

# PL/I

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## for Open VMS Systems Installation Guide

**September 1993**

This document contains instructions for installing PL/I on the OpenVMS VAX and OpenVMS AXP Systems. These instructions also apply to maintenance updates throughout the versions.

**Revision/Update Information:** This revised manual supersedes the *PL/I Installation Guide for VAX VMS*, Order Number AA-J179F-TE.

**Operating System and Version:** For VAX PL/I: VMS Version 5.4 and higher versions  
For DEC PL/I: OpenVMS AXP Version 1.5 and higher versions

**Software Version:** VAX PL/I Version 3.5  
DEC PL/I Version T4.0

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The postpaid Reader's Comments form at the end of this manual requests your critical evaluation to assist in preparing future documentation.

This document is available on CDROM.

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# Preface

## Purpose of This Guide

This document describes how to install PL/I on the OpenVMS VAX and OpenVMS AXP and operating systems.

Keep this document with your distribution kit. You will need it to install maintenance updates or to reinstall this product for any other reason.

A Reader's Comments form is included at the end of this document. If you have comments on this document, please complete the form and return it; your comments will be considered for the next revision of the installation guide.

For more information about installing PL/I software on OpenVMS systems, see your processor-specific installation/operations guide.

## Intended Audience

This document is intended for system managers and applies to the current versions and all maintenance-update versions to the current versions. A major version number is represented by the digits to the left of the decimal point, and a maintenance-update version number is indicated by the digits to the right of the decimal point.

## Related Documentation

In addition to this guide, the PL/I documentation set includes:

- *PL/I for OpenVMS Systems User Manual*
- *PL/I for OpenVMS Systems Reference Manual*

This guide contains cross-references to the following OpenVMS document:

- *OpenVMS Messages Utility Reference Manual*

## Conventions

Table 1 lists the conventions used in this guide:

**Table 1 Conventions**

UPPERCASE TEXT	Uppercase letters indicate the name of a command, file, parameter, procedure, or utility.
\$ @SYS\$UPDATE:VMSINSTAL	In interactive examples, boldface type indicates user input. System output, such as prompts and messages, is not shown in boldface.
\$	The dollar sign indicates the DCL prompt. The operating-system prompt may be different on your system.
<span style="border: 1px solid black; padding: 2px;">Ctrl/x</span>	In procedures, a sequence such as <span style="border: 1px solid black; padding: 2px;">Ctrl/x</span> indicates that you must hold down the key labeled Ctrl while you press another key or a pointing device button.
<span style="border: 1px solid black; padding: 2px;">Return</span>	In procedures, a key name enclosed in a box indicates that you press a key on the keyboard.
.	Vertical ellipsis in an example indicates that information not directly related to the example has been omitted.
file-spec, . . .	Horizontal ellipsis indicates that the user can enter additional parameters, values, or information.
[logical-name]	Brackets in syntax diagrams indicate that the enclosed item is optional. (Brackets are required, however, as delimiters of a directory name in a file specification or in the syntax of a substring specification in an assignment statement. In addition, default responses appear in brackets ([ ]) throughout the installation procedure.)

## Terminological Assumptions

Information in this manual applies to the use of PL/I on both the OpenVMS VAX Operating System and the OpenVMS AXP Operating System unless otherwise indicated.

The terms *PL/I for OpenVMS VAX* and *VAX PL/I* are synonymous. Similarly, the terms *PL/I for OpenVMS AXP* and *DEC PL/I* are synonymous.

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# Preparing to Install PL/I

This chapter describes the preparations and requirements needed prior to installing PL/I for OpenVMS VAX Version 3.5 and PL/I for OpenVMS AXP Version 4.0.

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 incomplete, please call your Digital service 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 to the installation procedure.

This product provides online release notes. Digital strongly recommends that you read the release notes before proceeding with the installation. For information on accessing the release notes, see Section 1.1.

## 1.1 Accessing the Online Release Notes

The prompt to display or print the release notes during the installation appears in step 4 of the installation procedure, when you invoke VMSINSTAL with the OPTIONS N parameter.

To obtain the release notes after the installation, type or print one of these files.

**For VAX:** SYSS\$HELP:PLI\$035.RELEASE\_NOTES

**For AXP:** SYSS\$HELP:DPLI040.RELEASE\_NOTES

Online help also directs you to the release notes file. After the installation, type the following command:

```
$ HELP PLI RELEASE_NOTES 
```

## 1.2 Prerequisite Software

To install PL/I, you must have OpenVMS Version 5.4 or OpenVMS AXP Version 1.5 (or a later version of either) already installed on your system.

## 1.3 License Registration

The OpenVMS License Management Facility (LMF) is available with all supported versions of the OpenVMS operating systems. Since you are installing this product on OpenVMS, you must register your PL/I software license.

The Product Authorization Key (PAK) is a certificate shipped with PL/I. The PAK contains the license registration information you need to run a particular piece of software.

During the installation, you are asked if you have registered the PL/I license and loaded the appropriate authorization key. You must register and load your license for this product *before* you start the installation in order to run the Installation Verification Procedure (IVP) and use the software. Note: The same license is valid for either product.

To register a license, first log in to the system manager's account, SYSTEM. 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 command, on the DCL command line, with the appropriate qualifiers that correspond to information on the PAK.

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

## 1.4 Installation Procedure Requirements

This section and those that follow discuss various requirements for installing PL/I.

The installation takes approximately 5 to 30 minutes, depending on the type of media and your system configuration. Before you begin the installation, you must ensure that adequate privileges and system resources are available to support the installation.



## 1.4.1 Privileges and Disk Space

To install PL/I, you must be logged in to an account that has SETPRV or at least the following privileges:

- CMKRNL
- WORLD
- SYSPRV

Note that VMSINSTAL turns off BYPASS privilege at the start of the installation.

Table 1–1 summarizes the storage requirements for PL/I.

**Table 1–1 Disk Space Requirements**

Kit	Blocks During Installation <sup>1</sup>	Blocks After Installation
PL/I for VAX	8500	5000
PL/I for AXP	30000	27500

<sup>1</sup>If you choose to decompress the PL/I system library (PLISSTARLET) during the installation, you will need an additional 4500 blocks.

To determine the number of free disk blocks on the current system disk, enter the following command at the DCL prompt:

```
$ SHOW DEVICE SYS$SYSDEVICE 
```

## 1.4.2 System Parameters

Installing PL/I requires certain system parameter settings. Table 1–2 lists the minimum required system parameter values for the installation. Depending on the kinds of programs and applications running at your site, you might need higher values for some settings.

**Table 1–2 Minimum Required System Parameter Values**

System Parameter	Minimum Value (VAX)	Minimum Value (AXP)
GBLPAGES <sup>1</sup>	n + 1500	n + 7776
GBLSECTIONS <sup>1</sup>	n + 7	n + 3
PQL_DASTLM <sup>2</sup>	24	24
PQL_DBIOLM <sup>2</sup>	18	18
PQL_DDIOLM <sup>2</sup>	18	18

<sup>1</sup>The values listed for these system parameters represent the number of free global pages and global sections required for the installation, not the total number you need to run your system and other software.

<sup>2</sup>These dynamic system parameters must be set permanently to values equal to or greater than the values listed. Do not lower these values after the installation.

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**Note**

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In Table 1–2, the values for GBLPAGES and for GBLSECTIONS indicate that you need at least those many unused global pages and unused global sections available on your system to process a successful installation.

The values shown for GBLPAGES and GBLSECTIONS apply when the compiler is currently installed as a known image or if you plan to install it as a known image after the installation. If the compiler is not currently installed as a known image, the requirement is 1 free global section and 400 free global pages (enough to replace DCLTABLES.EXE).

