BASIC–PLUS–2

Installation Guide

May 1991

This manual describes the installation and verification procedures for BASIC–PLUS–2 on all supported operating systems.

This document was prepared using VAX DOCUMENT, Version 2.0.

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Preface

This manual describes BASIC–PLUS–2 installation procedures. When you install this version of BASIC–PLUS–2 on your system for the first time, you must use the distribution kit that is provided with the software.

Intended Audience

This manual is intended for the person who is responsible for installing BASIC–PLUS–2. Knowledge of the host operating system is assumed.

Operating Systems and Versions

BASIC–PLUS–2 runs on the following operating systems and versions:

- RSX–11M Version 4.6 or higher

- RSX–11M–PLUS Version 4.3 or higher

- Micro/RSX Version 4.3 or higher

- RSTS/E Version 9.7 or higher

Document Structure

This manual is organized as follows:

- Chapter 1 explains how to install and verify BASIC–PLUS–2 on RSX–11M/M–PLUS systems.

- Chapter 2 explains how to install and verify BASIC–PLUS–2 on Micro/RSX systems.

- Chapter 3 explains how to install and verify BASIC–PLUS–2 on RSTS/E systems.

Conventions

The following conventions are observed in this manual:

Convention	Meaning
^	The circumflex character, when appearing with another character, represents the system response to receiving a control character. For example, when you type Ctrl/Z while running some system tasks, the system echoes ^Z.
Ctrl/X	This symbol indicates that you should press the Ctrl key and simultaneously press another key. For example: Ctrl/C, Ctrl/Z, and Ctrl/O.
Color	Color in code examples denotes user input.
$	The dollar sign prompt indicates that you are in the DCL command environment.
>	The angle bracket prompt indicates that you are in the MCR command environment.
. . .	Horizontal ellipsis means you can repeat the previous item.
. . .	Vertical ellipsis in an example means that information not directly related to the example has been omitted.

1

Installing BASIC–PLUS–2 on RSX–11M/M–PLUS Systems

This chapter describes the procedure for installing BASIC–PLUS–2 on RSX–11M/M–PLUS systems.

1.1 Preparing to Install BASIC–PLUS–2

Prior to installing this version of BASIC–PLUS–2, you must do the following:

- Read this chapter and the BASIC–PLUS–2 release notes. The release notes are available as a file in the distribution media; Section 1.2 explains how to copy them.

- Determine which options you want for BASIC–PLUS–2. See Sections 1.4 and 1.6.1 for information that will help you decide which BASIC–PLUS–2 options you want to install. Also see Section 1.6.2 to decide whether to install the BASIC–PLUS–2 prebuilt compiler kit.

- Make sure you have enough disk space to install BASIC–PLUS–2. You must have between 6300 and 8200 free blocks, depending on which BASIC–PLUS–2 options you choose to install. Between 2800 and 3100 of these blocks should be contiguous. (Note that these figures assume you are installing a BASIC–PLUS–2 base kit. BASIC–PLUS–2 update packages may require more disk space.)

- Make sure your system meets the minimum software and hardware requirements for BASIC–PLUS–2. See the Software Product Description (SPD) for a list of these requirements.

- Assign the logical name LB: to the device and account on which your system libraries are stored. LB: is used in the installation procedure as the default device and account. By assigning this logical, you can avoid the repeated entering of your system library device and account during the installation procedure.

1.2 Accessing the Release Notes

The BASIC–PLUS–2 release notes describe new features and known problems for this version. The release notes are included on the distribution medium in the file [1,10]RELNOT.DOC.

To read the release notes, mount the distribution medium (as described in Section 1.5), and copy the release notes file to your default directory.

If your distribution medium is a tape cartridge or magnetic tape, enter the following MCR command:

```
> FLX SY:/RS=ddnn:[1,10]RELNOT.DOC
```

Replace ddnn: with the name and number of the device on which your distribution medium is physically mounted.

If your distribution medium is a disk, enter either of the following commands (depending on whether you are using the DCL or the MCR command level):

```
$ COPY ddnn:[1,10]RELNOT.DOC *.*
```

or

```
> PIP SY:/NV=ddnn:[1,10]RELNOT.DOC
```

Replace ddnn: with the name and number of the device on which your distribution medium is physically mounted.

Once you have copied the file to your default account, you can print it using the DCL command PRINT.

1.3 Methods of Installation

There are several methods of installing BASIC–PLUS–2 on RSX–11M and RSX–11M–PLUS systems. When you first install this version of the software, you must mount the distribution media and do one of the following:

- You can install a prebuilt configuration of BASIC–PLUS–2. In this method, you simply copy a set of files from the distribution media to the location where BASIC–PLUS–2 will reside. This does not involve the BASIC–PLUS–2 installation dialogue.

- Use the BASIC–PLUS–2 installation procedure to build a BASIC–PLUS–2 compiler based on configuration defaults specified in the kit. This default compiler configuration is designed to run on any hardware configuration. (The default configuration is not the same as the prebuilt configuration.)

- Use the BASIC–PLUS–2 installation procedure to build a custom configured BASIC–PLUS–2 compiler by answering the installation dialogue interactively. This method leaves behind an indirect command file (BP2DEF.CMD) containing the answers that you gave during the installation dialogue; you can use this answer file to ensure an identical configuration in a subsequent installation. See Section 1.3.1 and Section 1.3.2 for details.

To decide whether you want to install the prebuilt configuration, read Section 1.6.1 and Section 1.6.2. Section 1.6.1 describes the possible options that you can select in a custom configuration, and Section 1.6.2 describes the characteristics of the prebuilt configuration.

By building a customized configuration, you can obtain a BASIC–PLUS–2 compiler with the options that best suit your system and applications.

1.3.1 Subsequent Installations Using On-line Kit Files

When you install BASIC–PLUS–2 from the distribution media kit, you can retain copies of the kit files on the system, along with files generated during the installation. You can use these files for future installations of BASIC–PLUS–2 Version 2.7 (instead of using the distribution media kit).

Each installation generates configuration data. If you customize the BASIC–PLUS–2 compiler during an installation, the resulting configuration data reflects that customization. Then the following command will build the same configuration that was created during the installation dialogue:

```
$ @BP2BLD.CMD
```

1.3.2 Using Prepared Responses

The BASIC–PLUS–2 installation procedure generates an indirect command file, xxxDEF.CMD, where xxx is the name of the compiler established during the installation dialogue. (The usual compiler name is BP2, the default; this name will be assumed in dialogue examples.) This file contains the set of responses that were given during the installation dialogue.

When you prepare for a subsequent customizing installation, you can edit this indirect command file to contain a prepared set of responses to the questions of the installation dialogue. During the installation dialogue, you will be asked:

```
Do you want the default installation?
```

You can respond by specifying "@BP2DEF.CMD" (instead of YES or NO), and thereby perform a customizing installation without attending the console terminal.

_____ **Caution** _____

If you attempt to use this nonstandard technique, remember that the answers to some questions determines whether other questions will be asked; you must anticipate the dialogue exactly to be successful. Therefore, Digital assumes no responsibility for misuse of this technique by the customer.

1.4 Choosing Compiler Options

If you decide to customize BASIC–PLUS–2, you need to decide which options you want the compiler to have before you begin the installation procedure. The remainder of the chapter is designed to help you make these important decisions.

Some options affect compilation or run time performance. For example, you can install optional memory-resident libraries, the secondary cache, or both. If you choose to install either of these options, you need to know specific information about your system resources to answer questions during the installation procedure.

You may need files that are available only on the distribution media to change these major options. If you attempt to install from the online files generated by a previous installation that did not include certain attributes, the questions needed to add or change the attributes will not occur.

_____ **Note** _____

Some BASIC–PLUS–2 installation options require specific hardware features in the host configuration when the compiler is run. Nevertheless, limitations in the host configuration do not constrain your choice of options when you build the compiler at installation time. One can build (on removable disk) a BASIC–PLUS–2 compiler that does not run in the configuration on which it was built (and therefore does not pass the installation verification test), but runs on other configurations that include the necessary supporting hardware.

1.4.1 Choosing Instruction and Data Space

The Instruction and Data space (I & D space) option can improve compilation-time performance by making additional physical memory available to the compiler, thereby reducing the need for workfile I/O. The I & D space option requires that your PDP–11 system have memory-management hardware necessary to support I & D space mapping and sufficient physical memory. In addition, your operating system must support I & D space mapping.

Choosing this option can yield significant performance improvements for your BASIC–PLUS–2 compiler.

1.4.2 Choosing Memory-Resident Libraries

The two BASIC–PLUS–2 memory-resident libraries are BP2RES and BP2SML. You can install one, both, or neither library. BP2RES, the large memory-resident library, contains most of the BASIC–PLUS–2 Object Time System (OTS). BP2SML contains only a subset of the OTS. When you link a BASIC–PLUS–2 program with a memory-resident library, any BASIC–PLUS–2 routines not found in the memory-resident library are resolved in the BASIC–PLUS–2 object module library, BP2OTS.OLB.

Tasks linked to a memory-resident library use less disk space than tasks linked exclusively to the object module library. Also, two or more tasks linked to a memory-resident library can share that library at run time, reducing the amount of physical memory in use.

_____ **Note** _____

Because of its large size and overlay structure, linking BP2RES with tasks can noticeably reduce run-time performance. Therefore, you should link BP2RES only with tasks that do not depend on fast execution or that are too large to task build without memory-resident library support. (Linking tasks with BP2SML does not reduce their run-time performance.)

_____

Before you can install one or both memory-resident libraries, you must select or create a partition for each library you plan to install. For BP2RES, you must select or create a partition that is 18K words in size if you use the Floating Point Unit (FPU) hardware, or 20K words in size if you use the Extended Instruction Set (EIS) hardware. For BP2SML, you must select or create a partition 8K words in size using either hardware package. For information on creating partitions, see your RSX–11M/M–PLUS documentation.

If you want to choose an existing partition, you can determine the address of the partition by issuing the DCL command SHOW PARTITION or the MCR command PARTITION. (See your RSX–11M/M–PLUS documentation for more information on these commands.) If you choose a system controlled partition, such as the GEN partition, the memory-resident library is checkpointable. This means that the library can be swapped into and out of memory as needed, which conserves system resources.

Once you choose or create a partition for each library you want to install, write down the partition's name and base address. The BASIC–PLUS–2 installation procedure asks for this information as part of the installation dialogue. (If you choose the GEN partition on an RSX–11M–PLUS system, you need to specify only the name, not the base address, during the installation procedure.)

You must also be sure that you have enough disk space to store the memory-resident library. BP2RES requires approximately 155 free blocks. BP2SML requires about 34 free blocks.

1.4.3 Choosing the Secondary Cache

Another option you can choose during the BASIC–PLUS–2 installation procedure is secondary caching. The secondary cache is a work area in memory where the compiler stores temporary work files while it is compiling your program. (When there is no secondary cache, BASIC–PLUS–2 stores temporary work files on a physical device.) Storing this information in memory minimizes the amount of device I/O, which reduces the compile time.

You can choose the size of the secondary cache, or you can accept the default size, which is 32K words. Once BASIC–PLUS–2 is installed, you cannot alter the size of the secondary cache without reinstalling the compiler. Therefore, carefully consider the following issues in deciding whether to use secondary caching and what size secondary cache to use:

- Very small programs rarely need to access work files stored on a physical device because the work files needed by small programs usually fit within the physical memory that the compiler allocates for itself. Thus, secondary caching wastes system resources when used with small programs because the memory assigned to the cache is not used.

- Medium to large size programs do access work files stored on disk and can benefit from secondary caching. In general, the larger the program, the larger the work files the compiler needs to access, and the larger the secondary cache needs to be for optimum compiler speed.

- BASIC–PLUS–2 requires the memory-resident libraries B27SHR and B27SH1 to access the secondary cache. These libraries require a memory area of 4K words each. Make sure the space requirements of these libraries plus the secondary cache do not exceed the capacity of your system.

If you decide to install the secondary cache, you must select or create partitions for the libraries B27SHR and B27SH1 to reside. Each library requires a partition that is 4K words in size. For information on how to create a partition, see your RSX–11M/M–PLUS documentation.

If you want to choose existing partitions, you can determine the address of the partitions by issuing the DCL command SHOW PARTITION or the MCR command PARTITION. (See your RSX–11M/M–PLUS documentation for more information on these commands.) If you choose a system controlled partition, such as the GEN partition, the memory-resident library is checkpointable. This means that the library can be swapped into and out of memory as needed, which conserves system resources.

Once you choose or create a partition for each library you want to install, write down the partition names and base addresses. The BASIC–PLUS–2 installation procedure asks for this information as part of the installation dialogue. (If you choose the GEN partition on an RSX–11M–PLUS system you need to specify only the name, not the base address of the partition, during the installation procedure.)

You must also be sure that you have enough disk space for B27SHR and B27SH1. Each memory-resident library requires about 25 free blocks.

1.5 Mounting the Distribution Medium

When you are ready to begin the installation procedure, you must mount the distribution medium. This section explains how to mount tape cartridge, magnetic tape, and disk distribution media.

1.5.1 Mounting a Tape Cartridge

If your distribution medium is a tape cartridge, follow these steps:

1. Create a special privileged account other than [1,1], [1,2], or [*,54] to install and maintain BASIC–PLUS–2.

2. Log in to the system, using the special privileged account you created in Step 1.

3. Make sure the write-protect switch on the tape cartridge labeled BP2 is pushed to the left.

4. Open the cartridge release handle and insert the tape cartridge into the drive. Close the cartridge release handle and press the LOAD button if appropriate for your unit. Wait for the ready light. If you are unfamiliar with the model of drive you are using, see your drive's operation manual for further information.

5. Issue the MOUNT command as follows:

```
$ MOUNT/FOREIGN ddnn:
```

or

```
>MOU ddnn:/FOR
```

Replace ddnn: with the name and number of the device on which the distribution medium is physically mounted.

1.5.2 Mounting a Magnetic Tape

If your distribution medium is magnetic tape, follow these steps:

1. Create a special privileged account other than [1,1], [1,2], or [*,54] to install and maintain BASIC–PLUS–2.

2. Log in to the system, using the special privileged account you created in Step 1.

3. Place the tape on the magnetic tape drive with the write-enable ring removed.

   Make sure the write-protected indicator light is lit. Load the tape according to the instructions for your drive and make certain the load point indicator light is lit. Set the ONLINE/OFFLINE switch to ONLINE and make sure the ready indicator light is lit. (The names of these indicator lights vary from drive to drive.)

4. Issue the MOUNT command as follows:

```
$ MOUNT/FOREIGN ddnn:
```

or

```
>MOU ddnn:/FOR
```

Replace ddnn: with the name and number of the device on which the distribution medium is physically mounted.

If the default density of your tape drive is not the same as the density of the distribution medium, you must include the /DENSITY= qualifier on the MOUNT command line to specify the correct density.

1.5.3 Mounting a Disk

If your distribution medium is a disk, follow these steps:

1. Create a special privileged account other than [1,1], [1,2], or [*,54] to install and maintain BASIC–PLUS–2.

2. Log in to the system, using the special privileged account you created in Step 1.

3. Insert the disk in the disk drive.

4. Make sure that the ready light is lit. (The name of this indicator light varies from drive to drive.)

5. Turn on the write-protect switch for the disk drive.

6. Issue the MOUNT command with the label BP2V2 as follows:

   ```
   $ MOUNT ddnn: BP2V2
   ```

   or

   ```
   >MOU ddnn:BP2V2
   ```

   Replace ddnn: with the name and number of the device on which the distribution medium is physically mounted.

1.6 Installing and Verifying BASIC–PLUS–2

When installing BASIC–PLUS–2 from the distribution media kit, you may install the prebuilt kit or proceed with the installation procedure. You must perform either type of installation from the MCR command level.

The BASIC–PLUS–2 installation procedure consists of two parts: the BP2BLD dialogue, executed by DIALOG.TSK, and the creation of the installation command files, executed by BP2BLD.TSK.

The BP2BLD dialogue is an interactive program that lets you choose options for the BASIC–PLUS–2 compiler. The BP2BLD dialogue asks you questions and places your responses in the command file BP2DEF.CMD. The BP2BLD dialogue program also creates other installation command files, based on your responses to the dialogue. These files copy installation files from the distribution medium to the temporary storage account you specify in the BP2BLD dialogue.

To enter the MCR command level from the DCL command level, enter the following command:

```
$ SET TERMINAL/MCR
```

Once you are at the MCR command level, copy the BP2RSX.CMD file from the distribution medium. If your distribution medium is a tape cartridge or magnetic tape, enter the following command:

```
>FLX SY:/RS=ddnn:[1,10]BP2RSX.CMD/DO
```

If your distribution medium is a disk, enter the following command:

```
>PIP SY:/NV=ddnn:[1,10]BP2RSX.CMD
```

Replace ddnn: with the name and number of the device on which the distribution medium is physically mounted.

