted after the files are closed.

Option 2 -- Rewind Tape

The current filetape object number is reset to the beginning of the tape.

Option 3 -- Open New File

This is the same as mounting a new physical tape. The new files are reserved for use with the Osprey system until they are closed or the Osprey is exited.

Option 4 -- Toggle Write Protect

The state of the user write protect is switched between ON and OFF. Note that the files might still be write protected independently of the user write protect.

KEYNAME[DOS]

Keyname is used to display the names of the keys on the PC keyboard. The names are used in the NumLockKey configuration as well as the VT100 configuration.
Start the Keyname program from the Osprey directory. Each key you touch will display its name.
Use Ctrl-Break to terminate the program.
E.g.:

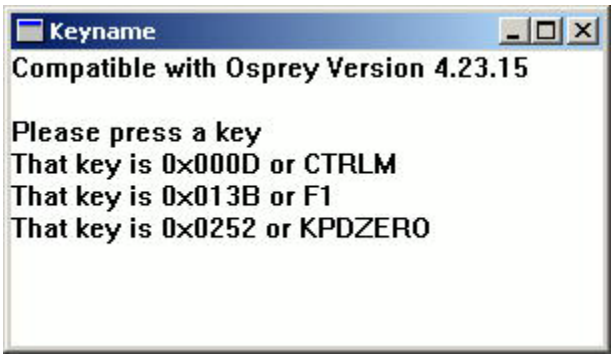
```
C:\OSPREY> keyname
Please touch a key: Touch the Enter key
You may use 0x000D or CR for that key
Please touch a key: Touch the F1 function key
You may use 0x013B or F1 for that key
Please touch a key: Touch the 0/Ins key on the keypad
You may use 0x0252 or KPDZERO for that key
Please touch a key: Touch Ctrl-Break
^C
C:\OSPREY>
```

KEYNAME[NT]

Keyname is used to display the names of the keys on the PC keyboard. The names are used in the VT100 configuration.

Start the Keyname program by clicking Start \ Program Files \ Get Key Mappings. The program will announce itself and the Osprey version it reports on.

E.g.: Start the program, then touch Enter , followed by F1, and then the 0/Ins key on the keypad.



VT100.CNF

Certain strings may contain characters that are not allowed in our normal Osprey configuration file, like the semicolon. You must enclose the entire string in quotation marks if it contains a semicolon or quotation mark. It is not necessary to use a quoted string for `J11File =` and related lines (see page 1). Please see the details of quoted strings on page 29.

Note: If you feel that the VT100 emulation is not working when you use function keys or arrows, please add `/RxDelay:1000 /TxDelay:1000` (on page 43) to your `Con =` line. Many operating systems can not handle extremely high baud rate VT100 devices (as our `Con =` is).

If the console becomes unusable, because an application has sent peculiar escape codes for example, the screen can be reset. (NT)Click the upper left corner (system control) of the window and selecting Reset. (DOS)Press Alt-R to reset the screen.

The VT100 configuration file VT100.CNF is an ASCII file defining what VT100 codes are sent for PC keys and other characteristics of the VT100 emulator. The file must reside in the current directory, or a directory listed in the OSPREY environment variable or in the PATH. The Osprey searches for all files in that order. The VT240.CNF, if used, must be renamed to VT100.CNF before the Osprey will use it. You should preserve the original VT100.CNF in case the VT240.CNF does not fit your needs. Note that the VT240.CNF simply changes the behavior of the keyboard. It does not add extra VT240 emulation.

Blank lines and comments in the configuration file are ignored. A comment is defined as anything which follows a semicolon (;). Upper case and lower case are treated equally, except when contained within quotation marks. Tabs and spaces are treated equally, except when contained within quotation marks. At least one space or tab must separate each option or specifier from other options and specifiers.

Each line in the configuration file contains a single definition.

All codes are octal unless otherwise specified. However, the codes may also be given in hexadecimal or decimal. Hexadecimal codes must be preceded by 0x (`0x41`) and decimal codes must be followed by . (`65.`). Octal codes may also be preceded by 0 (`0101`) in case a code does not default to octal.