---

The following sections show you how to:

- Check system parameter values
- Calculate values for the GBLPAGES and GBLSECTIONS system parameters
- Change parameter values with the OpenVMS AUTOGEN command procedure
- Set dynamic parameters with the OpenVMS System Generation Utility (SYSGEN)

#### 1.4.2.1 Checking System Parameter Values

To check the values of your system parameters, enter the following command at the DCL prompt to invoke the System Generation Utility (SYSGEN):

```
$ RUN SYS$SYSTEM:SYSGEN   
SYSGEN>
```

At the SYSGEN> prompt, enter the SHOW command to display the value of a system parameter. The values displayed should equal or exceed the value of each system parameter listed in Table 1–2. The following example displays the current value of the GBLPAGES system parameter:

```
SYSGEN> SHOW GBLPAGES 
```

After checking the parameters with the SHOW command, enter the EXIT command at the SYSGEN> prompt to return to DCL level.

### 1.4.2.2 Calculating the Values for GBLPAGES and GBLSECTIONS

To install and run PL/I, you must have sufficient free global pages and global sections. You must first find out how many free global pages and sections you have on your system. Then use AUTOGEN if you need to increase the GBLPAGES and GBLSECTIONS system parameters.

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#### Caution

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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.

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To determine the number of available global pages on your system, invoke the OpenVMS Install Utility as follows:

```
$ INSTALL 
INSTALL> LIST/GLOBAL/SUMMARY 
           Summary of Local Memory Global Sections
309 Global Sections Used,  28866/13134 Global Pages Used/Unused
INSTALL> EXIT 
```

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 unused. To exit the OpenVMS Install Utility, enter the EXIT command.

PL/I requires the number of pages shown in Table 1–2. If you do not have enough available pages, you can delete an existing known image with the OpenVMS Install Utility, or you can increase the GBLPAGES system parameter with the OpenVMS System Generation Utility (SYSGEN) by editing the file SYSSSYSTEM:MODPARAMS.DAT and then invoking the AUTOGEN command procedure, SYSSUPDATE:AUTOGEN.COM. For more information on the AUTOGEN command procedure, see your processor-specific installation/operations guide.

To determine the number of available global sections, invoke SYSGEN as follows:

```
$ RUN SYSSSYSTEM:SYSGEN 
SYSGEN> USE CURRENT 
SYSGEN> SHOW GBLSECTIONS 

Parameter name      Current  Default  Minimum Maximum  Unit  Dynamic
-----
GBLSECTIONS         512     250      20    4095  Sections
```

```
SYSGEN> EXIT 
```

The last number displayed is the maximum number of global sections. Compare this number to the number of global sections in use displayed by the OpenVMS Install Utility. PL/I requires the global sections provided in Table 1–2. Therefore, if the number of global sections used, plus the number listed in Table 1–2 exceeds the maximum number of global sections, you must increase the number of available global sections before you can install PL/I. To increase the number, you can increase the GBLSECTIONS system parameter with SYSGEN by editing the file SYSSSYSTEM:MODPARAMS.DAT and then invoking the SYSSUPDATE:AUTOGEN.COM procedure. For more information on the AUTOGEN.COM procedure, see your processor-specific installation/operations guide.

If the number of global sections used plus the number provided in Table 1–2 is less than the maximum number of global sections, you can exit from SYSGEN and continue.

As an easier alternative method of finding the number of free global sections and pages available on your system, you can use the WRITE command with the F\$GETSYI lexical function. The following example shows how to get this information at your terminal (the default for SYSS\$OUTPUT):

```
$ WRITE SYSS$OUTPUT F$GETSYI("FREE_GBLPAGES") 
15848
$ WRITE SYSS$OUTPUT F$GETSYI("FREE_GBLSECTS") 
24
```

If the values displayed by the system are greater than the values in Table 1–2, you do not need to increase the values for these parameters. If the value of free global pages or global sections is less than the value in Table 1–2, you must increase the system parameter setting.

Section 1.4.2.3 describes the procedures for increasing these values as well as those of other system parameters. Refer to the OpenVMS documentation on system management and operations for more information.

#### 1.4.2.3 Changing System Parameter Values with AUTOGEN

Use the AUTOGEN command procedure to change system parameters. AUTOGEN automatically adjusts values for parameters that are associated with the ones you reset manually. To change system parameters with AUTOGEN, you must edit the following file:

```
SYS$SYSTEM:MODPARAMS.DAT
```

For example, to change the setting for the WSMAX system parameter, add the following line to the file:

```
WSMAX = 1024
```

Or, to change the setting for incremental SYSGEN parameters:

```
ADD_GBLPAGES = 2000
```

Then run the AUTOGEN procedure to recalculate your system parameters. Enter the following command at the DCL prompt:

```
$ @SYS$UPDATE:AUTOGEN GETDATA REBOOT 
```

AUTOGEN performs an automatic system shutdown and reboots when it has finished. Rebooting your system makes the new parameter values active. You may also wish to add the [NO]FEEDBACK parameter to the AUTOGEN command line.

#### 1.4.3 Process Account Quotas and Privileges

To use PL/I, each process account must have TMPMBX and NETMBX privileges and the following requirements:

**Table 1–3 Process Account Quotas**

Account Quotas	Minimum
AST limit (ASTLM)	24
Buffered I/O quota (BIOLM)	18
Buffered I/O byte count quota (BYTLM)	18000
Direct I/O quota (DIOLM)	18
Enqueue quota (ENQLM)	30
Open file limit (FILLM)	20
Paging file quota (PGFLQUOTA)	4096 pages
Subprocess creation quota (PRCLM)	by user requirement
Working set size (WSDEF)	500 pages (optimally, 1024 to 2048 pages)

**Note**

The quotas listed (the paging file in particular) are only the minimum required to compile small programs. Compiling larger modules can require larger values for BYTLM and PGFLQUO. When compiling large modules you should also set WSDEF to at least 2048 pages to prevent excessive page faulting.

Use the OpenVMS Authorize Utility (AUTHORIZE) to compare the current values of these quotas with the requirements for PL/I. For example, the account used in the following example is the SYSTEM account:

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

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

#### 1.4.4 Using VMSINSTAL

After you log in to a privileged account to install PL/I, invoke VMSINSTAL, the command procedure that installs this product. Steps 1 and 2 of the installation procedure in Section 2.1 and Section 2.2 show an example of this procedure.

Use the following syntax to invoke the VMSINSTAL procedure. For VAX systems:

```
$ @SYS$UPDATE:VMSINSTAL PLI035 ddcu. [OPTIONS N]
```

and for AXP systems:

```
$ @SYS$UPDATE:VMSINSTAL DPLI040 ddcu. [OPTIONS N]
```

**ddcu:**

Represents a device name where the distribution volumes will be mounted for the PL/I installation media, where *dd* is the device code, *c* is the controller code, and *u* is the unit number. It is not necessary to use the console drive to install PL/I. If you do use the console drive, you should replace any media you removed from the drive. MUA0: is the device name used in examples in this document.

