Welcome to NorthStar

* * *

Your selection of this North Star product puts you in a growing group of customers who demand quality, cost performance and real usefulness from their business computer applications. Founded in 1976, North Star Computers today is a major microcomputer manufacturer with a worldwide reputation for excellence. Our ongoing commitment is to provide you with an ever-expanding and integrated **total business solution.** Welcome.

* * *

North Star TurboDOS with Turbo-Plus provides a powerful multi-user, multi-processing network operating on the proven reliability of the HORIZON 8/16 computer. The system supports up to eight users, each with an individual 8-bit or 16-bit processor, all of whom can share printers, disk storage, and other system resources. We are excited to offer this significant new option for the HORIZON.

Binder 1 TURBODOS USER'S GUIDE Contents.

- o North Star TurboDOS Preface
- o TurboDOS User's Guide
- o Turbo-Plus User's Guide
- o The following floppy disks:
  - TurboDOS System Disk
  - TurboDOS Configuration Disk
  - TurboDOS HELP Disk
  - TurboDOS SYS/CON Disk

Binder 2 TURBODOS REFERENCE MANUAL Contents.

- o HORIZON 8/16 Hardware Installation Guide
- o Z80 Programmer's Guide
- o Z80 Implementer's Guide
- o 8086 Programmer's Guide
- o 8086 Implementer's Guide
- o Turbo-Plus Implementer's Guide

TABLE OF CONTENTS

Manual Format

This manual has been formatted in such a way that the same text can serve both for general information and as reference material.

How To Use This Manual

To become acquainted with the product, we suggest that you read through the text of this manual, ignoring the titles to the left of the text. The text is complete in itself and does not rely on the titles for additional information.

Once you are familiar with this manual and the product, you can use this manual as a permanent reference guide. In this case you want to be able to locate specific items quickly. The following format features will assist you:

- **Main Table of Contents** at the front of the manual lists the chapter and appendix titles.
- **Chapter Table of Contents** at the beginning of each chapter lists section titles and pages for the chapter.
- **Overview pages** appear at the beginning of each chapter and main section.
- **Page heading** at the top of each page indicates the topic for that page. The manual is organized into single-page topics. Continuation pages, if needed, are clearly indicated.
- **Block titles** along the left-hand margin of each page indicate what items are discussed and where on the page the item begins. Block titles can be used to quickly scan pages.
- **Index** at the back of the manual provides page references for relevant topics.

Procedure Format

In this manual, procedures are described in a step-by-step format. A typical example of a procedure is shown below. Your action is on the left. To the right are screen display results, messages, or other system responses.

Procedure: Start CONFIG

1. Type **CONFIG [RETURN]**	(TurboDOS Configuration banner) System generated by:
2. Type **{name} [RETURN]** or **[RETURN]**	Date:
3. Type **{date} [RETURN]** or **[RETURN]**	

Symbols and Conventions

The following symbols and conventions appear in user-system dialogues:

BOLDFACE entries you type in

[ ] enclose a single key name:
[RETURN] the RETURN key
[CMND] the CMND key
[ESC] the ESC key, etc.

{var} represents a variable that you type in. Examples:
{filename} You might type FILE.NAM
{label} You might type LOOP

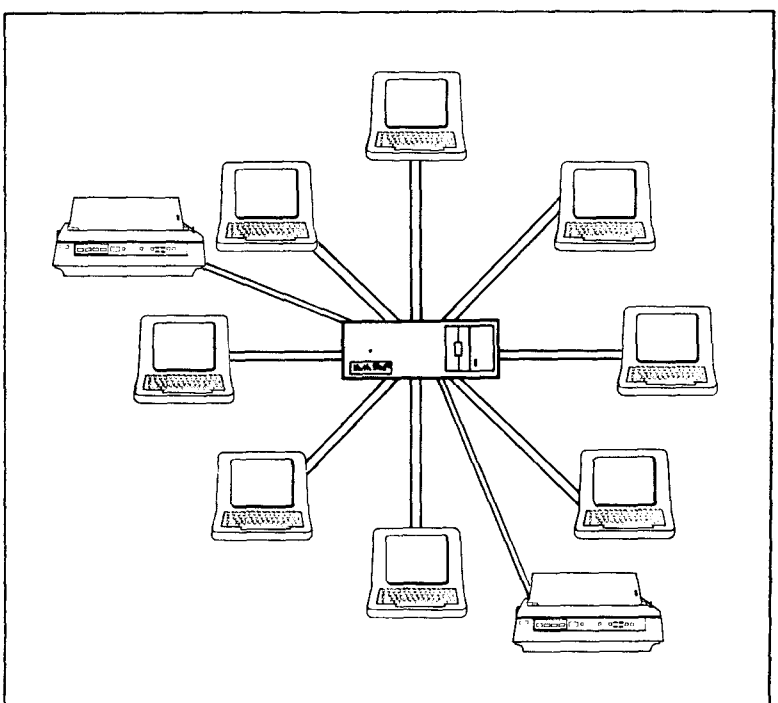
0A} represents the TurboDOS prompt from the system drive. The 'A' could be a different letter on your system.

INTRODUCTION

Overview

North Star TurboDOS^{R} with Turbo-Plus^{R} is an extremely efficient and flexible operating system that runs on the North Star HORIZON^{R} to provide multi-processing capability with a choice of 8 and 16-bit processors. TurboDOS supports a multi-user network of interconnected microcomputers that can share a common pool of mass storage, printers, and other peripherals.

The HORIZON 8/16 multi-processing capability supports up to eight users, each with their own CPU for 8-bit or 16-bit operation.



TurboDOS Features

TurboDOS as implemented on the HORIZON 8/16 has the following features:

- o Multi-processing--up to eight users, each with their own CPU
- o 8-bit and 16-bit operation
- o Large memory capacity--up to 512K bytes per 16-bit user
- o CP/M compatibility--direct replacement for CP/M
- o Modular architecture with autoconfigure program
- o Print spooling
- o File and record interlock for simultaneous multi-user access to common data bases
- o Multiple, nested command strings
- o Large number of utility programs
- o System date and time
- o Password logon
- o Log file
- o Meaningful diagnostic messages

Turbo-Plus

Turbo-Plus augments the TurboDOS system with additional facilities, to mention just a few:

- o Background Batch Processor
- o Electronic mail and immediate message facilities
- o Online HELP for command information, can be tailored by users
- o User RESET from another user terminal, eliminating the need to reset the system after a local failure

Computer

The computer requirements are a North Star HORIZON 8/16 with:

- Hard disk (for multi-processing system)
- ZPB
- 64K HRAM
- Appropriate disk controllers

Disk Drives

The disk drive requirements are at least one quad floppy disk drive and any of the following hard disks:

- HD-5
- HD-15
- HD-18
- HD-30

Note: A single-user system can run with two floppy disks and no hard disk.

Printers

Serial printers and/or parallel printer may be connected onto the system.

- Any serial printer with a serial RS-232C interface may be used. The system supports XON/XOFF and ETX/ACK protocols and hardware handshaking.
- Any parallel printer compatible with the HORIZON motherboard parallel port may be used.

Purpose

The purpose of this manual is to describe how to install and configure TurboDOS on your North Star HORIZON 8/16 system.

Manual Organization

This manual is organized as follows:

Chapter	Description
1	**Introduction** - Describes the features of TurboDOS, hardware requirements, and related manuals.
2	**TurboDOS Installation** - Describes how to install TurboDOS.
3	**TurboDOS Configuration** - Describes how to run the autoconfigure program to configure TurboDOS to your system.
4	**TurboDOS Operation** - Discusses certain characteristics of TurboDOS in daily operation.
5	**Usage Guidelines** - Contains tips on TurboDOS use and notes of differences between TurboDOS operation and Digital Research CP/M, for users already familiar with CP/M.
Appendices	Contain various listings of interest, including DO files (A), GEN+PAR files (B), and Floppy Disk Directories (C). Appendix D contains instructions for generating a single-volume hard disk system. Appendix E describes installing a 384K memory expansion board.

Introduction

Listed below are manuals that provide information on the HORIZON 8/16 computer and TurboDOS operating system.

HORIZON Manuals

The HORIZON manuals are:

- o HORIZON 8/16 Installation Guide (binder 2)
- o HORIZON 8/16 Service Guide
- o Hard Disk System Operation (HDOS) Manual
- o HORIZON Tape Backup System User Manual

TurboDOS Manuals

The TurboDOS manuals are:

- o North Star TurboDOS Preface (binder 1)
- o TurboDOS User's Guide (binder 1)
- o TurboDOS Z80 Programmer's Guide (binder 2)
- o TurboDOS Z80 Implementer's Guide (binder 2)
- o TurboDOS 8086 Programmer's Guide (binder 2)
- o TurboDOS 8086 Implementer's Guide (binder 2)

Turbo-Plus Manual

The Turbo-Plus manuals are:

- o Turbo-Plus User's Guide (binder 1)
- o Turbo-Plus Implementer's Guide (binder 2)

TURBODOS INSTALLATION

Overview

TurboDOS installation is the process of preparing the hard disk and copying the TurboDOS software. After TurboDOS installation you are ready to run the autoconfigure program described in the next chapter. In many cases, running configuration is not required. However, on some systems such as HD-18 systems, you **must** run the autoconfigure program to complete the installation process.

Procedures

This chapter describes the following procedures:

- Installing TurboDOS on a hard disk system. Use the procedure "INSTALL TURBODOS -- HARD DISK" if you are installing TurboDOS for the first time on your HORIZON.
- Installing TurboDOS on a floppy disk system (one with at least two quad floppy drives and no hard disk). Use the procedure "INSTALL TURBODOS -- FLOPPY DISK."
- Upgrading an existing TurboDOS system. Use the procedure "UPDATE TURBODOS" if you already have TurboDOS on your hard disk.

Types of TurboDOS Systems

Your TurboDOS system may include:

- Only 8-bit user boards
- Both 8-bit and 16-bit user boards
- Only 16-bit user boards

The installation procedure is very similar whether you have 8-bit or 16-bit boards. Differences are noted where present. Configuration varies, depending on the type of TurboDOS system. For details, see the next chapter.

See Also

Appendix A for a listing of the DO files (supplied with TurboDOS) used in the install procedures.

Purpose

The purpose of this procedure is to install the TurboDOS operating system on a HORIZON 8/16 system. In the process you make a TurboDOS system disk that boots from the hard disk.

The following steps will:

- Initialize the hard disk file directory
- Copy the new system from the floppy disks to the standard hard disk volume, which is:
  - A for HD-5, HD-15 and HD-30
  - C for HD-18
- Make a floppy system boot disk.

Preparation

Before performing this procedure you must:

- Install the hardware as described in the HORIZON 8/16 Hardware Installation Guide.
- Have available:
  - The TurboDOS factory disks (4)
  - Blank floppy disks (5 or 6)

Procedure: Install TurboDOS -- Hard Disk

1. Format and test the hard disk. Follow the instructions that came in the HDOS Manual to format and test the hard disk. If your hard disk is already formatted and working, you can back up your files and go directly to step 2.

CAUTION
The format procedure erases the current contents of the hard disk. Back up any existing hard disk files you want to save by copying to floppy disks or tape backup.

---->

Procedure: Install TurboDOS -- Hard Disk

2. Insert the TurboDOS system disk into the floppy disk drive.

3. Press the RESET switch to start up TurboDOS. There is an approximate 20 second wait.

```
(TurboDOS banner)
0M}
```

Note: On a 16-bit only system, the "}" will appear as a ")".

4. Type
SERVER [RETURN]

```
Console attached to server processor

0M}
```

5. Type
BUFFERS N2S512 [RETURN]

```
Number of Buffers  : 2
Length of Buffers  : 512
Current System Size: 58K

0M}
```

6. Depending on your hard disk type, type either

DO OSNEW5X [RETURN] For HD-5, HD-15 or HD-30
or
DO OSNEW18 [RETURN] For HD-18

Comment: From this point, installation proceeds according to the screen prompts. You can ignore most of the screen dialog (but be sure to read the warning at the beginning). The points at which you must press the RETURN key or change disks are detailed in the following steps, with the primary screen dialog messages shown.

Procedure: Install TurboDOS -- Hard Disk

7. The first procedure initializes the (formatted) hard disk and cautions you with the message:

```
ALL FILES ON THE HARD DISK WILL BE DESTROYED.
```

CAUTION
If you do not want this to happen, reset the HORIZON now. Otherwise proceed as described below.

In response to the "Enter <CR> to Continue" prompt, press **[RETURN]**

8. After slight pauses at "Erasing directory", the system prompts you to "Enter <CR> to begin verifying" for the system drive. Press **[RETURN]**

9. In response to the message "Enter <CR> to begin verifying" for the next drive, press **[RETURN]**

---->

2-4 North Star TurboDOS Preface

Procedure: Install TurboDOS -- Hard Disk

10. The next steps allow you to enter the hard disk bad spot table into TurboDOS, so that bad or marginal disk areas will not be used.

```
MARKBAD VERSION 1.0.0

1].  ADD BADSPOTS IN TRACK/SECTOR FORMAT (TURBODOS)
2].  ADD BADSPOTS IN CYLINDER/HEAD FORMAT (FROM DISK LABEL)
3].  LINK BADSPOTS TO BLOCKS2.BAD, EXIT TO OPERATING SYSTEM
4].  LINK BADSPOTS, EXIT TO INSTALLATION PROCEDURE
5].  ABANDON, DO NOT DEALLOCATE BAD SPOTS, EXIT

=>
```

When you see this menu, read the bad spot table on the back of the HORIZON, or, if present, on the HD-18.

11. IF there are no bad spots listed, type
3 [RETURN]

and the installation will continue. Go on to step 13 below.

or

IF there are bad spots listed, type
2 [RETURN]

---->

North Star TurboDOS Preface 2-5

Procedure: Install TurboDOS -- Hard Disk

12. You are prompted for the bad spots with the display:

```
HIT RETURN TWICE TO GO BACK TO MENU
CYLINDER NUMBER:
HEAD NUMBER:
```

In response to the prompts type
{cylinder no.} [RETURN]
{head no.} [RETURN]

Note: If you receive the message "Not on this drive" for any bad spot, make a note of the bad spot information and continue.

After entering all the bad spots in this manner, type
[RETURN] [RETURN]
3 [RETURN]

13. Type
MARKBAD x: [RETURN] x = A for HD-5/15/30
C for HD-18
to display the MARKBAD menu.

IF you had any "not on this drive" messages, do steps a, b, and c as follows:

a. Press
2 [RETURN]

b. Enter the bad spot information you previously noted as "not on this drive." Type
{cylinder no.} [RETURN]
{head no.} [RETURN]
for each such bad spot.

c. Press
[RETURN] [RETURN]

For everyone, press
4 [RETURN]

---->

2-6 North Star TurboDOS Preface

Procedure: Install TurboDOS -- Hard Disk

14. The system files are then copied to the hard disk, with file copy messages shown on the display. The system prompts you to take out each floppy disk and replace it with the next one until all the distribution disks are copied to the hard disk. In response to the message:

```
Insert disk to be formatted in drive M
Enter <CR> to begin formatting
```

    a. Remove the last disk from the floppy drive.

    b. Insert a blank floppy disk.

    c. Press
       [RETURN]

15. System files are copied to the floppy disk to create the Boot disk, with file copy messages shown on the display. In response to the message "Enter <CR> to continue" press **[RETURN]**

16. You are rewarded with the message:

```
Congratulations! You have successfully installed
TurboDOS on your system. ...

0A}
```

    Comment: On completion, the floppy disk is a formatted disk with the TurboDOS system copied onto it. This then becomes a bootable disk for everyday startup, which boots from the TurboDOS installed on the hard disk. (In contrast, the factory disk boots entirely from the floppy disk).

---->

orth Star TurboDOS Preface 2-7

Procedure: Install TurboDOS -- Hard Disk

17. IF you have additional hard disks, you must perform an 'erase directory' and 'verify' on each of them.

    Example: For a second HD-18 you would type

```
ERASEDIR E: [RETURN]
VERIFY E:   [RETURN]
MARKBAD E:  [RETURN]     Enter any bad spots, use exit 3.
ERASEDIR F: [RETURN]
VERIFY F:   [RETURN]
MARKBAD F: [RETURN]      Enter any bad spots, use exit 3.
```

Procedure: Make Backup Copies

Make a backup copy of each of the original factory disks using the procedure below.

CAUTION
Copies of TurboDOS factory disks are limited to three. They are for archival purposes only and must be kept in the end user's possession. You must clearly label all such copies with the statutory copyright and trademark notices attributing ownership of the TurboDOS trademark and copyright to Software 2000.

Note: In the following procedure 'User 30A' on the hard disk is used as a workspace copy area. Any available User space with an empty directory can be substituted.

For each disk:

1. Type
   SERVER [RETURN]

---->

2-8 North Star TurboDOS Preface

Procedure: Make Backup Copies

2. Type
USER 30 [RETURN]

3. Type
DIR [RETURN]

You should receive the message "0FILES". If there are any files, you must either delete them, or move to another, empty user area.

4. Put the master floppy disk in drive M. Type
COPY M:*.* A: ; NS0 [RETURN]

The files are copied.

5. Type
BOOT M: A:OSBOOTRK.SYS [RETURN]

You receive messages that the system is 'Reading boot tracks' and 'Writing destination file.'

6. Type
CHANGE M: [RETURN]

Put the blank floppy disk in drive M. In response to the prompt press
[RETURN]

7. If the blank disk is not formatted, type
FORMAT M: [RETURN]

and follow the prompts to format the blank disk, choice 4.

---->

Procedure: **Make Backup Copies**

8. Type in sequence
   BOOT A:OSBOOTRK.SYS M: [RETURN]
   DELETE OSBOOTRK.SYS [RETURN]
   COPY A:*.* M: ; D0N [RETURN]

   Note: The last entry is D-zero-N.

9. Type
   DIR M: ;U0

   to check the new floppy disk contents.

10. Press
    [BREAK] [CONTROL-C]

```
Console detached from server processor.
```

Next Now go on to Chapter 3, TurboDOS Configuration.

Purpose

The purpose of this procedure is to install the TurboDOS operating system on a HORIZON 8/16 system that has only floppy disks (2 or more). You can install TurboDOS for either a UP8 (1-UP8-2Q procedure) or UP16 (1-UP16-2Q procedure).

- The source drive is assumed to be M, the first drive in a two-floppy drive system.
- The destination drive is assumed to be N, the second drive in a two-floppy drive system.

Preparation

Before performing this procedure you must:

- Install the hardware as described in the HORIZON 8/16 Hardware Installation Guide.
- Have available
  - The TurboDOS factory disks (4)
  - Blank floppy disks

Procedure: Install TurboDOS -- 1-UP8-2Q

1. Insert the TurboDOS system disk in the first floppy drive (M).

2. Press the RESET switch to start up TurboDOS.

3. From the system volume (M) type
   SERVER [RETURN]

4. Use the BACKUP command to make copies of all four distribution disks. Retire the distribution disks to a safe place. USE ONLY THE COPIES.

---->

North Star TurboDOS Preface 2-11

Procedure: Install TurboDOS -- 1-UP8-2Q

5. Label a blank floppy disk "BOOT" and insert it in the second floppy drive (N).

6. Type:
   FORMAT N: [RETURN]
   4 [RETURN]
   COPY M:SYS8.DO N: [RETURN]
   DO N:SYS8 [RETURN]

   Follow any screen prompts as requested to process the DO file.

7. Remove the boot disk from its drive and put in a new blank disk that you have labelled "CON8."

8. Type
   FORMAT N: [RETURN]
   4 [RETURN]
   COPY M:CON8.DO N: [RETURN]
   DO N:CON8 [RETURN]

   Follow any screen prompts as requested to process the DO file.

9. Insert the boot disk in drive M and press the RESET switch to start up TurboDOS with the boot disk.

Next You can now go on to Chapter 3, TurboDOS Configuration.

Procedure: Install TurboDOS -- 1-UP16-2Q

1. Insert the TurboDOS system disk in the first floppy drive (M).

2. Press the RESET switch to start up TurboDOS.

3. Label a blank floppy disk "BOOT" and insert it in the second floppy drive (N).

4. From the system volume (M) type
   SERVER [RETURN]

5. Use the BACKUP command to make copies of all four distribution disks. Retire the distribution disks to a safe place. USE ONLY THE COPIES.