Several helper files may be copied and pasted into VT100.CNF for certain applications. Some applications require keyboard parity or only upper case. In those cases, insert one of the following files into your VT100.CNF or add the line `Include VTUCASE.CNF`

File	Usage
VTUCASE.CNF	Upper case letters
VTPARE.CNF	Mixed case letters and even parity
VTPARO.CNF	Mixed case letters and odd parity
VTPAREU.CNF	Upper case letters and even parity
VTPAROU.CNF	Upper case letters and odd parity

Configuration Commands

52Key <code> = {<VT100 octal code(s)> <"string">}

Remaps the VT52 mode keyboard. For PC key names and values, see the keyname program on page 117.

```
52Key F1 = 0x1B 0x50
```

52AKey <code> = {<VT100 octal code(s)> <"string">}

Remaps the VT52 mode keyboard in application keypad mode. For PC key names and values, see the keyname program on page 117.

```
52AKey KPDZERO = 0x1B 0x3F 0x70
```

Key <code> = {<VT100 octal code(s)> <"string">}

Remaps the standard mode VT100 keyboard. For PC key names and values, see the keyname program on page 117.

```
Key F1 = 0x1B 0x4F 0x50
```

AKey <code> = {<VT100 octal code(s)> <"string">}

Remaps the alternate keypad mode VT100 keyboard. For PC key names and values see the keyname program on page 117.

```
AKey KPDZERO = 0x1B 0x4F 0x70
```

Char <code> = <octal code>

Remaps the standard VT100 display characters.

```
Char 0101 = 0102 ;All A's show as B's
```

Color <VT100 attribute> =(DOS) <PC attribute>

Changes a attribute / color mapping. See page 122 for a description of the attributes.

```
Color Underline = Bright Red
```

Graphic <code> = <octal code>

Remaps the graphics mode VT100 display characters.

```
Graphic 0141 = 0xDB ;Checkerboard
```

80ColumnMode =(DOS) <decimal code>

The default is 3.

Changes the PC video mode used to support the VT100 80-column mode. For video modes, see the documentation for SCRMODE beginning on page 125.

```
80ColumnMode = 2
```

132ColumnMode =[DOS] <decimal code>

The default is 0x55.

Changes the PC video mode used to support the VT100 132-column mode. For video modes, see the documentation for SCRMODE beginning on page 125.

```
80ColumnMode = 0x57
```

IDString = {<I.D. codes> "string"}

The default is "\033[?1;0c"

Specifies the I.D. String returned when the VT100 is queried with ESC [c or ESC Z in VT100 mode.

```
IDString = "c"
```

Type = {VT100 VT52 GENRAD}

The default is VT100.

Specifies the default start up mode for the emulation. Many programs will send codes to the VT100 that will override this mode.

```
Type = GENRAD
```

Special Configuration Considerations

[NT]NUMLOCK is a valid key name and may be mapped just like any other key.

E.g. NumLock = 0x1B 0x4F 0x50 ;Make NumLock behave like PF1

[DOS]The VT100 emulator can not map the NumLock key directly, but the Osprey can. Therefore, first switch the NumLock key with another key (see NumLockKey on page 35) and then map the other key using VT100.CNF. The following example will end up with the PC F12 key toggling the NumLock light, and the PC NumLock key behaving as the VT100 PF1 key.

OSPREY.CNF

```
NumLockKey = F12  ;Use F12 as the NumLock key and NumLock as the F12 key
```

VT100.CNF

```
Key F12 = 0x1B 0x4F 0x50 ;Use F12 for PF1
```

(DOS)Color and Attributes

The attributes (either VT100 or PC) are just lists of words separated by spaces. You may also separate the words with either + or & if you feel that would make the configuration file easier to understand (e.g. `Color Underscore+Blink = Green`).