To begin the installation, invoke the BP2RSX command file as follows:

```
>@BP2RSX
```

After you issue this command, continue with Section 1.6.1 if you do not want to install the prebuilt kit. Continue with Section 1.6.2 if you want to install the prebuilt kit.

1.6.1 The Installation Dialogue

This section is relevant if you are not installing the prebuilt kit configuration.

The BP2BLD installation dialogue is a series of questions to which you must supply valid answers. Each of these questions and its valid responses are explained in this section. If you answer a question with something other than a valid choice, BP2BLD responds with a diagnostic message.

Most of the questions in the installation dialogue have a default response. This default response is shown in angle brackets (<>) after the question. You can accept the default response by pressing the Return key. If you have customized the compiler during a previous installation, the default response displayed on your terminal may be different from the default shown here.

You can receive help in answering a question by typing a question mark (?) in response to the question. If you want to change an answer during the dialogue, you can back up one question at a time by pressing the ESC key. (Not all keyboards have an ESC key; pressing Ctrl/[produces the same effect, and is available on any terminal.)

If you receive a system error message during the installation, consult your RSX–11M/M–PLUS operating system documentation for possible recovery procedures.

1.6.1.1 Beginning the Dialogue

In the following description of the BP2BLD dialogue and installation procedure, the dot matrix text is the installation dialogue as it appears on your screen. The indented text explains how you should answer the questions in the dialogue.

```
@BP2RSX
* What device is the distribution medium mounted on <MM0:> [S]:
```

Enter the name of the device or the logical name for the device on which the distribution medium is physically mounted. You are then asked the following:

```
* Do you wish to install the prebuilt kit? <YES> [S]:
```

Answer NO if you are not using the prebuilt kit. If you default or answer YES, the prebuilt compiler will be installed by direct copying of files from the kit and the dialogue will not continue.

See Section 1.6.2 for information about the prebuilt BASIC–PLUS–2 compiler. The prebuilt compiler kit provides better performance than the default installation, but requires certain hardware options. It is not the same as the default installation, which fits on all systems.

If you answer NO, the following message and question appears:

```
                    B A S I C - P L U S - 2
            V E R S I O N  2  I N S T A L L A T I O N

This starts the BP2BLD dialogue.  The BP2BLD dialogue  asks  you
questions  so  you  can select the options for your BASIC--PLUS--2
compiler.  The default answer for  each  question  is  in  angle
brackets.   To select the default, press the Return key. If  you
do not want the default answer, type in the answer you want.

            .
            .
            .


Do you want the default installation <YES>
```

There are three valid answers:

*   YES (the default)

    This is the same as giving default responses throughout the dialogue. It installs a version of BASIC–PLUS–2 that fits on all systems. However, you can improve the performance of BASIC–PLUS–2 if you answer each question in the dialogue to customize BASIC–PLUS–2 to your system.

    If you select the default installation, see Section 1.6.1.2 for instructions on how to continue.

- NO

  Answer NO if you want to run the remainder of the dialogue to select options. The dialogue will continue at Section 1.6.1.3.

- @BP2DEF.CMD

  You can answer the preceding question by invoking an indirect command file named BP2DEF.CMD generated by a previous installation. The rest of the dialogue will be answered automatically by responses in the command file. Assuming that the sequence of answers in BP2DEF.CMD is valid, you will need to take no further action until the following message is displayed:

  ```
  The BP2BLD dialogue is complete.
  The installation will take about 1 hour to complete.
  ```

  See Section 1.6.1.7 for instructions on how to continue.

1.6.1.2 The Default Installation

If you have selected the default installation, the BP2BLD dialogue asks the next question and then displays a summary of the options for the default installation.

```
What name do you want to use to invoke BP2 <BP2>
```

Enter the 3-character name you want to use to invoke the BASIC–PLUS–2 compiler. This name becomes the first three characters of the file names for all BASIC–PLUS–2 components except the following:

- BASIC2.ERR

- BP2.HLP

- BP2RFA.HLP

- B2RESQ.TSK

- B27SHR.TSK

- B27SH1.TSK

- BP2OPT.TSK

For example, if you choose FPU, the file name for the BASIC–PLUS–2 compiler is FPUIC2.

The BP2BLD dialogue displays a summary of the options for the default installation. The summary is written to the file *xxx*DEF.DOC as a record of the installation. The letters *xxx* are the three characters you previously chose to invoke the BASIC–PLUS–2 compiler.

```
Here is a summary of the options you have selected:

This is a default installation
BP2RES will not be installed
BP2SML will not be installed
The compiler will not use -I and -D space
Secondary caching will not be enabled
RUN will be supported
RUN will not support remote RMS file access
The BP2 Resequencer will not be installed
The BP2 Optimizer Utility will not be installed
The BP2 HELP file will not be installed
The hardware math package is EIS
The name to use to invoke BP2 is BP2
The BP2 compiler prompt is BASIC2
The device and account for the BP2 compiler is LB:[1,54]
The device and account for the BP2 compiler work files is SY:
The device and account for the BP2 object module disk library is LB:[1,1]
The device and account for the BP2 ODL files is LB:[1,1]
The device and account for the temp installation files is SY:
The device and account for the RMS-11 ODL files is LB:[1,1]
EDIT$ will not upcase characters (octal 173 - 176)
The default time format is AM/PM
The PRINT USING currency symbol is $
The PRINT USING decimal point symbol is .
The PRINT USING third digit separator symbol is ,
The BP2 compiler will not be updated
The installation command files will be deleted
The compiler installation will be verified

Do you wish to change any of your answers <NO>
```

If you want the default installation, answer NO or press the Return key.
See Section 1.6.1.7 for instructions on how to continue. If you answer YES,
the default configuration will not be installed. Instead, the entire BP2BLD
dialogue will be run, beginning with the following question:

```
Do you want the default installation <YES>
```

If you answer YES, BASIC–PLUS–2 is installed with the default options. If
you want to customize BASIC–PLUS–2, answer NO or specify an indirect
command file as described previously. The installation customizing dialogue
will continue at Section 1.6.1.3 as though you had never selected the default
installation.

1.6.1.3 Selecting Memory-Resident Libraries

If you are customizing the compiler, the dialogue continues with the question:

```
Do you want to install BP2RES <NO>
```

BP2RES is a BASIC–PLUS–2 memory-resident library that contains most of the BASIC–PLUS–2 OTS. Linking BASIC–PLUS–2 programs to BP2RES reduces the size of the task image. However, using BP2RES also slows down the execution of the task. See Section 1.4.2 for more information that will help you decide whether or not to install BP2RES.

If you answer NO or press the Return key, skip the next three questions and proceed with the question "Do you want to install BP2SML." If you answer YES, the BP2BLD dialogue asks you the next three questions.

```
Enter the device and account for BP2RES <LB:[1,1]>
```

Enter the name of the device and the account where you want to store BP2RES. Select a device that can store approximately 155 blocks of disk space and an account that is accessible to all users. Be sure you have enough space on the disk before installing BP2RES.

```
What is the partition name for BP2RES <partition>
```

Choose a partition that can accommodate 20K words if you use an EIS processor, or 18K words if you use an FPU processor. The default partition name is BP2RES on RSX–11M systems and GEN on RSX–11M–PLUS systems. If you specify a nonexistent partition, the partition defaults to GEN.

In addition, if you choose GEN as the partition name on an RSX–11M–PLUS system, the BP2BLD dialogue skips the next question.

On both RSX–11M and RSX–11M–PLUS systems, if you specify an existing partition other than the default, the installation procedure changes the partition name to match the library name. In this case, the library name would be xxxRES, where xxx is the 3-character name, chosen later in this dialogue, for invoking BASIC–PLUS–2.

```
What is the absolute address for BP2RES <0>
```

Enter the base address of the partition where BP2RES will reside. This address is either the address of an existing partition or an address you calculated.

The absolute address becomes the physical base address of the SET /MAIN=parname command on RSX–11M systems and of the SET /PAR command on RSX–11M–PLUS systems.

```
Do you want to install BP2SML <NO>
```

BP2SML is a BASIC–PLUS–2 memory-resident library that contains a subset of the BASIC–PLUS–2 OTS. Tasks linked to BP2SML have smaller images than tasks linked to the OTS. See Section 1.4.2 for more information that will help you decide whether or not to install BP2SML.

If you answer YES, the BP2BLD dialogue asks you the next three questions. If you answer NO or press the Return key, skip the next three questions and proceed with the question "Do you want to install the secondary cache."

```
Enter the device and account for BP2SML <LB:[1,1]>
```

Enter the name of the device and the account where you want to store BP2SML. Select a device that can store approximately 45 blocks of disk space and an account that is accessible to all users. Be sure you have enough space on the disk before installing BP2SML.

```
What is the partition name for BP2SML <partition>
```

Choose a partition that can accommodate 8K words. The default partition name is BP2SML on RSX–11M systems and GEN on RSX–11M–PLUS systems. If you specify a nonexistent partition, the partition defaults to GEN.

In addition, if you choose GEN as the partition name on an RSX–11M–PLUS system, the BP2BLD dialogue skips the next question.

On both RSX–11M and RSX–11M–PLUS systems, if you specify an existing partition other than the default, the installation procedure changes the partition name to match the library name. In this case, the library name would be xxxSML, where xxx is the 3-character name, chosen later in this dialogue, for invoking BASIC–PLUS–2.

```
What is the absolute address for BP2SML <0>
```

Enter the base address of the partition where BP2SML will reside. This address is either the address of an existing partition or an address you calculated.

_____ **Note** _____

You must determine the absolute address of the partition before you answer this question. If you press the Return key or enter an incorrect address, the resident library is not installed correctly.

_____

The absolute address becomes the physical base address of the SET /MAIN=parname command on RSX–11M systems and of the SET /PAR command on RSX–11M–PLUS systems.

1.6.1.4 Selecting Instruction and Data Space

If your configuration supports instruction and data (I & D) space, you can build the compiler to use it, and thus reduce compilation time.

```
Do you want the compiler to use -I and -D space <NO>
```

Answer YES if you want the compiler to be able to use I and D space. If you answer NO, the default, the compiler will not be able to use I and D space.

1.6.1.5 Installing the Secondary Cache Option

The secondary cache is a section of memory that the BASIC–PLUS–2 compiler uses to store work file information during a compilation. Storing the information in memory reduces compilation time by reducing the number of disk accesses the compiler must make to retrieve information from the work file. See Section 1.4.3 for more information that will help you decide whether or not to install the secondary cache.

```
Do you want to install the secondary cache <NO>
```

If you answer YES, the BASIC–PLUS–2 compiler uses secondary caching to store the work files in memory when enough physical memory is available. If you answer NO, the BASIC–PLUS–2 compiler does not use secondary caching, and work files are stored on a disk during compile operations. If you answer NO, the dialogue skips the next seven questions dealing with secondary caching and its associated libraries, B27SHR and B27SH1. Therefore, if you answer NO, proceed with the question "Do you want to support RUN."

```
What size do you want to make the secondary cache <32>
```

You can make the secondary cache any multiple of 4K words, from 4K to 60K. Note, however, that a large secondary cache wastes system resources except when you compile extremely large programs.

If you have previously selected I & D space, the following questions about the memory resident libraries B27SHR and B27SH1 will not occur; the dialogue will continue with the options described in Section 1.6.1.6.

```
Enter the device and account for B27SHR <LB:[1,1]>
```

B27SHR is one of two memory-resident libraries the BASIC–PLUS–2 compiler needs to access the secondary cache. Enter the name of the device and the account where you want to store B27SHR. Select a device that can store approximately 25 blocks of disk space and an account that is accessible to all users.

```
What is the partition name for B27SHR <partition>
```

Enter the name of the partition where you want to install B27SHR. You must choose a partition that can accommodate 4K words. The default partition name is B27SHR on RSX–11M systems and GEN on RSX–11M–PLUS systems. If you specify a nonexistent partition, the partition defaults to GEN.

In addition, if you choose GEN as the partition name on an RSX–11M–PLUS system, the BP2BLD dialogue skips the next question.

On both RSX–11M and RSX–11M–PLUS systems, if you specify an existing partition other than the default, the installation procedure changes the partition name to match the library name, B27SHR.

```
What is the absolute address for B27SHR <0>
```

Enter the base address of the partition where B27SHR will reside. This address is either the address of an existing partition or an address you calculated.

_____ **Note** _____

You must determine the absolute address of the partition before you answer this question. If you press the Return key or enter an incorrect address, the resident library is not installed correctly.

_____

The absolute address becomes the physical base address of the SET /MAIN=parname command on RSX–11M systems and of the SET /PAR command on RSX–11M–PLUS systems.

```
Enter the device and account for B27SH1 <LB:[1,1]>
```

B27SH1 is the other memory-resident library the BASIC–PLUS–2 compiler uses to access the secondary cache. Enter the name of the device and the account where you want to store B27SH1. Select a device that can store approximately 25 blocks of disk space and an account that is accessible to all users.

```
What is the partition name for B27SH1 <partition>
```

Enter the name of the partition where you want to install B27SH1. You must choose a partition that can accommodate 4K words. The default partition name is B27SH1 on RSX–11M systems and GEN on RSX–11M–PLUS systems. If you specify a nonexistent partition, the partition defaults to GEN.

In addition, if you choose GEN as the partition name on an RSX–11M–PLUS system, the BP2BLD dialogue skips the next question.

On both RSX–11M and RSX–11M–PLUS systems, if you specify an existing partition other than the default, the installation procedure changes the partition name to match the library name, B27SH1.

```
What is the absolute address for B27SH1 <0>
```

Enter the base address of the partition where B27SH1 will reside. This address is either the address of an existing partition or an address you calculated.

-- **Note** --

You must determine the absolute address of the partition before you answer this question. If you press the Return key or enter an incorrect address, the resident library is not installed correctly.

The absolute address becomes the physical base address of the SET /MAIN=parname command on RSX–11M systems and of the SET /PAR command on RSX–11M–PLUS systems.

1.6.1.6 Other Options

```
Do you want to support RUN <YES>
```

If you answer YES, you can execute programs in the BASIC–PLUS–2 environment with the RUN command, access the BASIC–PLUS–2 debugger in the BASIC–PLUS–2 environment with the RUN/DEBUG command, make object modules available for execution with the LOAD command, and execute immediate mode statements. If you answer NO, support for these options is not built and the BP2BLD dialogue skips the next question.

```
Do you want RUN to support remote RMS file access <NO>
```

BASIC–PLUS–2 programs can access files on other computer systems
connected to your computer by DECnet. To provide this remote file
access support for immediate mode statements and programs run in the
BASIC–PLUS–2 environment, the RUN task must be linked to the library that
provides RMS–11 DECnet support. This library, which is named DAPRES,
must be stored in the account LB:[1,1] for RUN to support remote RMS file
access.

If you answer YES to this question, support for remote RMS file access is
linked to the RUN task. If you answer NO, the RUN task is not linked to
remote file access support. If the DAPRES library is not in LB:[1,1], you must
answer NO to this question.

```
Do you want to link the support for RUN with memory resident
libraries <YES>
```

If you decided to install BP2RES, you may choose to link the support for the
RUN command, for the LOAD command, and for immediate mode statements
with the BP2RES and RMSRES memory-resident libraries. Programs run
fastest when using the memory-resident libraries. However, the libraries
must be stored in the account LB:[1,1] to be linked to the support for RUN. If
RMSRES is not in LB:[1,1] or you chose to store BP2RES in another account,
you must answer NO to this question.

Answer YES to link the support for RUN with the memory-resident libraries.
Answer NO to link the support for RUN with the BASIC–PLUS–2 object
module library.

```
Do you want to install the BP2 Resequencer <NO>
```

The Resequencer Utility allows you to renumber the lines in your program; it
occupies approximately 185 blocks of disk space.

If you answer YES, the Resequencer Utility is installed on the device and
account you specify in the next question. If you answer NO or press the Return
key, skip the next question.

```
Enter the device and account for the BP2 Resequencer <LB:[1,54]>
```

Enter the name of the device and the account where you want to store
the BASIC–PLUS–2 Resequencer Utility. Select a device that can store
approximately 185 blocks of disk space and an account that is accessible to
all users. Be sure you have enough space on the disk before installing the
BASIC–PLUS–2 Resequencer Utility.

```
Do you want to install the BP2 Optimizer <NO>
```

The BASIC–PLUS–2 Optimizer Utility reduces the amount of threaded code in BASIC–PLUS–2 generated object modules. It accomplishes this by replacing common groups of threads with a subroutine. It is useful only for very large tasks or where space is critical. The Optimizer Utility occupies 210 blocks of disk space.

