EMULEX MICROVMS TS11 DRIVER V4.n

DISTRIBUTION KIT VD9951816-xx REV A

EMULEX

This software distribution kit contains the following media:

```
        Emulex
        Part Number      Description

        VD9960718-00     5.25-inch floppy for MicroVAX

        VD9962018-00     TK50 cartridge for MicroVAX
```

This kit contains the following User's Manuals to document the programs contained on the distribution media.

```
        Emulex
        Part Number      Description

        VD9951916-00     MicroVAX Driver Distribution Kit
                         Cover

        VD9950902-00     MicroVMS TS11 Software Driver
                         Installation Guide
```

EMULEX MicroVMS TS11 SOFTWARE DRIVER (TSDRIVER)

INSTALLATION GUIDE V4.n and V5.n

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1.1 INTRODUCTION

This manual is a guide to installation of the MicroVMS TS11 software
driver, TSDRIVER, on Digital Equipment Corporation (DEC) MicroVAX I,
II, and III computers. The document contains two main sections:

- General Description. This section contains an overview of
  TSDRIVER.

- Installation. This section presents installation
  instructions for TSDRIVER.

There are no operating instructions, because TSDRIVER requires no
user interaction once installed.

1.2 PRODUCT OVERVIEW

As written by DEC, the MicroVMS operating system does not support
TS11-type devices. TSDRIVER is a software driver that provides TS11
support under MicroVMS 4.n and above. The TS11-type device at the
standard TSSR and vector address is designated as MSA0 by MicroVMS.
Alternate TSSR and vector addresses can also be selected; see the
appropriate tape coupler technical manual for details.

1.3 DISTRIBUTION MEDIA

The following table lists TSDRIVER distribution media.

Version	Emulex P/N	Description
V4.n	VD9960703-00	5.25-inch floppy diskette
V4.n	VD9962003-00	TK50 tape cartridge
V5.n	VD9960718-00	5.25-inch floppy diskette
V5.n	VD9962018-00	TK50 tape cartridge

1.4 COMPATIBILITY AND REQUIREMENTS

1.4.1 HARDWARE

TSDRIVER is compatible with DEC MicroVAX I, II, and III computers.
It supports the Emulex TC02, TC03, and TC05 tape couplers, emulating
the DEC TS11.

1.4.2 SOFTWARE

TSDRIVER is compatible with the DEC MicroVMS operating system, version 4.n and above. The Program Development version of MicroVMS is necessary for full TS11 support, because the DEC MTACP (Magnetic Tape Ancillary Control Process) is required; however, with the baseline MicroVMS system, the TS11 can still be used for backup and restore operations, as explained in subsection 2.3.

1.5 RELATED DOCUMENTATION

The following Emulex documents may be ordered from the following address:

        Emulex Corporation
        3545 Harbor Blvd.
        Costa Mesa, CA 92626
        (714) 662-5600 TWX 910-595-2521

Title: TC02/FS (TS11 Compatible) Tape Coupler Technical
                    Manual
Publication No.:   TC0251002-00

Title: TC03 (TS11 Compatible) Tape Coupler Technical
                    Manual
Publication No.:   TC0351001-00

Title: TC05 (TS11 Compatible) Tape Coupler Technical
                    Manual
Publication No.:   TC0551001-00

The following DEC publication is available from:

        Digital Equipment Corporation
        P.O. Box CS2008
        Nashua, New Hampshire 03061

Title: MicroVMS User's Manual
Publication No.:   AA-Z209B-TE

2.1 OVERVIEW

This section defines conventions and abbreviations used in this document, and explains how to install TSDRIVER under MicroVMS.

2.2 CONVENTIONS AND ABBREVIATIONS

Operator input appears in **boldface** type, in order to distinguish it from operating system messages and prompts. The symbol **<return>** signifies the carriage return key.

2.3 INSTALLATION PROCEDURE

The following procedure describes the steps taken to install the TSDRIVER, and presents the commands used.

