Legal Notices

This document contains information which is protected by copyright. All rights are reserved. Reproduction, adaption, or translation without prior written permission is prohibited, except as allowed under the copyright laws.

Restricted Rights Legend. Use, duplication or disclosure by the U.S. Government Department of Defense is subject to restrictions as set forth in paragraph (b)(3)(ii) of the Rights in Technical Data and Software clause in FAR 52.227-703.

Copyright ©, 1988, The Santa Cruz Operation


Copyright ©, 1980, 1984 AT&T, Inc.

Copyright ©, 1986, 1992 Sun Microsystems, Inc.


This software and documentation is based in part on the Fourth Berkeley Software Distribution under license from the Regents of the University of California.

Warranty. A copy of the specific warranty terms applicable to your Hewlett-Packard product and replacement parts can be obtained from your local Sales and Service Office.

Hewlett-Packard makes no warranty of any kind with regard to this manual, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose.

Hewlett-Packard shall not be liable for errors contained herein or direct, indirect, special, incidental or consequential damages in connection with the furnishing, performance, or use of this material.

Printing History

New editions of this manual will incorporate all material updated since the previous edition. The manual printing date and part number indicate its current edition. The printing date changes when a new edition is printed. (Minor corrections that are incorporated at a reprinting do not cause the date to change.) The manual part number changes when extensive technical changes are incorporated.

Edition/Part Number/Date

First/5990-9220/February 2004
1. Components

   Documents ................................................................. 9
   Development Tools ..................................................... 10
   Sample Drivers .......................................................... 11
   Build Environment (BE) .................................................. 11
   Certification Tools ...................................................... 12
   Configuration and Administration Tools ............................ 12
   Performance Analysis Tools .......................................... 12
   Sample Build and Configuration File ................................. 13
   System Support .......................................................... 13
   System Requirements ................................................... 14
   Installation Locations ................................................ 14
      Document Hierarchy .................................................. 14
      Sample Driver Hierarchy ........................................... 15
      Build Environment Hierarchy ...................................... 15
      Tool Hierarchy ...................................................... 16
   Component Depot Names ............................................... 16
      Sample Drivers ....................................................... 17
      Tools ................................................................. 17
   Versioning .............................................................. 17
   Verifying Component System Availability .......................... 17
   Installing the Driver Development Kit (DDK) ....................... 18
      Entire DDK (11iv1-DDK.depot) .................................... 18
      Independent Component (11iv1-docs.depot) ....................... 18
About This Document

This manual describes how to get started using the HP-UX 11i v1 Driver Development Kit.

The document printing date and part number indicate the document's current edition. The printing date will change when a new edition is printed. Minor changes may be made at reprint without changing the printing date. The document part number will change when extensive changes are made.

Document updates and CDs may be issued between editions to correct errors or to document product changes. To ensure you receive updated and new editions, users should subscribe to the appropriate product support service using the following link:

http://h21007.www2.hp.com/dspp/reg/reg_Registration/1,2575,,00.html. The latest version of the HP-UX 11i v1 Driver Development Kit (DDK) documents can be found online at http://www.hp.com/go/hpux_ddk.

NOTE

This book contains many examples of C programs to help design device drivers. Because of page width restrictions, some long lines of code exceed the space available and break in unintended places. Please treat these “broken” lines as one line. We recommend that you use the sample files included with this manual when possible, rather than retyping the examples.

Intended Audience

This document is intended for system administrators or developers responsible for porting or writing drivers. Developers are expected to:

- Have experience writing programs in the C language.
- Have working knowledge of the basic concepts of writing a driver.
- Understand the functionality of the hardware for which the driver is being written.
- Understand the HP-UX System Administration Tasks manual and performed system administration.
- Have working knowledge of the virtual memory, I/O, and file system areas in the HP-UX and/or UNIX.

This document is not a tutorial. Training in this field can be attained at http://h21007.www2.hp.com/dspp/edu/edu_EducationHome_IDX/1,1727,,00.html.

New and Changed Documentation in This Edition

The manual name and part number have both been changed, so this becomes the first edition.