If you answer YES, the Optimizer Utility is installed on the device and account you specify in the next question. If you answer NO or press the Return key, skip the next question.

```
Enter the device and account for the BP2 Optimizer <LB:[1,54]>
```

Enter the name of the device and the account where you want to store the BASIC–PLUS–2 Optimizer Utility. Select a device that can store 210 blocks of disk space and an account that is accessible to all users. Be sure you have enough space on the disk before installing the BASIC–PLUS–2 Optimizer Utility.

```
Do you want to install the BP2 Help file <NO>
```

The two BASIC–PLUS–2 Help files provide online documentation for BASIC–PLUS–2; they occupy approximately 310 blocks of disk space. If you answer YES, the Help files are copied from the distribution medium to the device and account you specify in the next question. If you answer NO or press the Return key, skip the next question.

```
Enter the device and account for the BP2 Help file <LB:[1,2]>
```

Enter the name of the device and the account where you want to store the BASIC–PLUS–2 Help files. Select a device that can store approximately 310 blocks of disk space and an account that is accessible to all users. Be sure you have enough space on the disk before installing the BASIC–PLUS–2 Help files.

```
Which hardware math package do you want to use <EIS>
```

Enter the hardware math package you want to use with this version of BASIC–PLUS–2. You can specify EIS or FPU. If your system has both types of math hardware, choose FPU, because it processes floating-point arithmetic faster and uses less virtual address space.

```
What name do you want to use to invoke BP2 <BP2>
```

Enter the 3-character name you want to use to invoke the BASIC–PLUS–2 compiler. This name becomes the first three characters of the file names for all BASIC–PLUS–2 components except the following:

- BASIC2.ERR

- BP2.HLP

- BP2RFA.HLP

- B2RESQ.TSK

- B27SHR.TSK

- B27SH1.TSK

- BP2OPT.TSK

For example, if you choose FPU as the name (to indicate the hardware math package being used), the file name for the BASIC–PLUS–2 compiler is FPUIC2.

.What do you want to use as the BP2 compiler prompt <BASIC2>

When you are in the BASIC–PLUS–2 environment, BASIC–PLUS–2 displays a prompt that tells you the compiler is ready to execute commands, program lines, or immediate mode statements. Enter the character string you want to use for this prompt. You can answer with any 6-character combination of letters and digits. The default prompt is used in examples throughout the BASIC–PLUS–2 documentation.

Enter the device and account for the BP2 compiler <LB:[1,54]>

Enter the name of the device and the account where you want to store the BASIC–PLUS–2 compiler. You need approximately 945 contiguous blocks of disk space and an account that is accessible to all users. The disk must also have approximately 240 free contiguous blocks if you chose to support the RUN command. Be sure you have enough space on the disk before installing the BASIC–PLUS–2 compiler. Note that the BP2BLD program automatically sets the file protection for the compiler.

Enter the device and account for the BP2 compiler work files <SY:>

The BASIC–PLUS–2 compiler opens three work files each time it is invoked. The first file is an internal representation of your program and is approximately the same size in blocks as the program currently in memory. The second file contains line tables and internal code, using approximately 130 blocks of disk space. The third file contains symbol tables and cross-reference information (if in effect) using approximately 255 blocks of disk space.

Select a device that is infrequently used and that has a high transfer rate. Also, if you have the option, you should store the work files on a different disk than the one on which the BASIC–PLUS–2 compiler is stored. Select an account that is accessible to all users.

Enter the device and account for the BP2 object module disk
library <LB:[1,1]>

Enter the name of the device and the account where you want to store the BASIC–PLUS–2 object module library file. If you chose EIS hardware, select a device that can store approximately 250 blocks of disk space. If you chose FPU hardware, select a device that can store approximately 235 blocks of disk space. Select an account that is accessible to all users. Be sure you have enough space on the disk before installing the BASIC–PLUS–2 object module library.

```
Enter the device and account for the BP2 ODL files <LB:[1,1]>
```

Enter the name of the device and the account where you want to store the BASIC–PLUS–2 Overlay Description Language (ODL) files. BASIC–PLUS–2 uses these ODL files when you add a file organization qualifier to the BASIC BUILD command or when your program uses an ORGANIZATION clause in an OPEN statement. Select a device that can store approximately 20 blocks of disk space and an account that is accessible to all users. Be sure you have enough space on the disk to install the BASIC–PLUS–2 ODL files.

```
Enter the device and account for the temp installation files <SY:>
```

During the installation, temporary files are either created or copied from the distribution medium to the device and account you specify. Select a device that can temporarily store approximately 4000 blocks of disk space. Be sure you have enough space on the disk to accommodate the temporary installation files.

```
Enter the device and account for the RMS-11 ODL files <LB:[1,1]>
```

Specify the device and account where the RMS–11 ODL files reside. These files must already be on your system for the BASIC–PLUS–2 installation to complete properly.

```
Do you want the EDIT$ upcase (function code 32) to apply to characters
in the range (octal 173 - 176)  <NO>
```

In some countries, letters follow Z in the alphabet. If you answer YES, the EDIT$ function code 32 converts these lowercase letters to uppercase.

```
What do you want as the default time format <AM/PM>
```

You can specify AM/PM to use the 12-hour clock (AM and PM format, for example, 3:00 PM) or 24 to use the 24-hour clock (for example, 15:00). The format you choose is used as the value for the TIME$ function.

```
What do you want as the character for the PRINT USING currency symbol <$>
```

The dollar sign ($) PRINT USING format character is used for the currency symbol in the United States and Canada. If you want to specify a symbol other than the default, enter it here and the PRINT USING statement uses it when formatting.

```
What do you want as the character for the PRINT USING decimal point <.>
```

You can specify another symbol for the PRINT USING statement to use for the decimal point when formatting. If you want to specify a symbol other than the default, enter it here.

```
What do you want as the character for the PRINT USING third digit
separator <,>
```

You can specify another symbol for the PRINT USING statement to use for the third-digit separator when formatting. (For example, in the number 1,000 the comma (,) is used as the third digit separator.) If you want to specify a symbol other than the default, enter it here.

```
Do you want to update the BP2 compiler <NO>
```

Patches no longer update the BASIC–PLUS–2 product. Now the compiler is updated by replacing its object modules, then linking them and installing BASIC–PLUS–2 again. When you install updates for BASIC–PLUS–2, you must execute the BP2BLD programs and answer its questions again.

If you are updating BASIC–PLUS–2, answer YES, and the BP2BLD dialogue asks the next question. If you answer NO or press the Return key, skip the next question.

```
Enter the device and account for the update files <SY:>
```

Enter the name of the device and account where the files from the update distribution medium reside.

```
Do you want to delete the installation command files <YES>
```

The installation files are used during the installation process and are not of any use after the installation, unless you want to edit them to further customize BASIC–PLUS–2. If you answer YES, these files are deleted after the installation procedure is complete. If you answer NO, they remain on your system. (Each of these files is described in Section 1.8.)

```
Do you want to verify the installation <YES>
```

The verification procedure executes a number of BASIC–PLUS–2 programs to test the BASIC–PLUS–2 compiler, the RSX–11M/M–PLUS Task Builder, and terminal I/O. Answer YES to verify the installation.

A summary of the options you have chosen is then displayed. It is similar in appearance to the summary of default options shown in Section 1.6.1.2. The summary is also written to the file *xxx*DEF.DOC as a record of the installation. The letters *xxx* are the three characters you previously chose to invoke the BASIC–PLUS–2 compiler.

```
Here is a summary of the options you have selected:

This is not a default installation

        .
        .
        .

Do you wish to change any of your answers <NO>
```

If you answer YES, the BP2BLD dialogue responds as follows:

```
Answering <CR> to each question will produce the
same compiler as answering
'YES' to the "Do you want the default installation" question.
```

At this point, the BP2BLD dialogue program asks all the questions in the
dialogue again. Note that if you selected an answer to a question other than
the original default, your answer is enclosed in angle brackets as the new
default answer for that question.

1.6.1.7 Ending the Dialogue

If you do not need to change your answers, answer NO or press the Return
key in response to the preceding question. The BP2BLD dialogue responds as
follows:

```
The BP2BLD dialogue is complete.
The installation will take about 1 hour to complete.
```

The BP2BLD dialogue is complete. All your responses to the BP2BLD dialogue
are written to the command file *xxx*DEF.CMD. (The letters *xxx* are the three
characters you previously chose to invoke the BASIC–PLUS–2 compiler.) You
can use this command file as an indirect command file if you have to install
BASIC–PLUS–2 again.

The installation files are now executed to do the following:

- Create command files to copy certain files from the distribution medium to
  the work area

- Link the object modules for the BASIC–PLUS–2 compiler

- Install the BASIC–PLUS–2 compiler

- Install memory-resident libraries, if you selected this option

- Verify the installation, if you selected this option

During this portion of the installation procedure, new libraries and tasks are
created and previous versions removed. At this time, the system may display
one or more informational messages. For example:

```
Module "THREAD" replaced

REM -- Task not in system
REM -- Common not in system
SET -- Partition not in system
Partition BP2RES has been renamed to FPURES
```

These messages do not indicate an error in the installation procedure.

When the installation procedure is complete, the system displays the following message:

```
The BASIC-PLUS-2 installation is complete.
```

If you chose to verify the installation of BASIC–PLUS–2, the installation verification procedure will now be run. This procedure is explained in Section 1.6.3. Section 1.7 explains the procedure for dismounting the distribution media.

During the installation procedure, files were copied from the distribution medium to your system. Sections 1.8 and 1.9 detail the names and purposes of these files.

One of the installation files, *xxx*INS.CMD, is a command file that installs BASIC–PLUS–2 with the options you chose. (The letters *xxx* in the file name are the three characters you chose during the installation procedure to invoke BASIC–PLUS–2.) Because you must reinstall BASIC–PLUS–2 each time you start up your system, you may want to include a line that invokes *xxx*INS.CMD in your system start up command file. If you do, BASIC–PLUS–2 is installed automatically during system start up.

1.6.2 Installing the Prebuilt BASIC–PLUS–2 Compiler Kit

After you mount the media kit at installation time and execute the BP2RSX.CMD file, you will see the following question:

```
Do you wish to install the prebuilt kit? <YES> :
```

If you answer NO, the installation will proceed with the dialogue described previously. If you answer YES (the default), you will bypass the installation dialogue and install the prebuilt BASIC–PLUS–2 kit. If you select the prebuilt kit installation, the IVP will be run.

The prebuilt kit installation differs from the default installation. The BASIC–PLUS–2 prebuilt compiler is designed to provide better performance than the default installation. It uses a 32K secondary cache, I and D space, and the FPU hardware math package, and therefore cannot be used on every system. There are no options to select; installation consists of copying files from the kit.

If you select installation of the prebuilt kit, the following message is displayed:

```
Copying files from distribution media. Please wait.
```

You may then see a series of informational messages. For example:

```
REM -- Task not in system
INS -- Common not in system
```

These messages do not indicate errors in the installation procedure.

As mentioned previously, the prebuilt kit installation is automatically verified. See Section 1.6.3 for a description of the verification.

When the installation is complete, the system displays the following message:

```
The BASIC-PLUS-2 installation is complete.
```

When the installation is complete, you are ready to dismount the distribution media, as explained in Section 1.7.

Installing the BASIC–PLUS–2 prebuilt kit is equivalent to selecting the following options with the BASIC–PLUS–2 installation procedure:

```
Here is a summary of the options you have selected:

This is not a default installation
BP2RES will not be installed
BP2SML will be installed
The device and account for BP2SML is LB:[1,1]
The absolute address for BP2SML is 0
The compiler will use -I and -D space
Secondary caching will be enabled
The size of the secondary cache will be 32
RUN will be supported
RUN will not support remote RMS file access
The BP2 Resequencer will be installed
The device and account for the BP2 Resequencer is LB:[1,54]
The BP2 Optimizer Utility will be installed
The device and account for the BP2 Optimizer is LB:[1,54]
The BP2 HELP file will be installed
The device and account for the BP2 Help file is LB:[1,2]
The hardware math package is FPU
The name to use to invoke BP2 is BP2
The BP2 compiler prompt is BASIC2
The device and account for the BP2 compiler is LB:[1,54]
The device and account for the BP2 compiler work files is SY:
The device and account for the BP2 object module disk library is LB:[1,1]
The device and account for the BP2 ODL files is LB:[1,1]
The device and account for the temp installation files is SY:
The device and account for the RMS-11 ODL files is LB:[1,1]
EDIT$ will not upcase characters (octal 173 - 176)
The default time format is AM/PM
```

```
The PRINT USING currency symbol is $
The PRINT USING decimal point symbol is .
The PRINT USING third digit separator symbol is ,
The BP2 compiler will not be updated
The installation command files will be deleted
The compiler installation will be verified
```

1.6.3 The Verification Test

If you install the prebuilt kit or select verification during the installation
dialogue, the installation includes a verification test. The verification test
checks the BASIC–PLUS–2 compiler and the Task Builder. During both
verification tests, the following output is displayed on your screen:

```
PDP-11 BASIC-PLUS-2 V2.7-00
@SY:BP2VE0
@SY:BP2VE0
NEW SY:BP2T0
10      DECLARE INTEGER I
20      DECLARE STRING  J
30      PRINT 'BASIC-PLUS-2 INSTALLATION VERIFICATION'
40      FOR I = 1 TO 10
50              J = SPACE$(I) + NUM1$(I)
60              PRINT J
70      NEXT I
80      PRINT 'VERIFICATION #1 PASSED'
90      PRINT ERT$(0%)
100     END
REPLACE SY:BP2T0
BUILD SY:
COMPILE SY:/OBJ
BP2T0   04:14 PM      26-Apr-91
EXIT

BASIC-PLUS-2 INSTALLATION VERIFICATION
 1
  2
   3
    4
     5
      6
       7
        8
         9
          10
VERIFICATION #1 PASSED
BASIC-PLUS-2
```

```
PDP-11 BASIC-PLUS-2 V2.7-00
@SY:BP2VE1
@SY:BP2VE1
OLD SY:BP2T0
80      PRINT 'VERIFICATION #2 PASSED'
RENAME SY:BP2T1
REPLACE SY:BP2T1
BUILD SY:
COMPILE SY:/OBJ
BP2T1    04:15 PM        26-Apr-91
EXIT

BASIC-PLUS-2 INSTALLATION VERIFICATION
  1
   2
    3
     4
      5
       6
        7
         8
          9
           10
VERIFICATION #2 PASSED
BASIC-PLUS-2
```

In summary, when a test has completed successfully, one of the following messages is displayed:

```
VERIFICATION #1 PASSED
```

```
VERIFICATION #2 PASSED
```

If these messages are not displayed, the verification was unsuccessful. In this case, make sure the following software is installed:

- RMS–11

- The BASIC–PLUS–2 compiler

- The BASIC–PLUS–2 memory-resident library (or libraries), if you selected this option

If the software listed here is installed and the verification test is not successful, contact your Digital software specialist.

1.7 Dismounting the Distribution Medium

After the installation is complete, dismount the distribution medium as follows:

```
$ DISMOUNT ddnn:
```

or

```
>DMO ddnn:
```

Replace ddnn: with the name and number of the device on which your distribution medium is physically mounted.

Then, unload the drive and remove the distribution medium. (Consult your drive's operation manual for information on how to unload the drive and remove the distribution medium.) Store the distribution medium in a safe place with a record of the installation.

1.8 Installation Files

Table 1–1 lists the names and descriptions of the temporary files that may be created or are copied from the distribution medium during the installation. All files except BP2DEF.CMD, BP2DEF.DOC, and BP2INS.CMD are deleted (if you selected this option in the BP2BLD dialogue).

Some of the file names listed in Table 1–1 that begin with the letters BP2 will begin with the 3-character name you chose to invoke BASIC–PLUS–2 in the BP2BLD dialogue. This table uses the default name, BP2.

Table 1–1 Files Copied to Your System During Installation on
　　　　　　 RSX–11M/M–PLUS

File Name	Description
B27S1X.CMD	Is a skeleton command file for building the B27SH1 library, if you want to install the secondary cache.
B27SH1.CMD	Is a command file for building the B27SH1 library, if you want to install the secondary cache.
B27SHR.CMD	Is a command file for building the B27SHR library, if you want to install the secondary cache.
B27SRX.CMD	Is a skeleton command file for building the B27SHR library, if you want to install the secondary cache.
BP211S.ODL	Tells the Task Builder how to access the RMS libraries.

