Installing DEC PHIGS for VMS

Order Number: AA–PBE5B–TE

September 1990

This document contains instructions for installing DEC PHIGS on a VMS operating system. It also explains how to read the online release notes before or after installing this product.

Revision/Update Information:	This revised manual supersedes the *Installing DEC PHIGS for VMS* (Order Number AA–PBE5A–TE).
Operating System and Version:	VMS Version 5.3-1 or higher VAXstation Requirement: VAXstation Windowing Software Version 4.0 DECwindows Version 5.3-1 or higher
Software Version:	DEC PHIGS for VMS Version 2.2

digital equipment corporation
maynard, massachusetts

First Printing, December 1987
Revised, April 1989
Revised, February 1990
Revised, September 1990

The postpaid Reader's Comments forms at the end of this document request your critical evaluation to assist in preparing future documentation.

ZK5456

This document was prepared using VAX DOCUMENT, Version 1.2

Contents

Figures

Tables

Preface

This document describes how to install the DEC PHIGS development kit and DEC PHIGS run-time kit on a VMS operating system. It is intended for system managers. This document applies to Version 2.2 of DEC PHIGS.

Keep this document with your distribution kit. You will need it to install maintenance updates or to reinstall DEC PHIGS on your VMS system for any other reason.

At the back of this document are two Reader's Comments forms. If you have any comments about this document, fill out one form and mail it; your comments will be considered for the next revision of the installation guide.

The installation procedure is described step-by-step and is, for the most part, self-explanatory. The system prompts you to answer questions and to change volumes, and waits for you to tell it to continue.

Associated Documents

For more information about installing DEC PHIGS on a VMS system, see your processor-specific installation/operations guide.

For specific questions on your operating system, refer to the documentation set for that operating system.

Conventions Used in This Document

Defaults appear in brackets ([ ]) throughout the installation procedure. Red ink indicates user input. The RETURN key is symbolized as RET. CTRL/x indicates that you must press the key labeled CTRL while you simultaneously press another key, for example CTRL/C.

Installing DEC PHIGS for VMS

This manual explains the DEC PHIGS installation procedure on a VMS platform. The information in this manual covers the following topics:

- Installation prerequisites
- Installation procedures
- Maintenance updates
- Problem reporting
- Sample DEC PHIGS development kit installation
- Sample DEC PHIGS run-time kit installation

Preparing to Install DEC PHIGS

Your bill of materials (BOM) and indented bills report (BIL) specify the number and contents of your media. Be sure to check the contents of your kit against this information. If your kit is damaged or if you find that parts of it are missing, call your Digital representative.

Distribution media must be mounted in numerical order. The installation procedure prompts you to mount the volumes. For more information on how to mount distribution media, see your processor-specific installation/operations guide, which also details several options for the installation procedure.

Prerequisite Software

To install DEC PHIGS on a VAXstation, you must have one of the following products installed:

- VAXstation Windowing Software Versions 4.0 or higher
- VMS Version 5.3-1 or higher with its related DECwindows version

Prerequisite VMS Classes

To install DEC PHIGS, you must have the following VMS classes:

- VMS Required Saveset
- Network Support

The DEC PHIGS development kit also requires the following VMS class:

- Programming Support

Accessing the Online Release Notes

DEC PHIGS provides online release notes. The prompt to display and print the release notes during the installation appears in step 4 of the installation procedure when you invoke VMSINSTAL with the OPTIONS N parameter. (The OPTIONS N parameter is available only with VMS Version 4.4 or higher.) This option lets you read or print the release notes before installing DEC PHIGS:

- To obtain the DEC PHIGS development kit release notes after the installation, type or print the file SYS$HELP:DECPHIGS022.RELEASE_NOTES.
- To obtain the DEC PHIGS run-time kit release notes after the installation, type or print the file SYS$HELP:DECPHIGSRTO022.RELEASE_NOTES.

Installation Procedure Requirements

Before you begin, you should perform a system disk (or disks) backup. The installation procedure takes approximately 5 to 30 minutes, depending on the type of media and your system configuration. Before installing DEC PHIGS, you must have the following privileges and resources:

- SETPRV privileges, or CMKRNL, WORLD, and SYSPRV privileges.
- A minimum of 6,500 free global pages.
- A minimum of 42 free global sections.
- 150 pages in the CLI symbol table (CLISYMTBL).
- A minimum of 23,000 blocks of free disk space is required for the DEC PHIGS development kit during installation; 20,000 blocks are used after installation.
- A minimum of 17,000 blocks of free disk space is required for the DEC PHIGS run-time kit during installation; 16,000 blocks are used after installation.

NOTE

You must ensure that your system has the necessary global page and global section SYSGEN quotas for the installation. Failure to do so could cause the DCL tables to be corrupted in some situations.

To determine the number of available global pages on your system, invoke the VMS Install Utility by typing the following commands:

```
$  INSTALL :== $INSTALL/COMMAND_MODE  RET
$  INSTALL  RET
```

Then type the following commands:

```
INSTALL>  LIST/GLOBAL/SUMMARY  RET

        Summary of Local Memory Global Sections


nn Global Sections Used,  nnnn/nnnn Global Pages Used/Unused


INSTALL>  EXIT  RET
```

When you issue these commands, the system displays a summary of the number of global sections used, the number of global pages used, and the number of global pages available. To exit from the VMS Install Utility, type the EXIT command.

DEC PHIGS requires approximately 6500 global pages. If there are fewer than 6500 pages available, you can delete an existing known image with the VMS Install Utility, or you can increase the GBLPAGES system parameter with the VMS System Generation Utility (SYSGEN) by editing the file SYS$SYSTEM:MODPARAMS.DAT and then invoking the AUTOGEN command procedure, SYS$UPDATE:AUTOGEN.COM. To increase the number of global pages, add the following line to the file SYS$SYSTEM:MODPARAMS.DAT, where *n* is the number of GBLPAGES to add:

```
ADD_GBLPAGES = n
```

For more information on the AUTOGEN command procedure, see your processor-specific installation/operations guide.