6. Type
   FORMAT N: [RETURN]
   4 [RETURN]
   COPY M:SYS16.DO N: [RETURN]
   DO N:SYS16 [RETURN]

   Follow any screen prompts as requested to process the DO file.

7. Remove the boot disk from its drive and put in a new blank disk that you have labelled "CONDISK."

Put TurboDOS SYS Disk Back in. ---->

Procedure: Install TurboDOS -- 1-UP16-2Q

8. Type
   FORMAT N: [RETURN]
   4 [RETURN]
   COPY M:CON16.DO N: [RETURN]
   DO N:CON16 [RETURN]

   Follow any screen prompts as requested to process the DO file.

9. Insert the boot disk in drive M and press the RESET switch to start up TurboDOS with the boot disk.

Next Now go on to Chapter 3, TurboDOS Configuration.

Purpose The purpose of this procedure is to complete TurboDOS installation if you already have TurboDOS installed on the hard disk. This would occur, for example, if you are upgrading TurboDOS to a new revision level. This procedure will also make a working copy of the TurboDOS System Disk.

Preparation To perform this procedure, you should have the following:

- o The TurboDOS factory disks (4)
- o Blank floppy disks (5)

Procedure: Update TurboDOS

1. Backup all files to be saved from the system volume, which is:

   - o A: for HD-5 or HD-15
   - o C: for HD-18

CAUTION
The following procedure deletes all files on User 0 of the system drive.

2. Insert the TurboDOS system disk in the floppy drive (M).

3. Press the RESET switch.

---->

Procedure: Update TurboDOS

4. From the M drive type
   SERVER [RETURN]
   BUFFERS N2S512 [RETURN]

5. From the M drive type either

   DO OSCOPY5X [RETURN] for HD-5 or HD-15
   or
   DO OSCOPY18 [RETURN] for HD-18

6. The DO file first deletes all files from User 0 of the system drive. Then the system files are copied to the hard disk, with file copy messages shown on the display. The system prompts you to take out each floppy disk and replace it with the next one until all the distribution disks are copied to the hard disk. In response to the message:

   ```
   Insert disk to be formatted in drive M
   Enter <CR> to begin formatting
   ```

   a. Remove the TurboDOS system disk from the floppy drive.

   b. Insert a blank floppy disk.

   c. Press
      [RETURN]

7. System files are copied to the floppy disk to create the Boot disk, with file copy messages shown on the display. In response to the message "Enter <CR> to continue" press **[RETURN]**

---->

2-16 North Star TurboDOS Prefac

Procedure: **Update TurboDOS**

8. You are rewarded with the message:

```
Congratulations! You have successfully installed
TurboDOS on your system. ...

0A}
```

Comment: On completion, the floppy disk is a formatted disk with the TurboDOS system copied onto it. This then becomes a bootable disk for everyday startup, which boots to the TurboDOS installed on the hard disk. (In contrast, the factory disk boots entirely from the floppy disk).

9. You should also at this time make a backup copy of the factory disks. Follow the procedure Make Backup Copies beginning on page 2-8.

Next Now go on to Chapter 3, TurboDOS Configuration.

TURBODOS CONFIGURATION

Overview

TurboDOS **configuration** is the process of changing the TurboDOS system software to more accurately reflect the user hardware.

Many HORIZON 8/16 systems will be able to run TurboDOS without requiring configuration; this is because the existing TurboDOS, as supplied, accommodates a wide range of hardware configurations. An exception is the HD-18 hard disk system, which must run CONFIG to assign logical drives A and B to the first HD-18. The first section in this chapter describes what TurboDOS can handle without requiring any modifications through the Configuration program.

You may need to run the Configuration program to define certain attributes of your particular system, such as a parallel printer. You may also optionally run the Configuration program to delete unneeded system programs. Reasons for running the Configuration program are discussed in the second section of this chapter.

The chapter concludes with step-by-step procedures for running the Configuration program and configuring the Background Batch Processor.

See Also

Appendix B contains the GEN and PAR files used to create the system files on the distribution disks.

Introduction The following disk, printer and system tables show how the initial TurboDOS system is configured.

Comment Note that the initial setup is all-inclusive. Your system will have less hardware than the tables show; use only those letter designations that reflect actual devices on your system. If you try to access a device that is not there (for example, if you have no HD-18s and you try to use drive C:) the system responds with a Not Ready message. If you try to print to a printer that is not there, obviously nothing will print.

Restrictions Only one UP8 configuration is specified that is used by all 8-bit boards. Similarly, only one UP16 configuration is specified. To set up multiple configurations, see the section "Multiple Operating Systems" in Chapter 5.

Modem specification through the CONFIG program is currently not supported.

User Console Here is the initial configuration for the user console:

```
9600 baud, 8 data bits, no parity, 1 stop bit
```

Disk Drives

Here is the initial configuration for the disk drives. Each hard disk has two logical drives (volumes).

Drive	Refers to the
A:, B:	HD-5 OR HD-15 OR HD-30
C:, D:	HD-18 #1
E:, F:	HD-18 #2
G:, H:	HD-18 #3
I:, J:	HD-18 #4
K:, L:	not used
M:	Floppy drive 1
N:	Floppy drive 2
O:	Floppy drive 3
P:	Floppy drive 4

Examples

If your system has an HD-5 and a floppy disk drive, your drives will be A:, B:, and M:.

If your system has two HD-18s and two floppy disk drives, your drives will be C:, D: (first HD-18), E:, F: (second HD-18), and M: and N: (floppy drives).

Printers

Here is the initial configuration for the printers:

Printer	Refers to the
A	Motherboard left serial port; shared; protocol = CTS (hardware handshake); initial baud rate = 9600 Example: Epson MX-100
B	Motherboard right serial port; shared; protocol = ETX/ACK; initial baud rate = 1200 Example: NEC Spinwriter
C	Not used
D	User processor board (via TIO); dedicated (not shared); 9600 baud; protocol = CTS Example: Epson MX-100
E - P	Not used

Print Queues

Here is the initial configuration for the print queues:

Queue	Is assigned to
A	Printer A, Default Spooling Drive
B	Printer B
C - P	Not used

Note: Print queue assignment can be changed by the PRINTER command.

Introduction

You can modify the initial configuration of TurboDOS by running the CONFIG program. You run the CONFIG program to configure:

- A server operating system
- A user operating system

Server Configuration

Following are reasons for running CONFIG for a server operating system:

- If you have only HD-18s, you must make the first HD-18 be drives A:, B:; the second be drives C:, D:, and so on.
- You can configure the server to have one logical drive (volume) per physical drive. This allows you to maintain very large files. This option is described in Appendix D.
- You can make the server operating system smaller by eliminating support for devices not on the system. This will not increase the user memory area, but it will make the operating system file smaller and boot slightly faster.
- For shared printers, if you have a different combination of printers, you can change the configuration to accommodate them.
- If you do not have two printers on the motherboard, it is recommended that you delete the nonexistent ones from the system to avoid any possible system conflict in determining which printers are really available.
- If you have a parallel printer you can configure it into the system (if you do not have HD-18s).
- If you want more print queues (up to 8) you must run CONFIG.

User Configuration

Following are reasons for running CONFIG for a user operating system:

- For dedicated printers, if you have a different printer, you can change the configuration to accommodate it.
- You can run the CONFIG program to specify a user terminal at other than 9600 baud.
- You can run CONFIG to limit floppy access to the server.

Purpose

The purpose of the procedures in this section is to configure a TurboDOS system to specific user requirements.

Preparation

Before performing any of these procedures you must:

- o Install the hardware as described in the HORIZON 8/16 Hardware Installation Guide.
- o Install the TurboDOS software as described in Chapter 2 of this manual.

Procedure Overview

A procedure description is given for each type of system:

- o UP8-only and UP8/UP16 hard disk systems
- o UP16-only hard disk system
- o Floppy disk system
  - UP8 user
  - UP16 user

These are followed by a common procedure for running the CONFIG program. You configure any or all of:

- o Server
- o UP8 (8-bit user operating system)
- o UP16 (16-bit user operating system)

Following the CONFIG procedure is a description of the configuration needed for software installation of the Background Batch processor.

See Also

The procedure for configuring the hard disk to have one logical drive per physical drive is described in Appendix D.

Procedure: Configure UP8-Only and UP8/UP16 HD Systems

1. You should have the TurboDOS prompt '0A}' and you should be out of the server. If you have just run one of the installation DO files and are still attached to the server, type

   [BREAK] [CONTROL-C]

   This causes an exit from the server.

   Note: If you attempt to run the CONFIG program while in the server you get an "Insufficient Memory" message.

2. Type
   USER 29 [RETURN]

```
Current user number: 29

29A}
```

3. Go to page 3-17 and perform the CONFIG procedure, with the restrictions noted below. Then return to this procedure.

   Restrictions: For a UP8-only system, do (at most) server and UP8 configurations; do not perform a UP16 configuration. A UP8/UP16 system has no restrictions and can have all configuration types (server, UP8 and UP16).

---->

orth Star TurboDOS Preface

Procedure: Configure UP8-Only and UP8/UP16 HD Systems

4. **Comment:** To complete configuration, the CONFIG program does the following:

   a. For operating systems you elect to change, saves the old OSSERVER.SYS, OSUSER-A.SYS, and OSUSER-B.SYS by renaming them OSSERVER.ORG, OSUSER-A.ORG, and OSUSER-B.ORG.

   b. Copies the new operating system to User 0 of the system drive, under the names OSSERVER.SYS and OSUSER-A.SYS. (The new OSUSER-B.SYS is created and copied in step 5.)

   c. Does a CHANGE * to flush all the buffers.

   For the CHANGE command, press
   [RETURN]
   in response to the prompt.

5. For UP8-only configuration, skip this step. If you are configuring a UP8/UP16 system, go to a UP16 terminal and from the system drive type:
   USER 29 [RETURN]
   DO CONFIG16 [RETURN]

   Follow the screen prompts, pressing [RETURN] when requested. Then return to the UP8 terminal and continue on with step 6.

6. Make sure the boot disk is in drive M.

---->

3-10 North Star TurboDOS Prefac

Procedure: Configure UP8-Only and UP8/UP16 HD Systems

7. If you answered yes to CONFIG to give user processors access to the floppy drive (step 4 on page 3-25) type
   USER 0 [RETURN]
   SET M:*.SYS ; -RN [RETURN]
   COPY A:*.SYS M: ;NS29 [RETURN]

   or

   If you answered no to this CONFIG question, type
   USER 0 [RETURN]
   SET M:OSSERVER.SYS ;-R [RETURN]
   COPY OSSERVER.SYS M: ;NS29 [RETURN]

8. Press the RESET switch to restart TurboDOS. The system will ask you to LOGON by asking for a USERID. Type
   NORTH* [RETURN]

   Note: This logs you on as a privileged user.

9. You should then set up your own USERID.SYS file in User 31, following the instructions:

   - For UP8 users, this is done easily with the TurboPlus PROFILE command (see the TurboPlus User's Guide).
   - For UP16 users, you must edit the USERID.SYS file (see the LOGON command in the TurboDOS User's Guide).

Next If you are installing a Background Batch Processor, go to the section CONFIGURING THE BACKGROUND BATCH PROCESSOR. On completion, TurboDOS is fully installed and configured, and the system is ready for daily use.

Procedure: Configure UP16-Only HD System

1. This step needs to be performed only the first time you configure the system. You should have the TurboDOS prompt '0A}' but still be in the server.

   a. If you are not in the server, type
      SERVER [RETURN]

   b. Insert a blank floppy disk labelled "CONDISK" in drive M.

   c. Type
      DO CONDISK [RETURN]

      Follow any system prompts as requested to process the DO file.

2. Disconnect a terminal from any TIO board at the HORIZON back panel. Plug the terminal connector into the left serial port on the HORIZON motherboard (port 0).

3. Insert the CONDISK into drive M (it will already be in the drive if you have performed step 1 above).

   Note: Be sure the CONDISK does not have a write protect tab on it, as the operating system must be written to it.

4. Press the RESET switch.

5. Go to page 3-17 and perform the CONFIG procedure, with the restrictions noted below. Then return to step 6 below.

   Restrictions: For a UP16-only system, do (at most) server and UP16 configurations; do not perform a UP8 configuration. You must also answer "no" to the server question about including Turbo-Plus; it cannot be included.

6. Remove the CONDISK from drive M and insert the system disk in the drive.

----->

Procedure: Configure UP16-Only HD System

7. Disconnect the terminal from the motherboard port 0 and reconnect it to its TIO board.

8. Press the RESET switch.

9. Type
   A: [RETURN]
   CHANGE M [RETURN]

10. Remove the system disk from drive M and insert the CONDISK in the drive.

11. Type
    DO M:CONFIG16 [RETURN]

    Follow any system prompts as requested to process the DO file.

12. Insert the boot disk in drive M and press the RESET switch to restart TurboDOS. The system will ask you to LOGON by asking for a USERID. Type
    NORTH* [RETURN]

    Note: This logs you on as a privileged user.

13. You should then set up your own USERID.SYS file in User 31, following the instructions in the LOGON command (see the TurboDOS User's Guide).

Next On completion, TurboDOS is fully installed and configured, and the system is ready for daily use.

Procedure: Configure UP8 2Q System

1. Insert the CON8 disk (created during the installation procedure) into drive N.

2. Type
   N: [RETURN]

3. Go to page 3-17 and perform the CONFIG procedure, with the restrictions noted below. Then return to step 4 below.

   Restrictions: For a UP8 2Q system, do (at most) server and UP8 configurations; do not request UP16 configuration.

4. Type
   COPY N:*.SYS M: ;N [RETURN]

5. Press the RESET switch to restart TurboDOS. The system will ask you to LOGON by asking for a USERID. Type
   NORTH* [RETURN]

   Note: This logs you on as a privileged user.

6. You should then set up your own USERID.SYS file in User 31, which is done easily with the Turbo-Plus PROFILE command (see the Turbo-Plus User's Guide). Otherwise, see the instructions under the LOGON command in the TurboDOS User's Guide.

Next On completion, TurboDOS is fully installed and configured, and the system is ready for daily use.

Procedure: Configure UP16 2Q System

1. Insert the CONDISK (created during the installation procedure) into drive M.

2. Press the RESET switch.

3. Disconnect the terminal from its TIO board at the HORIZON back panel. Plug the terminal connector into the left serial port on the HORIZON motherboard (port 0).

4. Go to page 3-17 and perform the CONFIG procedure, with the restrictions noted below. Then return to step 5 below.

   Restrictions: For a UP16 2Q system, do (at most) server and UP16 configurations; do not perform a UP8 configuration. You must also answer no to the server question on including TurboPlus; it cannot be included.

5. Insert a copy of the SYS/CON disk in drive N.

6. Type
   COPY M:OSUSER-B.* N: ;N [RETURN]
   CHANGE N [RETURN]

7. Insert the boot disk in drive N.

8. Type
   COPY M:OSSERVER.SYS N: ;N [RETURN]
   CHANGE MN [RETURN]

9. Remove the boot disk from drive N and insert it into drive M. Place the copy of the SYS/CON disk into drive N.

---->

North Star TurboDOS Preface 3-15

Procedure: Configure UP16 2Q System

10. Press the RESET switch.

11. Disconnect the terminal from the motherboard port 0 and reconnect it to the TIO board.

12. Type
    N: [RETURN]
    TLINK OSUSER-B.SYS [RETURN]
    COPY OSUSER-B.SYS M: ;N [RETURN]
    CHANGE MN [RETURN]

13. Press the RESET switch to restart TurboDOS. The system will ask you to LOGON by asking for a USERID. Type
    NORTH* [RETURN]

    Note: This logs you on as a privileged user.

14. You should then set up your own USERID.SYS file in User 31, following the instructions in the LOGON command (see the TurboDOS User's Guide).

Next On completion, TurboDOS is fully installed and configured, and the system is ready for daily use.

Introduction This procedure explains how to sequence through the CONFIG program. See the previous sections for the use of CONFIG within the overall configuration generation.

Procedure: Start CONFIG

Comment: In all subsequent dialog, a default value is shown in square brackets []; to use the default simply press the RETURN key.

---

1. Type
   CONFIG [RETURN]

```
(TurboDOS Configuration banner)

System generated by:
```

---

2. Type
   {name} [RETURN]
   or
   [RETURN]

```
Date:
```

---

3. Type
   {date} [RETURN]
   or
   [RETURN]

```
date = dd mon yy
For example: 10 JAN 84
```

---

4. The system then queries you on what type of configuration you wish to do.

```
Do you wish to configure a server operating system (Y/N) ? [Y]
```

To configure a server, answer the question "Yes" by pressing **[RETURN]**
Then continue at the next procedure, Configure the Server.

Otherwise press
N [RETURN].

Procedure: Start CONFIG

5.

```
Do you wish to configure a UP8 operating system (Y/N) ? [Y]
```

To configure a UP8, answer the question "Yes" by pressing **[RETURN]**
Then continue at the procedure Configure the UP8 on page 3-22.

Otherwise press
N [RETURN]

6.

```
Do you wish to configure a UP16 operating system (Y/N) ? [Y]
```

To configure a UP16, answer the question "Yes" by pressing **Y [RETURN]**
Then continue at the procedure Configure the UP16 on page 3-28.

7. If you press
[RETURN] or **N [RETURN]**

the system exits with the message:

```
Any files created can be viewed with the TurboDOS TYPE command.

29A}
```

Procedure: Configure the Server

1. In response to the system query:

```
Do you wish to configure a server operating system (Y/N) ? [Y]
```

press
[RETURN]

2.

```
NorthStar TurboDOS SERVER processor configuration

OSSERVER.SYS is the Operating system file name

Do you have a 5-1/4 inch hard disk drive (Y/N) [Y]?
```

Press
[RETURN] or **Y [RETURN]** "Yes"
or
N [RETURN] "No"
as appropriate.

3.

```
How many 18 inch hard disk drives do you have (0-4): [0]
```

Press
[RETURN] "None"
or
{n} [RETURN] "n=1 to 4"

---->

North Star TurboDOS Preface

Procedure: Configure the Server

4.

```
How many floppy disk drives do you have (1-4): [1]
```

Press
[RETURN] or **1 [RETURN]** "1 floppy drive"
or
{n} [RETURN] "n=1 to 4"

5.

```
Number of Serial printers (0 - 2): [1]
```

Press
[RETURN] or **1 [RETURN]** "1 serial printer"
or
{n} [RETURN] "n = 0 to 2"

6.

```
Port 1 printer type:

        1).     CTS (hardware handshake)
        2).     ETX/ACK protocol
        3).     XON/XOFF protocol

The baud rate is determined by a header on the Horizon motherboard.

=> [1]
```

Press
[RETURN] or **1 [RETURN]** "CTS"
or
2 [RETURN] "ETX/ACK"
or
3 [RETURN] "XON/XOFF"

Hint: If you are not sure of the printer type, you can guess by entering 1. If the printer does not work (overruns, loses characters, etc.) after configuration, run CONFIG again and enter 3.

---->

3-20 North Star TurboDOS Prefac

Procedure: Configure the Server

7. For non-HD-18 systems you are then asked:

```
System contain parallel printer (Y/N) [N]?
```

Press
[RETURN] or **N [RETURN]** "No parallel printer"
or
Y [RETURN] "Yes"

8.

```
Do you wish to have Turbo+ features (Y/N) ? [Y]
```

Press
[RETURN] or **Y [RETURN]** "Include Turbo-Plus features"
or
[N] [RETURN] "Exclude Turbo-Plus"
as desired.

Note: You must answer "Yes" if you want to include Turbo-Plus on the UP8 (step 5 on page 3-26).

9.

```
How many UP8's do you have, including the background batch (0-9): [2]
```

Press
[RETURN] or **2 [RETURN]** "2 UP8's"
or
{n} [RETURN] "n UP8's", n=0 to 9

---->

North Star TurboDOS Preface

Procedure: Configure the Server

10.

```
How many UP16's do you have (0-8): [2]
```

Press
[RETURN] or **2 [RETURN]** "2 UP16's"
or
{n} [RETURN] "n UP16's", n=0 to 9

11. The system configuration as defined is then shown on the display screen:

```
************************SYSTEM CONFIGURATION*******************

(description)

Is this correct (Y/N)? [Y]
```

Review the display and press either
[RETURN] or **Y [RETURN]** "Configuration is correct"
or
N [RETURN] "Not correct"

- o If you answer "Y", you get the screen display in the next step.
- o If you answer "N", you are returned to the beginning of the Configuration queries to answer the questions again.