Table 1–1 (Cont.) Files Copied to Your System During Installation on RSX–11M/M–PLUS

File Name	Description
BP2BLD.CMD	Controls the installation process.
BP2BLD.TSK	Creates CMD files.
BP2CPY.CMD	Controls all copying of files from the distribution medium to the accounts you specified in the BP2BLD dialogue.
BP2DEL.CMD	Deletes temporary installation command files, if you selected this option.
BP2ECI.ODL	Supports use of EIS in I & D space.
BP2ECR.CMD	Links the BASIC–PLUS–2 compiler for systems with EIS math hardware and using a secondary cache.
BP2ECR.ODL	Tells the Task Builder how to overlay segments of the BASIC–PLUS–2 compiler while linking.
BP2ECU.CMD	Links the BASIC–PLUS–2 compiler for systems with EIS math hardware and without a secondary cache.
BP2ECU.ODL	Tells the Task Builder how to overlay segments of the BASIC–PLUS–2 compiler while linking.
BP2EOL.CMD	Is created by BP2BLD.TSK, if you want to install the BP2RES memory-resident library for systems with EIS math hardware.
BP2EOL.ODL	Is created by BP2BLD.TSK, if you want to install the BP2RES memory-resident library for systems with EIS math hardware.
BP2EOS.CMD	Links the BP2SML memory-resident library for systems with EIS math hardware, if you selected this option.
BP2EOT.OLB	Is the BASIC–PLUS–2 object module library for systems with EIS math hardware.
BP2ERL.CMD	Builds the support for RUN with the BP2RES memory-resident library for systems with EIS math hardware, if you selected this option.
BP2ERL.ODL	Tells the Task Builder how to overlay segments of the support for RUN while linking, if you selected this option.
BP2ERU.CMD	Builds the support for RUN with the BASIC–PLUS–2 object module library for systems with EIS math hardware, if you selected this option.
BP2ERU.ODL	Tells the Task Builder how to overlay segments of the support for RUN while linking, if you selected this option.

Table 1–1 (Cont.) Files Copied to Your System During Installation on RSX–11M/M–PLUS

File Name	Description
BP2EXL.CMD	Is copied from the distribution medium, if you want to install the BP2RES memory-resident library for systems with EIS math hardware.
BP2EXL.ODL	Is copied from the distribution medium, if you want to install the BP2RES memory-resident library for systems with EIS math hardware.
BP2EXS.CMD	Is copied from the distribution medium, if you want to install the BP2SML memory-resident library for systems with EIS math hardware.
BP2FCI.ODL	Supports use of FPU in I & D space.
BP2FCR.CMD	Links the BASIC–PLUS–2 compiler for systems with FPU math hardware and using a secondary cache.
BP2FCR.ODL	Tells the Task Builder how to overlay segments of the BASIC–PLUS–2 compiler while linking.
BP2FCU.CMD	Links the BASIC–PLUS–2 compiler for systems with FPU math hardware and without a secondary cache.
BP2FCU.ODL	Tells the Task Builder how to overlay segments of the BASIC–PLUS–2 compiler while linking.
BP2FOL.CMD	Is created by BP2BLD.TSK, if you want to install the BP2RES memory-resident library for systems with FPU math hardware.
BP2FOL.ODL	Is created by BP2BLD.TSK, if you want to install the BP2RES memory-resident library for systems with FPU math hardware.
BP2FOS.CMD	Links the BP2SML memory-resident library for systems with FPU math hardware, if you selected this option.
BP2FOT.OLB	Is the BASIC–PLUS–2 object module library for systems with FPU math hardware.
BP2FRL.CMD	Links the support for RUN with the BP2RES memory-resident library for systems with FPU math hardware, if you selected this option.
BP2FRL.ODL	Tells the Task Builder how to overlay segments of the support for RUN while linking, if you selected this option.
BP2FTR.CMD	Modifies the object modules to support the EDIT$, TIME$, and DATE$ options, if you selected these options.

(continued on next page)

Table 1–1 (Cont.) Files Copied to Your System During Installation on RSX–11M/M–PLUS

File Name	Description
BP2FTR.ULB	Contains the object modules to support the EDIT$, TIME$, and DATE$ options, if you selected these options.
BP2FRU.CMD	Links the support for RUN with the BASIC–PLUS–2 object module library for systems with FPU math hardware.
BP2FRU.ODL	Tells the Task Builder how to overlay segments of the support for RUN while linking, if you selected this option.
BP2FXL.CMD	Is copied from the distribution medium, if you want to install the BP2RES memory-resident library for systems with FPU math hardware.
BP2FXL.ODL	Is copied from the distribution medium, if you want to install the BP2RES memory-resident library for systems with FPU math hardware.
BP2FXS.ODL	Is copied from the distribution medium, if you want to install the BP2RES memory-resident library for systems with FPU math hardware.
BP2INS.CMD	Installs BASIC–PLUS–2 task images and memory-resident libraries, if you selected these options.
BP2OPT.CMD	Links the BASIC–PLUS–2 Optimizer Utility, if you selected this option.
BP2OPT.ODL	Tells the Task Builder how to overlay segments of the BASIC–PLUS–2 Optimizer Utility while linking.
BP2RN1.CMD	Renames files created during the installation.
BP2RN2.CMD	Renames files created during the installation.
BP2RSQ.CMD	Links the BASIC–PLUS–2 Resequencer Utility, if you selected this option.
BP2RSQ.ODL	Tells the Task Builder how to overlay segments of the BASIC–PLUS–2 Resequencer Utility while linking.
BP2RSX.CMD	Copies the installation command files and executes BP2BLD.CMD.
BP2VE0.CMD	Verifies the installation, if you selected this option.
BP2VE1.CMD	Verifies the installation, if you selected this option.
DIALOG.DAT	Contains the dialogue text.
DIALOG.TSK	Executes the dialogue.

Table 1–1 (Cont.) Files Copied to Your System During Installation on RSX–11M/M–PLUS

File Name	Description
GLBADD.CMD	Is copied from the distribution medium, if you want to install the secondary cache.
RSXCFELIB.OLB	Is the compiler front-end library.
RSXID.OLB	Supports compiler use of I & D space.
RSXLIB.OLB	Is the support for the compiler.
THREAD.DAT	Contains data required by THREAD.TSK.
THREAD.TSK	Creates a file of definitions for the addresses of the routines to support RUN.
THREAD.MAC	Is the file of definitions THREAD.TSK creates.
THREAD.OBJ	Is the object module created by assembling THREAD.MAC.

1.9 BASIC–PLUS–2 Files

Table 1–2 lists and describes the BASIC–PLUS–2 files. If you delete any of these files (except BP2IVP.CMD, BP2IVP.B2S, or BP2.HLP), BASIC–PLUS–2 will not operate correctly.

Some of the file names listed in Table 1–2 that begin with the letters BP2 will begin with the 3-character name you chose to invoke BASIC–PLUS–2 in the BP2BLD dialogue. This table uses the default name, BP2.

Table 1–2 Files That Compose BASIC–PLUS–2 on RSX–11M/M–PLUS

File Name	Description
BASIC–PLUS–2 Software Components	
BASIC2.ERR	BASIC–PLUS–2 error message file
BP2IC2.TSK	BASIC–PLUS–2 compiler
BP2RUN.TSK	RUN support task image
B2RESQ.TSK	BASIC–PLUS–2 Resequencer Utility
BP2OPT.TSK	BASIC–PLUS–2 Optimizer Utility
B27SHR.TSK	Resident library used by the compiler

Table 1–2 (Cont.)   Files That Compose BASIC–PLUS–2 on RSX–11M/M–PLUS

File Name	Description
BASIC–PLUS–2 Software Components	
B27SH1.TSK	Resident library used by the compiler
BP2SML.TSK	BASIC–PLUS–2 memory-resident library
BP2SML.STB	Symbol table for BP2SML
BP2OTS.OLB	Object module library
ODL Files That Provide Support for BASIC–PLUS–2	
BP2IC0.ODL	Organized for virtual and block I/O files
BP2IC1.ODL	Organized for sequential files
BP2IC2.ODL	Organized for relative files
BP2IC4.ODL	Organized for indexed files
BP2IC5.ODL	Organized for sequential and indexed files
BP2IC6.ODL	Organized for relative and indexed files
BP2IC7.ODL	Organized for sequential, relative, indexed, and undefined files
BASIC–PLUS–2 Help Files Software Option	
BP2.HLP	BASIC–PLUS–2 Help file
BP2RFA.HLP	Record File Address Help file
Installation Verification Files	
BP2IVP.CMD	IVP command file
BP2IVP.B2S	IVP source file

1.10 Post-installation Considerations for RSX–11M/M–PLUS

After you install BASIC–PLUS–2 Version 2.7 in place of an earlier version,
you may need to address some minor problems of incompatibility in your
application problems. This section is intended to alert you to all such known
problems and to aid you in responding to them.

1.10.1 Relinking of Application Programs

Current application programs that are linked against a resident library for Version 2.6 must be relinked with the new resident libraries for Version 2.7.

Current programs should not require recompilation, however.

2

Installing BASIC–PLUS–2 on a Micro/RSX System

This chapter explains how to install and verify the installation of BASIC–PLUS–2 on a Micro/RSX operating system.

Prior to installing BASIC–PLUS–2, you must do the following:

- Read this chapter.

- Verify that the Micro/RSX operating system is installed and working correctly.

- Make sure you have enough disk space to install BASIC–PLUS–2. You must have at least 2750 free blocks, 2100 of which should be contiguous.

- Make sure your system meets the minimum software and hardware requirements for BASIC–PLUS–2. The Software Product Description (SPD) lists these requirements.

The BASIC–PLUS–2 release notes are distributed only on line. You should read the release notes before you begin the installation by following the instructions in Section 2.1.

2.1 Release Notes

The BASIC–PLUS–2 release notes describe new features and known problems for this version of BASIC–PLUS–2. The release notes are included on your distribution kit in the file [1,2]RELNOT.DOC (for diskettes) or the backup set BP2REL (for cartridge tape).

You can access the release notes file by following these steps:

1. Log in to a privileged account.

2. Insert your distribution kit into the drive. Note that if your distribution kit is on diskettes, you must insert the diskette labeled BP2INS into the drive.

3. Mount your distribution medium.

If you are using diskettes, enter the following command line, where n represents the number of the drive you are using:

```
$ MOUNT/NOWRITE DUn:BP2INS
```

If you are using a cartridge tape, enter the following command line, where n represents the number of the drive you are using:

```
$ MOUNT/FOREIGN MUn:
```

4. Copy the release notes to the [1,2] directory.

If you are using diskettes, enter the following command line, where n represents the number of the drive you are using:

```
$ COPY DUn:[1,2]RELNOT.DOC [1,2]*.*
```

If you are using a cartridge tape, enter the following command line, where n represents the number of the drive you are using:

```
$ BACKUP/SAVE_SET:BP2REL/DENSITY:1600/NOINI/NEW_VERSION MUn: DUO:
```

Once you have copied the release notes file to the [1,2] directory, you can print it using the PRINT command.

2.2 Preparing to Install BASIC–PLUS–2

The BASIC–PLUS–2 software is distributed on RX50 diskettes or a TK50 cartridge tape. This software is composed of a set of files necessary for using BASIC–PLUS–2 on your system. During the installation procedure, these files are copied to your system.

You should not attempt to install this software unless you are familiar with using your MicroPDP–11 hardware and Micro/RSX operating system. If you need information on your hardware, refer to the documentation that describes the MicroPDP–11. If you need information on your operating system, refer to the Micro/RSX documentation.

If a problem occurs during the installation, a message is displayed on your screen that provides you with instructions on correcting the error. The following list contains instructions that will help you avoid damaging the hardware and the BASIC–PLUS–2 software package during the installation procedure:

- Do not open a drive door or remove a diskette or tape cartridge from the drive unless the active lights are off.

- Do not turn the MicroPDP–11 off when a drive is in use.

- Do not press the RESTART button on the MicroPDP–11 if a problem occurs during the installation procedure.

- Do not modify the contents of the tape cartridge or diskettes.

- Store the diskettes or the tape cartridge in a safe place when you have completed the installation.

2.3 Installing and Verifying BASIC–PLUS–2

This section explains how to start and use the installation procedure to install BASIC–PLUS–2. The BASIC–PLUS–2 installation procedure takes approximately 10 minutes.

Installing BASIC–PLUS–2 from RX50 diskettes is different than installing BASIC–PLUS–2 from a TK50 tape cartridge. If your BASIC–PLUS–2 software is on diskettes, read Section 2.3.1. If your BASIC–PLUS–2 software is on a tape cartridge, read Section 2.3.2.

2.3.1 Installing BASIC–PLUS–2 from Diskettes

To install BASIC–PLUS–2 from diskettes, follow these steps:

1. Log in to a privileged account. You can use any terminal on your system. If you are unfamiliar with logging in, refer to the Micro/RSX documentation for instructions.

2. Enter the following command:

   ```
   $ @OPTION
   ```

   The OPTION menu appears on your screen.

3. Enter L and press the Return key.

   A list of the options previously installed on your system appears on the screen. If BASIC–PLUS–2 is one of the installed options, you must remove it before continuing with this installation. To do so, enter R, and press the Return key. Then, follow the instructions displayed on your screen. When you have removed BASIC–PLUS–2, enter the following command:

   ```
   $ @OPTION
   ```

4. Insert the diskette labeled BP2INS. You can use either drive.

5. Enter I and press the Return key to indicate that you are ready to install BASIC–PLUS–2.

   From this point, follow the instructions displayed on your screen. These instructions prompt you for input, tell you when to remove one diskette and insert another, and inform you of the status of the installation procedure. Note that if you are using a console terminal, you may see messages such as the following:

```
14:28:37 *** DU2: -- Dismount complete
```

You can ignore these messages because they do not indicate errors.

At various times, you will be prompted to insert diskettes. Insert the numbered diskette that is requested. You will get the following request:

```
BAC - Mount disk n in DUz: . Press "RETURN" when done
```

The cursor or print head returns to the beginning of the line. Press the Return key. Although the message and your carriage return may appear redundant, the BAC utility requires a carriage return to proceed. After you press Return, the BAC utility reads the diskette and displays the following:

```
BAC - Starting Disk n on DUz:
```

```
BAC - End of Disk n on DUz:
```

Once BASIC–PLUS–2 is installed, an Installation Verification Procedure (IVP) runs automatically to ensure that the software is properly installed. The IVP ends with the following message:

```
------------------------------
| D | I | G | I | T | A | L |
------------------------------

         BASIC-PLUS-2

         VERSION 2.7

  Installation Verification Procedure

            Testing

Interaction with BASIC-PLUS-2 resident library SUCCESSFUL
Interaction with clustered RMS SUCCESSFUL

DELETE BP2IVP.CMD;0
DELETE BP2IVP.ODL;0
DELETE BP2IVP.OBJ;0
DELETE BP2IVP.TSK;0
         Press the Return key when you are ready to continue...

         Option BASIC-PLUS-2 installed
```

BASIC–PLUS–2 is now installed on your system.

During the installation procedure, files were copied from the BASIC–PLUS–2 diskettes to your system. These files allow the BASIC–PLUS–2 compiler and environment to work correctly, so you must not delete them. Section 2.5 lists the names and locations of these files and explains their purpose.

6. If you do not want to install the BASIC–PLUS–2 Help files, remove all the BASIC–PLUS–2 diskettes from the drives and store them in a safe place.

If you want to install the BASIC–PLUS–2 Help files, insert the diskette labeled BP2HLP in either drive. This diskette contains the BASIC–PLUS–2 Help files, which must be installed separately from the BASIC–PLUS–2 software.

7. Enter the following command:

   ```
   $ @OPTION
   ```

8. Enter L and press the Return key.

   A list of the options installed on your system appears on the screen. If BASIC–PLUS–2 Help files are present, you must remove them before continuing with this installation. To do so, enter R, and press the Return key. Then, follow the instructions displayed on your screen. When you have removed the BASIC–PLUS–2 Help files, enter the following command:

   ```
   $ @OPTION
   ```

9. Enter I and press the Return key to indicate that you are ready to install the BASIC–PLUS–2 Help files. Then, follow the instructions that are displayed on your screen.

   The OPTION installation procedure copies the help files from the diskette to your system. Section 2.5 lists the names and locations of these files and explains their purpose. If you delete any of the help files, your help software may not operate correctly.

10. Remove the BP2HLP diskette from the drive, and store all the BASIC–PLUS–2 diskettes in a safe place.

2.3.2 Installing BASIC–PLUS–2 from Tape Cartridge

To install BASIC–PLUS–2 from tape cartridge, follow these steps:

1. Log in to a privileged account. You can use any terminal on your system. If you are unfamiliar with logging in, refer to the Micro/RSX documentation for instructions.

2. Enter the following command:

   ```
   $ @OPTION
   ```

   The OPTION menu appears on your screen.

3. Enter L and press the Return key.

   A list of the options installed on your system appears on the screen. If BASIC–PLUS–2 is present, you must remove it before continuing with this installation. To do so, enter R, and press the Return key. Then, follow the instructions that are displayed on your screen. When you have removed BASIC–PLUS–2, enter the following command:

```
$ @OPTION
```

4. Make sure the write-protect switch on the tape cartridge labeled BP2 is pushed to the left.

5. Open the cartridge release handle and insert the tape cartridge into the drive. Close the cartridge release handle and press the LOAD button if appropriate for your unit. Wait for the ready light. If you are unfamiliar with the model of drive you are using, see your drive's operation manual for further information.

6. When the OPTION menu appears, enter I and press the Return key to indicate that you are ready to install BASIC–PLUS–2.