You can determine the number of available global sections by invoking the SYSGEN utility as follows:

```
$  RUN SYS$SYSTEM:SYSGEN  RET
SYSGEN>  USE CURRENT  RET
SYSGEN>  SHOW GBLSECTIONS  RET

Parameter Name            Current   Default   Minimum   Maximum Unit  Dynamic
--------------            -------   -------   -------   ------- ----  -------
GBLSECTIONS                   400       250        20      4095 Sections

SYSGEN>  EXIT  RET
```

The first number displayed is the current number of global sections. Compare this number to the number of global sections in use displayed by the VMS Install Utility. DEC PHIGS requires 42 global sections. Therefore, if the number of global sections in use plus 42 exceeds the current number of global sections, you must increase the number of available global sections before you can install DEC PHIGS. To increase the number, you must increase the GBLSECTIONS system parameter with SYSGEN by editing the file SYS$SYSTEM:MODPARAMS.DAT and then invoking the SYS$UPDATE:AUTOGEN.COM procedure. To increase the number of global sections, add the following line to the file SYS$SYSTEM:MODPARAMS.DAT, where *n* is the number of GBLSECTIONS to add:

```
ADD_GBLSECTIONS = n
```

For more information on the AUTOGEN.COM procedure, see your processor-specific installation/operations guide.

If the number of global sections in use plus 42 is less than the current number of global sections, you can exit from SYSGEN and continue.

You can determine the current value for CLISYMTBL by invoking SYSGEN as follows:

```
$  RUN SYS$SYSTEM:SYSGEN  RET
SYSGEN>  USE CURRENT  RET
SYSGEN>  SHOW CLISYMTBL  RET

Parameter Name            Current   Default   Minimum   Maximum Unit  Dynamic
--------------            -------   -------   -------   ------- ----  -------
CLISYMTBL                     250       250        10       500 Pages       D

SYSGEN>  EXIT  RET
```

The first number displayed is the current number of pages allocated for the CLI Symbol Table. DEC PHIGS requires that CLISYMTBL be at least 150 during installation. Therefore, if the current value is less than 150, you must increase this value before you can install DEC PHIGS. To increase the number, enter the following commands before exiting SYSGEN:

```
$  RUN SYS$SYSTEM:SYSGEN  RET
SYSGEN>  SET CLISYMTBL 150  RET
SYSGEN>  WRITE CURRENT  RET
```

You must then log out and log back in for the new value to be in effect.

User Account Quotas and Privileges

To use DEC PHIGS, a user must have an account with an open file limit (FILLM) of at least 20.

Use the VMS Authorize Utility (AUTHORIZE) to compare the current values of these quotas with the requirements for DEC PHIGS. The account used in the following example is the SYSTEM account:

```
$  SET DEFAULT SYS$SYSTEM  RET
$  RUN AUTHORIZE  RET
UAF>  SHOW SYSTEM  RET
```

To change the values of these quotas, use the MODIFY command. For more information, see the *VMS Authorize Utility Manual*.

VMS License Management Facility

The VMS License Management Facility (LMF) is available beginning with Version 5.0 of the VMS operating system. If you are installing DEC PHIGS on a VMS Version 5.0 system, or higher, you must register your DEC PHIGS software license.

The license registration information you need is contained in the Product Authorization Key (PAK) that is shipped with DEC PHIGS. The PAK is a paper certificate that contains information about the license that allows you to use a particular piece of software.

During the installation, you will be asked if you have registered the DEC PHIGS license and loaded the appropriate authorization key. You must register and load your license for DEC PHIGS *before* you start the installation to run the Installation Verification Procedure (IVP) and use the software.

To register a license under a VMS Version 5.0 system, you must first log in to a privileged account. You then have a choice of two ways to perform the registration:

- Invoke the SYS$UPDATE:VMSLICENSE.COM procedure. When it prompts you for information, respond with data from your Product Authorization Key (PAK).

- Issue the LICENSE REGISTER DCL command with the appropriate qualifiers that correspond to the information on the PAK.

For complete information on using LMF, see the manual on the License Management Utility in the VMS documentation set.

Using VMSINSTAL

After you log in to a privileged account to install DEC PHIGS, invoke VMSINSTAL, the command procedure that installs this product. An example of this procedure is shown in steps 1 and 2 in the section entitled "Installing DEC PHIGS ."

To install DEC PHIGS using the VMS Install command procedure, use the following syntax:

DEC PHIGS DEVELOPMENT KIT

```
$ @SYS$UPDATE:VMSINSTAL DECPHIGS022 ddcu: [OPTIONS N] RET
```

DEC PHIGS RUN-TIME KIT

```
$ @SYS$UPDATE:VMSINSTAL DECPHIGSRTO022 ddcu: [OPTIONS N] RET
```

ddcu:

Represents a device name where the distribution volumes will be mounted for the DEC PHIGS installation media, where *dd* is the device code, *c* is the controller code, and *u* is the unit number. You do not have to use the console drive to install DEC PHIGS. If you do use the console drive after the installation, you should replace any media you removed from the drive prior to the installation. Examples in this document use the device name MUA0:.

OPTIONS N

OPTIONS N is an optional parameter you should provide if you want to be prompted to display or print the release notes. If you do not include the OPTIONS N parameter, VMSINSTAL does not prompt you to display or print the release notes.

VMSINSTAL permits the use of several other options. For more information on the other options, see your processor-specific installation/operations guide.

If you do not supply the first two parameters, VMSINSTAL prompts you for the product and device names. If you wish to be prompted for the product and device names and to display or print the release notes, type the following:

```
$  @SYS$UPDATE:VMSINSTAL  RET
```

When you invoke VMSINSTAL, it checks the following:

- Whether you are logged in to a privileged account. Digital recommends that you install software from the system manager's account with your default device and directory set to SYS$UPDATE.
- Whether you have adequate quotas for installation. VMSINSTAL checks for the following quota values:
  - ASTLM = 24
  - BIOLM = 18
  - BYTLM = 18000
  - DIOLM = 18
  - ENQLM = 30
  - FILLM = 20
- Whether the following conditions exist:
  - DECnet is up and running.
  - Users are logged in to the system.

  If VMSINSTAL detects either of these conditions, you will be asked whether you want to continue the installation. You should discontinue the conditions before resuming the installation procedure. If you want to continue, type YES. If you want to stop the installation, press RETURN.

You must register the information contained in the Product Authorization Key (PAK) that is shipped with DEC PHIGS by using either the VMS License command procedure (VMSLICENSE) or the LICENSE REGISTER and LICENSE LOAD commands, as described in the *VMS License Management Utility Manual*.

Installing DEC PHIGS

This section contains excerpts from the installation procedure and explains each step. Defaults appear in brackets throughout the installation procedure.