(DOS)VT100 Attributes

These four VT100 attributes may be combined into a total of sixteen different attribute possibilities.

Preferred name	Synonyms
Highlight	Intense, H
Underscore	Underline, U
Reverse	ReverseVideo, R
Blink	Blinking, B

(DOS)PC Attributes

The PC attributes are given as a foreground color and a background color. This may be done in one of three ways.

1) Just type a color or combination of colors. This will set the foreground color only.

```
Blue
```

2) Type the foreground color(s) then ON then the background colors.

```
Blue ON Red
```

3) Type Foreground, then the foreground color(s), then Background followed by the background color(s). The Foreground and Background may be in either order.

```
Foreground Bright White Background Blue
```

Preferred name	Synonyms
Normal	
Bright	Highlight, Intense, Bri
Underscore	Underline
	Reverse
Blink	Blinking, Bli
Gray	Grey
Black	
Blue	
Green	
Cyan	LightBlue, LtBlue

Red	
Magenta	Purple
Yellow	Brown, Orange
	White
Bright Black	Gray
Bright Red	Pink

SCRMODE(DOS)

SCRMODE is used to determine which video modes must be used for the VT100 emulation when selecting 80 column or 132 column modes.

Results Log File

SCRMODE will generate a log file called SCRMODE.LOG. If the environment variable LOGIN_NAME is set, SCRMODE will use the value of LOGIN_NAME as a base filename, then append .LOG. Novell networks set LOGIN_NAME automatically. In any case, SCRMODE tells you what log file it created.

The log file will look something like this:

```
Mode   2 0x02  80-column. Grade: A
Mode   3 0x03  80-column. Grade: A
Mode   7 0x07  80-column. Grade: B
Mode  85 0x55 132-column. Grade: A
Mode  87 0x57 132-column. Grade: B
```

The grade simply represents whether the text mode uses B800:0 or B000:0 or A000:0 for its video memory. You should use the grade-A modes if they are available.

Video Controller Lock Up Problems

There are rare machines that will lock up when certain video modes are set. If this happens, you need to exclude testing those video modes by using the /N:mode switch. To determine which modes lock up the machine, follow these directions.

First, start SCRMODE /A. When the machine locks up, reboot and examine SCRMODE.LOG. The file will look something like this:

```
Mode   0 0x00 Rows:25 Columns: 40 Text:B800:0000
Mode   1 0x01 Rows:25 Columns: 40 Text:B800:0000
Mode   2 0x02 Rows:25 Columns: 80 Text:B800:0000
```

Notice that mode 2 is the last mode that got logged. That means that the next mode, mode 3, must have locked up the machine. Now, start again with the /N:mode switch for this mode. You would type SCRMODE /A /N:3. If SCRMODE locks up again, look at the file and add the next mode that locks up the machine.

```
Mode   0 0x00 Rows:25 Columns: 40 Text:B800:0000
Mode   1 0x01 Rows:25 Columns: 40 Text:B800:0000
Mode   2 0x02 Rows:25 Columns: 80 Text:B800:0000
```

```
Mode   4 0x04 Rows:25 Columns: 40 Graphics
Mode   5 0x05 Rows:25 Columns: 40 Graphics
Mode   6 0x06 Rows:25 Columns: 80 Graphics
```

Here, you would type SCRMODE /A /N:3 /N:7. Keep going until you have all the /N:modes which lock up your machine. Then, re-run SCRMODE without the /A, but with all the /N:modes.