---->

3-22 North Star TurboDOS Prefac

Procedure: Configure the Server

12.

```
The system configuration parameters have been saved in files
OSSERVER.GEN and OSSERVER.PAR.

Generate operating system (Y/N) ? [Y]
```

This prompt gives you the option of defining a system without actually implementing it at the time. Press
[RETURN] or **Y [RETURN]** "Generate operating system"
or
N [RETURN] "No OS generation"

o If you answer "Y" to generate an operating system, you get the following message:

```
The operating system generation has been queued for execution.
It will be done when you exit this program. The operating system
will be in the file OSSERVER.SYS.
```

o If you answer "N", the display shows:

```
The operating system generation files are on disk. They can be viewed
with the TurboDOS type command by typing:

        TYPE OSSERVER.GEN and TYPE OSSERVER.PAR
```

11. In either case you are then asked:

```
Do you wish to configure a UP8 operating system (Y/N) ? [Y]
```

Refer to the next procedure for UP8 configuration:

o Step 1 to answer "Yes"

o Step 8 to answer "No"

Procedure: Configure the UP8

1. In response to the system query:

```
Do you wish to configure a UP8 operating system (Y/N) ? [Y]
```

You press
[RETURN] or **Y [RETURN]**

2.

```
North Star TurboDOS UP8 USER processor configuration

OSUSER-A will be the operating system file name.

UP8 PROCESSORS ARE ADDRESSED STARTING AT 20H FOR BOARD NUMBER 1.
THE OPERATING SYSTEM GENERATED WILL BE USED FOR ALL UP8 PROCESSORS.

Terminal baud rate:

        1). 1200        6). 4800
        2). 1800        7). 7200
        3). 2000        8). 9600
        4). 2400        9). 19,200
        5). 3600

=> [8]
```

Answer by the item number (1 - 9). Press

[RETURN]	"Baud rate = 9600"
or	
{n} [RETURN]	"Baud rate = number at 'n'"

---->

3-24 North Star TurboDOS Preface

Procedure: Configure the UP8

3.

```
Port 1 Device Type:

        1). CTS (hardware handshake)
        2). ETX/ACK printer
        3). XON/XOFF printer
        4). None

=> [4]
```

Answer by the item number (1 - 4). Press

[RETURN]	"No Port 1 device"
or	
{n} [RETURN]	"Device type = number at 'n'"

4.

```
Do you wish user processors to have access to floppy drives?
(If you answer NO, you will have to type SERVER
before using floppy drives.) (Y/N) ? [Y]
```

To give user processors access to the floppy drive, press **[RETURN]** or **Y [RETURN]**

Otherwise, to limit access to the server, press **N [RETURN]**

Comment: Note your answer here; you will later enter different commands, depending on whether you answer yes or no to this question.

---->

North Star TurboDOS Preface

Procedure: Configure the UP8

5.

```
Do you wish to have
        1). All Turbo-Plus features (uses 2.6K)
        2). All Turbo-Plus features except TWX and RESET (uses 0.6K)
        3). No Turbo-Plus features

=> [1]
```

Press
[RETURN] or **1 [RETURN]** "Include all features"
or
2 [RETURN] "Include most features"
or
3 [RETURN] "Exclude Turbo-Plus"
as desired.

Note: To include Turbo-Plus here, you must also include it for the Server (step 8 on page 3-21).

6. The UP8 user configuration as defined is then shown on the display screen:

```
****************** UP8 USER CONFIGURATION ********************

(description)

Is this correct (Y/N) ? [Y]
```

Review the display and press
[RETURN] or **Y [RETURN]** "Configuration is correct"
or
N [RETURN] "Not correct"

- o If you answer "Y", you get the screen display described in the next step.
- o If you answer "N", you are returned to the beginning of the Configuration queries to answer the questions again.

---->

3-26 North Star TurboDOS Preface

Procedure: Configure the UP8

7. The screen display shows the OSUSER-A files that were created (the same as for OSSERVER on page 3-23). Answer Y or N as desired to generate an operating system.

8. You are then asked:

```
Do you wish to configure a UP16 operating system (Y/N) ? [Y]
```

Refer to the next procedure for UP16 configuration.

Procedure: Configure the UP16

1. In response to the system query:

```
Do you wish to configure a UP16 operating system (Y/N) ? [Y]
```

   You press
   [RETURN] or **Y [RETURN]**

2. Perform the dialog for UP16 configuration, just as described for UP8 configuration (pages 3-24 to 3-27), except that:

   o The 3600 baud rate is not available for UP16 configurations either as a terminal or printer.

3. On completion, continue to the next procedure, Ending CONFIG.

Procedure: Ending CONFIG

1. After you have completed the server-UP8-UP16 configuration cycle, having generated at least one operating system, the following message appears:

```
Start queued system generations now (Y/N) ? [Y]
```

2. This gives you one last chance to change your mind. Normally you will press
[RETURN] or **Y [RETURN]** "Start sysgen"
and get the message:

```
29A};Beginning automated system generation.....
```

with additional log messages to complete configuration.

3. This completes running CONFIG. Return to your selected configuration procedure in the previous sections.

Required Files

The Background Batch Processor requires the following files to be present as shown.

FILE NAME	MUST BE IN	SOURCE
BBACK.COM	User 31	System Disk
BBLOG.COM	User 31	System Disk
BBCUR.JOB	User 31	HELP Disk
BBJNUM	User 31	HELP Disk
BBJOBS	User 31	HELP Disk
BBLOG	User 31	HELP Disk
WRMBSTRT.AUT *	User 31	System Disk
BB.COM	User 0 (Global)	System Disk
BBLIST.COM	User 0 (Global)	System Disk
BBDEL.COM	User 0 (Global)	System Disk
BBCANCEL.COM	User 0 (Global)	System Disk

* WRMBSTRT.AUT is a copy of BBEGIN.COM, from the System Disk.

Procedure: Configure the Background Batch Processor

1. Check required files:

   - o These are placed correctly by the initial TurboDOS install procedure.
   - o If you are adding the Background Batch Processor to an existing TurboDOS, check that these files are present as shown in the above table. If not, copy any missing files from the distribution disks.

2. From User 29 type
   GEN OSUSER-X.SYS [RETURN]
   COPY OSUSER-X.SYS A: ;D0

3. Insert the boot disk in drive M and press the RESET switch to restart TurboDOS.

TURBODOS OPERATION

Overview

This chapter discusses certain features of daily TurboDOS operation, including:

- o System
  - Startup
  - Shutdown
- o Terminal usage, including
  - User station
  - Server
- o Disk access
- o Backup and recovery

Purpose The purpose of this procedure is to start up TurboDOS on a completely installed and configured system.

Procedure: System Startup

1. Turn on the computer.

2. IF you have a printer attached to the left serial port of the HORIZON motherboard, be sure to turn the printer on and make sure it is ON LINE.

   Note: The system will fail to boot if this printer is not on line.

   A 3-line diagnostic message is printed at this printer on startup. The system drive designator always appears on the third line of this message.

3. Insert the TurboDOS Boot disk into the floppy drive.

4. If you have an HD-30, wait until the HD-30 lights go from flickering (warmup) to a steady light (ready).

5. Press the RESET switch. There is an approximate 20-second wait. The system is now ready for user LOGONs.

   IF you have an HD-5, HD-15, or HD-30 system or a floppy disk system, it is ready for general use.

   IF you have an HD-18, go on to step 5.

---->

Procedure: System Startup

6. For HD-18 systems, log on by typing

   NORTH* [RETURN]
   or
   {userid} [RETURN] where: {userid} is a user ID set by the system manager in the USERID.SYS file.

   Note: The operating system will have loaded from the floppy disk, so you will be using the USERID.SYS file on the Boot disk.

7. For HD-18 systems type:
   SERVER [RETURN]
   BUFFERS N2S512 [RETURN]
   TDHD ON [RETURN]

   The TDHD ON command starts up all HD-18s that are attached to the system. This process takes approximately 4 minutes.

   Note: If a drive that is attached and powered-on does not come up within 6 minutes, TDHD ON times out and displays an error message indicating which drive is at fault.

8. For HD-18 systems type
   A: [RETURN]
   OSLOAD OSSERVER.SYS [RETURN]

   The TurboDOS banner appears, and you will again be asked to log on, this time using the USERID.SYS file on the HD-18.

   The system is now ready for general use.

Purpose The purpose of this procedure is to shut down the system in an orderly manner.

Procedure: System Shutdown

1. From any authorized terminal type
   SERVER [RETURN]
   BUFFERS N2S512 [RETURN]
   TDHD OFF [RETURN]

```
This command flushes all buffers,
turns off all attached hard disk units,
and shuts the system down.
Is this what you want to do? Y/N
```

2. In response to the prompt, if you answer "N", you are returned to the system.

   To initiate system shutdown type
   Y [RETURN]

```
System is now shutting down.
```

3. Wait approximately 10 seconds before turning OFF power switches to the equipment.

   Note: For HD-5/15 systems, you must turn power OFF and then ON before rebooting the system.

User Station

Up to eight terminals may be connected in a HORIZON 8/16 TurboDOS system. To use TurboDOS from any of the terminals, simply follow the LOGON procedure as described in the TurboDOS User's Guide.

Server

Any privileged user can attach to the server processor. No dedicated terminal is required.

SERVER Command

A user station attaches to the server processor with the command:

SERVER

Server Rules

Observe the following rules for the server station:

- Only one terminal should attach to the server processor at a time.
- Do not run application programs while attached to the server processor. The server memory is very small (10K-20K) and will cause I/O service for the system to slow down.

Transient Program Area (TPA)

To find out how large your transient program area (TPA) is, type:
BUFFERS [RETURN]

The last line of the display will show "Space Available" in bytes. Divide this number by 1024 to convert to kilobytes.

You can increase the 8-bit user TPA by deleting the following modules from OSU8BASE.PAR prior to running CONFIG (see also Saving Disk Space, page 4-7):

- DOMGR (recover 312 bytes). After deleting DOMGR you lose the ability to run DO files.
- CPMSUP (recover 240 bytes). After deleting CPMSUP you lose support for CP/M functions 7, 8, 24, 28, 29, 31, 37 and 107.

Using Disks

Here are some disk using tips:

- Diskettes provided are double-sided double-density TurboDOS format. They are unreadable on North Star DOS and on CP/M. Note, however, that TurboDOS can read or write CP/M-formatted disks if the disks are formatted that way.

- Always use the CHANGE command to flush disk buffers before changing a floppy disk. Otherwise the current disk may not be updated and the new disk trashed. With the real time clock installed--which causes buffer flushing every 5 seconds--the danger is not as great, but still present.

- If you are using CP/M disks and do not want the directory changed to have a TurboDOS header, write-protect the disk and set the drive to read-only by typing SET M:;R.

- Because of disk buffering in TurboDOS, you may receive an error message for an activity "finished" earlier. Also, a message may be sent to a terminal other than the error-generating one. This can be eliminated for the floppy disk by limiting floppy disk access to the server only (see the UP8 configuration option on page 3-25).

Important

Use the CHANGE command to stop the floppy drives from running continuously, after booting and after accessing the floppy disk. Type
CHANGE M: [RETURN]

```
Change drive(s) M
Enter <CR> to continue
```

After this message press
[RETURN]

Saving Disk Space

North Star TurboDOS (release 1.1.0) occupies approximately 1100K bytes of disk space.

If desired, you can reduce the size of the operating system by eliminating the TurboDOS functions that you do not need. Here are some suggestions:

- o CONFIG Files (recover 550K bytes). After you have fully set up and configured TurboDOS, you will probably not need the CONFIG files set up in User 29. In this case you can go to User 29 and delete all the files there.

  If you later need to run CONFIG again, recover the User 29 area by copying into it:

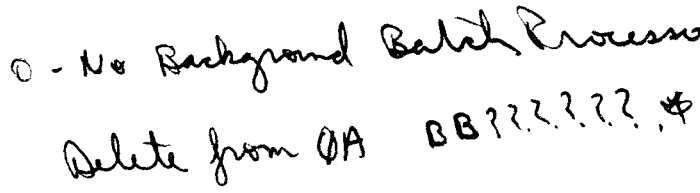
  - *.GEN and *.PAR from the HELP disk
  - *.* from the CONFIG disk (8-bit systems)
  - *.O from the SYS/CON disk (16-bit systems)

- o UP8-Only Systems (recover 350K bytes). If you have only UP8's, you can delete the following 16-bit files:

  - *.CMD, OSUSER-B.SYS, and OSSINGLE.SYS from 0A
  - *.O from 29A.

- o UP16-Only Systems (recover 875K bytes). If you have only UP16's, you can delete the following 8-bit files:

  - *.COM from 0A (delete, then you should recover FORMAT.COM and probably BOOT.COM and VERIFY.COM).
  - *.HLP from 0A.
  - *.REL from 29A. Delete these REL files only **after** you have successfully run CONDISK.DO and CONFIG.



Introduction

The system manager should regularly back up the hard disk by copying the disk contents to floppy disks or, if available, to the tape backup system. This allows recovery of data and the system environment as it existed at the last backup, in the event of system or equipment failure.

Backup can be done to:

- Floppy disks
  - With direct COPY commands
  - Using a DO file to issue the COPY commands
- Tape backup

Backup must be done file-by-file because TurboDOS does not possess a utility that performs a total hard disk backup and recovery. (The TurboDOS BACKUP command is used only for copying between like devices and therefore does not work when backing up a hard disk to floppy disks.)

COPY Command Backup

You can back up the hard disk using the TurboDOS COPY command with the 'C' option selected, moving from user area to user area as described below.

COPY Backup Examples

Note: Press **[RETURN]** at the end of each command line.

As an example of backup, the command sequence:

```
USER 10
COPY *.* M:;CN
```

will cause the contents of User 10 on the current drive to be copied to a backup set of floppy disks.

If your files are more than can be stored on a single floppy disk (340K bytes) you must back them up separately using the B option of the COPY command. For example:

```
COPY BIGFILE M:;B
```

If you have a mixture of large and small files in the same user area, you should reset the A (Archive) attribute on all files except the large files to limit the global COPY to files smaller than a floppy disk. For example:

```
SET *.*;-AN
COPY BIGFILE M:;B
SET BIGFILE;A
;Put in a new floppy disk!
PAUSE                          (DO files only)
COPY *.* M:;ACN
```

Note: The PAUSE is for DO files, to allow the operator to change floppy disks.

DO File Backup

There are 32 user areas for each of the logical drives in the system, so 32 command sequences must be typed to back up each logical drive with the COPY command. To save keystrokes, a DO file that contains all of the commands necessary to do a backup can be created. The DO file itself should reside in User Area 0 with the Global attribute set. The contents of the DO file should be a list of commands that alternately set the user number and then copy that user area to floppy disk.

DO File Backup Examples

An example of a DO file for backup is given below.

```
USER 0
COPY *.* M:;CN
USER 1
COPY *.* M:;CN
     .
     .
     .
USER 31
COPY *.* M:;CN
```

If you have files larger than one floppy disk, you must handle them separately in the DO file. In the following example, User 1 has files larger than a floppy disk, while Users 0 and 31 do not.

```
USER 0
COPY *.* M:;CN
USER 1
SET *.*;-AN
COPY BIGFILE1 M:;B
SET BIGFILE1;A
COPY BIGFILE2 M:;B
SET BIGFILE2;A
;Put in a new floppy disk, please.
PAUSE
COPY *.* M:;ACN
USER 31
COPY *.* M:;CN
```

---->

4-10

DO File Backup Examples (cont.)

The reverse of the above example (a total recovery) would look like this in a DO file, recovering to drive A:

```
USER 0
COPY M:*.* A:;CN
USER 1
COPY M:BIGFILE1 A:;B
COPY M:BIGFILE2 A:;B
;Put in the next floppy, please.
PAUSE
COPY M:*.* A:;CN
USER 31
COPY M:*.* A:;CN
```

For an incremental backup rather than a total backup, the example would look like this:

```
USER 0
COPY *.* M:;ACN
USER 1
COPY BIGFILE1 M:;AB
SET BIGFILE1;A
COPY BIGFILE2 M:;AB
SET BIGFILE2;A
;Put in a new floppy disk, please.
PAUSE
COPY *.* M:;ACN
USER 31
COPY *.* M:;ACN
```

Be sure to label each floppy disk in the sequence in which it is copied and include the user number and volume that the floppy disk is backing up.

Tape Backup

The tape backup software (TIP) distributed by North Star, originally written for CP/M, will work with TurboDOS for Users 0-15. There is a version of TIP that supports all 32 TurbDOS user areas. This version is included in your TurboDOS.

When installing the DS-100 board in the HORIZON, leave the port select switches on the DS-100 board set to 33 (switches 1-2-3-4 = OPEN-OPEN-CLOSED-CLOSED) as described in the HORIZON Tape Backup System User Manual.

Memory Requirement

To run TIP with the TurboDOS server operating system, you should have at least 20,300 bytes of "memory available" as displayed by the BUFFERS command in the procedure below. You may still be able to run TIP with slightly less than this amount.

The amount available depends on the size of the server operating system; if insufficient, you need to configure a new, smaller server in order to run TIP. The server can be made smaller, for example, by omitting Turbo-Plus, or by including just one hard disk driver.

Procedure: Run Tape Backup (TIP)

---

1. To run TIP from TurboDOS, type:
   SERVER [RETURN]
   BUFFERS N2S512 \ BUFFERS [RETURN]

---

2. Observe the amount of "memory available" displayed by the BUFFERS command. It should be around 20,000 bytes (see Memory Requirement discussion above) to run TIP.

---

3. Type
   TIP [RETURN]

---

4. Then follow the instructions in the Tape Backup manual under "CP/M BACKUP AND RECOVERY SYSTEM."

USAGE GUIDELINES

Overview

This chapter discusses features of the TurboDOS and CP/M operating systems, especially as they relate to TurboDOS multi-processor operation. The subjects covered are:

- Multi-user notes -- when a user goes from a single processor to a multi-processing system.
- Dual 8-bit and 16-bit operation -- systems that run both 8-bit and 16-bit boards.
- TurboDOS - CP/M differences -- how TurboDOS and CP/M differ in certains commands and file statistics.
- Using WordStar under TurboDOS -- how to adapt WordStar to operate under TurboDOS.
- Notes on Turbo-Plus -- features available or not available at different Turbo-Plus configuration levels.
- Multiple operating systems -- setting up an 8-bit (or 16-bit) configuration different from the other 8-bit (or 16-bit) boards.

Introduction

Many users find that the software they used on their single-user computer does not work the way they expect in a multi-user environment. This section discusses several differences.

Duplicate File Names

One problem arises when programs open temporary files on the disk while performing certain operations. For instance, a sort module in a data base system may open a work file called SORT.$$$ to hold a portion of a file being sorted. What happens if two people are running the same data base program, even if they are using distinct data files? The program would try to use the same work file for both users.

Solution: For such programs, be sure to run them under different user numbers.

User Parameters

Some programs store certain user-defined parameters in files. For example, the user's selection of a particular terminal driver may be stored in a file for program reference whenever the program is run. Since the program uses this file by name, it become difficult for two users with different terminal types to use the same program.

Solution: Maintain separate copies of the program in different directories, or give different names to different installed versions.

Record Locking

Record locking is a capability provided by an operating system (such as TurboDOS). It is not invoked automatically by the operating system. For record locking to be effective, the application program must explicitly lock and unlock the physical records required to protect a logical record.

Mixing 8-Bit and 16-Bit Boards

A TurboDOS system that contains both 8-bit and 16-bit boards will, in general, run with little or no problems caused by the dual operation. An 8-bit user will probably not even notice that a 16-bit system is running, and vice versa. The topics considered here are:

- What commands are available on each system?
- What applications are available, and do any of the applications interfere with each other between systems?

Commands

Most TurboDOS commands have the same name under 8-bit or 16-bit operation. When you invoke a command, the operating system automatically loads the appropriate version of the command, .COM for 8-bit, .CMD for 16-bit.

- Some commands are 8-bit only (such as GEN.COM) or 16-bit only (such as TLINK.CMD). If you give such a command while in the other system, you receive a "Command Not Found" message.
- Some commands can be run only from the Server (these include FORMAT, VERIFY and BOOT). These commands are provided only in 8-bit form.
- Turbo-Plus commands are available only from the 8-bit system (in the 1.1 TurboDOS release). If you give a Turbo-Plus command from the 16-bit system, you receive the "Command Not Found" message.