To abort the installation procedure at any time, press CTRL/Y. When you press CTRL/Y, the installation procedure deletes all files it has created up to that point and then returns you to DCL level. If you want to retry the installation procedure after pressing CTRL/Y, you must proceed from step 2.

Attempting to link programs on DEC PHIGS run-time results in linker errors. Do not install DEC PHIGS run-time Version 2.2 if you have already installed the full development kit of DEC PHIGS. If you do, the installation procedure will overwrite the development kit with the run-time only kit. You can determine which version of DEC PHIGS is currently installed by issuing the following DCL command:

```
$  ANALYZE/IMAGE SYS$LIBRARY:PHIGS$RTL
```

Before installing DEC PHIGS, Digital recommends that you back up your system disk. Once you have done so, you can begin the installation.

Step 1: Log in to a privileged account and set your default device and directory to SYS$UPDATE. Set your default device and directory to SYS$COMMON:[SYSUPD].

```
Username:  SYSTEM   RET
Password:           RET
$  SET DEFAULT SYS$UPDATE:  RET
```

Step 2: Invoke VMSINSTAL.

DEC PHIGS DEVELOPMENT KIT

```
$  @VMSINSTAL DECPHIGS022 MUA0: OPTIONS N  RET

      VAX/VMS Software Product Installation Procedure V5.0


It is 02-APR-1990 at 15:19.
Enter a question mark (?) at any time for help.

* Are you satisfied with the backup of your system disk [YES]? RET
```

DEC PHIGS RUN-TIME KIT

```
$  @VMSINSTAL DECPHIGSRTO022 MUA0: OPTIONS N  RET

      VAX/VMS Software Product Installation Procedure V5.0


It is 02-APR-1990 at 15:19.
Enter a question mark (?) at any time for help.

* Are you satisfied with the backup of your system disk [YES]? RET
```

If you are satisfied with the backup of your system disk, press RETURN. Otherwise, type NO and press RETURN to discontinue the installation.

Step 3: Insert the first installation kit volume.

DEC PHIGS DEVELOPMENT KIT

```
The following products will be processed:

  DECPHIGS V2.2


Beginning installation of DECPHIGS V2.2 at 15:20

%VMSINSTAL-I-RESTORE, Restoring product saveset A...
```

DEC PHIGS RUN-TIME KIT

```
The following products will be processed:

  DECPHIGSRTO V2.2


Beginning installation of DECPHIGSRTO V2.2 at 15:20

%VMSINSTAL-I-RESTORE, Restoring product saveset A...
```

Step 4: Select a release notes option.

This step applies only if you specified OPTIONS N in step 2.

```
Release Notes Options:

    1. Display release notes
    2. Print release notes
    3. Both 1 and 2
    4. Copy release notes to SYS$HELP
    5. Do not display, print or copy release notes

* Select option [3]: RET
```

If you select option 1, VMSINSTAL displays the release notes on line immediately. You can terminate the display at any time by pressing CTRL/C.

If you select option 2, VMSINSTAL prompts you for a queue name. Either type a queue name or press RETURN to send the file to the default output print device.

```
* Queue name [SYS$PRINT]: RET
```

If you select option 3, VMSINSTAL displays the release notes on line immediately. You can terminate the display at any time by pressing CTRL/C. VMSINSTAL then prompts you for a queue name.

Either type a queue name or press RETURN to send the file to the default output print device. The release notes are then copied:

- The DEC PHIGS development kit release notes are copied to SYS$HELP:DECPHIGS022.RELEASE_NOTES.
- The DEC PHIGS run-time kit release notes are copied to SYS$HELP:DECPHIGSRTO022.RELEASE_NOTES.

If you select option 4, VMSINSTAL copies the release notes to SYS$HELP immediately.

If you select option 5, VMSINSTAL does not display, print, or copy the release notes. Typically, this option is selected when the user wants to terminate the installation.

NOTE

> This version of the release notes file installed by VMSINSTAL is labeled with the current product name and version number. Take care not to delete release notes for previous versions of DEC PHIGS.

Next, VMSINSTAL displays the following prompt:

```
* Do you want to continue the installation [N]?: Y RET
%VMSINSTAL-I-RELMOVED, The product release notes have been successfully
    moved to SYS$HELP.
```

If you want to continue the installation, type YES and press RETURN. If you type NO or just press RETURN, VMSINSTAL discontinues the installation. In either case, VMSINSTAL moves the release notes to SYS$HELP.

Step 5: Select installation options.

```
* Do you want to purge files replaced by this installation [YES]? RET
```

The directories SYS$LIBRARY and SYS$SYSTEM may contain previous versions of DEC PHIGS files. These files are replaced during the installation with new files, but the old files are not automatically purged. Purging is recommended. In response to the purging prompt, press RETURN to purge the files or type NO to keep them.

Table 1 lists the files on the system that are added or modified when installing the DEC PHIGS development kit.

Table 1: Installed Files for the DEC PHIGS Development Kit

Directory	File Name
SYS$STARTUP:	PHIGS$STARTUP.COM
	PCM$STARTUP.COM
SYS$MESSAGE:	PHIGS$MSGS.EXE
	VAXGFX$MSGS.EXE
SYS$MANAGER:	PHIGS$DEINSTALL_V10.COM
	PHIGS$DEINSTALL_V11.COM
	PHIGS$REMOVE_V10.COM
SYS$SYSTEM:	DECW$SERVER_MAIN.EXE
	PCM$SERVER.EXE
SYS$LIBRARY:	DECW$SERVER_DDX_GA.EXE
	DECW$SERVER_DDX_GB.EXE
	DECW$SERVER_DDX_GC.EXE
	DECW$SERVER_DDX_GE.EXE
	DECW$SERVER_DIX.EXE
	DECW$SERVER_EXTENSION_PEX.EXE
	DECW$SVEXT_ADOBE_DPS_EXTENSION.EXE
	DECW$SVEXT_X3D_PEX_GB.EXE
	DECW$SSVEXT_X3D_PEX_GE.EXE
	PHIGS$ARCHIVE_CONVERTER.EXE
	PHIGS$CRTL.EXE
	PHIGS$DBM.EXE
	PHIGS$DEFS.BAS
	PHIGS$DEFS.FOR
	PHIGS$DEFS.H
	PHIGS$DEFS.PAS
	PHIGS$DEFS.PLI
	PHIGS$DEFS.PL2
	PHIGS$FOR_BND.OLB
	PHIGS$FOR_BND_CONSTS.FOR