Publishing History

Table 1 Publishing History Details

<table>
<thead>
<tr>
<th>Document Manufacturing</th>
<th>Operating Systems Supported</th>
<th>Supported Product Versions</th>
<th>Publication Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part Number</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5990-7220</td>
<td>11i v1</td>
<td></td>
<td>February 2004</td>
</tr>
</tbody>
</table>
What’s in This Document

The HP-UX 11i v1 Driver Development Kit (DDK) Getting Started Guide is divided into several sections, and each contains information on prerequisites and necessary skills.

Typographical Conventions

This document uses the following conventions.

Book Title
The title of a book. On the web and on the Instant Information CD, it may be a hot link to the book itself.

KeyCap
The name of a keyboard key. Note that Return and Enter both refer to the same key.

Emphasis
Text that is emphasized.

Bold
Text that is strongly emphasized.

Bold
The defined use of an important word or phrase.

ComputerOut
Text displayed by the computer.

UserInput
Commands and other text that you type.

Command
A command name or qualified command phrase.

Variable
The name of a variable that you may replace in a command or function or information in a display that represents several possible values.

[ ]
The contents are optional in formats and command descriptions. If the contents are a list separated by |, you must choose one of the items.

{ }
The contents are required in formats and command descriptions. If the contents are a list separated by |, you must choose one of the items.

...
The preceding element may be repeated an arbitrary number of times.

| Separates items in a list of choices.

HP-UX Release Name and Release Identifier

Each HP-UX 11i release has an associated release name and release identifier. The uname (1) command with the -r option returns the release identifier. This table shows the releases available for HP-UX 11i.

Table 2  HP-UX 11i Releases

<table>
<thead>
<tr>
<th>Release Identifier</th>
<th>Release Name</th>
<th>Supported Processor Architecture</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HP-UX 11i v1</td>
<td>PA-RISC</td>
</tr>
</tbody>
</table>
Related Documents

Additional information about the Getting Started Guide can be found at http://h21007.www2.hp.com/ under the develop device drivers for HP-UX collection at:
http://h21007.www2.hp.com/dev/

Other documents in this collection include:

- DDK FAQ
- HP-UX 11i v1 Driver Development Guide
- HP-UX 11i v1 Driver Development Reference Guide

HP Encourages Your Comments

HP encourages your comments concerning this document. We are truly committed to providing documentation that meets your needs.

Please send comments to: netinfo_feedback@cup.hp.com

Please include document title, manufacturing part number, and any comment, error found, or suggestion for improvement you have concerning this document. Also, please include what we did right so we can incorporate it into other documents.

Email & Internet Resources

Interface program and developer resource materials are available at the following locations:

- Interface Program E-mail at interface@fc.hp.com
- Developer Resource at http://devresource.hp.com/

Support/Compatibility Disclaimers

Since drivers function at the level of the kernel, Hewlett-Packard Company (HP) reminds you of the following:

- Adding your own driver to HP-UX requires relinking the driver into HP-UX. With each new release you should plan on recompiling your driver in order to reinstall it into the new HP-UX kernel. Many header files do not change. However, drivers typically use some header files that could change across releases (i.e., you can have some system dependencies).

- HP provides support services for HP products, including HP-UX. Products, including drivers, from non-HP parties receive no support, other than the support of those parts of a driver that rely on the documented behavior of supported HP products.

- Should difficulties arise during the development and test phases of writing a driver, HP may provide assistance in isolating problems to determine if:
  - HP hardware is not at fault; and
  - HP software (firmware) is not at fault by removing user-written kernel drivers.

- When HP hardware, software, and firmware are not at fault, you should seek help from the third party from whom you obtained software or hardware.
Reference Documentation

- Hewlett-Packard Company
  - HP-UX 11i v1 Driver Development Guide, HP Part No. 5187-4556
  - Dealer Configuration File Creation Guide, HP Part No. D2230-90001
  - HP-UX Managing Systems and Workgroups, HP Part No. B2355-90664
  - HP-UX Reference, HP Part No. B2355-90052
  - HP-UX System Administration Tasks, HP Part No. B2355-90079
  - HP C Programmer’s Guide, HP Part No. 92434-90002
  - Configuring HP-UX for Peripherals, HP Part No. B2355-90053
  - Installing and Updating HP-UX, HP Part No. B2355-90078
  - PA-RISC 1.1 Architecture and Instruction Set Reference Manual, HP Part No. 09740-90039
  - PA-RISC Procedure Calling Conventions Reference Manual, HP Part No. 09740-90015
  - Managing HP-UX Software with SD-UX, HP Part No. B2355-90044

- Other References
  - PCI Local Bus Specification, Revision 2.1, PCI Special Interest Group
  - PCI System Design Guide, Revision 1.0, PCI Special Interest Group
  - Data Link Provider Interface Specifications, Unix International
1 Components

Documentation is provided as part of the *HP-UX 11i v1 Driver Development Kit* (DDK).