## 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 
```

When you invoke VMSINSTAL, it checks the following:

- If 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.
- If 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
- VMSINSTAL checks if any users are logged in to the system. If VMSINSTAL detects that there are users logged in to the system, you are asked if you want to continue the installation. If you want to continue, type YES. If you want to stop the installation, press Return.

### 1.4.5 Backing Up Your System Disk

At the beginning of the installation, VMSINSTAL asks if you have backed up your system disk. Digital recommends that you do a system disk backup before installing any software. Use the backup procedures that are established at your site.

## Installing PL/I

This chapter describes the installation procedures for PL/I. Please follow the preparations described in Chapter 1 and read the release notes before you begin any of the procedures in this chapter. Section 2.1 explains each step in the installation procedure for OpenVMS VAX. Section 2.2 explains the installation procedure for OpenVMS AXP.

### 2.1 Installation Procedure for PL/I for OpenVMS VAX

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.

**Step 1: Log in to a privileged account and set your default device and directory to SYS\$UPDATE.**

```

Return
Username: SYSTEM Return
Password: Return
$ SET DEFAULT SYS$UPDATE Return

```

**Step 2: Invoke VMSINSTAL.**

```
$ @VMSINSTAL PLI03n MUA0: OPTIONS N Return
```

VAX/VMS Software Product Installation Procedure V5.4

It is dd-mmm-yyyy at hh:mm.

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

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

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

**Step 3: Insert the first installation kit volume.**

Please mount the first volume of the set on MUA0:.

```
* Are you ready? YES Return
```

The following products will be processed:

```
PLI V3.n
```

```
Beginning installation of PLI V3.n at hh:mm
```

```
%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 included with this kit are always copied to SYSSHELP.

Additional Release Notes Options:

1. Display release notes
2. Print release notes
3. Both 1 and 2
4. None of the above

\* Select option [2]:

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. After you view them, VMSINSTAL copies the release notes to SYSSHELP.

If you select option 2, VMSINSTAL prompts you for a queue name. Either enter a queue name or press Return to send the file to the default output print device. After you print them, VMSINSTAL copies the release notes to SYSSHELP.

\* Queue name [SYSS\$PRINT]:

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 enter a queue name or press Return to send the file to the default output print device. The PL/I release notes are then copied to SYSSHELP.

If you select option 4, VMSINSTAL does not display, print, or copy the release notes; typically this option is selected when the user wants to terminate the installation.

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#### Note

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This version of the release notes file installed by VMSINSTAL is labeled with the current product name and version number (for example, PLI\$035.RELEASE\_NOTES). Take care not to delete release notes for previous versions of PL/I.

---

Next, VMSINSTAL displays the following prompt:

\* Do you want to continue the installation [N]?: Y

```
%VMSINSTAL-I-REMOVED, The product's release notes have been successfully
moved to SYSSHELP.
```

```
VAX PL/I Installation is commencing ...
```

If you want to continue the installation, enter Y and press Return. If you enter N or press Return, VMSINSTAL discontinues the installation. In either case, VMSINSTAL moves the release notes to SYSSHELP.

#### Step 5: Insert the subsequent installation kit volumes.

```
%BACKUP-I-READYREAD, mount volume 2 on _MUA0: for reading
```

Enter "YES" when ready: YES

VMSINSTAL prompts you to insert the next volume and waits for you to enter YES after inserting it. If you enter NO, VMSINSTAL displays the prompt again. This prompt is displayed only if your installation kit contains more than one volume.



### Step 6: Respond to license registration queries.

PL/I supports the OpenVMS 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 PL/I. The following is an example of such information:

```
Product:      PLI
Producer:     DEC
Version:      3.n
Release Date: dd-mmm-yyyy
```

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

If you have not registered and loaded your authorization key, you must answer NO to this question. You have to 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 restart the installation.

### Step 7: Select installation options.

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

The directories SYSSHELP, SYSSMESSAGE, SYSSLIBRARY and SYSSSYSTEM may contain previous versions of PL/I 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 enter NO to keep them.

Do you want to run the IVP after the installation [YES]?

The Installation Verification Procedure (IVP) checks if the installation procedure was successful. Press Return to run the IVP after the installation. If you do not want to run the IVP, enter NO in response to the prompt.

The dialogue continues:

Do you want to decompress PLI\$STARLET? [YES]?

You can install the PL/I system library in either a compressed or decompressed form.

If you install a compressed system library, the library uses about 2100 blocks less disk space than in its uncompressed form. During compilations that include modules from the library, however, the system uses more CPU time.

If you install an uncompressed system library, the installation requires more time because the library is uncompressed during the installation. Also, the decompressed form requires that about 4500 additional blocks be available during the installation procedure.

### Step 8: Read informational messages.

The PL/I installation procedure produces a number of informational messages that report on the progress of the installation. The messages include a list of all new and modified files written during the PL/I installation.

Your OpenVMS system will now be modified to include the following new and modified files:

```
[SYSEXE]PLI$COMPILER.EXE      [new]
[SYSHLP]HELPLIB.HLB          [modified]
[SYSHLP]PLI$03n.RELEASE_NOTES [new]
[SYSHLP.EXAMPLES.PLI]*.*     [new]
[SYSLIB]DCLTABLES.EXE        [modified]
[SYSLIB]PLI$STARLET.TLB      [new]
[SYSMGR]PLI$STARTUP.COM      [new]
[SYSMMSG]PLI$COMPILER_MSG.EXE [new]
[SYSTEST]PLI$IVP.COM         [new]
[SYSTEST.PLI]*.*            [new]
```

The file SYS\$MANAGER:PLI\$STARTUP.COM contains commands to be executed at system startup to allow for the best compilation performance. You may want to invoke this command file from your system's site specific start up file. This command file does not have to be invoked for correct operation of VAX PL/I.

**If you have requested a file purge at step 7, previous versions of the PL/I files are now purged.**

**The following message indicates a successful installation:**

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

**If the installation procedure is successful, the new or modified files are moved to their target directories.**

**The SYS\$HELP:HELPLIB.HLB and SYS\$LIBRARY:DCLTABLES.EXE files are updated to include the new versions of the PL/I HELP text and the command line definition, respectively.**

### **Step 9: Observe the Installation Verification Procedure.**

**If you chose to run the IVP in step 7, VMSINSTAL now calls the IVP to verify that PL/I was installed successfully.**

```
IVP test ASSIGN...
IVP test CONV...
IVP test BIF...
IVP test IO...
IVP test SYSERV...
IVP test LANG...

VAX PL/I V3.n-nnn Installation Verification Procedure completed successfully.
*** VAX PL/I Installation Verification Procedure ***
***** Ending at dd-mmm-yyyy hh:mm:ss.ss *****
Installation of PLI V3.n completed at hh:mm
```

### **Step 10: End the installation procedure.**

```
Installation of PL/I V3.n completed at hh:mm
```

```
VMSINSTAL procedure done at hh:mm
```

```
$ LOGOUT 
SYSTEM    logged out at dd-mmm-yyyy hh:mm:ss.ss
```

**When the product installation procedure is complete, you can choose to install more products or to log out (as shown here). 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 continue to use the system manager's account and you want to restore these symbols, you should log out and log in again.**

## 2.1.1 Error Conditions

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

```
%VMSINSTAL-E-INSFAIL, The installation of PL/I
V3.n has failed.
```

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

- Incorrect operating system version
- Incorrect prerequisite software version
- Insufficient quotas necessary for successful installation (see Section 1.4.3)
- Process quotas required by VMSINSTAL are incorrect (see Section 1.4.3)
- OpenVMS HELP library currently in use
- PAK for PL/I registered incorrectly, not registered, or unloaded.

For descriptions of the error messages generated by these conditions, see the *VMS System Messages and Recovery Procedures Reference Manual* or your processor-specific installation/operations guide.

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 fails, you must restart the installation procedure from step 2. If the installation fails due to an IVP failure, contact a Digital service representative.