(continued on next page)

Table 1 (Cont.): Installed Files for the DEC PHIGS Development Kit

Directory	File Name
	PHIGS$GB_UCODE.EXE
	PHIGS$I3D.EXE
	PHIGS$MSGS.BAS
	PHIGS$MSGS.FOR
	PHIGS$MSGS.H
	PHIGS$MSGS.PAS
	PHIGS$MSGS.PL2
	PHIGS$MSGS.PLI
	PHIGS$RTL.EXE
	PHIGS$WSIM.EXE
	PHIGS$WSM.EXE
	PHIGS.H
	PHIGS_DEFS.ADA
	PHIGS_DEFS.BAS
	PHIGS_DEFS.FOR
	PHIGS_DEFS.H
	PHIGS_DEFS.PAS
	PHIGS_DEFS.PL2
	PHIGS_DEFS.PLI
	PHIGS_MSGS.ADA
	PHIGS_MSGS.BAS
	PHIGS_MSGS.FOR
	PHIGS_MSGS.H
	PHIGS_MSGS.PAS
	PHIGS_MSGS.PL2
	PHIGS_MSGS.PLI
	VAXGFX$COLSIX_DEV_HANDLER.EXE
	VAXGFX$DDIF_COLOR_TABLE.DAT
	VAXGFX$DDIF_DEV_HANDLER.EXE

(continued on next page)

Table 1 (Cont.): Installed Files for the DEC PHIGS Development Kit

Directory	File Name
	VAXGFX$DECW_DEV_HANDLER.EXE
	VAXGFX$FONT_NEG01.FNT
	VAXGFX$FONT_NEG02.FNT
	VAXGFX$FONT_NEG03.FNT
	VAXGFX$FONT_NEG04.FNT
	VAXGFX$FONT_NEG05.FNT
	VAXGFX$FONT_NEG06.FNT
	VAXGFX$FONT_NEG07.FNT
	VAXGFX$FONT_NEG08.FNT
	VAXGFX$FONT_NEG09.FNT
	VAXGFX$FONT_NEG10.FNT
	VAXGFX$FONT_NEG11.FNT
	VAXGFX$FONT_NEG12.FNT
	VAXGFX$FONT_NEG13.FNT
	VAXGFX$FONT_NEG14.FNT
	VAXGFX$FONT_NEG15.FNT
	VAXGFX$FONT_NEG16.FNT
	VAXGFX$FONT_NEG17.FNT
	VAXGFX$FONT_NEG18.FNT
	VAXGFX$FONT_NEG19.FNT
	VAXGFX$FONT_NEG20.FNT
	VAXGFX$FONT_NEG21.FNT
	VAXGFX$FONT_NEG22.FNT
	VAXGFX$FONT_NEG23.FNT
	VAXGFX$FONT_NEG24.FNT
	VAXGFX$HPGL_DEV_HANDLER.EXE
	VAXGFX$PS_DEV_HANDLER.EXE
	VAXGFX$REGIS_DEV_HANDLER.EXE
	VAXGFX$RTL.EXE

(continued on next page)

Table 1 (Cont.): Installed Files for the DEC PHIGS Development Kit

Directory	File Name
	VAXGFX$SIXEL_DEV_HANDLER.EXE
	VAXGFX$TEK41_DEV_HANDLER.EXE
	VAXGFX$TEK_DEV_HANDLER.EXE
	VAXGFX$UIS_DEV_HANDLER.EXE
SYS$TEST:	PHIGS_IVP.EXE
SYS$FONT:	PHIGS$MARKERS.VWS$FONT (After UIS only)
	PHIGS$MARKERS.VWS$VAFONT (After UIS only)
SYS$HELP:	DECPHIGS022.RELEASE_NOTES
	HELPLIB.HLB (modified)
SYS$COMMON:[SYSHLP.EXAMPLES.PHIGS]:	
	PHIGS_DEMO_BUILD.COM
	PHIGS$DEMO.ARC
	PHIGS_DEMO_BUILD.OPT
	PHIGS_DEMO_CHANGE_OBJECT_SIZE.C
	PHIGS_DEMO_CHANGE_VIEW_ANGLE.C
	PHIGS_DEMO_CREATE_OBJECT.C
	PHIGS_DEMO_CREATE_STRUCT.C
	PHIGS_DEMO_MOVE_VIEW_PLANES.C
	PHIGS_DEMO_PHIGS.C
	PHIGS_DEMO_PHIGS.EXE
	PHIGS_DEMO_PHIGS.H
	PHIGS_DEMO_README.TXT
	PHIGS_DEMO_ROTATE_OBJECT.C
	PHIGS_DEMO_TRANSLATE_OBJECT.C
	PHIGS_RINGS_3D.FOR
	PHIGS_XDEMO.C
SYS$COMMON:[SYSHLP.EXAMPLES.PHIGS.GETTING_STARTED]:	
	PHIGS_GS_ARCS.C
	PHIGS_GS_FILL_AREA.C

(continued on next page)

Table 1 (Cont.): Installed Files for the DEC PHIGS Development Kit

Directory	File Name
	PHIGS_GS_LIGHT.C
	PHIGS_GS_LINE_COLOR.C
	PHIGS_GS_LINE_TYPES.C
	PHIGS_GS_LINE_WIDTHS.C
	PHIGS_GS_NAME_SETS.C
	PHIGS_GS_NURBS.C
	PHIGS_GS_POLYLINES.C
	PHIGS_GS_REQUEST.C
	PHIGS_GS_SAMPLE.FOR
	PHIGS_GS_SIMPLE.C
	PHIGS_GS_TEAPOT.C
	PHIGS_GS_TEXT.C

Table 2 lists the files on the system that are added or modified when installing the DEC PHIGS run-time kit.