Applications

Applications set up to work in a dual 8-bit/16-bit environment operate similarly to the command setup. For example, if you have both WordStar-80 and -86 on your system and you type "WS [RETURN]", TurboDOS automatically loads WS.COM if invoked from an 8-bit board or WS.CMD if invoked from a 16-bit board. There is a problem with WordStar auxiliary system files, however, that illustrates the type of conversion you may have to do to run the same application concurrently under dual 8-bit/16-bit operation. This is discussed further in the section "USING WORDSTAR UNDER TURBODOS."

Command Differences

Some TurboDOS commands have different names and slightly different functionalities from their CP/M counterparts. These are listed below.

TURBODOS	CP/M	NOTES
COPY	PIP	Note in particular that the COPY command arguments are [from] [to], not [to=from] as in PIP.
DO	SUBMIT	
DIR	DIR + STAT	The STAT command is not used in TurboDOS because the information (file size, space remaining) is provided automatically by the TurboDOS DIR command.
TYPE	PRINT	
CHANGE	[CONTROL-C]	An important difference between CHANGE and [CONTROL-C] is that CHANGE is always used **before** changing a floppy disk, whereas [CONTROL-C] is used afterwards.

Introduction

TurboDOS can read and write floppy disks in CP/M format. This provides a medium for exchange of information between TurboDOS and CP/M systems. For the most part, TurboDOS operation is identical to CP/M in user disk handling.

One difference that can be confusing, however, is the flag in the directory that tells whether a file is a SYSTEM file in CP/M or a GLOBAL file in TurboDOS.

Example

In the example below, a CP/M format floppy disk was used in a TurboDOS system by having some GLOBAL files copied to it. Then the disk was moved to a CP/M system.

Note that the CP/M command "DIR B:" does not list what it thinks are SYSTEM files, but also does not say "NO FILE" as it would on a blank diskette. The CP/M STAT command properly shows all files on the disk, with the file names in parentheses to indicate they will not display under a normal DIR command.

This confusion can be avoided by setting files to "Not global" on floppy disks that will be used in CP/M systems:

SET M:*.* ;-GN

---->

North Star TurboDOS Preface 5-5

Example
(cont.)

(In CP/M):

```
A>DIR B:
A>STAT B:*.*

 Recs  Bytes  Ext Acc
  155    20k    1 R/W B:(PASM.COM)
    1     2k    1 R/W B:(PAUSE.COM)
    6     2k    1 R/W B:(PRINT.COM)
    5     2k    1 R/W B:(PRINTER.COM)
   15     2k    1 R/W B:(QUEUE.COM)
    4     2k    1 R/W B:(RECEIVE.COM)
   18     4k    1 R/W B:(RELCVT.COM)
   18     4k    1 R/W B:(RENAME.COM)
    5     2k    1 R/W B:(SEND.COM)
   17     4k    1 R/W B:(SET.COM)
   15     2k    1 R/W B:(SHOW.COM)
    2     2k    1 R/W B:(STOP2.COM)
  132    18k    1 R/W B:(TED.COM)
    4     2k    1 R/W B:(TYPE.COM)
    4     2k    1 R/W B:(USER.COM)
   19     4k    1 R/W B:(VERIFY.COM)
  124    16k    1 R/W B:(WS.COM)
  218    28k    1 R/W B:(WSMSGS.OVR)
  266    34k    1 R/W B:(WSOVLY1.OVR)
Bytes Remaining On B: 186k
```

Introduction

The procedure for installing WordStar for use under TurboDOS is described in this section. The procedure is necessary to properly interface with TurboDOS features, as described in the Discussion. Also, a conversion procedure is given for running WordStar-80 and WordStar-86 simultaneously in dual 8-bit and 16-bit systems.

Discussion

TurboDOS uses specialized software drivers to communicate with all printers attached to the system. WordStar will not print properly if:

- o The operating system has not been properly generated to include the proper protocol driver for each input/output port.
- o The printer is not configured properly (baud rate and protocol, if switchable).
- o The printer tables have been incorrectly set by the PRINT and PRINTER commands (see the TurboDOS User Guide).

WordStar checks the keyboard excessively, causing too much operating system overhead. Some systems may take up to 40 minutes to print a small file with an unmodified WordStar. Operation, especially during printing, can be significantly improved by patching the values that control this to 20% of their original value. This is a performance enhancement. Trial and error may be necessary to determine the best values (somewhere between 20% and 30% of original) for your particular system.

Read-Only Files

Do not attempt to modify a read-only file with WordStar; BE SURE THE FILE IS WRITEABLE BEFORE YOU INVOKE WORDSTAR. If WordStar is asked to modify a Read-Only file, it saves the modified file under the name 'file.$$$' and does not access the Read-Only file.

Non-Document Mode

Be sure to use non-document mode when creating or modifying TurboDOS DO files, GEN files, and PAR files. (GEN and PAR files are used in the system generation process.)

Introduction An interactive installation program is provided to install WordStar for use under TurboDOS.

Input Notes Since all protocol is handled by TurboDOS, when installing a printer in WordStar, pick the proper printer type, but choose the NO PROTOCOL or PROTOCOL HANDLED OUTSIDE OF WORDSTAR option.

The last step of the WordStar installation program asks if you want to use the patch facility. Answer yes. The following values should be changed:

DEL1
DEL2
DEL3
DEL4
DEL5

Enter the name, a colon, and return. The installation program gives you the current value **IN HEXADECIMAL.** Enter 20-30% of this value **IN HEXADECIMAL** and press [RETURN]. After entering DEL5, enter a 0 to terminate the session. Exit the install program normally. An example follows.

Sample Installation Procedure Following is a sample dialog showing WordStar installation under TurboDOS:

```
instal
B

Filename of WordStar to be INSTALLed? WS

Filename for saving INSTALLed WordStar? WS


  MicroPro WordStar  release 3.00  serial # xxxxxx
```

---->

Sample Installation Procedure (cont.)

```
      *****  WordStar TERMINAL MENU #1  *****

A  Lear-Siegler ADM-3A          C  Lear-Siegler ADM-31
D  Hazeltine 1500               E  Microterm ACT-IV
F  Beehive 150/Cromemco 3100    G  Imsai VIO
H  Hewlett-Packard 2621 A/P     I  Infoton I-100
J  Processor Tech Sol / VDM     K  Soroc IQ-120/140
L  Perkin-Elmer 550 (Bantam)    2  Terminal Menu #2
3  Terminal Menu #3             Z  none of the above
U  no change

PLEASE ENTER SELECTION (1 LETTER): K

Soroc IQ-120/140 terminal

OK (Y/N): Y



            *****  PRINTER MENU  *****
(More specific info is displayed after choice is entered)

A  Any "Teletype-like" printer (ie almost any printer)
C  "Teletype-like" printer that can BACKSPACE
D  DIABLO 1610/1620 daisy wheel printer
E  DIABLO 1640/1650/630/Xerox 1700 series daisy wheel printer
F  QUME Sprint 5 daisy wheel printer
G  NEC Spinwriter 5510/5520 thimble printer
I  "Half-Line-Feed" Printers
M  I/O Master / O.E.M. Printer Combination
R  C. Itoh/TEC Starwriter Printer
U  no change
Z  none of the above

PLEASE ENTER SELECTION (1 LETTER): G

NEC Spinwriter 5510/20 printer

    This choice is for the indicated daisy printers only.
    The serial versions of these printers should be interfaced
at 1200 baud, otherwise printout will be very slow.
```

---->

North Star TurboDOS Preface 5-9

Sample Installation Procedure (cont.)

```
    This selection for the specified printers only. If you have
Model 5515 or 5525 use selection "D" (Diablo 1610) instead.

    To prevent buffer overflow with these printers at 1200 baud
without using a cable adapter, specify "ETX/ACK" or "XON/XOFF"
protocol at the next menu, and configure the printer
appropriately.
    Make sure any AUTO LF or LOCAL LF switch is OFF.

OK (Y/N): Y

FOR NEC AT 1200 BAUD, SPECIFY ETX/ACK OR X-ON/X-OFF PROTOCOL,
SET UP PRINTER TO MATCH, AND MAKE SURE DRIVER CAN INPUT(BELOW);
OR SPECIFY NO PROTOCOL AND MAKE A CABLE ADAPTER.
At 300 baud or less, no protocol is required.

        *****  COMMUNICATIONS PROTOCOL MENU  *****

A "Communications Protocol" is necessary with some printers
to prevent printer buffer overflow and character loss.

E  "ETX/ACK" Protocol
X  "X-ON/X-OFF" Protocol
N  NONE required (or handled outside of WordStar)
U  no change

PLEASE ENTER SELECTION (E, X, N, B, or U): N

No communications protocol

OK (Y/N): Y



With no protocol, the usual driver selection (below) is L

            *****  DRIVER MENU  *****

Or, how should WordStar send characters to your printer?

L   CP/M "List" device (LST:)
```

---->

Sample Installation Procedure (cont.)

```
T   CP/M primary console device (TTY:)
C   CP/M secondary console device (CRT:)
P   Port Driver (direct I/O to 8-bit ports)
N   Parallel Centronics Printer Driver
Q   Serial Driver on TRS-80 Model-2
S   User-installed driver subroutines
U   no change

PLEASE ENTER SELECTION (L,T,C,P,N,Q,S or U): L

CP/M List Output driver (LST:)


    In most systems this is a "logical" device which must be
assigned to the desired one of four "physical" devices with
the STAT command, before WordStar is invoked.

OK (Y/N): Y

ARE THE MODIFICATIONS TO WORDSTAR NOW COMPLETE?

  IF THEY ARE ANSWER YES TO THE NEXT QUESTION.
  IF YOU WISH TO MAKE ADDITIONAL PATCHES TO WORDSTAR'S
  USER AREAS, ANSWERNO TO THE NEXT QUESTION.

OK (Y/N): N


YOU MAY NOW MODIFY ANY LOCATION DESCRIBED IN THE LISTING
AT THE END OF THE USER MANUAL OR THE CUSTOMIZATION NOTES.

YOU MAY USE EITHER THE LABEL OR THE HEX ADDRESS TO SPECIFY
THE LOCATIONS YOU WISH TO CHANGE.  IF YOU USE A LABEL THEN
YOU MAY APPEND AN OFFSET TO THE LABEL (I.E. LABEL:+31). THE
LABEL ALWAYS HAS A ":" APPENDED (LABEL:). YOU MAY SPECIFY
THE NEW VALUE ONLY AS A HEX NUMBER. A LOCATION OF ZERO (0)
WILL CAUSE THE END OF THE MODIFICATIONS
```

---->

North Star TurboDOS Preface 5-11

Sample Installation Procedure (cont.)

```
LOCATION TO BE CHANGED (0=END): DEL1:
    ADDRESS : 02CFH   OLD VALUE: 03H  NEW VALUE: 01
LOCATION TO BE CHANGED (0=END): DEL2:
    ADDRESS : 02D0H   OLD VALUE: 09H  NEW VALUE: 03
LOCATION TO BE CHANGED (0=END): DEL3:
    ADDRESS : 02D1H   OLD VALUE: 19H  NEW VALUE: 8
LOCATION TO BE CHANGED (0=END): DEL4:
    ADDRESS : 02D2H   OLD VALUE: 40H  NEW VALUE: 10
LOCATION TO BE CHANGED (0=END): DEL5:
    ADDRESS : 02D3H   OLD VALUE: 09H  NEW VALUE: 03
LOCATION TO BE CHANGED (0=END): 0


CONFIRM TERMINAL AND PRINTER SELECTIONS:

 Soroc IQ-120/140 terminal
 NEC Spinwriter 5510/20 printer
 No communications protocol
 CP/M List Output driver (LST:)

OK (Y/N): Y
```

WordStar Conversion

The problem encountered in running WordStar-80 and WordStar-86 concurrently is that both versions use the same names for their overlay files, but the files are not interchangeable. A solution is to rename the WordStar-86 overlay files, which requires also changing the names inside WS.CMD (or WSU.CMD) to match the new file names.

WordStar-86 Conversion Example

The chart below shows the MONITOR dialog used to change the names inside the program. User input is shown in bold, with a [RETURN] implied to end commands.

DIALOG	COMMENTS
MONITOR	
TurboDOS Monitor, Copyright 1983, Software 2000, Inc.	
*** L WSU.CMD**	Load the program.
0100-55FF	
*** W 57,53,4D,53,47,53**	Search for the overlay file name (in this case "WSMSGS").
0573	
*** T 573,57D**	Type that location to check that the correct data is there.
0573 WSMSGS OVR	
*** P 573**	Put in the new file name.
WSU6MSGS [CONTROL-D]	Type 8 characters (no space) and press [CONTROL-D].
*** T 573,57D**	Check that the new name is correct.
0573 WSU6MSGSOVR	
*** T 57F,589**	Type the next file name.
057F W 0580 SOVLY1 OVR	

---->

North Star TurboDOS Preface 5-13

WordStar-86 Conversion Example (cont.)

DIALOG	COMMENTS
*** P 57F**	Put in the new name.
WSU6OVL1 [CONTROL-D]	Type 8 characters (no space) and press [CONTROL-D].
*** T 57F,589**	Check the new name.
057F W 0580 SU6OVL1OVR	
*** T 58B,595**	Type the next file name.
058B MAILMRGEOVR	
*** P 58B**	Put in the new name.
MLU6MRGE [CONTROL-D]	Type 8 characters (no space) and press [CONTROL-D].
*** T 58B,595**	Check the new name.
058B MLU6MRGEOVR	
*** S WSU.CMD**	Save the modified file.
0100-55FF	
*** Q**	Quit and return to operating system.

You will also need to perform a second step of renaming the files on disk. You can do this as you copy the WS86 files:

COPY [RETURN]
M:WSMSGS.OVR A:WSU6MSGS.OVR [RETURN]
M:WSOVLY1.OVR A:WSU6OVL1.OVR [RETURN]
M:MAILMRGE.OVR A:MLU6MRGE.OVR [RETURN]

Comment The same principle applies to any other overlay files that must be changed. Rename the file, and change its name in the program that uses it.

Direct Printing

Direct printing to a printer from WordStar is **not** recommended unless you have a dedicated printer. (Two users printing direct to the same system printer will produce garbled text.)

Example--from TurboDOS prompt, using printer D:

```
0A} PRINT PRINTER=D      (Printing is to D)
0A} PRINTER D OFFLINE    (Printer D assigned to
                              OFFLINE)
```

This sets the printer up for direct printing. You can then use the WordStar "P" command from the "NO-FILE" menu and print directly to printer D.

Spooled Printing

You can spool printing requests for WordStar printing. This is recommended for shared printers.

Example--from TurboDOS prompt, setting up printer A for spooled printing:

```
0A} PRINT DRIVE=A QUEUE=A  (Printing is to SPOOLER
                            on Drive A to Queue A)
0A} PRINTER A QUEUE=A      (Printer A is assigned
                            to Queue A)
```

This sets up the shared printer A for spooled printing from your terminal. You can then use the WordStar "P" command from the "NO-FILE" menu. This time, however (unlike direct printing) nothing prints until you close the print file, which is done as follows:

- Wait until WordStar finishes "printing"--it is actually writing a print file on disk.

- Press **[BREAK] [CONTROL-L]**
  or
  Exit from WordStar ("X" from the NO-FILE MENU, for example)

This closes the print file and sends the file to the print spooler. As soon as the print file reaches the top of the queue, it will print. Printing occurs immediately if nothing is ahead of it in the queue.

Levels of Usage

When configuring TurboDOS for 8-bit boards, you have the option of selecting Turbo-Plus at three levels:

1. All Turbo-Plus features. In this case you have full Turbo-Plus facilities, with Turbo-Plus using 2.5K bytes of TPA.

2. All Turbo-Plus features except TWX and RESET. This option uses only 0.6K bytes of TPA, but you do not have TWX or RESET capabilities.

   - If you try to use TWX in such a system, you receive the message "Station x unable to receive messages."

   - If you try to use RESET, it will not work but there is no error message.

   - The immediate notification of MAIL (interrupting the display to notify you of mail waiting) also does not work in such a system. Users must check for mail at log on, log off, or by checking their mailbox.

3. No Turbo-Plus. Even at this level you still have some Turbo-Plus features available. Turbo-Plus has two main components -- a resident part and a transient part. Some of the transient commands require the resident part and some do not. Thus, even if the resident part is omitted (when you say "No Turbo-Plus") you can still use some transient commands, specifically DIRDUMP, GO, GONAME, LOCATE, LOG, LOGOFF, LOGON, PROFILE, and SERVER.

SERVER Command

The Turbo-Plus SERVER command is always invoked instead of the TurboDOS SERVER command. The commands differ in two respects:

- The Turbo-Plus SERVER command displays which program, if any, is running in the server when you attach to it. If you have set "No Turbo-Plus," a garbled message is displayed. You can eliminate this message by restoring the TurboDOS SERVER command, by renaming the file TDSERVER.COM to SERVER.COM.

- The Turbo-Plus SERVER command does not accept more than one user at a time. Although the TurboDOS SERVER command allows multiple logons, this should not be done anyway.

LOGON and LOGOFF

The Turbo-Plus LOGON and LOGOFF commands always look on drive A for the USERID.SYS file and for mailboxes. In contrast, the TurboDOS LOGON command looks on the system drive for the USERID.SYS file (and doesn't know about mailboxes at all). For TurboDOS lookup, the system drive is the drive from which the file OSSERVER.SYS is loaded. In a normal boot drive A--the hard disk--is the system drive. If the hard disk is not available during a boot, OSSERVER.SYS is loaded from the floppy disk drive, drive M, and hence the floppy drive becomes the system drive.

The hard disk is set up by the installation DO files to use the Turbo-Plus LOGON, and in a normal boot logons proceed as usual. In contrast, the BOOT disk is set up with the TurboDOS LOGON and LOGOFF commands (called TDLOGON and TDLOGOFF on the HELP distribution disk) so that if an abnormal floppy disk boot should occur, the logon function, in referencing the system drive, will go to drive M--the floppy disk drive--to find the USERID.SYS file.

LOGON and LOGOFF (cont.)

Hint:: If the system boots to "0M}" with no logon, it means that:

- The hard disk was not on and ready.
- You did not copy the OSSERVER.SYS and OSUSER-A.SYS or OSUSER-B.SYS files to the floppy BOOT disk after running the CONFIG program. (You must run CONFIG once to enable the logon function.)

Floppy Disk-Only (2Q) Systems

If you have a floppy disk-only (8-bit) system and:

- You want to use Turbo-Plus LOGON, LOGOFF and MAIL commands, generate the system with SDRIVE = 0D. See the Turbo-Plus GEN and PAR files in the Turbo-Plus Programmer's Guide Appendix.
- The same applies to GONAME.
- To use the Background Batch Processor, generate the Background Batch commands with DRIVE = 0C.

Note: If you use any of the commands that write to disk, the floppy disk in drive M cannot be write-protected.

Introduction

The CONFIG program is set up to configure one user operating system for UP8's and one user operating system for UP16's. This is the preferred configuration for most systems. However, the need may arise for one board to be different from the others of the same type--a different console baud rate, for example, or having more memory (as with a 384K board attached to a UP16).

There are three steps to implementing a different user operating system for a particular UP8 or UP16 board:

1. Choose a physical board address, and set the DIP switches on the board for that address. (See the HORIZON 8/16 Hardware Installation Guide.)

2. Instruct TurboDOS what operating system file name to send to that address.

3. Generate the operating system desired, and give it that file name.

When you reboot the system, the board is then loaded with the new operating system.

Operating System File Names

User operating system file names have the form:

OSUSER-x.SYS

The character in the x position identifies the board type. There are three types already defined:

- OSUSER-A.SYS -- for UP8's
- OSUSER-B.SYS -- for UP16's
- OSUSER-X.SYS -- for the Background Batch Processor

For a new operating system you create a new file name, such as OSUSER-C.SYS.