## 2.1.2 Installing PL/I as a Shared Image

If PL/I will be used extensively on your system, you can reduce the system overhead and memory requirements by installing it as a shared image. To perform the installation on a system that is currently running, use the VMS Install Utility while you are logged in to a privileged account. If errors occur, see the *OpenVMS Messages Utility Reference Manual* manual.

First, determine the number of available global pages and global sections on your system. See the Installation Procedure Requirements section for information on how to do this.

If you have enough available global pages and global sections, install PL/I as a shared image using the supplied PL/I startup procedure.

```
SYS$MANAGER:PLI$STARTUP.COM
```

This procedure installs the compiler and run-time library as shared images.

Update the system startup file to install PL/I.

To ensure that PL/I is installed as a shared image each time the system is bootstrapped, include the following line in SYS\$MANAGER:SYSTARTUP\_V5.COM (the site-specific startup file):

```
$ @SYS$MANAGER:PLI$STARTUP
```

## 2.2 Installation Procedure for PL/I for OpenVMS AXP

This section explains each step in the installation procedure and contains excerpts from the procedure. 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.

### Step 1: Log in to a privileged account and set your default device and directory to SYS\$UPDATE.

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

### Step 2: Invoke VMSINSTAL.

```
$ @VMSINSTAL DPLI04n MKA0: OPTIONS N Return
```

OpenVMS AXP Software Product Installation Procedure V1.5

It is *dd-mmm-yyyy* at *hh:mm*.  
Enter a question mark (?) at any time for help.

\* Are you satisfied with the backup of your  
system disk [YES]? Return

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

### Step 3: Insert the first installation kit volume.

Please mount the first volume of the set on MKA0:.

\* Are you ready? YES Return  
The following products will be processed:

DPLI V4.n

Beginning installation of DPLI V4.n at *hh:mm*

%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 included with this kit are always copied to SYS\$HELP.

Additional Release Notes Options:

1. Display release notes
2. Print release notes
3. Both 1 and 2
4. None of the above

\* Select option [2]: Return

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. After you view them, VMSINSTAL copies the release notes to SYS\$HELP.

If you select option 2, VMSINSTAL prompts you for a queue name. Either enter a queue name or press Return to send the file to the default output print device. After you print them, VMSINSTAL copies the release notes to SYS\$HELP.

\* Queue name [SYS\$PRINT]: Return

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 enter a queue name or press Return to send the file to the default output print device. The PL/I release notes are then copied to SYSSHELP.

If you select option 4, 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 (for example, DPLI040.RELEASE\_NOTES). Take care not to delete release notes for previous versions of PL/I.

---

Next, VMSINSTAL displays the following prompt:

```
* Do you want to continue the installation [N]?: Y 
%VMSINSTAL-I-REMOVED, The product's release notes have been successfully
  moved to SYSSHELP.
  DEC PL/I Installation is commencing ...
```

If you want to continue the installation, enter Y and press Return. If you enter N or press Return, VMSINSTAL discontinues the installation. In either case, VMSINSTAL moves the release notes to SYSSHELP.

**Step 5: Insert the subsequent installation kit volumes.**

```
%BACKUP-I-READYREAD, mount volume 2 on _MKA0: for reading
Enter "YES" when ready: YES 
```

VMSINSTAL prompts you to insert the next volume and waits for you to enter YES after inserting it. If you enter NO, VMSINSTAL displays the prompt again. This prompt is displayed only if your installation kit contains more than one volume.

**Step 5a: Respond to compiler installation query.**

)

```
The DEC PL/I for OpenVMS AXP(tm) Systems T4.0 kit contains the
compiler, message files and help files. These files require 11000
blocks during installation and will occupy 11000 blocks after the
installation.
```

```
* Do you want to install the DEC PL/I compiler [YES]?
```

**Step 5b: Respond to compressed or uncompressed system library query.**

)

```
* Do you want to decompress PLI$STARLET [NO]?
```

You can install the PL/I system library, PLI\$STARLET, in either a compressed or decompressed form.

If you install a compressed system library, the library uses about 2100 blocks less disk space than in its uncompressed form. During compilations that include modules from the library, however, the system uses more CPU time.

If you install an uncompressed system library, the installation requires more time because the library is uncompressed during the installation. Also, the decompressed form requires that about 4500 additional blocks be available during the installation procedure.

#### Step 5c

: Respond to example programs query\axpvig\_17)

\* Do you want to install the DEC PL/I examples [YES]?

The DEC PL/I T4.0 kit contains a set of example programs using many features of DEC PL/I and OpenVMS. The example files require 250 blocks during installation and will occupy 250 blocks after installation.

#### Step 5d

: Respond to special debugger query\axpvig\_18)

\* Do you want to install the special debugger [YES]?

The DEC PL/I T4.0 kit contains a special version of the OpenVMS AXP. Debugger. This debugger supports debugging programs compiled with the DEC PL/I compiler. The debugger will require 13500 blocks during installation and 13500 after installation.

---

#### Note

---

If you chose to install this debugger, it will not replace the existing system debugger, but will instead be installed in SYS\$COMMON:[DECPLI]. Please see the release notes on how to select between the DEC PL/I special debugger and the system debugger. If you chose not to install the debugger at this time, you may install it later from this same kit.

---

The release notes for the debugger may be found in:

SYS\$COMMON:[DECPLI]PLI\_DEBUGGER.RELEASE\_NOTES

Please inform your user community of the existence of this debugger.

**Step 5e: Respond to query on purging of files from previous versions.**

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

The directories SYS\$HELP, SYS\$MESSAGE, SYS\$LIBRARY and SYS\$SYSTEM may contain previous versions of PL/I 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 the Return key to purge the files or enter NO to keep them.

#### Step 5f

: Respond to Installation Verification Procedure query\axpvig\_20)

Do you want to run the IVP after the installation [YES]?

The Installation Verification Procedure (IVP) checks if the installation procedure was successful. Press Return to run the IVP after the installation. If you do not want to run the IVP, enter NO in response to the prompt.

**: Respond to license registration queries.**

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

PL/I supports the OpenVMS 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 PL/I. The following is an example of such information:

```
Product:      PLI
Producer:    DEC
Version:     4.n
Release Date: dd-mmm-yyyy
```

If you have not registered and loaded your authorization key, you must answer NO to this question. You have to 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 restart the installation.