Table 2: Installed Files for the DEC PHIGS Run-Time Kit

Directory	File Name
SYS$STARTUP:	PHIGS$STARTUP.COM
	PCM$STARTUP.COM
SYS$MESSAGE:	PHIGS$MSGS.EXE
	VAXGFX$MSGS.EXE
SYS$MANAGER:	PHIGS$DEINSTALL_V10.COM
	PHIGS$DEINSTALL_V11.COM
	PHIGS$REMOVE_V10.COM
SYS$SYSTEM:	DECW$SERVER_MAIN.EXE
	PCM$SERVER.EXE
SYS$LIBRARY:	DECW$SERVER_DDX_GA.EXE
	DECW$SERVER_DDX_GB.EXE

(continued on next page)

Table 2 (Cont.): Installed Files for the DEC PHIGS Run-Time Kit

Directory	File Name
	DECW$SERVER_DDX_GC.EXE
	DECW$SERVER_DDX_GE.EXE
	DECW$SERVER_DIX.EXE
	DECW$SERVER_EXTENSION_PEX.EXE
	DECW$SERVER_MAIN.EXE
	DECW$SVEXT_ADOBE_DPS_EXTENSION.EXE
	DECW$SVEXT_X3D_PEX_GB.EXE
	DECW$SSVEXT_X3D_PEX_GE.EXE
	PHIGS$ARCHIVE_CONVERTER.EXE
	PHIGS$CRTL.EXE
	PHIGS$DBM.EXE
	PHIGS$GB_UCODE.EXE
	PHIGS$I3D.EXE
	PHIGS$RTL.EXE
	PHIGS$WSIM.EXE
	PHIGS$WSM.EXE
	VAXGFX$COLSIX_DEV_HANDLER.EXE
	VAXGFX$DDIF_COLOR_TABLE.DAT
	VAXGFX$DDIF_DEV_HANDLER.EXE
	VAXGFX$DECW_DEV_HANDLER.EXE
	VAXGFX$FONT_NEG01.FNT
	VAXGFX$FONT_NEG02.FNT
	VAXGFX$FONT_NEG03.FNT
	VAXGFX$FONT_NEG04.FNT
	VAXGFX$FONT_NEG05.FNT
	VAXGFX$FONT_NEG06.FNT
	VAXGFX$FONT_NEG07.FNT
	VAXGFX$FONT_NEG08.FNT
	VAXGFX$FONT_NEG09.FNT

(continued on next page)

Table 2 (Cont.): Installed Files for the DEC PHIGS Run-Time Kit

Directory	File Name
	VAXGFX$FONT_NEG10.FNT
	VAXGFX$FONT_NEG11.FNT
	VAXGFX$FONT_NEG12.FNT
	VAXGFX$FONT_NEG13.FNT
	VAXGFX$FONT_NEG14.FNT
	VAXGFX$FONT_NEG15.FNT
	VAXGFX$FONT_NEG16.FNT
	VAXGFX$FONT_NEG17.FNT
	VAXGFX$FONT_NEG18.FNT
	VAXGFX$FONT_NEG19.FNT
	VAXGFX$FONT_NEG20.FNT
	VAXGFX$FONT_NEG21.FNT
	VAXGFX$FONT_NEG22.FNT
	VAXGFX$FONT_NEG23.FNT
	VAXGFX$FONT_NEG24.FNT
	VAXGFX$HPGL_DEV_HANDLER.EXE
	VAXGFX$PS_DEV_HANDLER.EXE
	VAXGFX$REGIS_DEV_HANDLER.EXE
	VAXGFX$RTL.EXE
	VAXGFX$SIXEL_DEV_HANDLER.EXE
	VAXGFX$TEK41_DEV_HANDLER.EXE
	VAXGFX$TEK_DEV_HANDLER.EXE
	VAXGFX$UIS_DEV_HANDLER.EXE
SYS$TEST:	PHIGS_IVP.EXE
SYS$FONT:	PHIGS$MARKERS.VWS$FONT (After UIS only)
	PHIGS$MARKER.VWS$VAFONT (After UIS only)
SYS$HELP:	DECPHIGSRTO022.RELEASE_NOTES

Step 6: Respond to License Registration Queries.

DEC PHIGS supports the VMS License Management Facility (LMF). The installation procedure displays license information about your product and then asks if you have registered and loaded your authorization key for DEC PHIGS. The following is an example of this information:

DEC PHIGS DEVELOPMENT KIT

```
Product:       PHIGS
Producer:      DEC
Version:       2.2
Release Date:  01-JUL-1990

* Does this product have an authorization key registered
            and loaded? YES  RET
```

DEC PHIGS RUN-TIME KIT

```
Product:       PHIGS-RUNTIME
Producer:      DEC
Version:       2.2
Release Date:  01-JUL-1990

* Does this product have an authorization key registered
            and loaded? YES  RET
```

If you have not registered and loaded your authorization key, you must answer NO to this question. You must register and load your product authorization key to successfully complete the installation. If you have not done so, you should stop the installation, register and load your product authorization key, and then restart the installation.

Step 7: Install the PHIGS help library (DEC PHIGS development kit only).

```
* Do you wish to have the help library for PHIGS [YES]? RET
```

Press RETURN if you want to include the PHIGS help library. Type NO if you do not want the help library.

Step 8: Install examples from PHIGS documentation (DEC PHIGS development kit only).

```
* Do you wish to install the examples from the PHIGS
documentation [YES]? RET
```

Press RETURN if you want to install the example programs from the *Getting Started with DEC PHIGS* manual. Type NO if you do not want the programs.

Step 9: Reading the informational messages.

The DEC PHIGS installation procedure produces a number of informational messages that report on the progress of the installation.

The success of the installation is indicated by the following message:

```
%VMSINSTAL-I-MOVEFILES, files will now be moved to their target
directories...
```

This message is displayed towards the end of the informational messages. If the installation procedure is successful, the new or modified files are moved to their target directories.

The following paragraph is displayed for the DEC PHIGS development kit installation only:

```
    STARTING to perform all the installation work. If you are
    using a multi-media kit you will be prompted to insert the
    next distribution media, otherwise no additional user actions
    are necessary from this point.

%VMSINSTAL-I-RESTORE, Restoring product saveset B ...
%VMSINSTAL-I-RESTORE, Restoring product saveset C ...
%VMSINSTAL-I-RESTORE, Restoring product saveset D ...
%VMSINSTAL-I-RESTORE, Restoring product saveset E ...
```

The following paragraph is displayed for the DEC PHIGS run-time kit installation only:

```
    STARTING to perform all the installation work. If you are
    using a multi-media kit you will be prompted to insert the
    next distribution media, otherwise no additional user actions
    are necessary from this point.

%VMSINSTAL-I-RESTORE, Restoring product saveset B ...
%VMSINSTAL-I-RESTORE, Restoring product saveset C ...
%VMSINSTAL-I-RESTORE, Restoring product saveset D ...
```