Relating File Names To Board Addresses

The OSSBASE.PAR file in User 29 contains four lines that relate operating system files to board addresses:

```
SSTUP8 = "XAAAAAAAA"      ;HRZ-UP8 DOWN LOADED WITH USER-A OS
SSTU16 = "BBBBBBBB"       ;HRZ-UP16 DOWN LOADED WITH USER-B OS
PATUP8 = 70,20,22,24,26,28,2A,2C,2E  ;I/O PORT ADR FOR HRZ-UP8
PATU16 = 40,42,44,46,48,4A,4C,4E     ;I/O PORT ADR FOR HRZ-UP16
```

There is a one-to-one correspondence between letters in the Slave Suffix Table (SST) and addresses in the Port Assignment Table (PAT). For example, the first UP8 (the Background Batch Processor, address 70) is loaded with the "X" operating system (OSUSER-X.SYS) and the last eight UP8's (addresses 20-2E) are loaded with the "A" operating system (OSUSER-A.SYS).

Procedure: Generate New Operating System (Sample)

For a sample new operating system, assume that you are setting up OSUSER-C.SYS to be used on the first UP8, address 20. You would perform the following general steps:

1. Set the UP8 board to address 20 (as described in the HORIZON 8/16 Hardware Installation Guide). Note which TIO goes to this board so you can locate its connector on the rear panel.

2. Edit OSSBASE.PAR so it includes the line:

```
SSTUP8 = "XCAAAAAAA"     ;HRZ-UP8 DOWN LOADED WITH USER-A OS
```

---->>

Procedure: Generate New Operating System (Sample)

3. Run CONFIG, doing the following:

   a. Configure the server (to include the new SST information), answering the questions as normal for your system. Answer "Yes" to the "Generate operating system?" query.

   b. Configure the UP8, answering the questions for the new OSUSER-C.SYS. Answer "No" to the "Generate operating system?" query.

   c. Answer "Yes" to the "Start queued system generations now?" query. CONFIG will proceed to generate the new server operating system.

4. To generate the new OSUSER-C.SYS type
   GEN OSUSER-A OSUSER-C.SYS [RETURN]
   COPY OSUSER-C.SYS A: ;D0 [RETURN]

   Notice that the last entry is D-zero.

5. Reboot the system, and board 20 will be loaded with the new OSUSER-C.SYS.

DO FILE LISTINGS

Introduction In this appendix are the listings for DO files, included for reference.

```
;
;FILE NAME       OSNEW5X.DO
;
;      This procedure will erase and verify your hard disk,
;      then copy the system files to it.
;
;      ALL FILES ON THE HARD DISK WILL BE DESTROYED.
;
;      If you don't want this to happen, reset the Horizon NOW.
;
;      If you didn't type SERVER and BUFFERS N2S512 before you
;      ran this DO file, reset the Horizon and start over.
;
PAUSE
M:
ERASEDIR A:
Y
Y
ERASEDIR B:
Y
Y
VERIFY A:
YES
VERIFY B:
YES
MARKBAD B:
```

```
;
;FILE NAME       OSNEW18.DO
;
;      This procedure will erase and verify your HD18 hard disk,
;      then copy the system files to it.
;
;      ALL FILES ON THE DISK WILL BE DESTROYED.
;
;      If you don't want this to happen, reset the Horizon NOW.
;
;      If you didn't type SERVER and BUFFERS N2S512 before you
;      ran this DO file, reset the Horizon and start over.
;
PAUSE
M:
;
;NOTE            If you get a "Not Ready" error after the next
;                command, wait 3 minutes while your HD-18 spins
;                up its motor, then type R twice.
ERASEDIR C:
Y
Y
ERASEDIR D:
Y
Y
VERIFY C:
YES
VERIFY D:
YES
COPY M:OSLOAD18.COM C:OSLOAD
COPY M:OSCOPYHD.DO C:
C:
DO OSCOPYHD C

;FILE NAME       OSCOPY5X.DO
;
;      This procedure clears out OA, then copies the new system
;      files to it.
;
;      ALL FILES IN OA WILL BE DELETED.
;
;      If you don't want this to happen, reset the Horizon NOW,
;      and save the important files from OA.
;
;      If you didn't type SERVER and BUFFERS N2S512 before you
;      ran this DO file, reset the Horizon and start over.
;
PAUSE
M:
SET A:*.*;N-AFGR
DELETE A:*.*;N
;
;      Insert System Disk in drive one.
;
PAUSE
COPY M:OSLOAD5X.COM A:OSLOAD
COPY M:OSCOPYHD.DO A:
A:
DO OSCOPYHD A
```

```
;
;FILE NAME       OSCOPY18.DO
;
;       The first HD-18 is drive C: and D: in this configuration
;       of TurboDOS.
;
;       This procedure clears out OC, then copies the new system
;       files to it.
;
;       ALL FILES IN OC WILL BE DELETED.
;
;       If you don't want this to happen, reset the Horizon NOW,
;       and save the important files from OC.
;
;       If you didn't type SERVER and BUFFERS N2S512 before you
;       ran this DO file, reset the Horizon and start over.
;
PAUSE
M:
;NOTE            If you get a "Not Ready" error after the next
;                command, wait 3 minutes while your HD-18 spins
;                up its motor, then type R twice.
;
SET C:*.*;N-AFGR
DELETE C:*.*;N
COPY M:OSLOAD18.COM C:OSLOAD
COPY M:OSCOPYHD.DO C:
C:
DO OSCOPYHD C
```

```
;
;     FILE NAME  :  OSCOPYHD.DO
;
;     Your SYSTEM DISK should be in drive M:
;
PAUSE
COPY M:*.* (1):;N
(1):
SET (1):OSLOAD.COM;-R
RENAME OSLOAD.COM OSLOADFD.COM ;N
RENAME OSLOAD OSLOAD.COM ;N
COPY (1):USERID.SYS (1):;D31N
COPY (1):LOGON.COM (1):WRM8STRT.AUT;D31N
COPY ;S0D31N
BBEGIN.COM (1):WRM8STRT.AUT
BBACK.COM (1):
BBLOG.COM (1):

BOOT M: (1):OSBOOTRK.SYS
;
;
;     TurboDOS commands installed on 0(1).
;
;     Replace SYSTEM DISK with CONFIG DISK  in drive M:
;
;
CHANGE M
COPY M:*.* (1): ;S0D29N
COPY (1):OSLOADS.COM (1): ;ES29NDO
COPY ;S29DONE
(1):CONFIG.COM (1):
(1):GEN.COM (1):
;
;
;      Configuration disk installed on 29(1).
;
;      Replace CONFIG DISK with HELP DISK in drive M:
;
CHANGE M
COPY
M:*.HLP (1): ;S0D0N
M:*.GEN (1): ;S0D29N
M:*.PAR (1): ;S0D29N
M:BULLETIN.ON (1): ;S0D0N
M:BBJNUM (1): ;S0D31N
M:BBCUR.JOB (1): ;S0D31N
M:BBJOBS (1): ;S0D31N
M:BBLOG (1): ;S0D31N
M:GONAME.DAT (1): ;S0D0N
M:TD*.COM (1): ;S0D0N
M:TIP.COM (1): ;S0D0N
M:MONITOR.COM (1): ;S0D0N
;
;      Help files installed on 0(1).
;      Replace HELP DISK with SYS/CON DISK in drive M:
;
CHANGE M
COPY M:*.CMD (1): ;S0D0N
COPY M:*.O (1): ;S0D29N
COPY M:LOGON.CMD (1):WRM8STRT.AUT ;S0D31N
;
;
;      ALL FOUR DISKETTES ARE INSTALLED ON THE HARD DISK
```

```
;
;
;     The next procedure will make a Boot Disk which loads TurboDOS
;     from the hard disk. Take the SYS/CON disk out of Drive M and
;     replace it with a blank disk.
;
;
CHANGE M
FORMAT M:
4
BOOT OSBOOTRK.SYS M:
;
COPY ;N
OSLOAD.COM M:
*.SYS M: ;N
BUFFERS.COM M:
CHANGE.COM M:
COPY.COM M:
DELETE.COM M:
DIR.COM M:
DUMP.COM M:
ERASEDIR.COM M:
FIXDIR.COM M:
FIXMAP.COM M:
TDLOGOFF.COM M:LOGOFF.COM
MONITOR.COM M:
SERVER.COM M:
TDHD.COM M:
TYPE.COM M:
USER.COM M:
VERIFY.COM M:
BUFFERS.CMD M:
CHANGE.CMD M:
COPY.CMD M:
DELETE.CMD M:
DIR.CMD M:
DUMP.CMD M:
ERASEDIR.CMD M:
FIXDIR.CMD M:
FIXMAP.CMD M:
LOGOFF.CMD M:
SERVER.CMD M:
TYPE.CMD M:
USER.CMD M:
USERID.SYS M: ;D31
TDLOGON.COM M:WRM8STRT.AUT ;D31
LOGON.CMD M:WRM6STRT.AUT ;D31

;
;               Congratulations!  You have successfully installed
;               TurboDOS on your system.  Put your original disks
;               in a safe place, and use this new disk when you
;               boot the system.
;
CHANGE *
```

```
;FILE NAME      SYS8.DO
;
;        This procedure creates a BOOT disk for a one-UP8,
;        2Q system.  It assumes you have a formatted diskette
;        labeled BOOT with one file on it (SYS8.DO).
;
;        If you didn't type SERVER before you started this DO
;        file, type [BREAK] [CONTROL-C] and start over.
;
;        The SYSTEM disk should be in drive M and the BOOT floppy
;        in drive N.
;
PAUSE
N:
BOOT M: N:
COPY
M:OSSERVER.SYS N:
M:OSUSER-A.SYS N:
M:*.COM N: ;N
M:USERID.SYS N: ;D31

DELETE
N:OSLOAD5X.COM
N:OSLOAD18.COM

;
;        Take the SYSTEM disk out of drive M and replace it with
;        the HELP disk.
;
CHANGE MN
COPY
M:MONITOR.COM N:
M:TDLOGON.COM N:WRM8STRT.AUT ;D31

SET N:*.* ;GN
;
;        BOOT disk finished.  Congratulations!
;
CHANGE MN
```

```
;FILE NAME      CON8.DO
;
;        This procedure creates a CONDISK for a one-UP8, 20
;        system.  It assumes you have a formatted diskette
;        labeled CON8 with one file (CON8.DO) on it.
;
;        If you didn't type SERVER before you started this DO
;        file, type [BREAK] [CONTROL-C] and start over.
;
;        The SYSTEM disk should be in drive M and the CONDISK
;        floppy in drive N.
;
PAUSE
N:
BOOT M: N:
COPY
M:COPY.COM N:
M:CHANGE.COM N:

;
;        Take the SYSTEM disk out of drive M and replace it
;        with the CONFIG disk.
;
CHANGE MN
COPY
M:BNKMGR.REL N:
M:COMSUB.REL N:
M:CON96.REL N:
M:CON96TP.REL N:
M:CONREM.REL N:
M:CPMSUP.REL N:
M:DOMGR.REL N:
M:DSKFLP.REL N:
M:DSKHD18.REL N:
M:DSKHD5.REL N:
M:DSPOOL.REL N:
M:FASLOD.REL N:
M:HDWNIT.REL N:
M:LSTCTS.REL N:
M:LSTETX.REL N:
M:LSTPAR.REL N:
M:LSTXON.REL N:
M:MCDUP8.REL N:
M:MCDU16.REL N:
M:MSGFMT.REL N:
M:NETLOD.REL N:
M:NETREQ.REL N:
M:NETSVC.REL N:
M:NETTBL.REL N:
M:NORLOD.REL N:
```

```
M:OSBOOT.REL N:
M:PLUSIN.REL N:
M:RTCMGR.REL N:
M:RTCNS.REL N:
M:RTCNUL.REL N:
M:SGLUSR.REL N:
M:SLVRES.REL N:
M:STDLOADR.REL N:
M:STDMASTR.REL N:
M:STDMBDR.REL N:
M:STDSLAVE.REL N:
M:STDUPBDR.REL N:
M:SUBMIT.REL N:
M:TPLUSM.REL N:
M:TPLUSS.REL N:
M:CONFIG.COM N:
M:GEN.COM N:

;
;       Take the CONFIG disk out of drive M and replace it
;       with the HELP disk.
;
CHANGE MN
COPY
M:OSSBASE.GEN N:
M:OSSBASE.PAR N:
M:OSU8BASE.GEN N:
M:OSU8BASE.PAR N:

;
;       CONDISK finished!  Congratulations!
;
;       Use the CON8 disk in drive N when running CONFIG.
;       See North Star TurboDOS Preface for details.
;
CHANGE MN
```

```
;FILE NAME     SYS16.DO
;
;       This procedure creates a BOOT disk for a one-UP16,
;       20 system.  It assumes you have a formatted diskette
;       labeled BOOT with one file on it (SYS16.DO).
;
;       If you didn't type SERVER before you started this DO
;       file, type [BREAK] [CONTROL-C] and start over.
;
;       The SYSTEM disk should be in drive M and the BOOT floppy
;       in drive N.
;
PAUSE
N:
BOOT M: N:
COPY
M:OSSERVER.SYS N:
M:OSUSER-B.SYS N:
M:OSLOAD.COM N:
M:BACKUP.COM N:
M:BOOT.COM N:
M:BUFFERS.COM N:
M:COPY.COM N:
M:CHANGE.COM N:
M:DIRDUMP.COM N:
M:FORMAT.COM N:
M:LOCATE.COM N:
M:PACKAGE.COM N:
M:RELCVT.COM N:
M:USERID.SYS N: ;D31

;
;       Take the SYSTEM disk out of drive M and replace it with
;       the CONFIG disk.
;
CHANGE MN
COPY
M:CONFIG.COM N:
M:GEN.COM N:

;
;       Take the CONFIG disk out of drive M and replace it with
;       the HELP disk.
;
CHANGE MN
COPY
M:MONITOR.COM N:

;
;       Take the HELP disk out of drive M and replace it with
;       the SYS/CON disk.
;
CHANGE MN
COPY
M:*.CMD N:;N
M:LOGON.CMD N:WRM6STRT.AUT ;D31

SET N:*.* ;GN
;
;       BOOT disk finished.  Congratulations!
;
CHANGE MN
```

```
;FILE NAME      CON16.DO
;
;       This procedure creates a CONDISK for a one-UP16, 20
;       system.  It assumes you have a formatted diskette
;       labeled CONDISK with one file (CONDISK.DO) on it.
;
;       If you didn't type SERVER before you started this DO
;       file, type [BREAK] [CONTROL-C] and start over.
;
;       The SYSTEM disk should be in drive M and the CONDISK
;       floppy in drive N.
;
PAUSE
N:
BOOT M: N:
COPY
M:BUFFERS.COM N:
M:CHANGE.COM N:
M:COPY.COM N:
M:DIR.COM N:
M:DO.COM N:
M:SET.COM N:
M:TYPE.COM N:
M:USER.COM N:
M:OSSINGLE.SYS N:

;
;       Take the SYSTEM disk out of drive M and replace it
;       with the CONFIG disk.
;
CHANGE MN
COPY
M:BNKMGR.REL N:
M:COMSUB.REL N:
M:CON96.REL N:
M:CON96TP.REL N:
M:CONREM.REL N:
M:CPMSUP.REL N:
M:DOMGR.REL N:
M:DSKFLP.REL N:
M:DSKHD18.REL N:
M:DSKHD5.REL N:
M:DSPOOL.REL N:
M:FASLOD.REL N:
M:HDWNIT.REL N:
M:LSTCTS.REL N:
M:LSTETX.REL N:
M:LSTPAR.REL N:
M:LSTXON.REL N:
M:MCDUP8.REL N:
M:MCDU16.REL N:
M:MSGFMT.REL N:
M:NETLOD.REL N:
M:NETREQ.REL N:
M:NETSVC.REL N:
```

```
M:NETTBL.REL N:
M:NORLOD.REL N:
M:OSBOOT.REL N:
M:RTCMGR.REL N:
M:RTCNS.REL N:
M:RTCNUL.REL N:
M:SGLUSR.REL N:
M:SLVRES.REL N:
M:STDLOADR.REL N:
M:STDMASTR.REL N:
M:STDMBDR.REL N:
M:STDSLAVE.REL N:
M:STDUPBDR.REL N:
M:SUBMIT.REL N:
M:CONFIG.COM N:
M:GEN.COM N:
M:OSLOADS.COM N:OSLOAD.COM

;
;       Take the CONFIG disk out of drive M and replace it
;       with the HELP disk.
;
CHANGE MN
COPY
M:OSSBASE.GEN N:
M:OSSBASE.PAR N:
M:OSU6BASE.GEN N:
M:OSU6BASE.PAR N:

;
;       CONDISK finished!  Congratulations!
;
;       Use the CONDISK in drive M when configuring the
;       server, and in drive N when configuring the UP16.
;       See North Star TurboDOS Preface for details.
;
CHANGE MN
```

```
;FILE NAME      CONDISK.DO
;
;       This procedure creates a special CONFIG DISK for
;       UP16-only systems.  You must run this DO file in
;       the server. Have a blank floppy disk ready.
;
FORMAT M:
4
BOOT OSBOOTRK.SYS M:
COPY ;S0DO
BUFFERS.COM M:
CHANGE.COM M:
CONFIG.COM M:
COPY.COM M:
DIR.COM M:
DO.COM M:
GEN.COM M:
SET.COM M:
TDHD.COM M:
TYPE.COM M:
USER.COM M:
OSLOADS.COM M:OSLOAD.COM
OSSINGLE.SYS M:

COPY ;S29DO
BNKMGR.REL M:
COMSUB.REL M:
CON96.REL M:
CON96TP.REL M:
CONREM.REL M:
CPMSUP.REL M:
DOMGR.REL M:
DSKFLP.REL M:
DSKHD18.REL M:
DSKHD5.REL M:
DSPOOL.REL M:
FASLOD.REL M:
HDWNIT.REL M:
LSTCTS.REL M:
LSTETX.REL M:
LSTPAR.REL M:
LSTXON.REL M:
MCDUP8.REL M:
MCDU16.REL M:
MSGFMT.REL M:
NETLOD.REL M:
NETREQ.REL M:
NETSVC.REL M:
NETTBL.REL M:
NORLOD.REL M:
OSBOOT.REL M:
RTCMGR.REL M:
RTCNS.REL M:
```

```
RTCNUL.REL M:
SGLUSR.REL M:
SLVRES.REL M:
STDLOADR.REL M:
STDMASTR.REL M:
STDMBDR.REL M:
STDSLAVE.REL M:
STDUPBDR.REL M:
SUBMIT.REL M:
OSSBASE.GEN M:
OSSBASE.PAR M:
OSU6BASE.GEN M:
OSU6BASE.PAR M:
OSU8BASE.GEN M:
OSU8BASE.PAR M:

;
;       Finished!  The floppy you have just made will enable you
;       to run the 8-bit CONFIG program on a UP16-only system.
;
CHANGE *
```