**Step 7: Select installation options.**

**Step 8: Read informational messages.**

The PL/I installation procedure produces a number of informational messages that report on the progress of the installation. The messages include a list of all new and modified files written during the PL/I installation:

```
[SYSHLP]DPLI040.RELEASE_NOTES           [new]
[SYSEXE]DPLI$COMPILER.EXE               [new]
[SYSMSG]DPLI$COMPILER_MSG.EXE           [new]
[SYSHLP]HELPLIB.HLB                     [modified]
[SYSLIB]DCLTABLES.EXE                   [modified]
[SYSTEST.DECPLI]DPLI$IVPASSIGN.PLI       [new]
[SYSTEST.DECPLI]DPLI$IVPBIF.PLI         [new]
[SYSTEST.DECPLI]DPLI$IVPLANG.PLI        [new]
[SYSTEST.DECPLI]DPLI$IVPPRINT.PLI       [new]
[SYSTEST.DECPLI]DPLI$IVPSYSERV.PLI      [new]
[SYSTEST]DPLI$IVP.COM                   [new]
[SYS$STARTUP]DPLI$STARTUP.COM           [new]
[SYSLIB]PLI$STARLET.TLB                 [new]
[DECPLI]DBG$HELP.HLB                   [new]
[DECPLI]DBG$HELP.PS                    [new]
[DECPLI]DBG$HELP.TXT                   [new]
[DECPLI]DBG$UIHELP.HLB                 [new]
[DECPLI]DBGTBKMSG.EXE                   [new]
[DECPLI]DEBUG.EXE                      [new]
[DECPLI]DEBUGSHR.EXE                   [new]
[DECPLI]DEBUGUIHR.EXE                  [new]
[DECPLI]PLI_DEBUGGER.RELEASE_NOTES     [new]
[DECPLI]SETUP_PLI_DEBUGGER.COM          [new]
[DECPLI]VMSDEBUGCUSTUIL.UID            [new]
[DECPLI]VMSDEBUGUIL.UID                [new]
[SYSHLP.EXAMPLES.DECPLI]AREA-EXAMPLE.PLI [new]
[SYSHLP.EXAMPLES.DECPLI]BUILD_PHONE.COM [new]
[SYSHLP.EXAMPLES.DECPLI]CONSTANTS.PLI   [new]
[SYSHLP.EXAMPLES.DECPLI]DATABASE.PLI    [new]
[SYSHLP.EXAMPLES.DECPLI]DECOVF.PLI     [new]
[SYSHLP.EXAMPLES.DECPLI]ENTRY.PLI      [new]
[SYSHLP.EXAMPLES.DECPLI]EXAMPLES.TXT   [new]
[SYSHLP.EXAMPLES.DECPLI]GET_COMMAND_LINE.PLI [new]
[SYSHLP.EXAMPLES.DECPLI]GLOBAL.PLI     [new]
[SYSHLP.EXAMPLES.DECPLI]INTOVF.PLI     [new]
[SYSHLP.EXAMPLES.DECPLI]KEYS.PLI       [new]
[SYSHLP.EXAMPLES.DECPLI]LINES.PLI      [new]
```

```

[SYSHLP.EXAMPLES.DECPLI]MTH$DEXP.PLI          [new]
[SYSHLP.EXAMPLES.DECPLI]MTH$HEXP.PLI         [new]
[SYSHLP.EXAMPLES.DECPLI]OLDFILE.DAT          [new]
[SYSHLP.EXAMPLES.DECPLI]OPERATIONS.PLI       [new]
[SYSHLP.EXAMPLES.DECPLI]OTS$CVT_TO_L.PLI     [new]
[SYSHLP.EXAMPLES.DECPLI]OTS$CVT_TZ_L.PLI     [new]
[SYSHLP.EXAMPLES.DECPLI]PARTLIST.TLB         [new]
[SYSHLP.EXAMPLES.DECPLI]PHONE.FDL            [new]
[SYSHLP.EXAMPLES.DECPLI]PHONE.PLI            [new]
[SYSHLP.EXAMPLES.DECPLI]RANDOM.PLI            [new]
[SYSHLP.EXAMPLES.DECPLI]SCREEN.PLI           [new]
[SYSHLP.EXAMPLES.DECPLI]SIGN_EXTEND.PLI      [new]
[SYSHLP.EXAMPLES.DECPLI]STATE.TXT            [new]
[SYSHLP.EXAMPLES.DECPLI]UM-02-01.PLI         [new]
[SYSHLP.EXAMPLES.DECPLI]UM-06-01.PLI         [new]
[SYSHLP.EXAMPLES.DECPLI]UM-07-01.PLI         [new]
[SYSHLP.EXAMPLES.DECPLI]UM-11-02.PLI         [new]
[SYSHLP.EXAMPLES.DECPLI]UM-11-03.PLI         [new]
[SYSHLP.EXAMPLES.DECPLI]UM-11-04.PLI         [new]
[SYSHLP.EXAMPLES.DECPLI]UM-11-05.PLI         [new]
[SYSHLP.EXAMPLES.DECPLI]UM-11-06.PLI         [new]
[SYSHLP.EXAMPLES.DECPLI]UM-11-07.PLI         [new]
[SYSHLP.EXAMPLES.DECPLI]UM-11-08.PLI         [new]
[SYSHLP.EXAMPLES.DECPLI]UM-11-09.PLI         [new]
[SYSHLP.EXAMPLES.DECPLI]UM-11-10.PLI         [new]
[SYSHLP.EXAMPLES.DECPLI]UM-11-11-SORTED.DAT  [new]
[SYSHLP.EXAMPLES.DECPLI]UM-11-11-UNSORTED.DAT [new]
[SYSHLP.EXAMPLES.DECPLI]UM-11-11.PLI         [new]
[SYSHLP.EXAMPLES.DECPLI]UM-11-12-SORTED.DAT  [new]
[SYSHLP.EXAMPLES.DECPLI]UM-11-12-TEMP.DAT    [new]
[SYSHLP.EXAMPLES.DECPLI]UM-11-12.PLI         [new]
[SYSHLP.EXAMPLES.DECPLI]UM-13-01.PLI         [new]
[SYSHLP.EXAMPLES.DECPLI]UM-13-02.PLI         [new]
[SYSHLP.EXAMPLES.DECPLI]UM-14-01.PLI         [new]
[SYSHLP.EXAMPLES.DECPLI]UM-14-02.PLI         [new]
[SYSHLP.EXAMPLES.DECPLI]USER_OPEN.PLI        [new]
[SYSHLP.EXAMPLES.DECPLI]WILDCARD.PLI         [new]

```

The file `SYSS$MANAGER:DPLIS$STARTUP.COM` contains commands to be executed at system startup to allow for the best compilation performance. You may want to invoke this command file from your system's site-specific startup file. This command file does not have to be invoked for correct operation of DEC PL/I.

If you have requested a file purge at step 7, previous versions of the PL/I files are now purged.

The following message indicates a successful installation:

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

If the installation procedure is successful, the new or modified files are moved to their target directories.

The `SYSS$HELP:HELPLIB.HLB` and `SYSS$LIBRARY:DCLTABLES.EXE` files are updated to include the new versions of the PL/I HELP text and the command line definition, respectively.



### Step 9: Observe the Installation Verification Procedure.

If you chose to run the IVP in step 7, VMSINSTAL now calls the IVP to verify that PL/I was installed successfully.

```
*-----*
*   Installation Verification Procedure   *
* DEC PL/I for OpenVMS AXP(tm) Systems V4.0 *
*-----*

IVP test ASSIGN...
IVP test BIF...
IVP test SYSERV...

***** DEC PL/I T4.0-25-268I Installation Verification Successful *****
```

### Step 10: End the installation procedure.

```
*-----*
* Completed Installation Verification for *
* DEC PL/I for OpenVMS AXP(tm) Systems V4.0 *
*-----*

Installation of DPLI V4.0 completed at hh:mm

Adding history entry in VMI$ROOT:[SYSUPD]VMSINSTAL.HISTORY

Creating installation data file: VMI$ROOT:[SYSUPD]DPLI040.VMI_DATA

VMSINSTAL procedure done at hh:mm

$ LOGOUT 
SYSTEM    logged out at dd-mmm-yyyy hh:mm:ss.ss
```

When the product installation procedure is complete, you can choose to install more products or to log out (as shown here). 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 continue to use the system manager's account and you want to restore these symbols, you should log out and log in again.

## 2.2.1 Error Conditions

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

```
%VMSINSTAL-E-INSFAIL, The installation of PL/I
V4.n has failed.
```

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

- Incorrect operating system version
- Incorrect prerequisite software version
- Insufficient quotas necessary for successful installation (see Section 1.4.3)
- Process quotas required by VMSINSTAL are incorrect (see Section 1.4.3)
- OpenVMS HELP library currently in use
- PAK for PL/I registered incorrectly, not registered, or unloaded.

For descriptions of the error messages generated by these conditions, see the *VMS System Messages and Recovery Procedures Reference Manual* or your processor-specific installation/operations guide.