The messages for both DEC PHIGS kits continue as follows:

```
   No user actions are necessary from this point.
   The remaining part of the installation will take
   ( 5 - 20 minutes ) depending on your CPU.

The DEC PHIGS on VMS run-time library has been processed successfully.

The installation procedure is continuing...

   The DEC PHIGS on VMS VAXstation marker fonts have been processed successfully.

   The installation procedure is continuing...

   DEC PHIGS on VMS shared images successfully processed.

   System Manager:

   Upon completion of this installation, please be sure to
   edit the system startup files and add the following line:

   $ @SYS$STARTUP:PHIGS$STARTUP.COM

   If you have a graphics peripheral set installed on your workstation,
   also add the line:

   $ @SYS$STARTUP:PCM$STARTUP.COM

   A copy of the Installation Verification Procedure will be put in
   SYS$COMMON:[SYSTEST]PHIGS_IVP.EXE.

   This installation procedure has replaced the DECwindows
   server on your system.  If you are installing DEC PHIGS on
   a workstation, you should reboot the system and then run
   SYS$COMMON:[SYSTEST]PHIGS_IVP.EXE to complete the installation.

   A PHIGS demo program, along with its sources will be put in
   SYS$COMMON:[SYSHLP.EXAMPLES.PHIGS].

   The following files are part of DEC PHIGS V1.0 systems and are
   no longer required as part of V2.2.  The system manager should
   review these files and his configuration and remove them when
   he deems appropriate.  The command file in sys$manager: called
   phigs$remove_v10.com has been provided to assist in deleting
   the appropriate files.

   SYS$LIBRARY:PHIGS$*_DEV_HANDLER.EXE
   SYS$LIBRARY:PHIGS$FONT_*.FNT

 %VMSINSTAL-I-MOVEFILES, files will now be moved to their target
          directories...
```

If the installation procedure is successful, the PHIGS files are moved to their target directories.

In addition, SYS$HELP:HELPLIB.HLB is updated to include the new version of the DEC PHIGS help text. The release notes are then copied:

- The DEC PHIGS development kit release notes are copied to SYS$HELP:DECPHIGS022.RELEASE_NOTES.
- The DEC PHIGS run-time kit release notes are copied to SYS$HELP:DECPHIGSRTO022.RELEASE_NOTES.

Step 10: End the installation procedure.

DEC PHIGS DEVELOPMENT KIT

```
Installation of DECPHIGS V2.2 completed at 15:30

VMSINSTAL procedure done at 15:30

$ LOGOUT RET
SYSTEM logged out at 14-JUN-1990 13:48:02.47
```

DEC PHIGS RUN-TIME KIT

```
Installation of DECPHIGSRTO V2.2 completed at 15:30

VMSINSTAL procedure done at 15:30

$ LOGOUT RET
SYSTEM logged out at 14-JUN-1990 13:48:02.47
```

When the installation procedure is complete, you can choose to install more products or to log out (as shown). If you removed any media from the console drive before beginning the installation, you should replace it now.

VMSINSTAL deletes or changes entries in the process symbol tables during the installation. Therefore, if you plan to continue using the system manager's account and you want to restore these symbols, you should log out and log in again.

Installing DEC PHIGS on a VAXcluster

If you want to run DEC PHIGS on multiple nodes of a VAXcluster, first check to see that you have the appropriate software license. Then, follow these steps after installing DEC PHIGS:

1. Issue the LICENSE LOAD command to activate the license on each node in the VAXcluster on which DEC PHIGS is to be executed. Issue the command as described in the *VMS License Management Utility Manual*.
2. Run SYS$STARTUP:PHIGS$STARTUP.COM on each node of the cluster that has a software license.

Do not purge files during the installation. You can purge these files after you have run the DEC PHIGS startup command procedure on each node of the cluster.

After the Installation

DEC PHIGS is now installed and can be invoked by all users with the PHIGS$STARTUP.COM command.

You must edit the file SYS$STARTUP:SYSTARTUP_V5.COM to invoke the startup procedure PHIGS$STARTUP.COM. This procedure runs the DEC PHIGS startup routine whenever you reboot your system. To include the procedure in your startup file, edit SYS$MANAGER:SYSTARTUP_V5.COM and add the following line:

```
$ @SYS$STARTUP:PHIGS$STARTUP
```

If you installed DEC PHIGS on a cluster, PHIGS$STARTUP.COM is automatically executed for the system node from which the installation was performed. However, you may also need to execute this file for other nodes in the cluster to get the newest DEC PHIGS images installed on those systems. This is particularly true if you purged older versions of DEC PHIGS during the installation.

If an earlier version of DEC PHIGS exists on your system, and you replaced it with the most recent version of DEC PHIGS, be sure to remove the command that runs the startup file for the earlier version.

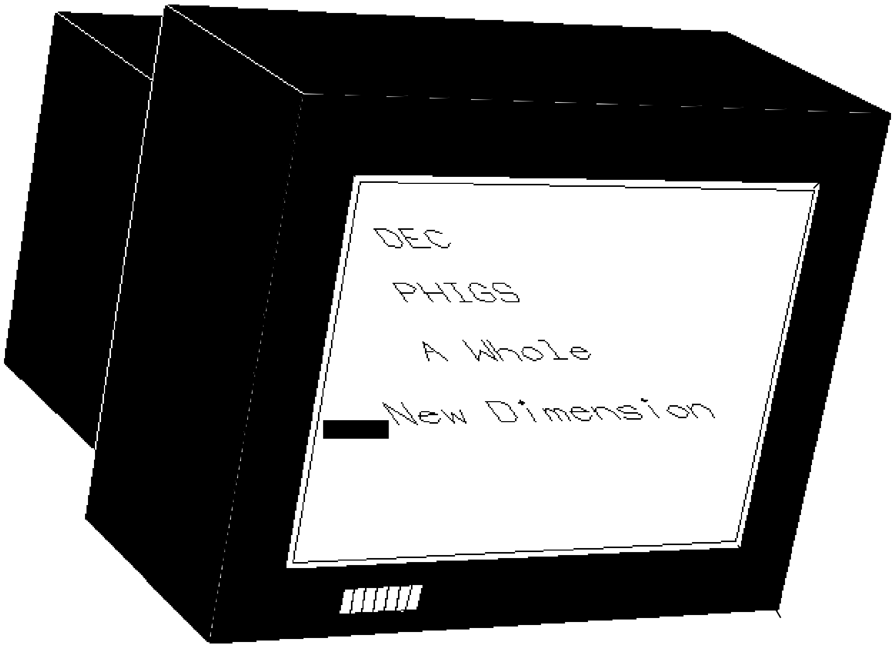
Completing the Installation

A copy of the Installation Verification Procedure (IVP) will be put in SYS$COMMON:[SYSTEST]PHIGS_IVP.EXE. This program should be run after rebooting the system to complete the installation of DEC PHIGS. The IVP verifies that the installation procedure was successfully completed, and ensures the integrity of installed files if system problems occur. To run the IVP separately, execute the following command:

```
$  RUN SYS$COMMON:[SYSTEST]PHIGS_IVP.EXE  RET
```

If the IVP runs successfully, it generates the picture shown in Figure 1. If your device produces color output, the image will appear in color.