GEN + PAR FILE LISTINGS

Introduction In this appendix are the GEN and PAR file listings for TurboDOS, included for reference.

```
;
;NAME:          OSSERVER.GEN
;DATE:          12/05/83
;BY:            ROBERT MIHALYI
;
;DESCRIPTION:   SERVER GENERATION FILE:
;               COMPUTER:       HORIZON
;               SERVER BOARD:   ZPB WITH 64K HRAM, PARITY INTERRUPT AT VI5
;               USER BOARDS:    HRZ-UP8  AT ADDRESSES 2XH
;                               HRZ-UP16 AT ADDRESSES 3XH
;               HARD DISKS:     ONE HD5 OR HD15, PARTITIONED INTO A: AND B:
;                               FOUR HD18, PARTITIONED INTO C: THRU J:
;               FLOPPY DISKS:   FOUR 5.25" QUAD DRIVES, M:,N:,O:,P:
;               CONSOLE:        USE REMOTE CONSOLE
;               PRINTER:        A: LEFT SERIAL, CTS 9600 BAUD (PIN 3,4,16)
;                               B: RIGHT SERIAL, ETX 1200 BAUD (PIN 5,6,13)
;               CLOCK:          RATE: 26.624 MS (PIN 13 TO 11)
;                               INTERRUPT AT VI1, (PIN 16 TO 2)
;
;
STDMASTR        ;STANDARD MULTI-USER WITH NETWORK
NETREQ          ;NET REQUEST
MSGFMT          ;MESSAGE FORMATTER
FASLOD          ;FAST LOAD OF PROGRAMS FROM DISK
CPMSUP          ;CP/M FUNCTION SUPPORT
HDWNIT          ;HARDWARE INITIALIZATION
TPLUSM          ;TURBOPLUS
;USRSOM         ;USER SIGN ON MESSAGE
CONREM          ;USE REMOTE CONSOLE, CONDRA
;CON96          ;CONSOLE DRIVER FOR 9600 BAUD TERMINAL, CONDRA
LSTCTS          ;LIST DRIVER FOR FIRST PRINTER (CTS HANDSHAKE), LSTDRA
LSTETX          ;LIST DRIVER FOR SECOND PRINTER (ETX HANDSHAKE), LSTDRB
DSKFLP          ;DISK DRIVER, USING DCOM, FOR NORTHSTAR MINI-FLOPPY, DSKDRA
DSKHD5          ;DISK DRIVER FOR THE NS HD5X HARD DISK CONTROLLER, DSKDRB
DSKHD18         ;DISK DRIVER FOR THE NS HD18 HARD DISK CONTROLLER, DSKDRC
RTCNS           ;REAL TIME CLOCK DRIVER FOR NORTHSTAR, RTCDRA
MCDUP8          ;SERVER CIRCUIT DRIVER FOR HRZ-UP8 USERS, CKTDRA
MCDU16          ;SERVER CIRCUIT DRIVER FOR HRZ-UP16 USERS, CKTDRC
STDMBDR         ;STANDARD MOTHER BOARD DRIVER
;
```

```
;NAME:          OSSERVER.PAR
;DATE:          12/05/83
;BY:            ROBERT MIHALYI
;
;DESCRIPTION:   SERVER PARAMETER FILE:
;               COMPUTER:       HORIZON
;               SERVER BOARD:   ZPB WITH 64K HRAM, PARITY INT. AT VI5
;               USER BOARDS:    HRZ-UP8  AT ADDRESSES 2XH
;                               HRZ-UP16 AT ADDRESSES 3XH
;               HARD DISKS:     ONE HD5 OR HD15, PARTITIONED INTO A: AND B:
;                               FOUR HD18, PARTITIONED INTO C: THRU J:
;               FLOPPY DISKS:   FOUR 5.25" QUAD DRIVES, M:, N: O:, P:
;               CONSOLE:        USE REMOTE CONSOLE
;               PRINTERS:       A: LEFT SERIAL, CTS 9600 BAUD (PIN 3,4,16)
;                               B: RIGHT SERIAL, ETX 1200 BAUD (PIN 5,6,13)
;               CLOCK:          RATE: 26.624 MS (PIN 13 TO 11)
;                               INTERRUPT AT VI1 (PIN 16 TO 2)
;
SRHDRV = OFF            ;SCAN SYSTEM DRIVE FOR GLOBAL COM FILES
NSFTOP = 0F000          ;Beginning of memory above the floppy controller
NSMTOP = OFFFF          ;Top of memory.
AUTUSR = 80             ;User number system comes up under = privileged,0
COMPAT = 0B8            ;RECORD/FILE LOCKING COMPATIBILITY FLAGS
;CPMVER = 022           ;INHIBIT CB-80 RECORD LOCKING
SERCHN = 2              ;NUMBER OF SERIAL CHANNELS SUPPORTED
ATNCHR = "^S"           ;USE Control-S KEY FOR ATTENTION (GENERATES ASCII NULL)
CTSBR = 4E              ;CTS BAUD RATE 9600 (FOR LSTCTS)
ETXBR = 47              ;NEC 5510 WITH CTS AS WELL AS ETX/ACK (FOR LSTETX)
ETXLEN = 6E             ;LENGTH OF BLOCK PRIOR TO ETX (FOR LSTCTS)
DSPPAT = 01,02          ;DESPOOL PRINTER ASSIGNMENT TABLE, PTR A TO QUE A, ETC.
QUEAST = 0,(0),0,(0),0,(0),0,(0),0,(0),0,(0),0,(0),0,(0)
;
MEMRES = 0400           ;AMOUNT OF DYNAMIC SPACE BELOW THE O.S.
NMBUFS = 8              ;NUMBER OF SYSTEM DISK BUFFERS
BUFSIZ = 3              ;SYSTEM DISK BUFFER SIZE = 1024
SLVFN = "OSUSER- ","SYS"        ;PREFIX TO NAME OF FILE TO DOWN LOAD
CKTAST+0 = (0000),CKTDRA,(0100),CKTDRB  ;UP16 ON CIRCUIT ONE
NMBCKT = 2              ;NUMBER OF CIRCUITS
CKTUP8 = 0              ;HRZ-UP8 BOARDS ON CIRCUIT 0
CKTU16 = 1              ;HRZ-UP16 ON CIRCUIT ONE
NMBSVC = 9              ;NUMBER OF "SERVER PROCESSES"
NMBUP8 = 9              ;NUMBER OF HRZ-UP8 USERS SUPPORTED
NMBU16 = 8              ;NUMBER OF UP 16 USERS SUPPORTED
SSTUP8 = "XAAAAAAAA"    ;HRZ-UP8 DOWN LOADED WITH USER-A OPERATING SYSTEM
SSTU16 = "BBBBBBBB"     ;HRZ-UP16 DOWN LOADED WITH USER-B OPERATING SYSTEM
NMBMBS = 1A             ;PRE-ALLOCATE NMBSVC#2 MESSAGE BUFFERS
NMBRPS = 1A             ;PRE-ALLOCATE NMBSVC#2 REPLY WAITING BUFFERS
PATUP8 = 70,20,22,24,26,28,2A,2C,2E     ;I/O PORT ADDRESSES FOR HRZ-UP8
PATU16 = 40,42,44,46,48,4A,4C,4E        ;I/O PORT ADDRESSES FOR HRZ-UP16
LCLNIT+7 = TPNIT
;
PTRAST+18 = 88,(1),89,(2),8A,(3),8B,(4),8C,(5),8D,(6),8E,(7),8F,(8)
QUEAST+18 = 88,(9),89,(0A),8A,(0B),8B,(0C),8C,(0D),8D,(0E),8E,(0F),8F,(10)
;
;
DSKAST+00 = 0,DSKDRB,1,DSKDRB                   ;A: AND B: ON 5.25" HARD DISK
DSKAST+06 = 0,DSKDRC,1,DSKDRC,2,DSKDRC,3,DSKDRC  ;C:-F:  ON HD18 UNIT 1,2
DSKAST+12 = 4,DSKDRC,5,DSKDRC,6,DSKDRC,7,DSKDRC  ;G:-J:  ON HD18 UNIT 2,3
DSKAST+1E = 0FF,(0000),0FF,(0000)               ;K:,L:  UNUSED
DSKAST+24 = 0,DSKDRA,1,DSKDRA,2,DSKDRA,3,DSKDRA  ;M:-P: IS 5.25" FLOPPY
PTRAST = 00,LSTDRA,01,LSTDRB
```

```
;*****************************************************************
;
;      FILE NAME: OSSINGLE.GEN
;      BY:        ROBERT MIHALYI
;      DATE:      12/15/1983
;
;MINIMAL USER OPERATING SYSTEM
;NO PRINTER SUPPORT
;FLOPPY DISK ONLY
;NO AUTOLOAD FILE SUPPORT
;
;
LCLUSR
LCLMSG
LCLTBL
CMDINT
SGLUSR
AUTLOG
OSNTRY
FILMGR
FILSUP
FILCOM
BUFMGR
DSKMGR
DSKTBLS
NONFIL
CONMGR
CONTBL
DOMGR
INPLN
COMMGR
RTCMGR
DSPSGL
MEMMGR
COMSUB
SYSNIT
;
FASLOD          ;FAST LOAD OF PROGRAMS FROM DISK
;CPMSUP         ;CP/M FUNCTION SUPPORT
HDWNIT          ;HARDWARE INITIALIZATION
CON96           ;CONSOLE DRIVER FOR 9600 BAUD TERMINAL, CONDRA
RTCNS           ;REAL TIME CLOCK DRIVER FOR NORTHSTAR, RTCDRA
STDMBDR         ;STANDARD MOTHERBOARD DRIVER
;
;MODULES ADDED BY CONFIG PROGRAM:
;
DSKFLP          ;FLOPPY DISK DRIVER
```

```
;
;          FILE NAME:  OSSINGLE.PAR
;          BY:         JIM MOLENDA
;          DATE:       12/15/1983
;
;
;
;
SRHDRV = OFF              ;SCAN SYSTEM DRIVE FOR GLOBAL COM FILES
NSFTOP = 0F000            ;BEGINNNING OF MEMORY ABOVE THE FLOPPY CONTROLLER
NSMTOP = OFFFF            ;TOP OF MEMORY
AUTUSR = 80               ;USER NUMBER SYSTEM COMES UP UNDER = PRIVILEGED,0
COMPAT = 0B8              ;RECORD/FILE LOCKING COMPATIBILITY FLAGS = SYSPEND
;CPMVER = 022             ;INHIBIT CB-80 RECORD LOCKING
SERCHN = 2                ;NUMBER OF SERIAL CHANNELS SUPPORTED
CLSSTR = 0D,0A,0A,80      ;MINIMAL CLEAR SCREEN
ATNCHR = "^@"             ;"BREAK" KEY FOR ATTENTION (GENERATES ASCII NULL)
MEMRES = 0400             ;AMOUNT OF DYNAMIC SPACE BELOW THE O.S.
NMBUFS = 3                ;NUMBER OF SYSTEM DISK BUFFERS
BUFSIZ = 3                ;SYSTEM DISK BUFFER SIZE = 1024
DSKAST+00 = OFF,(0000),OFF,(0000)
DSKAST+06 = OFF,(0000),OFF,(0000)
DSKAST+0C = OFF,(0000),OFF,(0000)
DSKAST+12 = OFF,(0000),OFF,(0000)
DSKAST+18 = OFF,(0000),OFF,(0000)
DSKAST+24 = 0,DSKDRA,1,DSKDRA,2,DSKDRA,3,DSKDRA
```

```
;
;NAME:          OSUSER-A.GEN
;DATE:          12/05/83
;BY:            ROBERT MIHALYI
;
;DESCRIPTION:   USER GENERATION FILE
;               USER BOARDS:     HRZ-UP8
;               CONSOLE:         9600 BAUD
;               PRINTERS:        DEFAULT TO REMOTE, ALSO HAVE LOCAL PRINTER D.
;
;
STDSLAVE        ;STANDARD NETWORKING USER
NETSVC          ;NETWORK SERVICE
NETLOD          ;LOAD FILES OVER NETWORK
CPMSUP          ;CP/M FUNCTION SUPPORT MODULE
HDWNIT          ;HARDWARE INITIALIZATION
TPLUSS          ;TURBOPLUS FUNCTION EXTENSION
PLUSIN          ;TURBOPLUS USER SELFINSTALL
LSTCTS          ;PRINTER DRIVER FOR 9600 BAUD, CTS HANDSHAKING, LSTDRA
SLVRES          ;USER RESET DETECTION
STDUP8DR        ;STANDARD UP8 DRIVERS
DOMGR           ;DO FILE PROCESSOR
TWXNUL          ;TWX MESSAGE PLACEMENT
;




;
;NAME:          OSUSER-A.PAR
;DATE:          12/05/83
;BY:            ROBERT MIHALYI
;
;DESCRIPTION:   USER PARAMETER FILE:
;               USER BOARDS:     HRZ-UP8
;               CONSOLE:         9600 BAUD
;               PRINTERS:        DEFAULT TO REMOTE, ALSO HAVE LOCAL PRINTER D.
;
;
SRHDRV = OFF            ;SEARCH SYSTEM DRIVE FOR GLOBAL COM FILES
COMPAT = 0B8            ;FILE/RECORD LOCKING COMPATIBILITY FLAGS = SUSPEND
;CPMVER = 022           ;INHIBIT CB-80 RECORD LOCKING
SERCHN = 2              ;TWO SERIAL CHANNELS ON A HRZ-UP8
CONBR = 0CE             ;CONSOLE BAUD RATE 9600 + CTS
CLSSTR = 0D,0A,0A,80    ;MINIMAL CLEAR SCREEN: CR, LF, LF
ATNCHR = "^@"           ;USE "BREAK" KEY FOR ATTENTION
PTRAST+9= 01,LSTDRA     ;PRINTER D TO SERIAL CHANNEL 1; ALL OTHERS TO REMOTE
AUTUSR = 80             ;AUTO LOG-ON = USER 0, PRIVILEGED
;AUTUSR = 1F            ;AUTO LOG-ON = USER 31, NON-PRIVILEGED
LOGUSR  = 1F            ;LOGOFF = USER 31, NON-PRIVILEGED
NMBMBS = 1              ;PRE-ALLOCATE NMBCKT MESSAGE BUFFERS (SIMPLE USER)
NMBRPS = 1              ;PRE-ALLOCATE NMBCKT REPLY WAITING BUFFERS (SIMPLE USER)
FFCHR = 8C              ;FORM FEED CHARACTER
LCLNIT + 7 = TPNIT
;
```

```
;          FILE NAME : OSUSER-B.GEN
;
;System generated by: JIM MOLENDA
;
;System generated on: 1/25/84
;
;
;THIS FILE IS FOR USE BY THE NORTHSTAR TURBODOS CONFIG PROGRAM
;IT SHOULD NOT BE MODIFIED EXCEPT BY SYSTEMS PROGRAMMERS
;WHO UNDERSTAND TURBODOS
;
;TURBODOS VERSION 1.1.0, CONFIG VERSION 1.2.0, REVISED 01/24/83
;
;REQUIRED MODULES:
;
;
STDSLV86          ;STANDARD NETWORKING USER
CPMSUP            ;CP/M FUNCTION SUPPORT MODULE
NITU16            ;HARDWARE INITIALIZATION
SLVRES            ;USER RESET DETECTION
STDUP6DR          ;STANDARD UP 16 DRIVERS
CON192            ;CONSOLE DRIVER
;
;MODULES ADDED BY CONFIG PROGRAM:
;
LSTCTS            ;CTS PRINTER DRIVER
;        FILE NAME : OSUSER-B.PAR
;
;System generated by: JIM MOLENDA
;
;System generated on: 1/25/84
;
;
;THIS FILE IS FOR USE BY THE NORTHSTAR TURBODOS CONFIG PROGRAM
;IT SHOULD NOT BE MODIFIED EXCEPT BY SYSTEMS PROGRAMMERS
;
;TURBODOS VERSION 1.1.0, CONFIG VERSION 1.2.0, REVISED 01/24/84
;
;REQUIRED PATCH POINTS:
;
;
SRHDRV = 0X0FF            ;SEARCH SYSTEM DRIVE FOR GLOBAL COM FILES
COMPAT = 0X0B8            ;FILE/RECORD LOCKING COMPATIBILITY FLAGS
ATNCHR = 0X00             ;USE "BREAK" KEY FOR ATTENTION
AUTUSR = 0X080            ;LOG-ON = USER 0, PRIVILEGED
LOGUSR = 0X1F             ;LOGOFF = USER 31, NON-PRIVILEGED
CRTAST = 0X0100           ;CIRCUIT ASSIGNMENT TABLE, UP16 ON CIRCUIT 01
FWDTBL = 0X00,0X01        ;FORWARD TABLE, DIRECT CIRCUIT 0 MESSAGES TO CIRCUIT 1
CLPCHR = ")"              ;UP 16 COMMAND LINE PROMPT CHARACTER
NMBMBS = 0X01             ;PRE-ALLOCATE NMBCKT MESSAGE BUFFERS (SIMPLE USER)
NMBRPS = 0X01             ;PRE-ALLOCATE NMBCKT REPLY WAITING BUFFERS (SIMPLE USER)
WARMEN = 0,"WRM&STRT","AUT"  ;16 BIT WARM START FILENAME
FFCHR = 0X8C              ;FORMFEED CHARACTER
;
;PATCH POINTS ADDED BY CONFIG PROGRAM:
;
CONBR = 0XCE                ;CONSOLE 9600 BAUD
CTSBR = 0X4E                ;CTS PRINTER 9600 BAUD
PTRAST + 0X9 = 01,LSTDRA    ;LOCAL PRINTER IS D
```

```
;
;      FILE NAME: OSSBASE.GEN
;
;THIS FILE IS FOR USE BY THE NORTHSTAR TURBODOS CONFIG PROGRAM
;IT SHOULD NOT BE MODIFIED EXCEPT BY SYSTEMS PROGRAMMERS
;WHO UNDERSTAND TURBODOS
;
;TURBODOS VERSION 1.1.0, CONFIG VERSION 1.2.0, REVISED 01/24/84
;
;REQUIRED MODULES:
;
;
STDMASTR          ;STANDARD MULTI-USER WITH NETWORK
FASLOD            ;FAST LOAD OF PROGRAMS FROM DISK
CPMSUP            ;CP/M FUNCTION SUPPORT
HDWNIT            ;HARDWARE INITIALIZATION
;USRSOM           ;USER SIGN ON MESSAGE
;CON96            ;CONSOLE DRIVER FOR 9600 BAUD TERMINAL, CONDRA
RTCNS             ;REAL TIME CLOCK DRIVER FOR NORTHSTAR, RTCDRA
MCDUP8            ;SERVER CIRCUIT DRIVER FOR HRZ-UP8 USERS, CKTDRA
MCDU16            ;SERVER CIRCUIT DRIVER FOR HRZ-UP16 USERS, CKTDRC
STDMBDR           ;STANDARD MOTHER BOARD DRIVER
;
;MODULES ADDED BY CONFIG PROGRAM:
;
```

```
;
;      FILE NAME: OSSBASE.PAR
;
;THIS FILE IS FOR USE BY THE NORTHSTAR TURBODOS CONFIG PROGRAM
;IT SHOULD NOT BE MODIFIED EXCEPT BY SYSTEMS PROGRAMMERS
;WHO UNDERSTAND TURBODOS
;
;TURBODOS VERSION 1.1.0, CONFIG VERSION 1.2.0, REVISED 01/24/84
;
;REQUIRED PATCH POINTS:
;
;
SRHDRV = 0FF              ;SCAN SYSTEM DRIVE FOR GLOBAL COM FILES
NSETOP = 0F000            ;BEGINNNING OF MEMORY ABOVE THE FLOPPY CONTROLLER
NSMTOP = 0FFFF            ;TOP OF MEMORY
AUTUSR = 80               ;USER NUMBER SYSTEM COMES UP UNDER = PRIVILEGED,0
COMPAT = 0B8              ;RECORD/FILE LOCKING COMPATIBILITY FLAGS
;CPMVER = 022             ;INHIBIT CB-80 RECORD LOCKING
SERCHN = 2                ;NUMBER OF SERIAL CHANNELS SUPPORTED
ATNCHR = "^S"             ;USE Control-S KEY FOR ATTENTION (GENERATES ASCII NULL)
DSPPAT = 01,02            ;DESPOOL PRINTER ASSIGNMENT TABLE, PTR A TO QUE A, ETC.
QUEAST = 0,(0),0,(0),0,(0),0,(0),0,(0),0,(0),0,(0),0,(0)
;                         ;ALLOCATE 8 LOCAL QUEUES
MEMRES = 0400             ;AMOUNT OF DYNAMIC SPACE BELOW THE O.S.
NMBUFS = 4                ;NUMBER OF SYSTEM DISK BUFFERS
BUFSIZ = 3                ;SYSTEM DISK BUFFER SIZE = 1024
SLVFN = "OSUSER- ","SYS"          ;PREFIX TO NAME OF FILE TO DOWN LOAD
CKTAST+0 = (0000),CKTDRA,(0100),CKTDRB   ;UP-16 ON CIRCUIT NUMBER 1
NMBCKT = 2                ;NUMBER OF CIRCUITS
CKTUP8 = 0                ;HRZ-UP8 BOARDS ON CIRCUIT 0
CKTU16 = 1                ;HRZ-UP16 ON CIRCUIT ONE
SSTUP8 = "XAAAAAAAA"      ;HRZ-UP8 DOWN LOADED WITH USER-A OPERATING SYSTEM
SSTU16 = "BBBBBBBB"       ;HRZ-UP16 DOWN LOADED WITH USER-B OPERATING SYSTEM
PATUP8 = 70,20,22,24,26,28,2A,2C,2E       ;I/O PORT ADDRESSES FOR HRZ-UP8
PATU16 = 40,42,44,46,48,4A,4C,4E          ;I/O PORT ADDRESSES FOR HRZ-UP16
;