Using New Video Modes

To specify which video modes should be used for the VT100 emulation, modify these two lines in the VT100.CNF file:

80ColumnMode = 0x03
132ColumnMode = 0x55

Complete List of Modes

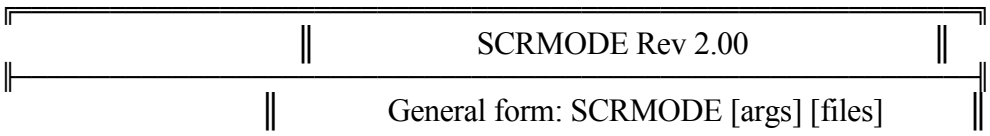
SCRMODE can also be used to determine what all the video modes do. If you start SCRMODE with /A, it creates a more detailed log file.

```
Mode   0 0x00 Rows:25 Columns: 40 Text:B800:0000
Mode   1 0x01 Rows:25 Columns: 40 Text:B800:0000
Mode   2 0x02 Rows:25 Columns: 80 Text:B800:0000
Mode   3 0x03 Rows:25 Columns: 80 Text:B800:0000
Mode   4 0x04 Rows:25 Columns: 40 Graphics
Mode   5 0x05 Rows:25 Columns: 40 Graphics
Mode   6 0x06 Rows:25 Columns: 80 Graphics
Mode   7 0x07 Rows:25 Columns: 80 Text:B000:0000
Mode   8 0x08 Rows:25 Columns: 80 Graphics
Mode   9 0x09 Unsupported
```

etc.

Help Screen

A brief help screen is available when you start SCRMODE with the /H switch.



SCRMODE will determine the different video modes supported by your video controller. It creates SCRMODE.LOG with the results.

If your machine locks up while running this program, follow these steps.

1) Run SCRMODE /A to log all modes. Wait for the lock up.
2) Reboot and examine SCRMODE.LOG. The lock up happened because of the next mode to test. Record that number.
3) Re-run SCRMODE /A /N:number where you repeat /N:number for each screen mode that locks up.
   E.g. SCRMODE /A /N:0x09 /N:0x47
4) Repeat 2-3 until SCRMODE finishes.
5) Run the last SCRMODE command, except leave off the /A.
   E.g. SCRMODE /N:0x09 /N:0x47

Argument	Meaning
@file	Insert the file into the command line
/A	Log all modes instead of just 132x25 and 80x25
/N:mode	Don't test this mode
/Q	Quiet. Don't beep while testing modes

GETDISK

Disk to DOS Container File Copy

The Getdisk utility copies from existing disks on the Unibus or Qbus into container files. You must have the external bus hooked up and powered on before you can use Getdisk. You must also ensure that the NPR chain is intact. A similar utility, Putdisk, copies from a container file onto the Unibus or Qbus. **This will destroy all data on the target Unibus or Qbus disk.** The command interface is very similar.

The Getdisk utility supports both the Unibus (GETDISKU) and the Qbus (GETDISKQ). The program behaves identically in either case.

(DOS)To start Getdisk, simply type either GETDISKU or GETDISKQ from the DOS prompt. The batch file starts Osprey with GETDISKU.CNF or GETDISKQ.CNF. To quit Getdisk, choose menu option 2.

(NT)To start Getdisk, click Start \ Programs \ Osprey \ Qbus Getdisk or Start \ Programs \ Osprey \ Unibus Getdisk.

Use the ESC key in GETDISK to back up by one menu at a time.

When the program starts, it will test for several controllers and units. The status of the auto-detect sequence is displayed, and then the initial menu will be presented. The most common one or two addresses for each controller type will be automatically scanned for controllers. If your controller is not at one of the default addresses, you will have to specify the parameters to the Getdisk program. See below for that information. If you are unsure of which addresses are in use, you can run SCANIO from the DOS prompt to get a list of addresses.

The following example shows a typical installation with a single MSCP drive with a I/O base of 172150.

```
          Osprey Get Disk Program     Rev 7.13      August 30, 1996
          Copyright © 1996 Strobe Data, Inc.  ALL RIGHTS RESERVED.
                          Type ESC to continue ...

DU controller not found at 172154 (vct:150)
RH controller not found at 176700 (vct:254)
RH controller not found at 172040 (vct:204)
DK controller not found at 177400 (vct:220)
DM controller not found at 177440 (vct:210)
DL controller not found at 174400 (vct:160)
DX controller not found at 177170 (vct:264)
DX controller not found at 177200 (vct:270)

                         Device controllers detected:
          *0.. DUA      !  Ready    Vct:154  Adr:172150  Ints:    9
```