Figure 1: Sample IVP Display



ZK–6373–GE

Error Conditions

If the installation procedure fails for any reason, the following message is displayed:

```
%VMSINSTAL-E-INSTAIL, The installation of DECPHIGS 2.2 has failed.
```

An error during the installation can occur if one or more of the following conditions exist:

- The operating system version is incorrect.
- A prerequisite software version is incorrect.
- Quotas necessary for successful installation are insufficient (see the section entitled "Installation Procedure Requirements").
- Process quotas required by VMSINSTAL are incorrect (see the section entitled "Using VMSINSTAL").
- The VMS HELP library is currently in use.
- The product was registered incorrectly or not registered.
- Your DEC PHIGS software license is not installed.

For descriptions of the error messages generated by these conditions, see *VMS Volume 6—System Messages*, your processor-specific installation /operations guide, or the *VMS License Management Utility Manual*.

If you are notified that any of these conditions exist, you should take the appropriate action as described in the message. You may need to change a system parameter or increase an authorized quota value.

If the installation procedure fails, one or more of the following messages may also appear. These messages notify you of fatal errors caused by incorrect preparation for installation.

```
This kit requires VMS V5.3-1 or a subsequent version of VMS

System disk does not contain enough free blocks to install DECPHIGS

Insufficient CLISYMTBL pages - the installation of DECPHIGS
requires at least 150 pages. Use SYSGEN to change this
parameter and restart the installation.
```

If one of these messages is displayed, review the section entitled "Preparing to Install DEC PHIGS " and repeat the installation procedure.

If the following error occurs, VMSINSTAL asks whether you want to continue the installation. If you continue, be aware that DEC PHIGS may not run properly.

```
WARNING - this is an UPGRADE FTxx baselevel of VMS.
Unable to decode the VMS version number. This may or
may not be the correct version of VMS for this PHIGS. This
version of DEC PHIGS supports VMS V5.3-1 or a subsequent version of VMS.
```

The following warning message may appear during a successful installation:

```
WARNING: The machine which you are running on does not
support the D floating point format in hardware. This
may cause the degradation of performance of many
of DEC PHIGS's routines.
```

If the Installation Verification Procedure fails for any reason, the following message is displayed:

```
DEC PHIGS V2.2 Installation Verification Procedure failed.
Please consult the DEC PHIGS Installation Guide for further information.
```

If you receive this message, and all the previous conditions listed are correct, contact your Digital field service representative.

Maintenance Updates

Digital may periodically issue maintenance updates of DEC PHIGS. Each update contains an installation kit. You should install this kit as described in this document or in any documentation that may accompany the maintenance update.

Each time a maintenance update is released, the version number changes. For example, if the current version is 2.2, the version number of the next maintenance update will be 2.3. In addition, each maintenance update includes new release notes. The release notes describe the changes that have been made to DEC PHIGS since the previous release.

The updated release notes are provided on line. You should read the release notes when you first install DEC PHIGS; they are also accessible at any time after the product is installed. For information on reading the release notes at the time that you install DEC PHIGS, follow the installation procedure described in the section entitled "Installing DEC PHIGS for VMS" through step 4.

To read the release notes after DEC PHIGS is installed, display or print the file SYS$HELP:DECPHIGS022.RELEASE_NOTES for the DEC PHIGS development kit, or SYS$HELP:DECPHIGSRTO022.RELEASE_NOTES for the DEC PHIGS run-time kit.

Determining and Reporting Problems

If an error occurs while you are using DEC PHIGS, report it to Digital. Depending on the nature of the problem and the type of support you have, you can take one of the following actions:

- Call Digital if your software contract or warranty agreement entitles you to telephone support.
- Submit a Software Performance Report (SPR).
- Fill out and submit a Reader's Comments form if the problem has to do with the DEC PHIGS documentation. There are Reader's Comments forms at the back of each manual. Use the form from the manual in which you found the error. Include the page number.

Review the Software Product Description (SPD) and Warranty Addendum for an explanation of warranty. If you encounter a problem during the warranty period, report the problem as indicated in this section or follow alternate instructions provided by Digital for reporting SPD nonconformance problems.

DEC PHIGS Development Kit Sample Installation

This section contains a sample installation of the DEC PHIGS development kit. Note that this is only a sample. Sometimes the installation procedure is modified in maintenance updates of this product. Because this installation guide is not usually revised for maintenance updates, be sure to read the *Read Before Installing or Using DEC PHIGS for VMS* letter before you install this product. This letter notes any significant changes in the installation that vary from this sample.