PTRAST+18 = 88,(1),89,(2),8A,(3),8B,(4),8C,(5),8D,(6),8E,(7),8F,(8)
QUEAST+18 = 88,(9),89,(0A),8A,(0B),8B,(0C),8C,(0D),8D,(0E),8E,(0F),8F,(10)
;
;PATCH POINTS ADDED BY CONFIG PROGRAM
;
```

```
;
;      FILE NAME: OSU8BASE.GEN
;
;THIS FILE IS FOR USE BY THE NORTHSTAR TURBODOS CONFIG PROGRAM
;IT SHOULD NOT BE MODIFIED EXCEPT BY SYSTEMS PROGRAMMERS
;WHO UNDERSTAND TURBODOS
;
;TURBODOS VERSION 1.1.0, CONFIG VERSION 1.2.0, REVISED 01/24/84
;
;REQUIRED MODULES:
;
;
STDSLAVE          ;STANDARD NETWORKING USER
NETLOD            ;LOAD FILES OVER NETWORK
CPMSUP            ;CP/M FUNCTION SUPPORT MODULE
HDWNIT            ;HARDWARE INITIALIZATION
SLVRES            ;USER RESET DETECTION
STDUP8DR          ;STANDARD UP 8 DRIVERS
DOMGR             ;DD FILE MANAGER
TWXNUL            ;TWX MESSAGE PLACEMENT
;
;MODULES ADDED BY CONFIG PROGRAM:


;      FILE NAME: OSU8BASE.PAR
;
;THIS FILE IS FOR USE BY THE NORTHSTAR TURBODOS CONFIG PROGRAM
;IT SHOULD NOT BE MODIFIED EXCEPT BY SYSTEMS PROGRAMMERS
;
;TURBODOS VERSION 1.1.0, CONFIG VERSION 1.2.0, REVISED 01/24/84
;
;REQUIRED PATCH POINTS:
;
;
SRHDRV = 0FF              ;SEARCH SYSTEM DRIVE FOR GLOBAL COM FILES
COMPAT = 0B8              ;FILE/RECORD LOCKING COMPATIBILITY FLAGS
;CPMVER = 022             ;INH1BIT CB-80 RECORD LOCKING
SERCHN = 2                ;TWO SERIAL CHANNELS ON A HRZ-UP8
CLSSTR = 0D,0A,0A,80      ;MINIMAL CLEAR SCREEN: CR, LF, LF
ATNCHR = "^@"             ;USE "BREAK" KEY FOR ATTENTION
;AUTUSR = 80              ; USER 0, PRIVILEGED
AUTUSR = 0FF              ;AUTO LOG-ON = USER 31 (REQUIRES USERID.SYS IN USER 31)
LOGUSR  = 1F              ;LOGOFF = USER 31, NON-PRIVILEGED
NMBMBS = 1                ;PRE-ALLOCATE NMBCKT MESSAGE BUFFERS (SIMPLE USER)
NMBRPS = 1                ;PRE-ALLOCATE NMBCKT REPLY WAITING BUFFERS (SIMPLE USER)
WARMFN = 0,"WRM8STRT","AUT"  ;8 BIT WARM START FILENAME
FFCHR = 8C                ;FORM FEED CHARACTER
;
;PATCH POINTS ADDED BY CONFIG PROGRAM:
;
```

```
;
;      FILE NAME: OSU6BASE.GEN
;
;THIS FILE IS FOR USE BY THE NORTHSTAR TURBODOS CONFIG PROGRAM
;IT SHOULD NOT BE MODIFIED EXCEPT BY SYSTEMS PROGRAMMERS
;WHO UNDERSTAND TURBODOS
;
;TURBODOS VERSION 1.1.0, CONFIG VERSION 1.2.0, REVISED 01/24/83
;
;REQUIRED MODULES:
;
;
STDSLV86          ;STANDARD NETWORKING USER
CPMSUP            ;CP/M FUNCTION SUPPORT MODULE
NITU16            ;HARDWARE INITIALIZATION
SLVRES            ;USER RESET DETECTION
STDUP6DR          ;STANDARD UP 16 DRIVERS
CON192            ;CONSOLE DRIVER
;
;MODULES ADDED BY CONFIG PROGRAM:


;      FILE NAME: OSU6BASE.PAR
;
;THIS FILE IS FOR USE BY THE NORTHSTAR TURBODOS CONFIG PROGRAM
;IT SHOULD NOT BE MODIFIED EXCEPT BY SYSTEMS PROGRAMMERS
;
;TURBODOS VERSION 1.1.0, CONFIG VERSION 1.2.0, REVISED 01/24/84
;
;REQUIRED PATCH POINTS:
;
;
SRHDRV = 0X0FF            ;SEARCH SYSTEM DRIVE FOR GLOBAL COM FILES
COMPAT = 0X0B8            ;FILE/RECORD LOCKING COMPATIBILITY FLAGS
ATNCHR = 0X00             ;USE "BREAK" KEY FOR ATTENTION
AUTUSR = 0X0FF            ;AUTO LOG-ON = USER 31 (REQUIRES USERID.SYS IN USER 31)
LOGUSR = 0X1F             ;LOGOFF = USER 31, NON-PRIVILEGED
CKTAST = 0X0100           ;CIRCUIT ASSIGNMENT TABLE, UP16 ON CIRCUIT 01
FWDTBL = 0X00,0X01        ;FORWARD TABLE, DIRECT CIRCUIT 0 MESSAGES TO CIRCUIT 1
CLPCHR = ")"              ;UP 16 COMMAND LINE PROMPT CHARACTER
NMBMBS = 0X01             ;PRE-ALLOCATE NMBCKT MESSAGE BUFFERS (SIMPLE USER)
NMBRPS = 0X01             ;PRE-ALLOCATE NMBCKT REPLY WAITING BUFFERS (SIMPLE USER)
WARMFN = 0,"WRM6STRT","AUT"  ;16 BIT WARM START FILENAME
FFCHR = 8C                ;FORMFEED CHARACTER
;
;PATCH POINTS ADDED BY CONFIG PROGRAM:
;
```

```
;
;NAME:          OSUSER-X.GEN
;DATE:          01/25/84
;BY:            ROBERT MIHALYI
;
;DESCRIPTION:   USER GENERATION FILE FOR BACKGROUND BATCH PROCESSOR
;               USER BOARDS:    HRZ-UP8
;
;
STDSLAVE        ;STANDARD NETWORKING USER
NETSVC          ;NETWORK SERVICE
NETLOD          ;LOAD FILES OVER NETWORK
CPMSUP          ;CP/M FUNCTION SUPPORT MODULE
HDWNIT          ;HARDWARE INITIALIZATION
TPLUSS          ;TURBO PLUS FUNCTION EXTENSION
PLUSIN          ;USER SELF INSTALL
LSTCTS          ;PRINTER DRIVER FOR 9600 BAUD, CTS HANDSHAKING, LSTDRA
SLVRES          ;USER RESET DETECTION
STDBBDR         ;STANDARD BACKGROUND BATCH DRIVERS
DOMGR


;NAME:          OSUSER-X.PAR
;DATE:          01/25/84
;BY:            ROBERT MIHALYI
;
;DESCRIPTION:   USER PARAMETER FILE:
;               USER BOARDS:    HRZ-UP8
;
;
SRHDRV = OFF            ;SEARCH SYSTEM DRIVE FOR GLOBAL COM FILES
COMPAT = 0B8            ;FILE/RECORD LOCKING COMPATIBILITY FLAGS = SUSPEND
;CPMVER = 022           ;INHIBIT CB-80 RECORD LOCKING
SERCHN = 2              ;TWO SERIAL CHANNELS ON A HRZ-UP8
CONBR = 0CE             ;CONSOLE BAUD RATE 9600 + CTS
CLSSTR = 0D,0A,0A,80    ;MINIMAL CLEAR SCREEN: CR, LF, LF
ATNCHR = "^@"           ;USE "BREAK" KEY FOR ATTENTION
PTRAST+9= 01,LSTDRA     ;PRINTER D TO SERIAL CHANNEL 1; ALL OTHERS TO REMOTE
AUTUSR = 1F             ;AUTO LOG-ON = USER 31, NON-PRIVILEGED
LOGUSR  = 1F            ;LOGOFF = USER 31, NON-PRIVILEGED
NMBMBS = 1              ;PRE-ALLOCATE NMBCKT MESSAGE BUFFERS (SIMPLE USER)
NMBRPS = 1              ;PRE-ALLOCATE NMBCKT REPLY WAITING BUFFERS (SIMPLE USER)
WARMFN = 0,"WRMBSTRT","AUT" ;WARMSTART FILE NAME
FFCHR = 8C              ;FORM FEED CHARACTER
LCLNIT+7 = TPNIT
;
```

```
;
;NAME:          OSLOAD18.GEN
;DATE:          12/13/83
;BY:            ROBERT MIHALYI
;
;DESCRIPTION:   LOAD SERVER OPERATING SYSTEM
;               LOADABLE DRIVES:QUAD DRIVE,  OR HD18 ONLY
;               HARD DISKS:     FOUR HD18, PARTITIONED INTO A: THRU H:
;               FLOPPY DISKS:   FOUR 5.25" QUAD DRIVES, M: THRU P:
;               CONSOLE:        9600 BAUD
;
STDLOADR        ;KERNAL OF THE OPERATING SYSTEM LOADER
HDWNIT          ;HARDWARE INITIALIZATION MODULE
CON96           ;CONSOLE DRIVER FOR 9600 BAUD TERMINAL, CONDRA
DSKFLP          ;DISK DRIVER FOR THE NS 5.25" FLOPPY CONTROLLER, DSKDRA
DSKHD18         ;HD 18 DRIVER MODULE
STDMBDR         ;STANDARD MOTHER BOARD DRIVERS
;
```

```
;
;NAME:          OSLOAD18.PAR
;DATE:          9/28/83
;BY:            JIM MOLENDA
;
;DESCRIPTION:   LOAD SERVER SYSTEM PARAMETER FILE:
;               LOADABLE DRIVES:QUAD DRIVE, OR HD18
;               HARD DISKS:     FOUR HD18, PARTITIONED INTO A: THRU H:
;               FLOPPY DISKS:   FOUR 5.25" QUAD DRIVES, M:, N: O:, P:
;               CONSOLE:        9600 BAUD (PIN 16 TO 3,4)
;
;
LOADFN = 0,"OSSERVER","SYS"     ;DEFAULT DRIVE AND FILE NAME TO LOAD
MEMTOP = 0E7FF                  ;TOP OF MEMORY WHERE SERVER SYSTEM IS LOADED
CONBR = 0CE                     ;CONSOLE BAUD RATE 9600 + CTS
CLSSTR = 0D,0A,0A,80            ;MINIMAL CLEAR SCREEN: CR,LF,LF
ATNCHR = "^@"                   ;"BREAK" KEY FOR ATTENTION (GENERATES ASCII NULL)
DSKAST+00=0,DSKDRB,1,DSKDRB,2,DSKDRB,3,DSKDRB   ;A:-D: ON HD18 UNIT 1,2
DSKAST+0C=4,DSKDRB,5,DSKDRB,6,DSKDRB,7,DSKDRB   ;E:-H: ON HD18 UNIT 3,4
DSKAST+1E=0FF,(0000),0FF,(0000)                 ;K:, L:, UNUSED
DSKAST+24=0,DSKDRA,1,DSKDRA,2,DSKDRA,3,DSKDRA   ;M:-P: IS 5.25" FLOPPY
SCANDN = 0                      ;SCAN FROM A: TO P: (=0), OR P: TO A: (=0FF)
;
```

```
;
;NAME:          OSLOAD5X.GEN
;DATE:          12/05/83
;BY:            ROBERT MIHALYI
;
;DESCRIPTION:   LOAD SERVER OPERATING SYSTEM
;               LOADABLE DRIVES:QUAD DRIVE, HD5, OR HD15 ONLY
;               HARD DISKS:     ONE HD5 OR HD15, PARTITIONED INTO A: AND B:
;                               FOUR HD18, PARTITIONED INTO C: THRU J:
;               FLOPPY DISKS:   FOUR 5.25" QUAD DRIVES, M: THRU P:
;               CONSOLE:        9600 BAUD
;
STDLOADR        ;Kernal of the operating system loader
HDWNIT          ;Hardware initialization module
CON96           ;Console driver for 9600 baud terminal, CONDRA
DSKFLP          ;DISK DRIVER FOR THE NS 5.25" FLOPPY CONTROLLER, DSKDRA
DSKHD5          ;DISK DRIVER FOR THE NS HD5X HARD DISK CONTROLLER, DSKDRB
;DSKHD18        ;HD 18 DRIVER MODULE
STDMBDR         ;standard Mother Board drivers
;
```

```
;
;NAME:          OSLOAD5X.PAR
;DATE:          08/23/83
;BY:            PAUL GEE
;
;DESCRIPTION:   LOAD SERVER SYSTEM PARAMETER FILE:
;               LOADABLE DRIVES:QUAD DRIVE, HD5, OR HD15
;               HARD DISKS:     ONE HD5 OR HD15, PARTITIONED INTO A: AND B:
;                               FOUR HD18, PARTITIONED INTO C: THRU J:
;               FLOPPY DISKS:   FOUR 5.25" QUAD DRIVES, M:, N: O:, P:
;               CONSOLE:        9600 BAUD (PIN 16 TO 3,4)
;
;
LOADFN = 0,"OSSERVER","SYS"     ;DEFAULT DRIVE AND FILE NAME TO LOAD
MEMTOP = 0E7FF                  ;TOP OF MEMORY WHERE SERVER SYSTEM IS LOADED
CONBR = 0CE                     ;CONSOLE BAUD RATE 9600 + CTS
CLSSTR = 0D,0A,0A,80            ;MINIMAL CLEAR SCREEN: CR,LF,LF
ATNCHR = "^@"                   ;USE "BREAK" KEY FOR ATTENTION (GENERATES ASCII NULL)
DSKAST = 0,DSKDRB,1,DSKDRB                          ;A:, B: ON HD5 OR HD15
;DSKAST+6=0,DSKDRC,1,DSKDRC,2,DSKDRC,3,DSKDRC       ;C:-F: ON HD18 UNIT 1,2
;DSKAST+12=4,DSKDRC,5,DSKDRC,6,DSKDRC,7,DSKDRC      ;G:-J: ON HD18 UNIT 3,4
;DSKAST+1E=0FF,(0000),0FF,(0000)                    ;K:, L:, NOT USED
DSKAST+24=0,DSKDRA,1,DSKDRA,2,DSKDRA,3,DSKDRA       ;M:-P: IS 5.25" FLOPPY
SCANDN = 0                      ;SCAN FROM A: TO P: (=0), OR P: TO A: (=0FF)
;
```

```
;
;NAME:          OSLOADFD.GEN
;DATE:          12/05/83
;BY:            ROBERT MIHALYI
;
;DESCRIPTION:   INITIAL LOAD SERVER OPERATING SYSTEM
;               FLOPPY DISKS:   5.25" QUAD DRIVES, M:
;               CONSOLE:        9600 BAUD
;
STDLOADR        ;KERNAL OF THE OPERATING SYSTEM LOADER
HDWNIT          ;HARDWARE INITIALIZATION MODULE
CON96           ;CONSOLE DRIVER FOR 9600 BAUD TERMONAL, CONDRA
DSKFLP          ;DISK DRIVER FOR THE NS 5.25" FLOPPY CONTROLLER, DSKDRA
;
STDMBDR         ;STANDARD MOTHER BOARD DRIVERS
;
```

```
;
;NAME:          OSLOADFD.PAR
;DATE:          12/05/83
;BY:            ROBERT MIHALYI
;
;DESCRIPTION:   INITIAL LOAD SERVER SYSTEM PARAMETER FILE:
;               FLOPPY DISKS:   5.25" QUAD DRIVES, M:
;               CONSOLE:        9600 BAUD (PIN 16 TO 3,4)
;
;
LOADFN = 0,"OSSERVER","SYS"     ;DEFAULT DRIVE AND FILE NAME TO LOAD
MEMTOP = 0E7FF          ;TOP OF MEMORY WHERE SERVER SYSTEM IS LOADED
CONBR = 0CE             ;CONSOLE BAUD RATE 9600 + CTS
CLSSTR = 0D,0A,0A,80    ;MINIMAL CLEAR SCREEN: CR,LF,LF
ATNCHR = "^@"           ;USE "BREAK" KEY FOR ATTENTION (GENERATES ASCII NULL)
DSKAST = 0FF,(0000),0FF,(0000)                  ;A:, B: OFFLINE
DSKAST+24=0,DSKDRA                              ;M: IS 5.25" FLOPPY
SCANDN = 0              ;SCAN FROM A: TO P: (=0), OR P: TO A: (=0FF)
;
```

```
;
;NAME:          OSLOADS.GEN
;DATE:          12/05/83
;BY:            ROBERT MIHALYI
;
;DESCRIPTION:   INITIAL LOAD SERVER OPERATING SYSTEM
;               FLOPPY DISKS:   5.25" QUAD DRIVES, M:
;               CONSOLE:        9600 BAUD
;
STDLOADR        ;KERNAL OF THE OPERATING SYSTEM LOADER
HDWNIT          ;HARDWARE INITIALIZATION MODULE
CON96           ;CONSOLE DRIVER FOR 9600 BAUD TERMONAL, CONDRA
DSKFLP          ;DISK DRIVER FOR THE NS 5.25" FLOPPY CONTROLLER, DSKDRA
;
STDMBDR         ;STANDARD MOTHER BOARD DRIVERS
;
```

```
;
;NAME:          OSLOADS.PAR
;DATE:          12/05/83
;BY:            ROBERT MIHALYI
;
;DESCRIPTION:   INITIAL LOAD SERVER SYSTEM PARAMETER FILE:
;               FLOPPY DISKS:   5.25" QUAD DRIVES, M:
;               CONSOLE:        9600 BAUD (PIN 16 TO 3,4)
;
;
LOADFN = 0,"OSSINGLE","SYS"     ;DEFAULT DRIVE AND FILE NAME TO LOAD
MEMTOP = 0E7FF                  ;TOP OF MEMORY WHERE SERVER SYSTEM IS LOADED
CONBR = 0CE                     ;CONSOLE BAUD RATE 9600 + CTS
CLSSTR = 0D,0A,0A,80            ;MINIMAL CLEAR SCREEN: CR,LF,LF
ATNCHR = "^@"                   ;USE "BREAK" KEY FOR ATTENTION (GENERATES ASCII NULL)
DSKAST = 0FF,(0000),0FF,(0000)                  ;A:, B: OFFLINE
DSKAST+24=0,DSKDRA                              ;M: IS 5.25" FLOPPY
SCANDN = 0                      ;SCAN FROM A:  TO P:  (=0),  OR P:  TO A: (=0FF)
```

```
8 BIT PACKAGE FILES

PACKAGE STDBBDR
CONBB,INTUP8,SCDUP8,SERIAL,SPIUP8,USRSOM

PACKAGE STDMBDR
MPEHRM,SERIAL,SPINS3

PACKAGE STDUP8DR
CON96TP,INTUP8,SCDUP8,SERIAL,SPIUP8,USRSOM

PACKAGE DSKHD5
DSKNSH,MWCOM25

PACKAGE DSKHD18
DSKNHD,HDCOMTD

PACKAGE STDSLAVE
LCLUSR,LCLMSG,LCLTBL,CMDINT,AUTLOD,AUTLOG,OSNTRY
FILCOM,DSKTBLS,NONFIL,CONMGR,CONTBL,INPLN
LSTMGR,LSTTBLS,SPOOLR,SPLMSG,COMMGR,NETREQ
MSGFMT,NETMGR,NETTBL,DSPCHR,MEMMGR,COMSUB,SYSNIT
;This is the TurboDOS STDSLAVE minus DOMGR.



16 BIT PACKAGE FILES

PACKAGE STDUP6DR
USRSOM,INTU16,SPDU16,SCDU16,MSTU16


PACKAGE STDSLV86
AUTLOD,AUTLOG,BIOS,CMDINT,COMMGR,COMSUB,CONMGR,CONTBL
DOMGR,DSKTBLS,DSPCHR,FILCOM,INPLN
LCLMSG,LCLTBL,LCLUSR,LSTMGR,LSTTBLS,MEMMGR
MSGFMT,NETMGR,NETREQ,NETTBL,NONFIL,OSNTRY
PGMLOD,SPLMSG,SPOOLR,SYSNIT
```

```
PATCHES FOR TURBODOS 1.30

Add these patches to configurations using the modules indicated.
The module PATCH must be called out in the GEN file.

;For FASLOD (fixes problem loading from EXM-0 disks)
LCLLOD+74  = LCLLOD+0E7
;For BNKMGR (fixes C-function 18 called from bank 1)
SMBFCN+33  = PATCH+2,PATCH+0B
PATCH+2    = 2A,CURBNK+6,22,PATCH,0C3,SMBFCN+2B4
PATCH+0B   = 2A,PATCH,22,CURBNK+6,0C3,SMBFCN+2B4
;For BNKMGR (fixes T-function 16 called from bank 1)
SMBFCN+0A3 = PATCH+14
PATCH+14   = 2A,CURBNK+6,7C,0B5,0C2,SMBFCN+2D0,0C3,SMBFCN+2E8
;For BNKMGR (fixes T-function 18 called from bank 1)
SMBFCN+27B = 0CD,PATCH+1F
PATCH+1F   = 2A,CURBNK+6,7C,0B5,0C0,0F1,0C3,SMBFCN+2E8
;For NETREQ (fixes handling of network errors)
NETREQ+41  = PATCH+29
NETREQ+0EB = PATCH+29
NETREQ+13C = PATCH+29
NETREQ+156 = PATCH+29
PATCH+29   = 0DD,0CB,5A,66,28,03,0C3,EXITL,0C3,EXITA
;For CONREM (fixes problem with interrupts)
RCFCN+0DF  = 0CD,PATCH+35
PATCH+35   = 0F3,2A,CIBSZ+8B,0C9
RCFCN+0E7  = 0CD,PATCH+3A,0
PATCH+3A   = 21,CIBSZ+0B,34,0FB,0C9
;For 8086 configurations (enhances PGMLOD to accept Group 9,
;shared code)
PLFCN+0x21E = 0xFE,0xC8,0x24,0x07
```