The main menu will look something like this.

```
PDP-11 Get Disk
 1.. Help    3.. Get disk      5.. Delete device    7.. Show devices
 2.. Exit    4.. Add device    6.. Change device    8.. Show units

                      Enter option ................... [3.]
```

When you choose option 3, the dialogue for actually copying the disk begins. Answer Y verify the copy, or N to just copy without verifying. Verification, the default, is **highly** recommended. The program will next prompt for the DOS container filename. Specify the full drive and path. If the file does not exist, you will be prompted to create it. If the file does exist, you will be prompted to reuse it. You may provide a filename with wildcards if you want to reuse an existing file. Getdisk will prompt you for each file that matches in sequence.

The current block count, total block count, and block size is displayed while the program is copying and then verifying. For non-MSCP disks, the cylinder, track, and sector disk address is also displayed.

If your disk controller is not located in the I/O page at one of the addresses searched by Getdisk, you must specify where the controller is based. Choose option 4 to add a device. The add device function will prompt you for the device class, the vector address, and the device address. If you don't know the device class number, touch the ? key and Getdisk will display the valid choices.

The DISKCOPY sources are provided in the cross assembler. See page 131 for more details.

DOSLink and Strobe File Exchange

There are two distinct methods to transfer data between a container file (or floppy) and the DOS/NT file system.
Your container file or floppy must be formatted for RSX or RSTS or RT-11 in order to use these utilities.
If you want to transfer files while running your PDP-11 operating system, you must use one of the DOSLink utilities. Directions for those utilities are included in each installation package.
If you want to transfer files while running DOS, you must use the Strobe File Exchange (SFX) program. Directions for that utility are included in the installation package.
Do not use SFX on a container file that is currently being used by an Osprey. If you do, you may corrupt or lose all your data. It is safe to use the DOSLink programs from the Osprey.

Utility name	FTP address
DOSLINK/RSX	ftp://ftp.strobedata.com/pub/osprey/rsxcopy.exe
DOSLINK/RSTS	ftp://ftp.strobedata.com/pub/osprey/rstscopy.exe
DOSLINK/RT-11	ftp://ftp.strobedata.com/pub/osprey/rt11copy.exe
Strobe File Exchange	ftp://ftp.strobedata.com/pub/osprey/*

*The actual filename has a version number appended to it. Look for `SFXnnn.EXE`.

ASSEMBLER

Cross Assembler

The cross assembler assembles and links DOS files into programs which will execute on a PDP-11 or Osprey. The DOS files are assembly language files. The cross assembler is very closely related to the MACRO-11 assembler, though it is not 100% compatible.

You may download PDPXASM.EXE from the ftp site at any time. The program will install the Strobe Cross Assembler, along with several other tools and utilities. The default directory structure is shown here.

```
C:\                                   └──PDPXASM
     │   OSPREY.TXT                     Brief ad for the Osprey
     │   NEWVARS.BAT                    Set environment variables
     │   PASM.EXE                       Assembler
     │   PLINK.EXE                      Linker
     │   PEDIT.EXE                      Binary editor with disassembly
     │   PDSM.EXE                       Disassembler (.PDP -> .PSM)
     │   PDPLOAD.EXE                    Serial  line  console  interface  to  PDP
machine
     │   PACKBYTE.PDP                   Used by PDPLOAD
     │   VT100.CNF                      Used by PDPLOAD
     │   PASM.DOC                       Help files
     │   PLINK.DOC
     │   PEDIT.DOC
     │   PDSM.DOC
     │   PDPLOAD.DOC
     │   QUESTION.1ST                   Questionnaire files
     │   QUESTION.LST
     │   QUESTION.QUE
     │   QUESTION.EXE
     │   QUESTION.ANS
     │   QUESTION.DAT
     │
     └──SAMPLES

├──OSPREY
          │        OSPREY.PSM           Source for OSPREY.J11
          │        OSDIAG.PSM           Source for OSDIAG.J11
```

```
        DISKCOPY.PSM        Source for DISKCOPY.PDP
        DEQNAROM.PSM        Source for DEQNAROM.PDP
        TESTDISK.PSM        Source for TESTDISK.DU0
        XHBOOT.PSM          Source for XHBOOT.ROM
        TM11COPY.PSM        Source for TM11COPY.PDP
    |
    |---INC
    |       ...    Library include files
    |---LIB
        ...   Library source files
```

To modify the default OSPREY.J11, follow these steps.