   From this point, follow the instructions displayed on your screen. These instructions prompt you for input and inform you of the status of the installation procedure. Note that if you are using a console terminal, you may see several messages such as the following:

   ```
   14:28:37 *** DU2: -- Dismount complete
   ```

   You can ignore these messages because they do not indicate errors.

   Once BASIC–PLUS–2 is installed, an Installation Verification Procedure (IVP) runs automatically to ensure that the software is properly installed. The IVP ends with the following message:

   ```
   --------------------------------
   | D | I | G | I | T | A | L |
   --------------------------------

           BASIC-PLUS-2

           VERSION 2.7

      Installation Verification Procedure

              Testing

   Interaction with BASIC-PLUS-2 resident library SUCCESSFUL
   Interaction with clustered RMS SUCCESSFUL

   DELETE BP2IVP.CMD;0
   DELETE BP2IVP.ODL;0
   DELETE BP2IVP.OBJ;0
   DELETE BP2IVP.TSK;0
              Press the Return key when you are ready to continue...

              Option BASIC-PLUS-2 installed
   ```

7. Once the IVP is complete, the OPTION installation procedure prompts you for other options you want to install. At this time you can install BASIC–PLUS–2 Help on your system. If you want to install the BASIC–PLUS–2 Help files, enter the following:

   BP2HLP

   The OPTION installation procedure copies the help files from the cartridge tape to your system.

8. When you have finished installing BASIC–PLUS–2 and the optional help files, the OPTION menu reappears. Enter the following command to stop the installation procedure:

   STOP

9. BASIC–PLUS–2 is now installed on your system. Remove the cartridge tape and store it in a safe place.

During the installation of the BASIC–PLUS–2 software and help files, the OPTION installation procedure copies files from the cartridge tape to your system. Section 2.5 lists the names and locations of these files and explains their purpose. If you delete any of these files, either the BASIC–PLUS–2 software or the help software will not operate correctly.

2.4 Possible Error Conditions

During the installation, an error can occur if one or more of the following conditions exist:

- The Micro/RSX operating system version is incorrect.

- Quotas necessary for successful installation are insufficient (see the Software Product Description (SPD) in your distribution kit for a list of these quota requirements.

- You are not logged into a privileged account.

- You have not removed a previous installation of Micro/RSX BASIC–PLUS–2.

- You have not inserted the Micro/RSX BASIC–PLUS–2 diskettes in the order requested by the installation procedure. Please, make sure that you insert the diskettes in the correct order.

- You have not read the Release Notes, which may provide additional restrictions for your type of hardware.

For a description of additional error messages generated by the installation procedure, see the *Correcting Possible Errors* section found in the appendicies of the *Micro/RSX Guide to Advanced Programming*.

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 increase your quotas, or log into a privileged account.

When you believe you have made the necessary corrections or adjustments, restart the installation procedure.

If the installation fails because of an IVP failure, contact a Digital Customer Services representative. See Appendix A for further information on reporting problems.

2.5 BASIC–PLUS–2 Files

Table 2–1 details the names, locations, and purposes of the files copied to your system during the installation of BASIC–PLUS–2.

Table 2–1 Files That Compose BASIC–PLUS–2 on Micro/RSX

Account	File Name	Description
BASIC–PLUS–2 Software Components		
LB:[3,54]	BP2IC2.TSK	BASIC–PLUS–2 compiler
LB:[3,54]	BP2RUN.TSK	RUN support task image
LB:[3,54]	B2RESQ.TSK	BASIC–PLUS–2 Resequencer Utility
LB:[3,54]	BP2OPT.TSK	BASIC–PLUS–2 Optimizer Utility
LB:[1,1]	B27SHR.TSK	Memory-resident library used by the compiler
LB:[1,1]	B27SH1.TSK	Memory-resident library used by the compiler
LB:[1,1]	BP2SML.TSK	BASIC–PLUS–2 memory-resident library
LB:[1,1]	BP2SML.STB	Symbol table for BP2SML
LB:[1,1]	BP2OTS.OLB	Object module library
LB:[1,2]	BP2ERR.ERR	BASIC–PLUS–2 error message file

Table 2–1 (Cont.) Files That Compose BASIC–PLUS–2 on Micro/RSX

Account	File Name	Description
ODL Files That Provide Support for BASIC–PLUS–2		
LB:[1,1]	BP2IC0.ODL	Organized for virtual and block I/O files
LB:[1,1]	BP2IC1.ODL	Organized for sequential files
LB:[1,1]	BP2IC2.ODL	Organized for relative files
LB:[1,1]	BP2IC3.ODL	Organized for sequential, relative, and undefined files
LB:[1,1]	BP2IC4.ODL	Organized for indexed files
LB:[1,1]	BP2IC5.ODL	Organized for sequential and indexed files
LB:[1,1]	BP2IC6.ODL	Organized for relative and indexed files
LB:[1,1]	BP2IC7.ODL	Organized for sequential, relative, indexed, and undefined files
Micro/RSX BASIC–PLUS–2 Help Files Software Option		
LB:[1,2]	BP2.HLP	BASIC–PLUS–2 Help file
LB:[1,2]	BP2RFA.HLP	Record file address help file
Temporary Files (These Can Be Deleted)		
LB:[1,2]	BP2IVP.CMD	IVP command file
LB:[1,2]	BP2IVP.B2S	IVP source file

2.6 Post-installation Considerations for Micro/RSX

After you install BASIC–PLUS–2 Version 2.7 in place of an earlier version, you may need to address some minor problems of incompatibility in your application problems. This section is intended to alert you to all such known problems and to aid you in responding to them.

2.6.1 Relinking of Application Programs

Current application programs that are linked against a resident library for Version 2.6 must be relinked with the new resident libraries for Version 2.7.

3

Installing BASIC–PLUS–2 on RSTS/E Systems

This chapter describes the procedure for installing BASIC–PLUS–2 on RSTS/E systems.

3.1 Preparing to Install BASIC–PLUS–2

Prior to installing this version of BASIC–PLUS–2, you must do the following:

- Read this chapter and the BASIC–PLUS–2 release notes. The release notes are available as a file in the distribution media; Section 3.2 explains how to copy them.

- Determine which options you want for BASIC–PLUS–2. See Sections 3.4 and 3.6.1 for information that will help you decide which BASIC–PLUS–2 options you want to install. Also see Section 3.6.2 to decide whether to install the BASIC–PLUS–2 prebuilt compiler kit.

- Make sure you have enough disk space to install BASIC–PLUS–2. You must have between 8000 and 10,500 free blocks, depending on which BASIC–PLUS–2 options you choose to install. At least 2000 of these blocks should be contiguous. (Note that these figures assume you are installing a BASIC–PLUS–2 base kit and your clustersize is 16. You may need more disk space if you are installing a BASIC–PLUS–2 update package or your clustersize is not 16.)

- Make sure your system meets the minimum software and hardware requirements for BASIC–PLUS–2. See the Software Product Description (SPD) for a list of these requirements.

- Assign the logical name LB: to the device and account on which your system libraries are stored. LB: is used in the installation procedure as the default device and account. By assigning this logical, you can avoid the repeated entering of your system library device and account during the installation procedure.

3.2 Release Notes

The BASIC–PLUS–2 release notes describe new features and known problems for this version. The release notes file is RELNOT.DOC; it is included on the distribution medium in the saveset [1,10]BP2REL.BCK.

To read the release notes, place your distribution medium in a drive and copy the release notes file from the distribution medium as follows:

```
$ RESTORE/NOACCOUNT ddnn:[1,10]BP2REL.BCK *.*
```

Replace ddnn with the name and number of the device on which your distribution medium is physically mounted.

Once you have copied the file RELNOT.DOC to your default account, you can print it using the PRINT command.

3.3 Methods of Installation

There are several methods of installing BASIC–PLUS–2 on RSTS/E systems. When you first install this version of the software, you must mount the distribution media and do one of the following:

- You can install a prebuilt configuration of BASIC–PLUS–2. In this method, you simply copy a set of files from the distribution media to the location where BASIC–PLUS–2 will reside. This does not involve the BASIC–PLUS–2 installation dialogue.

- Use the BASIC–PLUS–2 installation procedure to build a BASIC–PLUS–2 compiler based on configuration defaults specified in the kit. This default compiler configuration is designed to run on any hardware configuration. (The default configuration is not the same as the prebuilt configuration.)

- Use the BASIC–PLUS–2 installation procedure to build a custom configured BASIC–PLUS–2 compiler by answering the installation dialogue interactively. This method leaves behind an indirect command file (BP2DEF.CMD) containing the answers that you gave during the installation dialogue; you can use this answer file to ensure an identical configuration in a subsequent installation. See Section 3.3.1 and Section 3.3.2 for details.

To decide whether you want to install the prebuilt configuration, read Section 3.6.1 and Section 3.6.2. Section 3.6.1 describes the possible options that you can select in a custom configuration, and Section 3.6.2 describes the characteristics of the prebuilt configuration.

By building a customized configuration, you can obtain a BASIC–PLUS–2 compiler with the options that best suit your system and applications.

3.3.1 Subsequent Installations Using On-line Kit Files

When you install BASIC–PLUS–2 from the distribution media kit, you can retain copies of the kit files on the system, along with files generated during the installation. You can use these files for future installations of BASIC–PLUS–2 Version 2.7 (instead of using the distribution media kit).

Each installation generates configuration data. If you customize the BASIC–PLUS–2 compiler during an installation, the resulting configuration data reflects that customization. Then the following command will build the same configuration that was created during the installation dialogue:

```
$ @BP2BLD.CMD
```

3.3.2 Using Prepared Responses

The BASIC–PLUS–2 installation procedure generates an indirect command file, *xxx*DEF.CMD, where *xxx* is the name of the compiler established during the installation dialogue. (The usual compiler name is BP2, the default; this name will be assumed in dialogue examples.) This file contains the set of responses that were given during the installation dialogue.

When you prepare for a subsequent customizing installation, you can edit this indirect command file to contain a prepared set of responses to the questions of the installation dialogue. During the installation dialogue, you will be asked:

```
Do you want the default installation?
```

You can respond by specifying "@BP2DEF.CMD" (instead of YES or NO), and thereby perform a customizing installation without attending the console terminal.

―――――――――――――――――― **Caution** ――――――――――――――――――

If you attempt to use this nonstandard technique, remember that the answers to some questions determines whether other questions will be asked; you must anticipate the dialogue exactly to be successful. Therefore, Digital assumes no responsibility for misuse of this technique by the customer.

―――

3.4 Choosing Compiler Options

If you decide to customize BASIC–PLUS–2, you need to decide which options you want the compiler to have before you begin the installation procedure. The remainder of the chapter is designed to help you make these important decisions.

Some options affect compilation or run time performance. For example, you can install optional memory-resident libraries, the secondary cache, or both. If you choose to install either of these options, you need to know specific information about your system resources to answer questions during the installation procedure.

You may need files that are available only on the distribution media to change these major options. If you attempt to install from the online files generated by a previous installation that did not include certain attributes, the questions needed to add or change the attributes will not occur.

_____ **Note** _____

Some BASIC–PLUS–2 installation options require specific hardware features in the host configuration when the compiler is run. Nevertheless, limitations in the host configuration do not constrain your choice of options when you build the compiler at installation time. One can build (on removable disk) a BASIC–PLUS–2 compiler that does not run in the configuration on which it was built (and therefore does not pass the installation verification test), but runs on other configurations that include the necessary supporting hardware.

_____

3.4.1 Choosing Instruction and Data Space

The Instruction and Data space (I & D space) option can improve compilation-time performance by making additional physical memory available to the compiler, thereby reducing the need for workfile I/O. The I & D space option requires that your PDP–11 system have memory-management hardware necessary to support I & D space mapping and sufficient physical memory. In addition, your operating system must support I & D space mapping.

Choosing this option can yield significant performance improvements for your BASIC–PLUS–2 compiler.

3.4.2 Calculating an Absolute Memory Address

If you plan to include memory-resident libraries or the secondary cache, it is good practice to calculate absolute addresses for them prior to the installation. You need to use operating system features outside the installation procedure to calculate them.

To calculate an absolute address for a memory-resident library, log in to a privileged account and enter the following command:

```
$ SHOW MEMORY
```

The system responds with a display similar to the following:

```
Memory allocation table:
  Start    End  Length  Permanent    Temporary
    0K -   99K ( 100K) MONITOR
  100K - 1042K ( 943K) (User)
 1043K - 1059K (  17K) (User)       BP2RES LIB
 1060K - 1067K (   8K) (User)       BP2SML LIB
 1068K - 1075K (   8K) (User)       CSPLIB LIB
 1076K - 1275K ( 200K) Virtual Disk
 1276K - 1291K (  16K) (User)       DBCLOT LIB
 1292K - 1307K (  16K) (User)       DBCOTS LIB
 1308K - 1317K (  10K) (User)       DAPRES LIB
 1318K - 1321K (   4K) (User)       RMSRES LIB
 1322K - 1535K ( 214K) ** XBUF **
 1536K -  *** END ***
```

This display lists absolute addresses available on your system. You can install a library at any address where *User* appears under the column labeled *Permanent* and where no entry appears under the column labeled *Temporary*. However, to make sure no address space is wasted, it is always best to install the library at the beginning of a free block of address space. In the previous display, available starting addresses are 100K and 1322K.

3.4.3 Choosing Memory-Resident Libraries

The two BASIC–PLUS–2 memory-resident libraries are BP2RES and BP2SML. You can install one, both, or neither library. BP2RES, the large memory-resident library, contains most of the BASIC–PLUS–2 Object Time System (OTS). BP2SML contains only a subset of the OTS. When you link a BASIC–PLUS–2 program with a memory-resident library, any BASIC–PLUS–2 routines not found in the memory-resident library are resolved in the BASIC–PLUS–2 object module library, BP2OTS.OLB.

Tasks linked to a memory-resident library use less disk space than tasks linked exclusively to the object module library. Also, two or more tasks linked to a memory-resident library can share that library at run time, reducing the amount of physical memory in use.

Note

Because of its large size and overlay structure, linking BP2RES with tasks can noticeably reduce run-time performance. Therefore, you should link BP2RES only with tasks that do not depend on fast execution or that are too large to task build without memory-resident library support. (Linking tasks with BP2SML does not reduce their run-time performance.)

The BASIC–PLUS–2 memory-resident libraries must be installed at an absolute address. During the installation procedure, you can either accept the default address of zero or specify an address you calculated. Section 3.4.2 describes a method of finding a suitable absolute address.

If you accept the default zero address, the memory-resident library is installed at the highest address in memory at which it will fit.

If you want to install the large BASIC–PLUS–2 memory-resident library, BP2RES, using Extended Instruction Set (EIS) hardware, the length listed in the third column must be at least 20K words. To install BP2RES using Floating Point Unit (FPU) hardware, the length must be at least 18K words. To install BP2SML using either hardware package, the length must be at least 8K words.

If you want to install both memory-resident libraries, you can offset the address of the second library by adding the length of the first library to its starting address. For example, if you are installing BP2RES at the address 208, add the size of BP2RES (18K words) to 208 to get the starting address for BP2SML. Therefore, your absolute address for BP2SML is 226.

Before you can install a memory-resident library, you must be sure that you have enough disk space to store it. BP2RES requires approximately 230 free blocks. BP2SML requires about 90 free blocks.

3.4.4 Choosing the Secondary Cache

Another option you can choose during the BASIC–PLUS–2 installation procedure is secondary caching. The secondary cache is a work area in memory where the compiler stores temporary work files while it is compiling your program. (When there is no secondary cache, BASIC–PLUS–2 stores temporary work files on a physical device.) Storing this information in memory minimizes the amount of device I/O, which reduces the compile time.

You can choose the size of the secondary cache, or you can accept the default size, which is 32K words. Once BASIC–PLUS–2 is installed, you cannot alter the size of the secondary cache without reinstalling the compiler. Therefore, carefully consider the following issues in deciding whether to use secondary caching and what size secondary cache to use:

- Very small programs rarely need to access work files stored on a physical device because the work files needed by small programs usually fit within the physical memory that the compiler allocates for itself. Thus, secondary caching wastes system resources when used with small programs because the memory assigned to the cache is not used.

- Medium to large size programs do access work files stored on disk and can benefit from secondary caching. In general, the larger the program, the larger the work files the compiler needs to access, and the larger the secondary cache needs to be for optimum compiler speed.

- BASIC–PLUS–2 requires the memory-resident libraries B27SHR and B27SH1 to access the secondary cache. These libraries require a memory area of 4K words each. Make sure the space requirements of these libraries plus the secondary cache do not exceed the capacity of your system.

The B27SHR and B27SH1 memory-resident libraries used by the secondary cache can either be RSTS/E floating libraries, or they can be installed at an absolute address. To install B27SHR and B27SH1 as floating libraries, accept the default zero address during the installation procedure. (For information on floating libraries, see your RSTS/E documentation.) To install the libraries at an absolute address, use the method described in Section 3.4.2 to determine a usable address before beginning the installation.