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 fails, you must restart the installation procedure from step 2. If the installation fails due to an IVP failure, contact a Digital service representative.

### 2.2.2 Installing DEC PL/I as a Shared Image

If PL/I will be used extensively on your system, you can reduce the system overhead and memory requirements by installing it as a shared image. To perform the installation on a system that is currently running, use the OpenVMS Install Utility while you are logged in to a privileged account. If errors occur, see the *OpenVMS Messages Utility Reference Manual* manual.

First, determine the number of available global pages and global sections on your system. See the Installation Procedure Requirements section for information on how to do this.

If you have enough available global pages and global sections, install PL/I as a shared image using the supplied startup procedure:

```
SYS$MANAGER:DPLI$STARTUP.COM
```

This procedure installs the compiler and run-time library as shared images.

Update the system startup file to install PL/I.

To ensure that PL/I is installed as a shared image each time the system is bootstrapped, include the following line in SYSS\$MANAGER:SYSTARTUP\_V5.COM (the site-specific startup file):

```
$ @SYS$MANAGER:DPLI$STARTUP
```

---

## After the Installation

PL/I is now installed and can be invoked by all users with the PLI DCL command.

The installation procedure modifies the DCL command table so that the PLI command is recognized and processed. However, the previous command table is still in effect for those users who are currently logged in. All logged-in users who want to use the PLI command for the newly installed product must log out of the system and log in again.

If PL/I is used extensively on your system, you can reduce system overhead requirements by installing it as a shareable image using the OpenVMS Install Utility. For more information, read Section 2.1.2 or Section 2.2.2.

### 3.1 Running the Installation Verification Procedure Separately

The Installation Verification Procedure (IVP) is usually run at installation. If you want to run the IVP separately to ensure the integrity of installed files if system problems occur, execute the following command procedure:

#### For OpenVMS VAX:

```
$ @SYS$SYSROOT:[SYSTEST]PLI$IVP.COM 
```

If the IVP fails for any reason, the following messages are displayed:

```
*** VAX PL/I Installation Verification Procedure ***
**** Beginning at dd-mmm-yyyy hh:mm:ss.ss ****

IVP test ASSIGN...

***** VAX PL/I Installation Verification FAILED *****

*** VAX PL/I Installation Verification Procedure ***
**** Ending at dd-mmm-yyyy hh:mm:ss.ss ****
```

#### For OpenVMS AXP:

```
$ @SYS$SYSROOT:[SYSTEST]PLI$IVP.COM 
```

If the IVP fails for any reason, the following messages are displayed:

```
*-----*
* Installation Verification Procedure *
* DEC PL/I for OpenVMS AXP(tm) Systems V4.0 *
*-----*

*** DEC PL/I Installation Verification Procedure ***
**** Beginning at dd-mmm-yyyy hh:mm:ss.ss ****

IVP test ASSIGN...

***** DEC PL/I Installation Verification FAILED *****
```

```
*** DEC PL/I Installation Verification Procedure ***
**** Ending at dd-mmm-yyyy hh:mm:ss ****
```

## 3.2 Installing PL/I on a VMSccluster

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

1. Issue the LICENSE LOAD command to activate the license on each node in the VMSccluster on which PL/I is to be executed.
2. To use the product on other nodes in the VMSccluster, you must replace the version of the DCL tables installed on the other VMSccluster nodes. To do this, perform the following steps:
  - a. Log in to a node on the cluster.
  - b. Run INSTALL and enter the following command at the INSTALL> prompt:

```
INSTALL> REPLACE SYS$LIBRARY:DCLTABLES.EXE 
```
  - c. Repeat steps *a* and *b* for each node of the cluster.

As a faster alternative, you can use the SYSMAN utility to replace the DCL tables on all cluster nodes. To do this, perform the following steps.

1. Log in to a node on the cluster.
2. Run SYSMAN and enter the following commands at the SYSMAN> prompt:

```
SYSMAN> SET ENVIRONMENT/CLUSTER 
SYSMAN> DO INSTALL REPLACE SYS$LIBRARY::DCLTABLES.EXE 
```

You need do this on only one node of the cluster, and all nodes will be updated.

## 3.3 Maintenance Updates

Digital may periodically issue maintenance updates of PL/I. Each update consists of an installation kit. You should install this kit as described herein 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 3.0, the version number of the first maintenance update will be 3.1. In addition, the maintenance update includes new release notes. The release notes describe the changes that have been made to PL/I since the previous release.

The update release notes are online. To locate the release notes after installing this product, type or print one of the following files:

**VAX:** SYS\$HELP:PLI\$035.RELEASE\_NOTES

**AXP:** SYS\$HELP:DPLI040.RELEASE\_NOTES

or, enter the following command:

```
$ HELP PLI RELEASE_NOTES 
```

### 3.4 Determining and Reporting Problems

If an error occurs while using PL/I and you believe that the error is caused by a problem with PL/I, take one of the following actions:

- If you purchased PL/I within the past 90 days and you think the problem is caused by a software error, you can submit a Software Performance Report (SPR).
- If you have a Basic or DECsupport Software Agreement, call your Customer Support Center. With these services, you receive telephone support that provides high-level advisory and remedial assistance. For more information, contact your local Digital service representative.
- If you have a Self-Maintenance Software Agreement, you can submit a Software Performance Report (SPR).

If you find an error in the PL/I documentation, complete and submit the Reader's Comments form at the back of the document containing the error. Include the section and page number on which the error occurred.

# A

---

## Sample Installation

This appendix contains sample installations of PL/I on OpenVMS VAX and OpenVMS AXP. Note that these are only sample installations. The installation procedure may be modified in maintenance updates of this product. Because this installation guide is not always revised for maintenance updates, be sure to read the *Read Before Installing or Using PL/I* letter before you install this product. This letter notes any significant changes in the installation that vary from this sample.

### A.1 Installing PL/I on OpenVMS VAX

```
Welcome to VAX/VMS V5.4
Username: SYSTEM
Password:
    Welcome to VAX/VMS version V5.4 on node GULCH
    Last interactive login on Tuesday, 10-DEC-1991 10:11
    Last non-interactive login on Friday, 12-DEC-1991 14:07
$ @SYS$UPDATE:VMSINSTAL PLI035 MUA0: OPTIONS N
    VAX/VMS Software Product Installation Procedure V5.4

It is 13-DEC-1991 at 13:31.
Enter a question mark (?) at any time for help.
* Are you satisfied with the backup of your system disk [YES]?

The following products will be processed:
    PLI V3.5
        Beginning installation of PLI V3.5 at 13:32
%VMSINSTAL-I-RESTORE, Restoring product saveset A ...

    Release Notes Options:
    1. Display release notes
    2. Print release notes
    3. Both 1 and 2
    4. None of the above
* Select option [2]:
* Queue name [SYS$PRINT]:
Job PLI$035.RELEASE_NOTES (queue SYS_PRINT, entry 312) started on GULCH_LPA0
* Do you want to continue the installation? Y
%VMSINSTAL-I-REMOVED , The product's release notes have been successfully
moved to SYS$HELP.

    Product:      PLI
    Producer:     DEC
    Version:      3.5
    Release Date: 13-DEC-1991
```

- \* Does this product have an authorization key registered and loaded? Y
- \* Do you want to purge files replaced by this installation [YES]?

This kit contains an Installation Verification Procedure (IVP) to verify the correct installation of VAX PL/I. The IVP will be left in:

```
SYSS$COMMON:[SYSTEST]PLI$IVP.COM
```

After the installation is complete, you can invoke the command file at any time to verify that VAX PL/I is installed and working correctly.