1) Edit the source file (`C:\PDPXASM\OSPREY\OSPREY.PSM`).
2) Assemble the file: `pasm osprey`
3) Link the file: `plink osprey`
4) Include the new version in your configuration file:

```
J11File = C:\PDPXASM\OSPREY\OSPREY.PDP
```

Strobe Data is not responsible for the accuracy of the source files provided, nor any changes. No warranty is made for the usefulness, reliability, or safety of the programs provided or generated.

APPENDIX A

LSRMST definition(NT)

LSRMST (Line Status / Modem Status) codes are used in `CharPipe =` (see page 59) when the `/LSRMST:value` option is given. The LSRMST protocol provides escape codes to represent actual line status (e.g. break detected) and modem status (e.g. CTS) changes. This protocol has been extended to support sending line control (e.g., select parity), modem control (e.g, set RTS) and baud rate sequences from the attached virtual device to the customer end of the named pipe.

Without `/LSRMST:value`, all virtual device line control and modem control changes are ignored, and line status and modem status changes cannot be written to the customer end of the named pipe. CharPipe passes data through without inspection or modification.

When LSRMST mode is active (i.e., when `/LSRMST:value` is present and `value` is non-zero), line status, modem status, line control, modem control and baud rate commands are prefixed by the byte given in `value` (the LSRMST escape code). Following this byte is the LSRMST command sequence.

The bit values for line status, modem status, line control and modem control used by LSRMST are compatible with the 8250/16450/16550 serial line controller chips used by the PC, XT, and AT compatible machines.

In the following discussion, data transmission is described from the point of view of the customer end of the named pipe. Generally, status changes are written to the customer end of the named pipe and control commands are read from the customer end of the named pipe.

LSRMST commands

Following the LSRMST escape code is a single command byte and possibly one or more data bytes. If the customer sends an escape code followed by an unknown command byte, CharPipe will discard the LSRMST escape code and transmit the unknown command byte to the attached virtual device.

In the following descriptions, *0x??* is used to represent the LSRMST escape byte (`value` above).

Command byte	Meaning
0x00	Escape. An LSRMST escape code should be inserted into the data stream.
0x01	Data and status. Written to the customer end of the named pipe: the first following data character contains the line status register, and the second data character contains the received data byte associated with the line status. This sequence will never be read at the customer end of the named pipe.
0x02	Status only. Written to the customer end of the named pipe: the data character contains the line status register. Read at the customer end of the named pipe: the data character contains the line control register.

0x03	Modem status. Written to the customer end of the named pipe: the data character contains the modem status register. Read at the customer end of the named pipe: the data character contains the modem control register.
0x05	Baud rate. Read at the customer end of the named pipe: the first data character contains the least significant byte of the baud rate divisor, and the second data character contains the most significant byte of the baud rate divisor. This LSRMST command is not part of the standard as defined by Microsoft, and was created for Strobe Data use with the CharPipe. If written to the customer end of the named pipe, this command is ignored by CharPipe.

Line Status Register

The line status register (LSR) follows command bytes 0x01 and 0x02 when written to the customer end of the named pipe.

Bit	Meaning
0x10	Break detected
0x08	Framing error detected
0x04	Parity error detected
0x02	Overrun error detected

Written to the customer end of the named pipe:

0x?? 0x01 LSR data
0x?? 0x02 LSR

Line Control Register

The line control register (LCR) follows command byte 0x02 when read at the customer end of the named pipe.