The length shown in the third column of the SHOW MEMORY display must be at least 4K words for both the B27SHR and B27SH1 memory-resident libraries.

To install both memory-resident libraries, offset the address of the second library by adding the length of the first library to its starting address. For example, if you are installing B27SHR at the address 208, add the size of B27SHR (4K words) to 208 to get the starting address for B27SH1. Therefore, your absolute address for B27SH1 is 212.

You must also be sure that you have enough disk space for B27SHR and B27SH1. Each memory-resident library requires about 25 free blocks.

3.5 Mounting the Distribution Medium

When you are ready to begin the installation procedure, you must mount the distribution medium. This section explains how to mount tape cartridge, magnetic tape, and disk distribution media.

3.5.1 Mounting a Tape Cartridge

If your distribution medium is a tape cartridge, follow these steps:

1. Create a special privileged account other than [1,1] or [1,2] to install and maintain BASIC–PLUS–2.

2. Log in to the system, using the special privileged account you created in Step 1.

3. Make sure the write-protect switch on the tape cartridge labeled BP2 is pushed to the left.

4. Open the cartridge release handle and insert the tape cartridge into the drive. Close the cartridge release handle and press the LOAD button if appropriate for your unit. Wait for the ready light. If you are unfamiliar with the model of drive you are using, see your drive's operation manual for further information.

3.5.2 Mounting a Magnetic Tape

If your distribution medium is magnetic tape, follow these steps:

1. Create a special privileged account other than [1,1] or [1,2] to install and maintain BASIC–PLUS–2.

2. Log in to the system, using the special privileged account you created in Step 1.

3. Place the tape on the magnetic tape drive with the write-enable ring removed.

Make sure the write-protected indicator light is lit. Load the tape according to the instructions for your drive and make certain the load point indicator light is lit. Set the ONLINE/OFFLINE switch to ONLINE and make sure the ready indicator light is lit. (The names of these indicator lights vary from drive to drive.)

3.5.3 Mounting a Disk

If your distribution medium is a disk, follow these steps:

1. Create a special privileged account other than [1,1] or [1,2] to install and maintain BASIC–PLUS–2.

2. Log in to the system, using the special privileged account you created in Step 1.

3. Insert the disk in the disk drive.

4. Make sure that the ready light is lit. (The name of this indicator light varies from drive to drive.)

5. Turn on the write-protect switch for the disk drive.

3.6 Starting the Installation Procedure

Before you can install BASIC–PLUS–2, you must place your distribution medium in a drive. Be sure that your tape cartridge, magnetic tape, or disk is write protected before you begin the installation procedure. For information on placing your distribution medium in a drive, see your drive's operation manual.

The BASIC–PLUS–2 installation procedure is controlled by the INSTAL command file. To install BASIC–PLUS–2, enter the following:

```
$ @[0,1]INSTAL BP2
```

This command invokes the INSTAL Utility, which contains an interactive dialogue. In the following description of this dialogue, the text resembling dot matrix print represents the questions and messages that appear on your screen. The indented text explains how you should answer the questions.

```
Deleting all global symbols
```

```
Patch account <PATCH$> :
```

When you install your RSTS/E system, you can copy update packages for layered products to a patch account on your system. By default, these update packages are copied to the PATCH$ account.

If your BASIC–PLUS–2 update package is stored in PATCH$, or if you do not have a BASIC–PLUS–2 update package on your system, accept the default answer to this question by pressing the Return key. If your patch account has some other name, specify that name in response to this question.

```
The following will be installed:

    BP2

Is this list OK? <yes>
```

If you do not want to install BASIC–PLUS–2 at this time, answer NO and the INSTAL Utility will stop.

If you want to proceed to install BASIC–PLUS–2, press the Return key to accept the default YES answer. If the BASIC–PLUS–2 update package that came with your current RSTS/E kit is not in the account you previously specified as the patch account, you then receive the following messages:

```
Please mount the RSTS/E Installation media and enter the name and unit
number of the device.

Valid device types are: 'MM', 'MS', 'MT', 'MU', 'DM', 'DL', or 'SY'
(a response of SY allows monitor only)

Installation device <MM0:> :
```

If you have installed the most recent patches that came with your RSTS/E system, you will not see the preceding messages. In this case you will see the next message explained in this guide, which begins, "Please enter the name . . . ," and you should skip to the explanation of that message and proceed.

If you have been prompted to mount your RSTS/E installation medium, you must do so before you can proceed with the installation of BASIC–PLUS–2. When you have placed the RSTS/E installation medium into a drive, answer the "Installation device" question with the name of the physical device that contains your RSTS/E installation kit. (Note that if your system only has one drive of the correct type, you will have to dismount the BASIC–PLUS–2 distribution kit before you can mount the RSTS/E installation kit.)

After you have answered the preceding question, the RSTS/E installation procedure asks you questions that prepare your system for layered product installation. See your RSTS/E documentation for information on answering those questions. When you have answered the questions, the INSTAL Utility will issue the question that follows. If you removed your BASIC–PLUS–2 distribution medium from the drive, you should replace it now.

```
Please enter the name and unit number of the disk to which you want
to install the software. This disk should be physically mounted and
write enabled.

Target disk? <_SY:> :
```

Press the Return key to accept the default answer to this question.

The INSTAL Utility displays the following messages:

```
Assigning system logicals

      .
      .
      .

Please mount the BP2 Library media and enter the
name and unit number of the device.
Valid device types are: 'MM', 'MS', 'MT', 'MU', 'DM', or 'DL'

BP2 Library device <MM0:> :
```

If you want the BASIC–PLUS–2 library device to be the default shown, press
the Return key. Otherwise, select one of the valid devices and answer the
question with the name and unit number of that device.

The BASIC–PLUS–2 installation process will now begin. You may install the
prebuilt kit or proceed with the installation procedure.

The installation procedure consists of two parts: the BP2BLD dialogue,
executed by DIALOG.TSK, and the creation of the installation command files,
executed by BP2BLD.TSK.

The BP2BLD dialogue is an interactive program that lets you choose options
for the BASIC–PLUS–2 compiler. The BP2BLD dialogue asks you questions
and places your answers in the command file BP2DEF.CMD. The BP2BLD
dialogue program also creates other installation command files, based on
your responses to the dialogue. These files copy installation files from
the distribution medium to the temporary storage account you specify in
the BP2BLD dialogue. The dialogue is explained in Section 3.6.1 and its
subsections.

If you want to install the prebuilt kit, please skip the description of the
installation dialogue and continue with Section 3.6.2. Otherwise, proceed
through the dialogue that follows.

3.6.1 The Installation Dialogue

This section is relevant if you are not installing the prebuilt kit configuration.

The BP2BLD installation dialogue is a series of questions to which you must supply valid answers. Each of these questions and its valid responses are explained in this section. If you answer a question with something other than a valid choice, BP2BLD responds with a diagnostic message.

Most of the questions in the installation dialogue have a default response. This default response is shown in angle brackets (<>) after the question. You can accept the default response by pressing the Return key. If you have customized the compiler during a previous installation, the default response displayed on your terminal may be different from the default shown here.

You can receive help in answering a question by typing a question mark (?) in response to the question. If you want to change an answer during the dialogue, you can back up one question at a time by pressing the ESC key. (Not all keyboards have an ESC key; pressing Ctrl/[produces the same effect, and is available on any terminal.)

If you receive a system error message during the installation, consult your RSTS/E operating system documentation for possible recovery procedures.

3.6.1.1 Beginning the Dialogue

In the following description of the BP2BLD dialogue and installation procedure, the dot matrix text is the installation dialogue as it appears on your screen. The indented text explains how you should answer the questions in the dialogue.

```
* Do you wish to install the prebuilt kit? <YES>
```

Answer NO if you are not using the prebuilt kit. If you default or answer YES, the prebuilt compiler will be installed by direct copying of files from the kit and the dialogue will not continue.

See Section 3.6.2 for information about the prebuilt BASIC–PLUS–2 compiler. The prebuilt compiler kit provides better performance than the default installation but requires certain hardware options; it is not the same as the default installation, which fits on all systems.

If you answer NO, the following message and question appears:

```
            B A S I C - P L U S - 2
      V E R S I O N   2   I N S T A L L A T I O N
```

This starts the BP2BLD dialogue. The BP2BLD dialogue asks you
questions so you can select the options for your BASIC--PLUS--2
compiler. The default answer for each question is in angle
brackets.   To select the default, press the Return key. If you
do not want the default answer, type in the answer you want.

```
         .
         .
         .
```

Do you want the default installation <YES>

There are three valid answers:

- YES (the default)

  This is the same as giving default responses throughout the dialogue. It
  installs a version of BASIC–PLUS–2 that fits on all systems. However,
  you can improve the performance of BASIC–PLUS–2 if you answer each
  question in the dialogue to customize BASIC–PLUS–2 to your system.

  If you select the default installation, see Section 3.6.1.2 for instructions on
  how to continue.

- NO

  Answer NO if you want to run the remainder of the dialogue to select
  options. The dialogue will continue at Section 3.6.1.3.

- @BP2DEF.CMD

  You can answer the preceding question by invoking an indirect command
  file named BP2DEF.CMD generated by a previous installation. The rest of
  the dialogue will be answered automatically by responses in the command
  file. Assuming that the sequence of answers in BP2DEF.CMD is valid, you
  will need to take no further action until the following message is displayed:

  ```
  The BP2BLD dialogue is complete.
  The installation will take about 1 hour to complete.
  ```

  See Section 3.6.1.7 for instructions on how to continue.

3.6.1.2 The Default Installation

If you have selected the default installation, the BP2BLD dialogue asks the
next question and then displays a summary of the options for the default
installation.

```
What name do you want to use to invoke BP2 <BP2>
```

Enter the 3-character name you want to use to invoke the BASIC–PLUS–2 compiler. This name becomes the first three characters of the file names for all BASIC–PLUS–2 components except the following:

- BASIC2.ERR

- BP2.HLP

- BP2RFA.HLP

- B2RESQ.TSK

- B27SHR.TSK

- B27SH1.TSK

- BP2OPT.TSK

For example, if you choose FPU, the file name for the BASIC–PLUS–2 compiler is FPUIC2.

The BP2BLD dialogue displays a summary of the options for the default installation. The summary is written to the file *xxx*DEF.DOC as a record of the installation. The letters *xxx* are the three characters you previously chose to invoke the BASIC–PLUS–2 compiler.

```
Here is a summary of the options you have selected:
```

```
This is a default installation
BP2RES will not be installed
BP2SML will not be installed
The compiler will not use -I and -D space
Secondary caching will not be enabled
RUN will be supported
RUN will not support remote RMS file access
The BP2 Resequencer will not be installed
The BP2 Optimizer Utility will not be installed
The BP2 Dump Anlayzer will not be installed
The BP2 HELP file will not be installed
The BP2 run-time system will not be installed
The hardware math package is EIS
The name to use to invoke BP2 is BP2
The BP2 compiler prompt is BASIC2
The device and account for the BP2 compiler is SY:[1,2]
The device for the BP2 compiler work files is SY:
Data cache will not be enabled for the BP2 work files
The device and account for the BP2 object module disk library is LB:
The device and account for the BP2 ODL files is LB:
The device and account for the temp installation files is SY:
The device and account for the RMS-11 ODL files is LB:
EDIT$ will not upcase characters (octal 173 - 176)
The default time format is SYSTEM
The default date format is SYSTEM
The PRINT USING currency symbol is $
The PRINT USING decimal point symbol is .
The PRINT USING third digit separator symbol is ,
The BP2 compiler will not be updated
The installation command files will be deleted
The compiler installation will be verified

Do you wish to change any of your answers <NO>
```

If you want the default installation, answer NO or press the Return key.
See Section 3.6.1.7 for instructions on how to continue. If you answer YES,
the default configuration will not be installed. Instead, the entire BP2BLD
dialogue will be run, beginning with the following question:

```
Do you want the default installation <YES>
```

If you answer YES, BASIC–PLUS–2 is installed with the default options. If
you want to customize BASIC–PLUS–2, answer NO or specify an indirect
command file as described previously. The installation customizing dialogue
will continue at Section 3.6.1.3 as though you had never selected the default
installation.

3.6.1.3 Selecting Memory-Resident Libraries

If you are customizing the compiler, the dialogue continues with the question:

```
Do you want to install BP2RES <NO>
```

BP2RES is a BASIC–PLUS–2 memory-resident library that contains most of the BASIC–PLUS–2 OTS. Linking BASIC–PLUS–2 programs to BP2RES reduces the size of the task image. However, using BP2RES also slows down the execution of the task. See Section 3.4.3 for more information that will help you decide whether or not to install BP2RES.

If you answer NO or press the Return key, skip the next two questions and proceed with the question "Do you want to install BP2SML." If you answer YES, the BP2BLD dialogue proceeds as follows:

```
Enter the device and account for BP2RES <LB:>
```

Enter the name of the device and the account where you want to store BP2RES. Select a device that can store approximately 155 blocks of disk space and an account that is accessible to all users. Be sure you have enough space on the disk before installing BP2RES.

```
What is the absolute address for BP2RES <0>
```

Enter the absolute address where BP2RES will reside. (See Section 3.4.2 for directions on how to calculate this address.

```
Do you want to install BP2SML <NO>
```

BP2SML is a BASIC–PLUS–2 memory-resident library that contains a subset of the BASIC–PLUS–2 OTS. Tasks linked to BP2SML have smaller images than tasks linked to the OTS. See Section 3.4.3 for more information that will help you decide whether or not to install BP2SML.

If you answer YES, the BP2BLD dialogue asks you the next two questions. If you answer NO or press the Return key, the dialogue continues with the I & D space question in Section 3.6.1.4.

```
Enter the device and account for BP2SML <LB:>
```

Enter the name of the device and the account where you want to store BP2SML. Select a device that can store approximately 45 blocks of disk space and an account that is accessible to all users. Be sure you have enough space on the disk before installing BP2SML.

```
What is the absolute address for BP2SML <0>
```

Enter the absolute address where BP2SML will reside. (See Section 3.4.2 for directions on how to calculate this address.

3.6.1.4 Selecting Instruction and Data Space

If your configuration supports instruction and data (I & D) space, you can build the compiler to use it, and thus reduce compilation time.

```
Do you want the compiler to use -I and -D space <NO>
```

Answer YES if you want the compiler to be able to use I and D space. If you answer NO, the default, the compiler will not be able to use I and D space.

3.6.1.5 Installing the Secondary Cache Option

The next step of the dialogue concerns the selection and definition of the secondary cache and its libraries.

```
Do you want to install the secondary cache <NO>
```

The secondary cache is a section of memory that the BASIC–PLUS–2 compiler uses to store work file information during a compilation. Storing the information in memory reduces compilation time by reducing the number of disk accesses the compiler must make to retrieve information from the work file. See Section 3.4.4 for more information that will help you decide whether or not to install the secondary cache.

If you answer YES, the BASIC–PLUS–2 compiler uses secondary caching to store the work files in memory when enough physical memory is available. If you answer NO, the BASIC–PLUS–2 compiler does not use secondary caching, and work files are stored on a disk during compile operations. If you answer NO, the dialogue skips the questions dealing with secondary caching and its associated libraries, B27SHR and B27SH1. Therefore, if you answer NO, you will proceed with the question "Do you want to support RUN." at the beginning of Section 3.6.1.6.

```
What size do you want to make the secondary cache <32>
```

You can make the secondary cache any multiple of 4K words, from 4K to 60K. Note, however, that a large secondary cache wastes system resources except when you compile extremely large programs.

If you have previously selected I & D space, the following questions about the memory resident libraries B27SHR and B27SH1 will not occur; the dialogue will continue with the options described in Section 3.6.1.6.

```
Enter the device and account for B27SHR <LB:[1,1]>
```

B27SHR is one of two memory-resident libraries the BASIC–PLUS–2 compiler needs to access the secondary cache. Enter the name of the device and the account where you want to store B27SHR. Select a device that can store approximately 25 blocks of disk space and an account that is accessible to all users.

```
What is the absolute address for B27SHR <0>
```

Enter the absolute address that you calculated for B27SHR, or press the
Return key. See Section 3.4.2 for a method of calculating the absolute address.

```
Enter the device and account for B27SH1 <LB:[1,1]>
```

B27SH1 is the other memory-resident library the BASIC–PLUS–2 compiler
uses to access the secondary cache. Enter the name of the device and the
account where you want to store B27SH1. Select a device that can store
approximately 25 blocks of disk space and an account that is accessible to all
users.

```
What is the absolute address for B27SH1 <0>
```

Enter the absolute address where B27SH1 will reside, or press Return. See
Section 3.4.2 for a method of calculating the absolute address.