Also note that this sample is for VMS Versions 5.3-1. Refer to the section entitled "Installing DEC PHIGS " for detailed information.

```
$ @vmsinstal  RET

        VAX/VMS Software Product Installation Procedure V5.3-1

It is 14-JUN-1990 at 12:57.

Enter a question mark (?) at any time for help.

* Are you satisfied with the backup of your system disk [YES]?  RET
* Where will the distribution volumes be mounted: media  RET

Enter the products to be processed from the first distribution volume set.
* Products: decphigs022
* Enter installation options you wish to use (none):
The following products will be processed:
```

```
  DECPHIGS V2.2

        Beginning installation of DECPHIGS V2.2 at 12:58

%VMSINSTAL-I-RESTORE, Restoring product save set A ...
%VMSINSTAL-I-RELMOVED ,The product's release notes have been successfully
moved to SYS$HELP.

* Do you want to purge files replaced by this installation [YES]? n RET

        Product:      PHIGS
        Producer:     DEC
        Version:      2.2
        Release Date: 01-JUL-1990

* Does this product have an authorization key registered and loaded? y RET

* Do you wish to have the help library for PHIGS [YES]? RET

* Do you wish to install the examples from the PHIGS documentation [YES]? RET

        STARTING to perform all the installation work.  If you are
        using a multi-media kit you will be prompted to insert the
        next distribution media, otherwise no additional user actions
        are necessary from this point.

%VMSINSTAL-I-RESTORE, Restoring product save set B ...
%VMSINSTAL-I-RESTORE, Restoring product save set C ...
%VMSINSTAL-I-RESTORE, Restoring product save set D ...
%VMSINSTAL-I-RESTORE, Restoring product save set E ...

        No user actions are necessary from this point.
        The remaining part of the installation will take
        ( 5 - 20 minutes ) depending on your CPU.

        The DEC PHIGS on VMS run-time library has been processed successfully.

        The installation procedure is continuing...

        The DEC PHIGS ON VMS VAXstation marker fonts have been processed successfully.

        The installation procedure is continuing...

        DEC PHIGS for VMS shared images successfully processed.

  System Manager:

        Upon completion of this installation, please be sure to
        edit the system startup files and add the following line:

        $ @SYS$STARTUP:PHIGS$STARTUP.COM

        If you have a graphics peripheral set installed on your workstation,
        also add the line:

        $ @SYS$STARTUP:PCM$STARTUP.COM

        A copy of the Installation Verification Procedure will be put in
        SYS$COMMON:[SYSTEST]PHIGS_IVP.EXE.

        This installation procedure has replaced the DECwindows
        server on your system.  If you are installing DEC PHIGS on
        a workstation, you should reboot the system and then run
        SYS$COMMON:[SYSTEST]PHIGS_IVP.EXE to complete the installation.
```

```
        A PHIGS demo program, along with its sources will be put in
        SYS$COMMON:[SYSHLP.EXAMPLES.PHIGS].

        The following files are part of DEC PHIGS V1.0 systems and are
        no longer required as part of V2.2.  The system manager should
        review these files and his configuration and remove them when
        he deems appropriate.  The command file in sys$manager: called
        phigs$remove_v10.com has been provided to assist in deleting
        the appropriate files.

        SYS$LIBRARY:PHIGS$*_DEV_HANDLER.EXE
        SYS$LIBRARY:PHIGS$FONT_*.FNT

%VMSINSTAL-I-MOVEFILES, Files will now be moved to their target directories...
        Installation of DECPHIGS V2.2 completed at 13:09

Enter the products to be processed from the next distribution volume set.
* Products:
        VMSINSTAL procedure done at 13:48
```

DEC PHIGS Run-Time Kit Sample Installation

This section contains a sample installation of the DEC PHIGS run-time kit. Note that this is only a sample. Sometimes the installation procedure is modified in maintenance updates of this product. Because this installation guide is not usually revised for maintenance updates, be sure to read the *Read Before Installing or Using DEC PHIGS for VMS* letter before you install this product. This letter notes any significant changes in the installation that vary from this sample.

Also note that this sample is for VMS Versions 5.3-1. Refer to the section entitled "Installing DEC PHIGS " for detailed information.

```
$ @vmsinstal  RET

        VAX/VMS Software Product Installation Procedure V5.3-1

It is 14-JUN-1990 at 14:40.

Enter a question mark (?) at any time for help.

* Are you satisfied with the backup of your system disk [YES]?  RET
* Where will the distribution volumes be mounted: media  RET

Enter the products to be processed from the first distribution volume set.
* Products: decphigsrto022
The following products will be processed:

  DECPHIGSRTO V2.2

        Beginning installation of DECPHIGSRTO V2.2 at 15:01

%VMSINSTAL-I-RESTORE, Restoring product save set A ...
%VMSINSTAL-I-RELMOVED, The product's release notes have been successfully
moved to SYS$HELP.

* Do you want to purge files replaced by this installation [YES]? n  RET

        Product:      PHIGS-RUNTIME
        Producer:     DEC
        Version:      2.2
        Release Date: 01-JUL-1990

* Does this product have an authorization key registered and loaded? y  RET

        STARTING to perform all the installation work.  If you are
        using a multi-media kit you will be prompted to insert the
        next distribution media, otherwise no additional user actions
        are necessary from this point.

%VMSINSTAL-I-RESTORE, Restoring product save set B ...
%VMSINSTAL-I-RESTORE, Restoring product save set C ...
%VMSINSTAL-I-RESTORE, Restoring product save set D ...

        No user actions are necessary from this point.
        The remaining part of the installation will take
        ( 5 - 20 minutes ) depending on your CPU.

        The DEC PHIGS on VMS run-time library has been processed successfully.
```

```
        The installation procedure is continuing...

 The DEC PHIGS ON VMS VAXstation marker fonts have been processed successfully.

        The installation procedure is continuing...

        DEC PHIGS for VMS shared images successfully processed.

  System Manager:

        Upon completion of this installation, please be sure to
        edit the system startup files and add the following line:

        $ @SYS$STARTUP:PHIGS$STARTUP.COM

        If you have a graphics peripheral set installed on your workstation,
        also add the line:

        $ @SYS$STARTUP:PCM$STARTUP.COM

        A copy of the Installation Verification Procedure will be put in
        SYS$COMMON:[SYSTEST]PHIGS_IVP.EXE.

        This installation procedure has replaced the DECwindows
        server on your system.  If you are installing DEC PHIGS on
        a workstation, you should reboot the system and then run
        SYS$COMMON:[SYSTEST]PHIGS_IVP.EXE to complete the installation.

        A PHIGS demo program, along with its sources will be put in
        SYS$COMMON:[SYSHLP.EXAMPLES.PHIGS].

        The following files are part of DEC PHIGS V1.0 systems and are
        no longer required as part of V2.2.  The system manager should
        review these files and his configuration and remove them when
        he deems appropriate.  The command file in sys$manager: called
        phigs$remove_v10.com has been provided to assist in deleting
        the appropriate files.

        SYS$LIBRARY:PHIGS$*_DEV_HANDLER.EXE
        SYS$LIBRARY:PHIGS$FONT_*.FNT

%VMSINSTAL-I-MOVEFILES, Files will now be moved to their target directories...
        Installation of DECPHIGSRTO V2.2 completed at 15:08

Enter the products to be processed from the next distribution volume set.
* Products:
        VMSINSTAL procedure done at 15:11
```