Bit	Meaning
0x40	Break state to set
0x20	Stick parity
0x10	Even parity select
0x08	Parity enable
0x04	Stop bits (0=1 stop bit, 1=2 stop bits (1.5 if 5 bits per word))
0x02	Bits per character, with 0x01. (00=5 01=6 10=7 11=8)
0x01	See 0x02

Read at the customer end of the named pipe:

0x?? 0x02 LCR

Modem Status Register

The modem status register (MSR) follows command byte 0x03 when written to the customer end of the named pipe.

Bit	Meaning
0x80	Carrier detect
0x40	Ring indicator
0x02	CTS has changed state
0x01	DSR has changed state

Written to the customer end of the named pipe:

0x?? 0x03 MSR

Modem Control Register

The modem control register (MCR) follows command byte 0x03 when read at the customer end of the named pipe.

Bit	Meaning
0x02	RTS state to set
0x01	DTR state to set

Read at the customer end of the named pipe:

0x?? 0x03 MCR

Baud Rate

The baud rate bytes follow command byte 0x05 when read at the customer end of the named pipe. The baud rate divisor can be calculated by dividing the crystal rate input to a typical COM (8250) chip by both the crystal rate and the baud rate. For the CharPipe implementation, the baud rate divisor is 115,200 divided by the baud rate and truncated to the nearest lower integer. This divisor matches the divisor programmed into the divisor latch register of the 8250 class chips.
The low order eight bits (LSB) of the divisor are transmitted first, followed by the high order eight bits (MSB).

	Divisor Bytes	
Baud	LSB	MSB
300	0x80	0x01
1200	0x60	0x00
2400	0x30	0x00
4800	0x18	0x00
9600	0x0C	0x00

Read at the customer end of the named pipe:

0x?? 0x05 LSB MSB

APPENDIX B

CPU Loading

The host CPU is responsible for processing all virtualized I/O. A small number of systems that perform a large amount of virtualized I/O have a severe impact on the host CPU. If a particular system is found to have a large impact on the host CPU, there are some things that can be done to reduce that load.

Serial Lines and Transmit Buffers using COM =

Serial lines on the Osprey system are implemented using a double-buffered scheme to improve performance. The virtual I/O handler (e.g. `= CONSOLE`) has a buffer specified by /TxBuff:n on the right hand side of the equals sign. The physical I/O handler (e.g. `COM =`) has a buffer specified by /TxBuff:n on the left hand side of the equals sign.

To reduce host CPU loading, the right hand side /TxBuff:n must be two or more greater than the left hand side. Additionally, the larger the host side buffer, the more the CPU loading is reduced. Some systems do not respond well when large buffers are present. The /TxBuff:n parameter can be adjusted to suit systems tolerant of large buffers or intolerant of large buffers.

Examples:

```
COM /Port:1 /TxBuff:20 = CONSOLE /TxBuff:22 ;Low CPU loading

COM /Port:1 /TxBuff:1  = CONSOLE /TxBuff:3  ;Higher CPU loading

COM /Port:1 /TxBuff:1  = CONSOLE /TxBuff:2  ;Very high CPU loading
```

Serial Lines and TxDelay using COM =

These calculations for reducing CPU loading should only be used in systems known to have extreme host CPU loading. Except in extreme cases, the standard calculation for /TxDelay on page 43 may be used.

Some systems require the use of `/TxDelay:n` to reduce the effective baud rate while the buffers are being filled. If the `/TxDelay:n` specified is longer than one character time, the host CPU will be loaded much more than if `/TxDelay:n` is shorter than one character time.

It's a little complicated to determine whether or not the `/TxDelay:n` is actually shorter or longer than one character time. The delay given is rounded up to the next time quantum, which varies depending on which Osprey product is running and what speed it is running.

Determine if your board is an Osprey/PCI, Osprey/ISA or OSPREY/DCJ11 to calculate the time quantum. The Osprey/DCJ11 has a large 3"x1.5" CPU on it. The gold fingers and the bus they plug into distinguish the other two boards.