3.6.1.6 Other Options

After you have specified or excluded the secondary cache, the dialogue
continues as follows:

```
Do you want to support RUN <YES>
```

If you answer YES, you can execute programs in the BASIC–PLUS–2
environment with the RUN command, access the BASIC–PLUS–2 debugger
in the BASIC–PLUS–2 environment with the RUN/DEBUG command, make
object modules available for execution with the LOAD command, and execute
immediate mode statements. If you answer NO, support for these options is
not built and the BP2BLD dialogue skips the next question.

```
Do you want RUN to support remote RMS file access <NO>
```

BASIC–PLUS–2 programs can access files on other computer systems
connected to your computer by DECnet. To provide this remote file
access support for immediate mode statements and programs run in the
BASIC–PLUS–2 environment, the RUN task must be linked to the library that
provides RMS–11 DECnet support. This library, which is named DAPRES,
must be stored in the account LB:[1,1] for RUN to support remote RMS file
access.

If you answer YES to this question, support for remote RMS file access is
linked to the RUN task. If you answer NO, the RUN task is not linked to
remote file access support. If the DAPRES library is not in LB:[1,1], you must
answer NO to this question.

```
Do you want to link the support for RUN with memory resident libraries <YES>
```

If you decided to install BP2RES, you may choose to link the support for the
RUN command, for the LOAD command, and for immediate mode statements
with the BP2RES and RMSRES memory-resident libraries. Programs run
fastest when using the memory-resident libraries. However, the libraries
must be stored in the account LB:[1,1] to be linked to the support for RUN. If
RMSRES is not in LB:[1,1] or you chose to store BP2RES in another account,
you must answer NO to this question.

Answer YES to link the support for RUN with the memory-resident libraries.
Answer NO to link the support for RUN with the BASIC–PLUS–2 object
module library.

```
Do you want to install the BP2 Resequencer <NO>
```

The Resequencer Utility allows you to renumber the lines in your program; it
occupies approximately 185 blocks of disk space.

If you answer YES, the Resequencer Utility is installed on the device and
account you specify in the next question. If you answer NO or press the Return
key, skip the next question.

```
Enter the device and account for the BP2 Resequencer <SY:[1,2]>
```

Enter the name of the device and the account where you want to store
the BASIC–PLUS–2 Resequencer Utility. Select a device that can store
approximately 185 blocks of disk space and an account that is accessible to
all users. Be sure you have enough space on the disk before installing the
BASIC–PLUS–2 Resequencer Utility.

```
Do you want to install the BP2 Optimizer <NO>
```

The BASIC–PLUS–2 Optimizer Utility reduces the amount of threaded code in
BASIC–PLUS–2 generated object modules. It accomplishes this by replacing
common groups of threads with a subroutine. It is useful only for very large
tasks or where space is critical. The Optimizer Utility occupies 210 blocks of
disk space.

If you answer YES, the Optimizer Utility is installed on the device and account
you specify in the next question. If you answer NO or press the Return key,
skip the next question.

```
Enter the device and account for the BP2 Optimizer <SY:[1,2]>
```

Enter the name of the device and the account where you want to store the
BASIC–PLUS–2 Optimizer Utility. Select a device that can store 210 blocks
of disk space and an account that is accessible to all users. Be sure you have
enough space on the disk before installing the BASIC–PLUS–2 Optimizer
Utility.

```
Do you want to install the BP2 Dump Analyzer <NO>
```

The BASIC–PLUS–2 Dump Analyzer Utility uses approximately 75 blocks of
disk space and analyzes post-mortem dumps. Post-mortem dumps occur when
the BUILD command has the DUMP qualifier and a fatal error error occurs
during program execution. It is helpful to include a post-mortem dump with a
Software Performance Report (SPR).

If you answer YES, the Dump Analyzer Utility is copied from the distribution
medium to the device and account that you specify in the next question. If you
answer NO or press Return, the next question does not occur.

```
Enter the device and account for the BP2 Dump Analyzer <SY:[1,2]>
```

Enter the name of the device and account where you want to store the
BASIC–PLUS–2 Dump Analyzer Utility. Select an account that all users
can access. Be sure that the disk has 75 blocks of space available.

```
Do you want to install the BP2 Help file <NO>
```

The two BASIC–PLUS–2 Help files provide online documentation for
BASIC–PLUS–2; they occupy approximately 310 blocks of disk space. If
you answer YES, the help files are copied from the distribution medium to the
device and account you specify in the next question. If you answer NO or press
the Return key, skip the next question.

```
Enter the device and account for the BP2 Help file <SY:[1,2]>
```

Enter the name of the device and the account where you want to store the
BASIC–PLUS–2 Help files. Select a device that can store approximately 310
blocks of disk space and an account that is accessible to all users. Be sure you
have enough space on the disk before installing the BASIC–PLUS–2 Help files.

```
Do you want to install the BP2 run-time system <NO>
```

The BASIC–PLUS–2 run-time system simulates the BASIC–PLUS–2
environment. It uses approximately 10 blocks of disk space and 1K words of
memory. You can execute RSTS/E system commands from the BASIC–PLUS–2
run-time system by preceding the command with a dollar sign ($). The
advantage of using the BASIC–PLUS–2 run-time system is that after the
RSTS/E command is executed, control is returned to the BASIC–PLUS–2
run-time system.

If you do not install the BASIC–PLUS–2 run-time system, you cannot use the
DCL BASIC/BP2 command to invoke the BASIC–PLUS–2 compiler or use the
SWITCH utility to invoke the BASIC–PLUS–2 run-time system.

```
Which hardware math package do you want to use <EIS>
```

Enter the hardware math package you want to use with this version of
BASIC–PLUS–2. You can specify EIS or FPU. If your system has both types
of math hardware, choose FPU, because it processes floating-point arithmetic
faster and uses less virtual address space.

What name do you want to use to invoke BP2 <BP2>

Enter the 3-character name you want to use to invoke the BASIC–PLUS–2
compiler. This name becomes the first three characters of the file names for all
BASIC–PLUS–2 components except the following:

- BASIC2.ERR

- BP2.HLP

- BP2RFA.HLP

- B2RESQ.TSK

- B27SHR.TSK

- B27SH1.TSK

- BP2OPT.TSK

For example, if you choose FPU as the name (to indicate the hardware math
package being used), the file name for the BASIC–PLUS–2 compiler is FPUIC2.

What do you want to use as the BP2 compiler prompt <BASIC2>

When you are in the BASIC–PLUS–2 environment, BASIC–PLUS–2 displays
a prompt that tells you the compiler is ready to execute commands, program
lines, or immediate mode statements. Enter the character string you want
to use for this prompt. You can answer with any 6-character combination of
letters and digits. The default prompt is used in examples throughout the
BASIC–PLUS–2 documentation.

Enter the device and account for the BP2 compiler <SY:[1,2]>

Enter the name of the device and the account where you want to store the
BASIC–PLUS–2 compiler. You need approximately 945 contiguous blocks of
disk space and an account that is accessible to all users. The disk must also
have approximately 240 free contiguous blocks if you chose to support the RUN
command. Be sure you have enough space on the disk before installing the
BASIC–PLUS–2 compiler. Note that the BP2BLD program automatically sets
the file protection for the compiler.

Enter the device and account for the BP2 compiler work files <SY:>

The BASIC–PLUS–2 compiler opens three work files each time it is invoked. The first file is an internal representation of your program and is approximately the same size in blocks as the program currently in memory. The second file contains line tables and internal code, using approximately 130 blocks of disk space. The third file contains symbol tables and cross-reference information (if in effect) using approximately 255 blocks of disk space.

Select a device that is infrequently used and that has a high transfer rate. Also, if you have the option, you should store the work files on a different disk than the one on which the BASIC–PLUS–2 compiler is stored. Select an account that is accessible to all users.

```
Do you want to enable data cache for the BP2 compiler work files <NO>
```

Data caching allows the BASIC–PLUS–2 compiler to store commonly used portions of work files in memory, thereby increasing compiler speed. Data caching is recommended for operating systems with more than 128K words of physical memory, although it may not be advantageous on smaller systems. Answer YES to enable data caching for compiler work files. Answer NO or press Return if you do not want to enable data caching.

```
Enter the device and account for the BP2 object module disk library <LB:>
```

Enter the name of the device and the account where you want to store the BASIC–PLUS–2 object module library file. If you chose EIS hardware, select a device that can store approximately 250 blocks of disk space. If you chose FPU hardware, select a device that can store approximately 235 blocks of disk space. Select an account that is accessible to all users. Be sure you have enough space on the disk before installing the BASIC–PLUS–2 object module library.

```
Enter the device and account for the BP2 ODL files <LB:>
```

Enter the name of the device and the account where you want to store the BASIC–PLUS–2 Overlay Description Language (ODL) files. BASIC–PLUS–2 uses these ODL files when you add a file organization qualifier to the BASIC BUILD command or when your program uses an ORGANIZATION clause in an OPEN statement. Select a device that can store approximately 20 blocks of disk space and an account that is accessible to all users. Be sure you have enough space on the disk to install the BASIC–PLUS–2 ODL files.

```
Enter the device and account for the temp installation files <SY:>
```

During the installation, temporary files are either created or copied from the distribution medium to the device and account you specify. Select a device that can temporarily store approximately 4000 blocks of disk space. Be sure you have enough space on the disk to accommodate the temporary installation files.

```
Enter the device and account for the RMS-11 ODL files <LB:>
```

Specify the device and account where the RMS–11 ODL files reside. These files must already be on your system for the BASIC–PLUS–2 installation to complete properly.

```
Do you want the EDIT$ upcase (function code 32) to apply to characters
in the range (octal 173 - 176)  <NO>
```

In some countries, letters follow Z in the alphabet. If you answer YES, the EDIT$ function code 32 converts these lowercase letters to uppercase.

```
What do you want as the default time format <SYSTEM>
```

You can specify AM/PM to use the 12-hour clock (AM and PM format, for example, 3:00 PM) or 24 to use the 24-hour clock (for example, 15:00). The format you choose is used as the value for the TIME$ function.

```
What do you want as the default date format <SYSTEM>
```

You can select one of the following formats: ISO, alphabetic, or system. The ISO format is Mmm-dd-yy; the alphabetic format is dd-Mmm-yy. Pressing the Return key selects the default for your system. The format you choose is used as the value for the DATE$ function.

```
What do you want as the character for the PRINT USING currency symbol <$>
```

The dollar sign ($) PRINT USING format character is used for the currency symbol in the United States and Canada. If you want to specify a symbol other than the default, enter it here and the PRINT USING statement uses it when formatting.

```
What do you want as the character for the PRINT USING decimal point <.>
```

You can specify another symbol for the PRINT USING statement to use for the decimal point when formatting. If you want to specify a symbol other than the default, enter it here.

```
What do you want as the character for the PRINT USING third digit
separator <,>
```

You can specify another symbol for the PRINT USING statement to use for the third-digit separator when formatting. (For example, in the number 1,000 the comma (,) is used as the third digit separator.) If you want to specify a symbol other than the default, enter it here.

```
Do you want to update the BP2 compiler <NO>
```

Patches no longer update the BASIC–PLUS–2 product. Now the compiler is updated by replacing its object modules, then linking them and installing BASIC–PLUS–2 again. When you install updates for BASIC–PLUS–2, you must execute the BP2BLD programs and answer its questions again.

If you are updating BASIC–PLUS–2, answer YES, and the BP2BLD dialogue asks the next question. If you answer NO or press the Return key, skip the next question.

```
Enter the device and account for the update files <SY:>
```

Enter the name of the device and account where the files from the update distribution medium reside.

```
Do you want to delete the installation command files <YES>
```

The installation files are used during the installation process and are not of any use after the installation, unless you want to edit them to further customize BASIC–PLUS–2. If you answer YES, these files are deleted after the installation procedure is complete. If you answer NO, they remain on your system. (Each of these files is described in Section 3.7.)

```
Do you want to verify the installation <YES>
```

The verification procedure executes a number of BASIC–PLUS–2 programs to test the BASIC–PLUS–2 compiler, the RSTS/E Task Builder, and terminal I/O. Answer YES to verify the installation.

A summary of the options you have chosen is then displayed. It is similar in appearance to the summary of default options shown in Section 3.6.1.2. The summary is also written to the file *xxx*DEF.DOC as a record of the installation. The letters *xxx* are the three characters you previously chose to invoke the BASIC–PLUS–2 compiler.

```
Here is a summary of the options you have selected:

This is not a default installation

       .

       .

       .


Do you wish to change any of your answers <NO>
```

If you answer YES, the BP2BLD dialogue responds as follows:

```
Answering <CR> to each question will produce the
same compiler as answering
'YES' to the "Do you want the default installation" question.
```

At this point, the BP2BLD dialogue program asks all the questions in the dialogue again. Note that if you selected an answer to a question other than the original default, your answer is enclosed in angle brackets as the new default answer for that question.

3.6.1.7 Ending the Dialogue

If you do not need to change your answers, answer NO or press the Return key in response to the preceding question. The BP2BLD dialogue responds as follows:

```
The BP2BLD dialogue is complete.
The installation will take about 2 hours to complete.
```

The BP2BLD dialogue is complete. All your responses to the BP2BLD dialogue are written to the command file xxxDEF.CMD. (The letters xxx are the three characters you previously chose to invoke the BASIC-PLUS-2 compiler.) You can use this command file as an indirect command file if you have to install BASIC-PLUS-2 again.

The installation files are now executed to do the following:

- Create command files to copy certain files from the distribution medium to the work area

- Link the object modules for the BASIC-PLUS-2 compiler

- Install the BASIC-PLUS-2 compiler

- Install memory-resident libraries, if you selected this option

- Verify the installation, if you selected this option

During this portion of the installation procedure, new libraries and tasks are created and previous versions removed. At this time, the system may display one or more informational messages. For example:

```
DELETE/COMMAND/SYSTEM BP2

?Command not found

REMOVE LIBRARY BP2RES

?Library not found
```

These messages do not indicate an error in the installation procedure.

When the installation procedure is complete, the system displays the following message:

```
The BASIC-PLUS-2 installation is complete.
```

If you chose to verify the installation of BASIC-PLUS-2, the installation verification procedure will now be run. This procedure is explained in Section 3.6.3.

During the installation procedure, files were copied from the distribution medium to your system. Sections 3.7 and 3.8 detail the names and purposes of these files.

One of the installation files, *xxx*INS.CMD, is a command file that installs BASIC–PLUS–2 with the options you chose. (The letters *xxx* in the file name are the three characters you chose during the installation procedure to invoke BASIC–PLUS–2.) Because you must reinstall BASIC–PLUS–2 each time you start up your system, you may want to include a line that invokes *xxx*INS.CMD in your system start up command file. If you do, BASIC–PLUS–2 is installed automatically during system start up.

3.6.2 Installing the Prebuilt BASIC–PLUS–2 Compiler Kit

After you mount the media kit at installation time and execute the RSTS installation procedures, you will see the following question:

```
Do you wish to install the prebuilt kit? <YES> :
```

If you answer NO, the installation will proceed with the dialogue described previously. If you answer YES (the default), you will bypass the installation dialogue and install the prebuilt BASIC–PLUS–2 kit. If you select the prebuilt kit installation, the IVP will be run.

The prebuilt kit installation differs from the default installation. The BASIC–PLUS–2 prebuilt compiler is designed to provide better performance than the default installation. It requires a 32K secondary cache, I and D space, and the FPU hardware math package, and therefore cannot be used on every system. There are no options to select; installation consists of copying files from the kit.

If you select installation of the prebuilt kit, the following message is displayed:

```
Copying files from distribution media. Please wait.
```

You may then see a series of informational messages. For example:

```
?Library not found
```

These messages do not indicate errors in the installation procedure.

As mentioned previously, the prebuilt kit installation is automatically verified. See Section 3.6.3 for a description of the verification.