- \* Do you want to run the IVP after the installation [YES]?

This kit contains a file summarizing the new features, changes, restrictions, and compatibility issues in this release of VAX PL/I. This file is named PLI\$035.RELEASE\_NOTES and has been placed in SYSS\$HELP:.

This file contains information valuable to VAX PL/I programmers. Please inform your user community of this file's existence.

The VAX PL/I system interface library PLI\$STARLET.TLB can be installed either in compressed form or in decompressed form. The compressed form of the library requires approximately 1500 blocks less disk space, but requires more CPU time during compilations of programs that include modules from the library. Installing the decompressed form of the library will require more time for this installation to complete, because the library decompression is performed by the installation; also, the decompressed form will require approximately 3000 additional blocks to be available during the installation procedure.

- \* Do you want to decompress PLI\$STARLET [YES]?

You have answered all of the questions for this installation. The installation will now execute in 5 to 30 minutes without further intervention, depending on your configuration, installation media, and so forth.

```
%VMSINSTAL-I-RESTORE, Restoring product saveset B ...
Decompressing PLI$STARLET...
```

```
%VMSINSTAL-I-SYSDIR, This product creates system disk directory
VMI$ROOT:[SYSTEST.PLI].
%VMSINSTAL-I-SYSDIR, This product creates system disk directory
VMI$ROOT:[SYSHLP.EXAMPLES.PLI].
```

Your VMS system will now be modified to include the following new and modified files:

```
[SYSEXE]PLI$COMPILER.EXE      [new]
[SYSHLP]HELPLIB.HLB           [modified]
[SYSHLP]PLI$035.RELEASE_NOTES [new]
[SYSHLP.EXAMPLES.PLI]*.*      [new]
[SYSLIB]DCLTABLES.EXE         [modified]
[SYSLIB]PLI$STARLET.TLB       [new]
[SYSMGR]PLI$STARTUP.COM       [new]
[SYSMMSG]PLI$COMPILER_MSG.EXE [new]
[SYSTEST]PLI$IVP.COM          [new]
[SYSTEST.PLI]*.*              [new]
```

The file SYSS\$MANAGER:PLI\$STARTUP.COM contains commands to be executed at system startup to allow for the best compilation performance. You may want to invoke this command file from your system's site specific start up file. This command file does not have to be invoked for correct operation of VAX PL/I.

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

```
*** VAX PL/I Installation Verification Procedure ***
**** Beginning at 13-DEC-1991 13:51:50.06 ****

IVP test ASSIGN...
IVP test CONV...
IVP test BIF...
IVP test IO...
IVP test SYSERV...
IVP test LANG...

***** VAX PL/I V3.5 Installation Verification Successful *****

*** VAX PL/I Installation Verification Procedure ***
**** Ending at 13-DEC-1991 13:55:41.14 ****
      Installation of PLI V3.5 completed at 13:55
```



## A.2 Installing PL/I on OpenVMS AXP

```
$ @sys$update:vmsinstal dpli040 mka0: options none
OpenVMS ALPHA Software Product Installation Procedure V1.5

It is 26-AUG-1993 at 18:45.
Enter a question mark (?) at any time for help.
%VMSINSTAL-W-ACTIVE, The following processes are still active:
SERVER_006A
* Do you want to continue anyway [NO]? YES
* Are you satisfied with the backup of your system disk [YES]?

The following products will be processed:
DPLI V4.0
Beginning installation of DPLI V4.0 at 18:45
%VMSINSTAL-I-RESTORE, Restoring product save set A ...
%VMSINSTAL-I-REMOVED, Product's release notes have been moved to SYS$HELP.

      *-----*
      *   Installation Command Procedure for   *
      * DEC PL/I for OpenVMS AXP(tm) Systems T4.0 *
      *-----*

The DEC PL/I for OpenVMS AXP(tm) Systems T4.0 kit contains the
compiler, message files and help files. These files require 11000
blocks during installation and will occupy 11000 blocks after the
installation.
* Do you want to install the DEC PL/I compiler [YES]?

PLI$STARLET is supplied in compressed (reduced data) format. This
format saves disk space, but requires more CPU time during compilation.
Decompressing PLI$STARLET will require an additional 4520
blocks of disk space.
* Do you want to decompress PLI$STARLET [NO]?

The DEC PL/I T4.0 kit contains a set of example programs
using many features of DEC PL/I and OpenVMS. The example files
require 250 blocks during installation and will occupy
250 blocks after installation.
* Do you want to install the DEC PL/I examples [YES]?
The DEC PL/I 040 kit contains a special version of the OpenVMS AXP
Debugger. This debugger supports debugging programs compiled with the
DEC PL/I compiler. The debugger will require 13500 blocks during
installation and 13500 after installation.

                        Note

If you chose to install this debugger, it will not replace the existing
system debugger, but will instead be installed in SYS$COMMON:[DECPLI].
Please see the release notes on how to select between the DEC PL/I
special debugger and the system debugger. If you chose not to install
the debugger at this time, you may install it later from this same kit.

The release notes for the debugger may be found in:

      SYS$COMMON:[DECPLI]PLI_DEBUGGER.RELEASE_NOTES

Please inform your user community of the existence of this debugger.

* Do you want to install the special debugger [YES]?
```

- \* Do you want to purge files replaced by this installation [YES]?
- \* Do you want to run the IVP after the installation [YES]?

Product: PLI  
Producer: DEC  
Version: 4.0  
Release Date: 22-NOV-1993

- \* Does this product have an authorization key registered and loaded? yes

This kit contains a file summarizing the new features, changes, restrictions, and compatibility issues in this release of DEC PL/I. This file is named DPLI040.RELEASE\_NOTES and has been placed in SYS\$HELP:. This file contains information valuable to DEC PL/I programmers. Please inform your user community of this file's existence.

This kit will install the following definition file:

```
SYS$LIBRARY:PLI$STARLET.TLB
```

This kit provides several examples in SYS\$COMMON:[SYSHLP.EXAMPLES.DECPLI]. The names of the files reflect the topic being demonstrated by the programs.

The IVP (Installation Verification Procedure) will be left in SYS\$TEST:DPLI\$IVP.COM. After the installation is complete, you can invoke the command file at any time to reverify that DEC PL/I is installed and working correctly.

An optional startup file has been placed in SYS\$STARTUP:DPLI\$STARTUP.COM. The file installs the DEC PL/I compiler, run-time library, and message files as shared images to improve the performance of using the DEC PL/I compiler or applications written in PL/I. If you wish to use this file, add the following DCL command to SYS\$MANAGER:SYSTARTUP\_VMS.COM

```
$ @SYS$STARTUP:DPLI$STARTUP.COM
```

All questions regarding the installation have now been asked. The installation of DEC PL/I T4.0 will now continue for 5 to 30 minutes depending on your configuration and the options requested.

Installing DEC PL/I compiler...

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

Installing DEC PL/I definition files...

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

Installing DEC PL/I example programs...