;SOFTWARE 2000 SUGGESTS ADDING THE FOLLOWING PATCH TO
;Z-80 SERVERS (OSSBASE.PAR) USING BUFMGR TO ELIMINATE
;POSSIBLE DUPLICATE BUFFERS.

BUFMGN+0BE=0C3,PATCH+40

PATCH+40=0CD, SELDRV, 0CD, BUFMGN+399, 0E5, 0CD, UNLINK, 0CD,
BUFMGN+28D, 0E1, 0F5, 0CD, BUFMGN+37B, 0EB, 21,
BUFSIZ+9, 0CD, LNKBEG, 0F1, 0B7, 0CA, BUFMGN+0C1,
0CD, BUFMGN+371, 0C3, BUFMGN+29

;

;THIS PATCH IS FOR Z-80 CONFIGURATIONS CONTAINING BNKMGR.
;IT RETURNS 0 IN THE A-REG INSTEAD OF -1 FOR UNSUPPORTED
;FUNCTIONS CALLED FROM BANK 1.

XFRBNK-38=0AF, 0

FLOPPY DISK DIRECTORIES

S Y S T E M   D I S K

```
20       .SD8          24 Jan 84          17:58:34               18K REMAINING
             76 FILES              ON:????????.???             322K DISPLAYED

AUTOLOAD.COM  2K    DELETE  .COM  2K    MARKBAD .COM  4K    RECEIVE .COM  2K
BACKUP  .COM  2K    DIR     .COM  4K    OSCOPY18.DO   2K    RELCVT  .COM  4K
BANK    .COM  2K    DO      .COM  2K    OSCOPY5X.DO   2K    RENAME  .COM  4K
BATCH   .COM  2K    DRIVE   .COM  2K    OSCOPYHD.DO   4K    RESET   .COM  2K
BB      .COM  4K    DUMP    .COM  2K    OSLOAD  .COM 14K    SEND    .COM  2K
BBACK   .COM  4K    ERASEDIR.COM  2K    OSLOAD16.COM 16K    SERVER  .CMD  2K
BBCANCEL.COM  2K    FIFO    .COM  2K    OSLOAD5X.COM 16K    SERVER  .COM  2K
BBDEL   .COM  2K    FIXDIR  .COM  2K    OSNEW18 .DO   2K    SET     .COM  4K
BBEGIN  .COM  4K    FIXMAP  .COM  2K    OSNEW5X .DO   2K    SHOW    .COM  2K
BBLIST  .COM  4K    FORMAT  .COM  6K    OSSERVER.SYS 34K    STATUS  .COM  4K
BBLOG   .COM  2K    GO      .COM  2K    OSSINGLE.SYS 16K    SYS16   .DO   2K
BOOT    .COM  2K    GONAME  .COM  4K    OSUSER-A.SYS 14K    SYS8    .DO   2K
BUFFERS .COM  2K    HELP    .COM  4K    OSUSER-B.SYS 14K    TWX     .COM  4K
CHANGE  .COM  2K    LABEL   .COM  2K    PACKAGE .COM  4K    TYPE    .COM  2K
CON16   .DO   2K    LOCATE  .COM  2K    PAUSE   .COM  2K    USER    .COM  2K
CON8    .DO   2K    LOG     .COM  2K    PRINT   .COM  2K    USERID  .SYS  2K
CONDISK .DO   2K    LOGOFF  .COM  4K    PRINTER .COM  2K    VERIFY  .COM  4K
COPY    .COM  6K    LOGON   .COM  6K    PROFILE .COM  6K    WHO     .COM  4K
DATE    .COM  2K    MAIL    .COM 10K    QUEUE   .COM  2K    YES     .COM  2K
```

C O N F I G   D I S K

```
20       .CF8          24 Jan 84          17:59:44               30K REMAINING
             79 FILES              ON:????????.???             310K DISPLAYED

BB      .REL  4K    DSKHD18 .REL  4K    LSTPAR  .REL  2K    RESET   .REL  2K
BBACK   .REL  4K    DSKHD5  .REL  4K    LSTXON  .REL  2K    RTCMGR  .REL  2K
BBCANCEL.REL  2K    DSPOOL  .REL  2K    MAIL    .REL  8K    RTCNS   .REL  2K
BBDEL   .REL  2K    EQUATE  .ASM  6K    MBUFF   .REL  2K    RTCNUL  .REL  2K
BBEGIN  .REL  2K    FASLOD  .REL  2K    MCDU16  .REL  2K    SGLUSR  .REL  2K
BBLIST  .REL  4K    GBUFF   .REL  2K    MCDUP8  .REL  2K    SLVRES  .REL  2K
BBLOG   .REL  2K    GEN     .COM  6K    MROUTE  :REL  2K    STATUS  .REL  4K
BNKMGR  .REL  2K    GO      .REL  2K    MSGFMT  .REL  2K    STDBBDR .REL  4K
COMSUB  .REL  2K    GONAME  .REL  4K    NETLOD  .REL  2K    STDLOADR.REL 16K
CON96   .REL  2K    HDWNIT  .REL  2K    NETREQ  .REL  4K    STDMASTR.REL 32K
CON96TP .REL  2K    HELP    .REL  2K    NETSVC  .REL  2K    STDMBDR .REL  4K
CONFIG  .COM 36K    LOCATE  .REL  2K    NETTBL  .REL  2K    STDSLAVE.REL 16K
CONREM  .REL  2K    LOG     .REL  2K    NORLOD  .REL  2K    STDUP8DR.REL  4K
CPMSUP  .REL  2K    LOGCHK  .REL  2K    OSBOOT  .REL  2K    SUBMIT  .REL  2K
DBUFF   :REL  2K    LOGDAT  .REL  2K    OSLOADS .COM 14K    TABLES  .REL  2K
DIRDUMP :REL  4K    LOGOFF  .REL  2K    PLUSIN  .REL  2K    TPLUSM  .REL  4K
DOMGR   .REL  2K    LOGON   .REL  4K    PPATCH  .REL  2K    TPLUSS  .REL  4K
DREQUATE.ASM  2K    LSTCTS  .REL  2K    PROFILE .REL  6K    TPMOD   .REL  2K
DSKFLP  .REL  2K    LSTETX  .REL  2K    PTABLE  .REL  2K    TWX     .REL  2K
TWXNUL  .REL  2K    TWXTV   .REL  2K    WHO     .REL  2K
```

S Y S / C O N   D I S K

```
20        .SC6           24 Jan 84           18:00:52                34K REMAINING
           83 FILES              ON:????????.???              306K DISPLAYED

AUTLOD  .O    2K    DO       .CMD  2K    LOGOFF  .CMD  2K    PGMLOD  .O    2K
AUTLOG  .O    2K    DOMGR    .O    2K    LOGON   .CMD  4K    PRINT   .CMD  2K
AUTOLOAD.CMD  2K    DREQUATE.ASM   2K    LST300  .O    2K    PRINTER .CMD  2K
BATCH   .CMD  2K    DRIVE    .CMD  2K    LSTCTS  .O    2K    QUEUE   .CMD  4K
BIOS    .O    2K    DSKTBLS  .O    2K    LSTETX  .O    2K    RECEIVE .CMD  2K
BUFFERS .CMD  2K    DSPCHR   .O    2K    LSTMGR  .O    2K    RENAME  .CMD  4K
CHANGE  .CMD  2K    DSPOOL   .O    2K    LSTTBLS .O    2K    RTCMGR  .O    2K
CMDINT  .O    4K    DUMP     .CMD  2K    LSTXON  .O    2K    RTCNUL  .O    2K
COMMGR  .O    2K    ERASEDIR.CMD   2K    MEMMGR  .O    2K    SCDU16  .O    2K
COMSUB  .O    2K    FIFO     .CMD  2K    MSGFMT  .O    2K    SEND    .CMD  2K
CON192  .O    2K    FILCOM   .O    2K    MSTU16  .O    2K    SET     .CMD  4K
CON96   .O    2K    FIXDIR   .CMD  2K    NETMGR  .O    2K    SHOW    .CMD  4K
CONMGR  .O    2K    FIXMAP   .CMD  2K    NETREQ  .O    4K    SLVRES  .O    2K
CONTBL  .O    2K    INPLN    .O    2K                        SPDU16  .O    2K
COPY    .CMD  6K    INTU16   .O    2K    NETTBL  .O    2K    SPLMSG  .O    2K
CPMSUP  .O    2K    LABEL    .CMD  2K    NITU16  .O    2K    SPOOLR  .O    2K
DATE    .CMD  2K    LCLMSG   .O    2K    NONFIL  .O    2K    STDSLV86.O   24K
DELETE  .CMD  4K    LCLTBL   .O    2K    OSNTRY  .O    4K    STDUP6DR.O    4K
DIR     .CMD  4K    LCLUSR   .O    2K    OTOASM  .CMD 12K    SUBMIT  .O    2K
SYSNIT  .O    2K    TBUG     .CMD 26K    TYPE    .CMD  2K    USRSOM  .O    2K
TASM    .CMD 36K    TLINK    .CMD 24K    USER    .CMD  2K
```

H E L P   D I S K

```
20        .HLP           24 Jan 84           18:03:14                30K REMAINING
           72 FILES              ON:????????.???              310K DISPLAYED

AUTOLOAD:HLP  4K    DELETE   .HLP  6K    LOG      .HLP  4K   RECEIVE .HLP  2K
BACKUP  .HLP  4K    DIR      .HLP  6K    LOGOFF   .HLP  4K   RENAME  .HLP  6K
BANK    .HLP  4K    DIRDUMP  .HLP  4K    LOGON    .HLP  6K   RESET   .HLP  4K
BATCH   .HLP  4K    DO       .HLP  6K    MAIL     .HLP  8K   SEND    .HLP  4K
BB      .HLP  4K    DRIVE    .HLP  4K    MONITOR  .COM  6K   SERVER  .HLP  6K
BBCANCEL.HLP  4K    DUMP     .HLP  2K    MONITOR  .HLP 10K   SET     .HLP  6K
BBCUR   .JOB  2K    ERASEDIR.HLP   2K    OSSBASE  .GEN  2K   SHOW    .HLP  6K
BBDEL   .HLP  4K    FIFO     .HLP  4K    OSSBASE  .PAR  2K   STATUS  :HLP  6K
BBJNUM  .     2K    FIXDIR   .HLP  4K    OSU6BASE.GEN   2K   TDHD    .COM 12K
BBJOBS  .     0K    FIXMAP   .HLP  4K    OSU6BASE.PAR   2K   TDLOGOFF.COM  2K
BBLIST  .HLP  6K    FORMAT   .HLP  6K    OSU8BASE.GEN   2K   TDLOGON .COM  4K
BBLOG   .     0K    GEN      .HLP 12K    OSU8BASE.PAR   2K   TDSERVER.COM  2K
BOOT    .HLP  4K    GO       .HLP  4K    OSUSER-X.GEN   2K   TIP     .COM  8K
BUFFERS .HLP  4K    GONAME   .DAT  2K    OSUSER-X.PAR   2K   TWX     .HLP  6K
BULLETIN.ON   2K    GONAME   .HLP  4K    PRINT    .HLP  6K   TYPE    .HLP  2K
CHANGE  .HLP  4K    HELP     .HLP  4K    PRINTER  .HLP  6K   USER    .HLP  2K
COPY    .HLP 10K    LABEL    .HLP  2K    PROFILE  .HLP  6K   VERIFY  .HLP  4K
DATE    .HLP  2K    LOCATE   .HLP  6K    QUEUE    .HLP  6K   WHO     :HLP  4K
```

GENERATING A ONE-LOGICAL-DRIVE SYSTEM

Introduction Standard North Star TurboDOS divides each hard disk into two logical drives, such as A and B, of equal size (see the complete list of logical drive assignments on page 3-3). If you have an application that uses files larger than half the hard disk space, it is possible to reconfigure the system for a single logical drive instead of two on the hard disk.

Disadvantages There are several disadvantages to reconfiguring for one logical drive:

- o The install process will take approximately twice as long.
- o Since North Star TurboDOS is oriented towards two logical drives per disk, system programs such as the CONFIG program will show two drives when in fact you have only one. Thus, you will have to do some interpretation of the CONFIG messages.
- o DIR and other 'wild card' searches of the entire disk directory will take twice as long, since the directory will be twice as big.

CAUTION
The one-logical-drive and two-logical-drive systems are NOT compatible. If you write the hard disk with one setup, then reconfigure for the other one, you will not be able to read original data on the hard disk, and it will all be lost. If you reconfigure from one system to the other, plan to completely reinstall the hard disk.

Procedure: Installing a One-Logical-Drive System

1. Perform a normal system installation (see Chapter 2) following the instructions for your type of hard disk. On completion you should get the "Congratulations! You have successfully installed TurboDOS on your system." message.

   Note: Be sure to make a duplicate SYSTEM disk.

2. On a UP8/UP16 system load your favorite editor or word processor program, go to User 29, and make the following file changes.

   or

   On a UP16-only system follow the instructions in Chapter 3 for making a CONDISK, then edit these files in User 0 on the CONDISK to make the following file changes.

   a. For all systems, you must edit the files called OSSBASE.PAR and OSLOAD.PAR, adding to each the line:

      For HD-5/15/30:

      NMBHD5 = 0 ;ONE LOGICAL DRIVE

      For HD-18:

      NMBHD18 = 0 ;ONE LOGICAL DRIVE

      Note: For HD-18 systems, all HD-18's must be configured the same way.

   b. For HD-18 systems only, you must edit the file OSLOAD.GEN, replacing DSKHD5 with DSKHD18.

3. Run CONFIG by following the instructions in Chapter 3 for your type of system, but go only up through "Ending CONFIG" on page 3-29. (Do not be bothered by the CONFIG references to dual hard disk volumes.)

   Note: You will complete the configuration in step 5.

---->

D-2 North Star TurboDOS Preface

Procedure: Installing a One-Logical-Drive System

4. Generate a new loader. Type:
GEN OSLOAD OSLOAD1.COM [RETURN]

5. Now complete the configuration for your type of system as described in Chapter 3.

6. For UP16-only systems copy the new loader OSLOAD1.COM from the CONDISK to the hard disk.

7. Copy the new server operating system (file OSSERVER.SYS) to the duplicate system disk (made in step 1). Type
COPY OSSERVER.SYS M:;D0N [RETURN]

   Notice that the last characters are D-zero-N.

8. Copy the new loader to the duplicate system disk.

   For HD-5/15/30 systems type
   COPY OSLOAD1.COM M:OSLOAD5X.COM ;D0N [RETURN]

   or

   For HD-18 systems type
   COPY OSLOAD1.COM M:OSLOAD18.COM ;D0N [RETURN]

   Notice that the last characters are D-zero-N.

9.

CAUTION
This step will destroy the data on your hard disk. Do not perform this step unless you are prepared to continue on to reinstallation.

   With the duplicate system disk in drive M, reset the HORIZON.

---->

North Star TurboDOS Preface D-3

Procedure: Installing a One-Logical-Drive System

10. Reinstall TurboDOS. Type

    SERVER [RETURN]
    BUFFERS N2S512 [RETURN]
    ERASEDIR A: [RETURN]
    Y
    Y
    VERIFY A: [RETURN]
    [RETURN]

11. If there are bad blocks press
    Y [RETURN]

12. Type
    MARKBAD A: [RETURN]

    Enter the bad spots as you did before in the normal installation, and exit with choice 4.

13. Copy the loader from the system disk to the hard disk and rename, as follows:

    For an HD-5/15/30 type
    COPY M:OSLOAD5X.COM A:OSLOAD [RETURN]
    or
    For an HD-18 type
    COPY M:OSLOAD18.COM A:OSLOAD [RETURN]

14. Type
    COPY M:OSCOPYHD.DO A: [RETURN]
    A: [RETURN]
    DO OSCOPYHD A [RETURN]

15. The installation will now proceed in the usual manner, asking you to swap disks as needed. When it asks for a disk to become the boot disk, reuse the one you created the first time. After the "Congratulations!..." message, the new system is ready for use.

INSTALLING A 384K MEMORY EXPANSION BOARD

Preparation This description assumes that you have read the section on Multiple Operating Systems (page 5-19), and know how to run CONFIG on your system.

Procedure: Installing a 384K Memory Expansion Board

In this procedure the name OSUSER-D.SYS is selected as the name of the UP16 operating system that uses the 384K board.

---

1. Decide which UP16 address will have the 384K board.

   Example: An example is address 40. You would set the DIP switch on the UP16 (the one to be connected to the 384K board) to the first UP16 address shown in the HORIZON 8/16 Hardware Installation Guide. As shown in the Guide, address 40 appears as 41 on the switches.

---

2. Power up the HORIZON and reboot TurboDOS.

---

3. You must edit the file OSSBASE.PAR, changing the UP16 Slave Suffix Table so that it reads:

   SSTU16 = "DBBBBBBB" ;HRZ-UP16 DOWN LOADED WITH USER-B OS

   - For all systems except UP16-only, go to User 29 and use an editor to make the change.
   - For a UP16-only system, you must edit the file on the CONDISK.

--->

Procedure: Installing a 384K Memory Expansion Board

4. Run CONFIG, doing the following:

   a. Configure the server (to include the new SST information), answering the questions as normal for your system. Answer "Yes" to the "Generate operating system?" query.

   b. Skip the UP8 configuration (unless you have some other reason for including this part).

   c. Configure the UP16, answering the questions for the new OSUSER-D.SYS. Answer "Yes" to the "Generate operating system?" query.

   d. Answer "Yes" to the "Start queued system generations now?" query. CONFIG will proceed to generate the new server operating system.

5. On a UP8/UP16 system go to User 29 and edit the OSUSER-B.PAR file to add this line:

   MEMTBL+3 = 0x7FC0 ;SET MEMORY SIZE TO 512K

   or

   On a UP16-only system (you ran CONFIG from the CONDISK) reboot the normal system but do not do CONFIG16 yet. Edit the OSUSER-B.PAR file on the CONDISK to add the line above.

6. On a UP8/UP16 system, to generate the new OSUSER-D.SYS type
   TLINK OSUSER-B OSUSER-D.SYS [RETURN]
   COPY OSUSER-C.SYS A: ;DO [RETURN]

   or

   On a UP16-only system, from User 0 type
   RENAME OSUSER-B.SYS OSUSER-B.TMP [RETURN]
   DO CONFIG16 [RETURN]
   USER 0 [RETURN]
   RENAME OSUSER-B.SYS OSUSER-D.SYS [RETURN]
   RENAME OSUSER-B.TMP OSUSER-B.SYS [RETURN]

---->

E-2 North Star TurboDOS Preface

Procedure: Installing a 384K Memory Expansion Board

7. Reboot the system, and the UP16 board to use the 384K will be loaded with the new OSUSER-D.SYS.