When the installation is complete, the system displays the following message:

```
The BASIC-PLUS-2 installation is complete.
```

Installing the BASIC–PLUS–2 prebuilt kit is equivalent to selecting the following options with the BASIC–PLUS–2 installation procedure:

```
Here is a summary of the options you have selected:

This is not a default installation
BP2RES will not be installed
BP2SML will be installed
The device and account for BP2SML is LB:
The absolute address for BP2SML is 0
The compiler will use -I and -D space
Secondary caching will be enabled
The size of the secondary cache will be 32
RUN will be supported
RUN will not support remote RMS file access
The BP2 Resequencer will be installed
The device and account for the BP2 Resequencer is SY:[1,2]
The BP2 Optimizer Utility will be installed
The device and account for the BP2 Optimizer is SY:[1,2]
The BP2 Dump Anlayzer will be installed
The device and account for the BP2 Dump Analyzer is SY:[1,2]
The BP2 HELP file will be installed
The device and account for the BP2 Help file is SY:[1,2]
The BP2 run-time system will not be installed
The hardware math package is FPU
The name to use to invoke BP2 is BP2
The BP2 compiler prompt is BASIC2
The device and account for the BP2 compiler is SY:[1,2]
The device for the BP2 compiler work files is SY:
Data cache will not be enabled for the BP2 work files
The device and account for the BP2 object module disk library is LB:
The device and account for the BP2 ODL files is LB:
The device and account for the temp installation files is SY:
The device and account for the RMS-11 ODL files is LB:
EDIT$ will not upcase characters (octal 173 - 176)
The default time format is SYSTEM
The default date format is SYSTEM
The PRINT USING currency symbol is $
The PRINT USING decimal point symbol is .
The PRINT USING third digit separator symbol is ,
The BP2 compiler will not be updated
The installation command files will not be deleted
The compiler installation will be verified
```

3.6.3 The Verification Test

If you install the prebuilt kit or select verification during the installation
dialogue, the installation includes a verification test. The verification test
checks the BASIC–PLUS–2 compiler and the Task Builder. During both
verification tests, the following output is displayed on your screen:

```
PDP-11 BASIC-PLUS-2 V2.7-00
@SY:BP2VE0
@SY:BP2VE0
NEW SY:BP2T0
10      DECLARE INTEGER I
20      DECLARE STRING  J
30      PRINT 'BASIC-PLUS-2 INSTALLATION VERIFICATION'
40      FOR I = 1 TO 10
50              J = SPACE$(I) + NUM1$(I)
60              PRINT J
70      NEXT I
80      PRINT 'VERIFICATION #1 PASSED'
90      PRINT ERT$(0%)
100     END
REPLACE SY:BP2T0
BUILD SY:
COMPILE SY:/OBJ
BP2T0   03:42 PM        19-Apr-91
TKB>@SY:BP2T0
BASIC-PLUS-2 INSTALLATION VERIFICATION
 1
  2
   3
    4
     5
      6
       7
        8
         9
          10
VERIFICATION #1 PASSED
RSTS V10.0-xx <yoursystem>
```

```
PDP-11 BASIC-PLUS-2 V2.7-00
@SY:BP2VE1
@SY:BP2VE1
OLD SY:BP2T0
80      PRINT 'VERIFICATION #2 PASSED'
RENAME SY:BP2T1
REPLACE SY:BP2T1
BUILD SY:
COMPILE SY:/OBJ
BP2T1   03:42 PM        19-Apr-91
TKB>@SY:BP2T1
BASIC-PLUS-2 INSTALLATION VERIFICATION
 1
  2
   3
    4
     5
      6
       7
        8
         9
          10
VERIFICATION #2 PASSED
RSTS V10.0-xx <yoursystem>
```

In summary, when a test has completed successfully, one of the following
messages is displayed:

```
VERIFICATION #1 PASSED
```

```
VERIFICATION #2 PASSED
```

If these messages are not displayed, the verification was unsuccessful. In this
case, make sure the following software is installed:

- RMS–11

- The BASIC–PLUS–2 compiler

- The BASIC–PLUS–2 memory-resident library (or libraries), if you selected
  this option

If the software listed here is installed and the verification test is not successful,
contact your Digital software specialist.

3.7 Installation Files

Table 3–1 lists the names of and describes the temporary files that may be created or are copied from the distribution medium during the installation. All files except BP2DEF.CMD, BP2DEF.DOC, and BP2INS.CMD are deleted (if you selected this option in the BP2BLD dialogue).

Some of the file names listed in Table 3–1 that begin with the letters BP2 will begin with the 3-character name you chose to invoke BASIC–PLUS–2 in the BP2BLD dialogue. This table uses the default name, BP2.

Table 3–1 Files Copied to Your System During Installation on RSTS/E

File Name	Description
B27S1X.CMD	Is a skeleton command file for building the B27SH1 library, if you want to install the secondary cache.
B27SH1.CMD	Is a command file for building the B27SH1 library, if you want to install the secondary cache.
B27SHR.CMD	Is a command file for building the B27SHR library, if you want to install the secondary cache.
B27SRX.CMD	Is a skeleton command file for building the B27SHR library, if you want to install the secondary cache.
BP211S.ODL	Tells the Task Builder how to access the RMS libraries.
BP2BLD.CMD	Controls the installation process.
BP2BLD.TSK	Creates CMD files.
BP2CPY.CMD	Controls all copying of files from the distribution medium to the accounts you specified in the BP2BLD dialogue.
BP2DEL.CMD	Deletes temporary installation command files, if you selected this option.
BP2ECI.ODL	Supports use of EIS in I & D space.
BP2ECR.CMD	Links the BASIC–PLUS–2 compiler for systems with EIS math hardware and using a secondary cache.
BP2ECR.ODL	Tells the Task Builder how to overlay segments of the BASIC–PLUS–2 compiler while linking.
BP2ECU.CMD	Links the BASIC–PLUS–2 compiler for systems with EIS math hardware and without a secondary cache.
BP2ECU.ODL	Tells the Task Builder how to overlay segments of the BASIC–PLUS–2 compiler while linking.

Table 3–1 (Cont.) Files Copied to Your System During Installation on RSTS/E

File Name	Description
BP2EOL.CMD	Is created by BP2BLD.TSK, if you want to install the BP2RES memory-resident library for systems with EIS math hardware.
BP2EOL.ODL	Is created by BP2BLD.TSK, if you want to install the BP2RES memory-resident library for systems with EIS math hardware.
BP2EOS.CMD	Links the BP2SML memory-resident library for systems with EIS math hardware, if you selected this option.
BP2EOT.OLB	Is the BASIC–PLUS–2 object module library for systems with EIS math hardware.
BP2ERL.CMD	Builds the support for RUN with the BP2RES memory-resident library for systems with EIS math hardware, if you selected this option.
BP2ERL.ODL	Tells the Task Builder how to overlay segments of the support for RUN while linking, if you selected this option.
BP2ERU.CMD	Builds the support for RUN with the BASIC–PLUS–2 object module library for systems with EIS math hardware, if you selected this option.
BP2ERU.ODL	Tells the Task Builder how to overlay segments of the support for RUN while linking, if you selected this option.
BP2EXL.CMD	Is copied from the distribution medium, if you want to install the BP2RES memory-resident library for systems with EIS math hardware.
BP2EXL.ODL	Is copied from the distribution medium, if you want to install the BP2RES memory-resident library for systems with EIS math hardware.
BP2EXS.CMD	Is copied from the distribution medium, if you want to install the BP2SML memory-resident library for systems with EIS math hardware.
BP2FCI.ODL	Supports use of FPU in I & D space.
BP2FCR.CMD	Links the BASIC–PLUS–2 compiler for systems with FPU math hardware and using a secondary cache.
BP2FCR.ODL	Tells the Task Builder how to overlay segments of the BASIC–PLUS–2 compiler while linking.
BP2FCU.CMD	Links the BASIC–PLUS–2 compiler for systems with FPU math hardware and without a secondary cache.

(continued on next page)

Table 3–1 (Cont.) Files Copied to Your System During Installation on RSTS/E

File Name	Description
BP2FCU.ODL	Tells the Task Builder how to overlay segments of the BASIC–PLUS–2 compiler while linking.
BP2FOL.CMD	Is created by BP2BLD.TSK, if you want to install the BP2RES memory-resident library for systems with FPU math hardware.
BP2FOL.ODL	Is created by BP2BLD.TSK, if you want to install the BP2RES memory-resident library for systems with FPU math hardware.
BP2FOS.CMD	Links the BP2SML memory-resident library for systems with FPU math hardware, if you selected this option.
BP2FOT.OLB	Is the BASIC–PLUS–2 object module library for systems with FPU math hardware.
BP2FRL.CMD	Links the support for RUN with the BP2RES memory-resident library for systems with FPU math hardware, if you selected this option.
BP2FRL.ODL	Tells the Task Builder how to overlay segments of the support for RUN while linking, if you selected this option.
BP2FTR.CMD	Modifies the object modules to support the EDIT$, TIME$, and DATE$ options, if you selected these options.
BP2FTR.ULB	Contains the object modules to support the EDIT$, TIME$, and DATE$ options, if you selected these options.
BP2FRU.CMD	Links the support for RUN with the BASIC–PLUS–2 object module library for systems with FPU math hardware.
BP2FRU.ODL	Tells the Task Builder how to overlay segments of the support for RUN while linking, if you selected this option.
BP2FXL.CMD	Is copied from the distribution medium, if you want to install the BP2RES memory-resident library for systems with FPU math hardware.
BP2FXL.ODL	Is copied from the distribution medium, if you want to install the BP2RES memory-resident library for systems with FPU math hardware.
BP2FXS.ODL	Is copied from the distribution medium, if you want to install the BP2RES memory-resident library for systems with FPU math hardware.
BP2INS.CMD	Installs BASIC–PLUS–2 task images and memory-resident libraries, if you selected these options.

Table 3–1 (Cont.) Files Copied to Your System During Installation on RSTS/E

File Name	Description
BP2OPT.CMD	Links the BASIC–PLUS–2 Optimizer Utility, if you selected this option.
BP2OPT.ODL	Tells the Task Builder how to overlay segments of the BASIC–PLUS–2 Optimizer Utility while linking.
BP2RN1.CMD	Renames files created during the installation.
BP2RN2.CMD	Renames files created during the installation.
BP2RSQ.CMD	Links the BASIC–PLUS–2 Resequencer Utility, if you selected this option.
BP2RSQ.ODL	Tells the Task Builder how to overlay segments of the BASIC–PLUS–2 Resequencer Utility while linking.
BP2RSTS.CMD	Copies the installation command files and executes BP2BLD.CMD.
BP2VE0.CMD	Verifies the installation, if you selected this option.
BP2VE1.CMD	Verifies the installation, if you selected this option.
DIALOG.DAT	Contains the dialogue text.
DIALOG.TSK	Executes the dialogue.
GLBADD.CMD	Is copied from the distribution medium, if you want to install the secondary cache.
RSTSCFELIB.OLB	Is the compiler front-end library.
RSTSID.OLB	Supports compiler use of I & D space.
RSTSLIB.OLB	Is the support for the compiler.
THREAD.DAT	Contains data required by THREAD.TSK.
THREAD.TSK	Creates a file of definitions for the addresses of the routines to support RUN.
THREAD.MAC	Is the file of definitions THREAD.TSK creates.
THREAD.OBJ	Is the object module created by assembling THREAD.MAC.

3.8 BASIC–PLUS–2 Files

Table 3–2 lists and describes the BASIC–PLUS–2 files. If you delete any of these files (except BP2IVP.CMD, BP2IVP.B2S, or BP2.HLP), BASIC–PLUS–2 will not operate correctly.

Some of the file names listed in Table 3–2 that begin with the letters BP2 will begin with the 3-character name you chose to invoke BASIC–PLUS–2 in the BP2BLD dialogue. This table uses the default name, BP2.

Table 3–2   Files That Compose BASIC–PLUS–2 on RSTS/E

File Name	Description
BASIC–PLUS–2 Software Components	
BASIC2.ERR	BASIC–PLUS–2 error message file
BP2IC2.TSK	BASIC–PLUS–2 compiler
BP2RUN.TSK	RUN support task image
B2RESQ.TSK	BASIC–PLUS–2 Resequencer Utility
BP2OPT.TSK	BASIC–PLUS–2 Optimizer Utility
B27SHR.TSK	Resident library used by the compiler
B27SH1.TSK	Resident library used by the compiler
BP2SML.TSK	BASIC–PLUS–2 memory-resident library
BP2SML.STB	Symbol table for BP2SML
BP2OTS.OLB	Object module library
ODL Files That Provide Support for BASIC–PLUS–2	
BP2IC0.ODL	Organized for virtual and block I/O files
BP2IC1.ODL	Organized for sequential files
BP2IC2.ODL	Organized for relative files
BP2IC4.ODL	Organized for indexed files
BP2IC5.ODL	Organized for sequential and indexed files
BP2IC6.ODL	Organized for relative and indexed files
BP2IC7.ODL	Organized for sequential, relative, indexed, and undefined files
BASIC–PLUS–2 Help Files Software Option	
BP2.HLP	BASIC–PLUS–2 Help file
BP2RFA.HLP	Record file address help file

Table 3–2 (Cont.) Files That Compose BASIC–PLUS–2 on RSTS/E

File Name	Description
Installation Verification Files	
BP2IVP.CMD	IVP command file
BP2IVP.B2S	IVP source file

3.9 Post-installation Considerations for RSTS/E

After you install BASIC–PLUS–2 Version 2.7 in place of an earlier version, you may need to address some minor problems of incompatibility in your application problems. This section is intended to alert you to all such known problems and to aid you in responding to them.

3.9.1 Relinking of Application Programs

Current application programs that are linked against a resident library for Version 2.6 must be relinked with the new resident libraries for Version 2.7.

A
Reporting Problems

If an error occurs while you are using BASIC–PLUS–2 and you believe that the error is caused by a problem in BASIC–PLUS–2, please take one of the following actions:

- If you purchased BASIC–PLUS–2 within the past 90 days and you think the problem is caused by a software error, please submit a Software Performance Report (SPR).

- If you have a Basic or DECsupport Software Agreement, please 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 Customer Services representative.

- If you have a Self-Maintenance Software Agreement, please submit a Software Performance Report (SPR).

If you find an error in the BASIC–PLUS–2 documentation, please submit the Reader's Comments form from the back of the document in which the error was found. Please include the number of the page containing the error.

How to Order Additional Documentation

Technical Support

If you need help deciding which documentation best meets your needs, call 800-343-4040 before placing your electronic, telephone, or direct mail order.
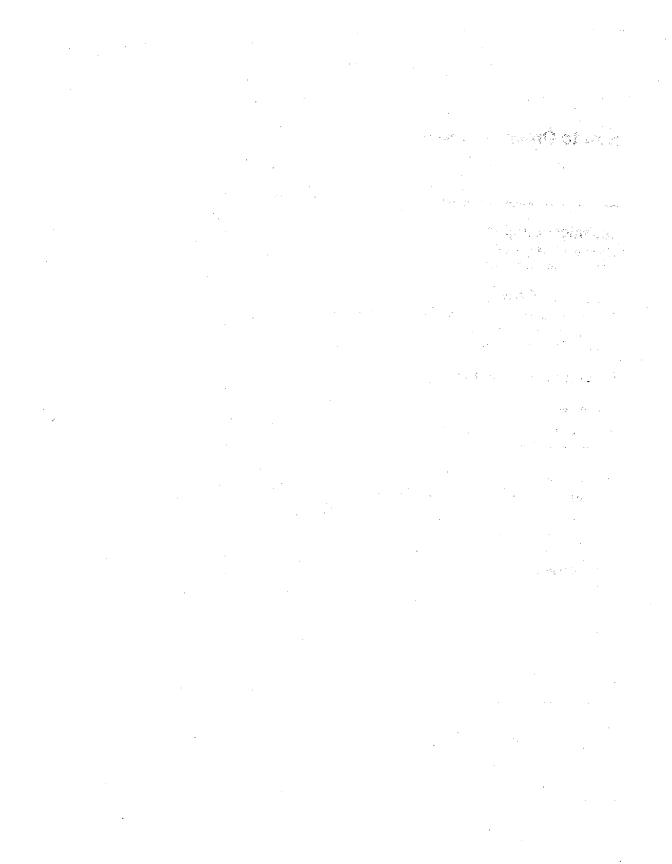
Electronic Orders

To place an order at the Electronic Store, dial 800-DEC-DEMO (800-332-3366) using a 1200- or 2400-baud modem. If you need assistance using the Electronic Store, call 800-DIGITAL (800-344-4825).

Telephone and Direct Mail Orders

Your Location	Call	Contact
Continental USA, Alaska, or Hawaii	800-DIGITAL	Digital Equipment Corporation P.O. Box CS2008 Nashua, New Hampshire 03061
Puerto Rico	809-754-7575	Local Digital subsidiary
Canada	800-267-6215	Digital Equipment of Canada Attn: DECdirect Operations KAO2/2 P.O. Box 13000 100 Herzberg Road Kanata, Ontario, Canada K2K 2A6
International	——————	Local Digital subsidiary or approved distributor
Internal[1]	——————	USASSB Order Processing - WMO/E15 or U.S. Area Software Supply Business Digital Equipment Corporation Westminster, Massachusetts 01473

[1]For internal orders, you must submit an Internal Software Order Form (EN-01740-07).

Reader's Comments

Please use this postage-paid form to comment on this manual. If you require a written reply to a software problem and are eligible to receive one under Software Performance Report (SPR) service, submit your comments on an SPR form.

Thank you for your assistance.

I rate this manual's:	Excellent	Good	Fair	Poor
Accuracy (software works as manual says)	☐	☐	☐	☐
Completeness (enough information)	☐	☐	☐	☐
Clarity (easy to understand)	☐	☐	☐	☐
Organization (structure of subject matter)	☐	☐	☐	☐
Figures (useful)	☐	☐	☐	☐
Examples (useful)	☐	☐	☐	☐
Index (ability to find topic)	☐	☐	☐	☐
Page layout (easy to find information)	☐	☐	☐	☐

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What I like best about this manual is _____

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Page   Description

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Additional comments or suggestions to improve this manual:

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I am using **Version** _____ of the software this manual describes.

Name/Title _____ Dept. _____

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d i g i t a l ™

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