1. Login to the system manager account.

NOTE

Before invoking VMSINSTAL, you **must** install the System Programming Option (SYSP). To ensure that SYSP has been installed, check the directory for the Magnetic Tape Ancillary Control Process (MTAAACP.EXE) and the system symbol table (SYS.STB) files. Use the following procedures (one at a time) to make this check:

$ DIR SYS$SYSTEM:SYS.STB<return>
$ DIR SYS$SYSTEM:MTAAACP.EXE<return>

2. Insert the media and invoke the VMSINSTAL procedure. For the floppy diskette, enter the following:

$ @SYS$UPDATE:VMSINSTAL * DUA1:<return>

For the TK50 cartridge, enter the following:

$ @SYS$UPDATE:VMSINSTAL * MUA0:<return>

3. (MicroVAX I only) MicroVAX I does not implement the Scatter-Gather function; TSDRIVER uses 128 entries in the system page table to perform this function. Because of this, SPTREQ must be increased by 128 for **each** tape drive that TSDRIVER serves.

Invoke SYSGEN and alter the value of SPTREQ:

```
$ RUN SYS$SYSTEM:SYSGEN<return>
SYSGEN> USE CURRENT<return>
SYSGEN> SHOW SPTREQ<return>
        Note:  The first value shown is the current value.
        Add 128 (for each tape drive) to this to get
        the desired value.
SYSGEN> SET SPTREQ N<return>
                where N is the desired value.
SYSGEN> WRITE CURRENT<return>
SYSGEN> EXIT<return>
```

After completing these steps, shut down the system and rebootstrap.

The default file SYLOGIN.COM equates the INIT command to INIT/NOHIGHWATER. Magtapes do not support this option; therefore, an error occurs when you try to initialize the tape. To overcome this problem, you can either alter the SYLOGIN.COM file (not recommended) or use the INIT/HIGHWATER command to override the default:

```
$ INIT/HIGHWATER MSA0: TEST<return>
```

Failure to use the /HIGHWATER qualifier may cause INIT to fail with the message shown in the following sample dialog:

```
$ INIT MSA0: TEST<return>
% INIT-F-ILLOPT, qualifier(s) not appropriate to this device
$
```

2.4 ERROR LOGGING

On the MicroVAX I, ANALYZE/ERROR_LOG can be used to interpret the TS11 subsystem errors that are logged. On the MicroVAX II, however, the tape error log module might be excluded (depending on the driver version used); the user can only obtain a hex dump of the TS11 registers. To obtain this dump, use the following command:

```
$ ANALYZE/ERROR_LOG/REGISTER_DUMP/INCLUDE=MS<return>
```

2.5 MAKING A STANDALONE BACKUP

The command procedure STABACKIT.COM is used to create a bootable standalone BACKUP. However, depending on your configuration, this command procedure may require some modification to support the TS11 device.

The following procedure will create a modified copy of STABACKIT.COM. It describes the modifications required for each configuration.

Note that building standalone BACKUP onto TK50 tape cartridge requires extensive non-paged dynamic pool. In this case, you may wish to build standalone BACKUP at a time when the system can be brought down to change this parameter. See Step 5.

1. Log in to the SYSTEM account, and set your default directory to SYS$UPDATE.

2. Make a copy of the STABACKIT.COM command procedure with a different name to distinguish it from the original:

   $ COPY STABACKIT.COM TS11_STABACKIT.COM

3. Choose your type of configuration from those listed below. Then edit the file TS11_STABACKIT.COM as shown for your configuration.

   * Micro-VMS V4.0 through V4.3 (Micro-VAX I only): Edit the file TS11_STABACKIT.COM and search for the following line in the command procedure:

     SET SRPCOUNT   24

     After this line, insert a line that reads:

     SET SPTREQ   1024

     NOTE: Micro-VAX I requires additional changes. See the modifications for Micro-VMS V4.0 through V4.3 (any processor type).