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

```
%VMSINSTAL-I-SYSDIR, This product creates system directory [SYSHLP.EXAMPLES.DECPLI].
```

Installing OpenVMS AXP DEBUG Version T2.0-PLI.000 in SYS\$COMMON:[DECPLI]...

```
%VMSINSTAL-I-RESTORE, Restoring product save set E ...
```

Your OpenVMS system will now be updated to include the following new and modified files:

[SYSHLP]DPLI040.RELEASE_NOTES	[new]
[SYSEXE]DPLI\$COMPILER.EXE	[new]
[SYSMSG]DPLI\$COMPILER_MSG.EXE	[new]
[SYSHLP]HELPLIB.HLB	[modified]
[SYSLIB]DCLTABLES.EXE	[modified]
[SYSTEST.DECPLI]DPLI\$IVPASSIGN.PLI	[new]
[SYSTEST.DECPLI]DPLI\$IVPBIF.PLI	[new]
[SYSTEST.DECPLI]DPLI\$IVPLANG.PLI	[new]
[SYSTEST.DECPLI]DPLI\$IVPPRINT.PLI	[new]
[SYSTEST.DECPLI]DPLI\$IVPSYSERV.PLI	[new]
[SYSTEST]DPLI\$IVP.COM	[new]
[SYS\$STARTUP]DPLI\$STARTUP.COM	[new]
[SYSLIB]PLI\$STARLET.TLB	[new]
[DECPLI]DBG\$HELP.HLB	[new]
[DECPLI]DBG\$HELP.PS	[new]
[DECPLI]DBG\$HELP.TXT	[new]
[DECPLI]DBG\$UIHELP.HLB	[new]
[DECPLI]DBGTBKMSG.EXE	[new]
[DECPLI]DEBUG.EXE	[new]
[DECPLI]DEBUGSHR.EXE	[new]
[DECPLI]DEBUGUIHR.EXE	[new]
[DECPLI]PLI_DEBUGGER.RELEASE_NOTES	[new]
[DECPLI]SETUP_PLI_DEBUGGER.COM	[new]
[DECPLI]VMSDEBUGCUSTUIL.UID	[new]
[DECPLI]VMSDEBUGUIL.UID	[new]
[SYSHLP.EXAMPLES.DECPLI]AREA-EXAMPLE.PLI	[new]
[SYSHLP.EXAMPLES.DECPLI]BUILD_PHONE.COM	[new]
[SYSHLP.EXAMPLES.DECPLI]CONSTANTS.PLI	[new]
[SYSHLP.EXAMPLES.DECPLI]DATABASE.PLI	[new]
[SYSHLP.EXAMPLES.DECPLI]DECOVF.PLI	[new]
[SYSHLP.EXAMPLES.DECPLI]ENTRY.PLI	[new]
[SYSHLP.EXAMPLES.DECPLI]EXAMPLES.TXT	[new]
[SYSHLP.EXAMPLES.DECPLI]GET_COMMAND_LINE.PLI	[new]
[SYSHLP.EXAMPLES.DECPLI]GLOBAL.PLI	[new]
[SYSHLP.EXAMPLES.DECPLI]INTOVF.PLI	[new]
[SYSHLP.EXAMPLES.DECPLI]KEYS.PLI	[new]
[SYSHLP.EXAMPLES.DECPLI]LINES.PLI	[new]
[SYSHLP.EXAMPLES.DECPLI]MTH\$DEXP.PLI	[new]
[SYSHLP.EXAMPLES.DECPLI]MTH\$HEXP.PLI	[new]
[SYSHLP.EXAMPLES.DECPLI]OLDFILE.DAT	[new]
[SYSHLP.EXAMPLES.DECPLI]OPERATIONS.PLI	[new]
[SYSHLP.EXAMPLES.DECPLI]OTSS\$CVT_TO_L.PLI	[new]
[SYSHLP.EXAMPLES.DECPLI]OTSS\$CVT_TZ_L.PLI	[new]
[SYSHLP.EXAMPLES.DECPLI]PARTLIST.TLB	[new]
[SYSHLP.EXAMPLES.DECPLI]PHONE.FDL	[new]
[SYSHLP.EXAMPLES.DECPLI]PHONE.PLI	[new]
[SYSHLP.EXAMPLES.DECPLI]RANDOM.PLI	[new]
[SYSHLP.EXAMPLES.DECPLI]SCREEN.PLI	[new]
[SYSHLP.EXAMPLES.DECPLI]SIGN_EXTEND.PLI	[new]
[SYSHLP.EXAMPLES.DECPLI]STATE.TXT	[new]
[SYSHLP.EXAMPLES.DECPLI]UM-02-01.PLI	[new]
[SYSHLP.EXAMPLES.DECPLI]UM-06-01.PLI	[new]
[SYSHLP.EXAMPLES.DECPLI]UM-07-01.PLI	[new]
[SYSHLP.EXAMPLES.DECPLI]UM-11-02.PLI	[new]
[SYSHLP.EXAMPLES.DECPLI]UM-11-03.PLI	[new]
[SYSHLP.EXAMPLES.DECPLI]UM-11-04.PLI	[new]
[SYSHLP.EXAMPLES.DECPLI]UM-11-05.PLI	[new]
[SYSHLP.EXAMPLES.DECPLI]UM-11-06.PLI	[new]
[SYSHLP.EXAMPLES.DECPLI]UM-11-07.PLI	[new]
[SYSHLP.EXAMPLES.DECPLI]UM-11-08.PLI	[new]
[SYSHLP.EXAMPLES.DECPLI]UM-11-09.PLI	[new]
[SYSHLP.EXAMPLES.DECPLI]UM-11-10.PLI	[new]
[SYSHLP.EXAMPLES.DECPLI]UM-11-11-SORTED.DAT	[new]
[SYSHLP.EXAMPLES.DECPLI]UM-11-11-UNSORTED.DAT	[new]
[SYSHLP.EXAMPLES.DECPLI]UM-11-11.PLI	[new]

```

[SYSHLP.EXAMPLES.DECPLI]UM-11-12-SORTED.DAT      [new]
[SYSHLP.EXAMPLES.DECPLI]UM-11-12-TEMP.DAT      [new]
[SYSHLP.EXAMPLES.DECPLI]UM-11-12.PLI          [new]
[SYSHLP.EXAMPLES.DECPLI]UM-13-01.PLI          [new]
[SYSHLP.EXAMPLES.DECPLI]UM-13-02.PLI          [new]
[SYSHLP.EXAMPLES.DECPLI]UM-14-01.PLI          [new]
[SYSHLP.EXAMPLES.DECPLI]UM-14-02.PLI          [new]
[SYSHLP.EXAMPLES.DECPLI]USER_OPEN.PLI         [new]
[SYSHLP.EXAMPLES.DECPLI]WILDCARD.PLI          [new]
%VMSINSTAL-I-MOVEFILES, Files will now be moved to their target directories...
DEC PL/I for OpenVMS AXP(tm) Systems T4.0 Startup Procedure
(C) 1993 Digital Equipment Corporation
%INSTALL-W-NOPREV, no previous entry exists - new entry created for
DISK$ALPHAVMS015:<SYS0.SYSCOMMON.SYSEXE>DPLI$COMPILER.EXE
%INSTALL-W-NOPREV, no previous entry exists - new entry created for
DISK$ALPHAVMS015:<SYS0.SYSCOMMON.SYSMSG>DPLI$COMPILER_MSG.EXE

*-----*
*   Installation Verification Procedure   *
* DEC PL/I for OpenVMS AXP(tm) Systems V4.0 *
*-----*

    IVP test ASSIGN...
    IVP test BIF...
    IVP test SYSERV...

***** DEC PL/I T4.0-25-268I Installation Verification Successful *****

*-----*
* Completed Installation Verification for *
* DEC PL/I for OpenVMS AXP(tm) Systems V4.0 *
*-----*

Installation of DPLI V4.0 completed at 18:47
    Adding history entry in VMI$ROOT:[SYSUPD]VMSINSTAL.HISTORY
    Creating installation data file: VMI$ROOT:[SYSUPD]DPLI040.VMI_DATA
VMSINSTAL procedure done at 18:48

$

```