If your board is an Osprey/DCJ11:

- Find the J11 crystal rate. Run the Osprey/NT system and click Windows \ Initialization messages. Scroll down to find the J11 Crystal.

- Divide 3744 by the J11 crystal rate shown. If the number is 18.0 Mhz, use 18 and not 18,000,000. The answer is the time quantum. The time quantum should be between 200 and 300.

If your board is an Osprey/ISA, the time quantum is 250.

If your board is an Osprey/PCI:

- Find the firmware version of the Osprey/PCI. Run the Osprey/NT system and click Windows \ Initialization messages. Scroll down to Firmware Rev.
- Find the X86 crystal rate. Run the Osprey/NT system and click Windows \ Initialization messages. Scroll down to X86 Crystal.
- If the firmware is 1, 2 or 3, divide 8250 by the X86 crystal rate shown. If the number is 36.0 Mhz, use 36 and not 36,000,000. The answer is the time quantum. The time quantum should be between 200 and 300.
- If the firmware is 4 or more, divide 8192 by the X86 crystal rate shown. If the number is 36.0 Mhz, use 36 and not 36,000,000. The answer is the time quantum. The time quantum should be between 200 and 300.

Find the effective `/TxDelay:n`.

- Multiply the time quantum by 1, 2, 3, etc. until the product is equal to, or larger than, the `/TxDelay:n` found in the configuration file. The product is the effective `/TxDelay:n`.

Find the number of character bits.

- Examine `/Mode:baud,parity,data bits,stop bits`. Add 1 to the number of data bits. Add the number of stop bits. Add 1 if the parity isn't None. The answer is the number of character bits. If /Mode is missing, you will need to examine the Port properties in the Windows Control Panel.

Find the length of one character time.

- Divide 1,000,000 by the baud rate and multiply by the number of character bits.

Find the low CPU load `/TxDelay:n`.

- Multiply the time quantum by 1, 2, 3, etc. until the product is larger than the length of one character time. Subtract one time quantum from the product. Subtract two from the difference. The new answer is the low CPU load `/TxDelay:n`.

If the calculated effective `/TxDelay:n` is longer then the low CPU load `/TxDelay:n`, the host CPU will be loaded more heavily. To reduce CPU loading, use the low CPU load `/TxDelay:n`.

Examples:

`COM /Port:1 = CONSOLE /TxDelay:1042 /Mode:9600,E,8,2`

- An Osprey/QXP rev 4 running the default speed has an X86 crystal of 36Mhz. Dividing 8192 by 36 give 227.6 as the time Quantum.
- 227.6 times 4 is only 910, so 227.6 times 5 (or 1,138) is the effective /TxDelay.
- The number of character bits is 1+8+2+1 or 12.
- 1,000,000 / 9600 * 12 gives 1250 for the character time.

- 227.6 times 6 (1,365.6) is the first product larger than 1250. Subtractimg the time quantum and an additional 2 gives 1136 for the low CPU load TxDelay.

The calculated effective /TxDelay is 1,138. This is less than the character time 1250 so the host CPU already has a low load.

COM /Port:1 = CONSOLE /TxDelay:1042 /Mode:9600,N,8,1

- An Osprey/QXP rev 4 running the default speed has an X86 crystal of 36Mhz. Dividing 8000 by 36 give 227.6 as the time Quantum.
- 227.6 times 4 is only 910, so 227.6 times 5 (or 1,138) is the effective /TxDelay.
- The number of character bits is 1+8+1+0 or 10.
- 1,000,000 / 9600 * 10 gives 1042 for the character time.
- 227.6 times 5 (1,138) is the first product larger than 1042. Subtractimg the time quantum and an additional 2 gives 908 for the low CPU load TxDelay.

The calculated effective /TxDelay is 1,138. This is larger than the character time 1042 so the host CPU will be loaded more heavily. Reduce to /TxDelay:908 for lower host CPU loading.

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