* Micro-VMS V4.0 through V4.3 (any processor type): Edit
  the file TS11_STABACKIT.COM and search for the following
  line in the command procedure:

      $ 'ifnotuVAX' CopySB STA$SOURCE:TSDRIVER.EXE
                             STA$TARGET: 1 99

  Remove from this command line:

      'ifnotuVAX'

  including the single quotes, leaving only:

      $ CopySB STA$SOURCE:TSDRIVER.EXE STA$TARGET: 1 99

  This change will cause the TSDRIVER to be copied onto the
  standalone BACKUP kit.

* Micro-VMS V4.4 and above (any processor type) with
  standalone BACKUP being built onto hard disk or onto RX50
  diskette: No changes to TS11_STABACKIT.COM are required.

* Micro-VMS V4.4 through V4.7 (any processor type) with
  standalone BACKUP being built onto TK50 tape cartridge:
  Edit the file TS11_STABACKIT.COM and search for the label:

  V4.4 $ STA3$BUILD_PSEUDO_VOLUME:
  V4.5 $ BUILD_PSEUDOLOA:

  Beyond this label, search for the lines:

  V4.4 $ REQUIRED_SIZE = REQUIRED_SIZE -
         + F$FILE("STA$SOURCE:DLDRIVER.EXE","ALQ") + 1
  V4.5 $ IF F$SEARCH("STA$SOURCE:DLDRIVER.EXE") .NES. " "
         THEN - REQUIRED_SIZE = REQUIRED_SIZE -
            + F$FILE("STA$SOURCE:DLDRIVER.EXE","ALQ") + 1

  Immediately after these lines, insert a similar pair of
  lines for the TSDRIVER:

  V4.4 $ REQUIRED_SIZE = REQUIRED_SIZE -
         + F$FILE("STA$SOURCE:TSDRIVER.EXE","ALQ") + 1
  V4.5 $ IF F$SEARCH("STA$SOURCE:TSDRIVER.EXE") .NES. " "
         THEN - REQUIRED_SIZE = REQUIRED_SIZE -
            = F$FILE("STA$SOURCE:TSDRIVER.EXE","ALQ") + 1

This will cause the command procedure to allocate room for the TS11 driver in the PSEUDOLOA.EXE file. Now search further down for the lines:

```
V4.4 $ COPY STA$SOURCE:PUDRIVER.EXE,PBDRIVER.EXE,
         DUDRIVER.EXE,TUDRIVER.EXE,DLDRIVER.EXE -
         PDA0:<SYS0.SYSEXE>
V4.5 $ COPYIF COPYSB STA$SOURCE:DLDRIVER.EXE
      PDA0:<SYS0.SYSEXE>
```

Immediately after these lines, insert a line for the TSDRIVER:

```
V4.4 $ COPY STA$SOURCE:TSDRIVER.EXE PDA0:<SYS0.SYSEXE>
V4.5 $ COPYIF COPYSB STA$SOURCE:TSDRIVER.EXE
      PDA0:<SYS0.SYSEXE>
```

This will cause the TSDRIVER to be loaded with the other standalone BACKUP device drivers.

4. Exit the editor.

5. If you are not building standalone BACKUP onto TK50 tape cartridge, skip this step. If you are building standalone BACKUP onto TK50 tape cartridge, delete the pseudo load file:

```
$ DELETE SYS$SYSTEM:PSEUDOLOA.EXE;*
```

This file will need to be rebuilt by TS11_STABACKIT to support the TS11, but it will not be rebuilt if it already exists.

Rebuilding the pseudo load file requires extensive non-paged dynamic pool to be available. You may wish to build standalone BACKUP at a time when the system can be brought down to change this parameter. Also remember to use B/20000 to boot standalone BACKUP from TK50 tape.

6. Invoke the new command procedure to build standalone BACKUP:

```
$ @TS11_STABACKIT
```

Answer questions as you normally would to specify the source and target devices. Your standalone BACKUP, including TS11 driver support, is now complete.

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