## Documents

- **HP-UX 11i v1 Driver Development Guide** (DDG)
  
  This document is provided in PDF format and contains detailed information on the HP-UX 11i v1 Driver Development Environment (DDE) for I/O subsystems, driver stacks, cookbook approaches on writing a particular class of driver, and implementing high availability features in a driver. Specific components of the DDG include the following:

  — **WSIO Driver Specific**
    
    Refer to DDG chapters 1 thru 5 and chapters 14 thru 16. These chapters contain detailed information on Writing WSIO Driver. This includes Driver Environment Overview, Subsystem Features, Multiprocessing, Writing Drivers, Installing Your Driver, Writing a DLKM Driver, and Writing PCI Drivers.

  — **Mass Storage Specific**
    
    Refer to DDG chapters 11 thru 13. These chapters contain detailed information on Mass Storage Stack Architecture, Writing SCSI Class Drivers and Writing a SCSI Transport Driver. In addition, refer to WSIO driver specific chapters, as well as Chapter 18 “Interrupt Migration”, and Chapter 15 “On-Line Addition/Replacement”.

  — **Network Specific**
    
    Refer to DDG chapters 7 thru 10. These chapters contain detailed information on HP-UX LAN Architecture, LAN Commands, Tracing and Logging in LAN Drivers and SAM Support in LAN Drivers, and CKO and Transport IOCTLS. In addition, refer to WSIO driver specific chapters, as well as Chapter 18, “Interrupt Migration”, and Chapter 15, “On-Line Addition/Replacement”.

  — **Driver Packaging Specific**
    
    Refer to DDG chapter 19. This chapter contains detailed information on creating a Software Depot.

- **HP-UX 11i v1 Driver Development Reference Guide** (DDR)
  
  This document is provided in PDF format and contains reference pages in manpage format for various services the DDE offers. These include:

  — **Kernel Services**
    
    Reference pages for all services and data structures that are kernel specific.

  — **WSIO Services**
    
    Reference pages for all services and data structures that are WSIO driver specific.

  — **Network Services**
    
    Reference pages for all services and data structures that are network driver specific. In addition to these, see Kernel and WSIO services.
Components

Development Tools

— **SCSI Services**
  Reference pages for all services and data structures that are mass storage specific. In addition to these, see Kernel and WSIO services.

— **PCI Services**
  Reference pages for all services and data structures that are PCI driver specific. In addition to these, see Kernel and WSIO services.

**White Papers**

White papers provide information targeting a specific problem, enhancement, etc. White papers are expected to be used in conjunction with DDG/DDR. Specific white papers are:

— KWDB 3.0 Kernel Debugger Guide
— Transport Option Negotiation in HP-UX 11i v1 (PA-RISC)
— Packaging Third Party Drivers using SD-UX
— Porting a Network Driver from Solaris 2.x to HP-UX 11i v1 (PA-RISC)
— Porting a Network Driver from Linux 2.2 to HP-UX 11i v1 (PA-RISC)
— Porting a SCSI Interface Driver from Solaris 8 to HP-UX 11i v1 (PA-RISC)

**FAQ**

FAQs are a set of commonly asked HP-UX driver development questions. They are expected to be used in conjunction with DDG/DDR for the targeted OS release. The questions addressed here span across all topics like **HP-UX Driver Development Environment** (DDE), driver compiling issues, building and installing, mass storage and network stacks.

---

**Development Tools**

Tools in HP-UX 11i v1 include performance analysis tools, configuration and administration tools and certification tools. All tools have either a “Usage Guide” or “manpage” with binaries. The following are the types of tools supplied as part of HP-UX 11i v1 DDK:

- **General Purpose Tools**
  These are the tools that are used mainly for system performance and diagnostics. Tools like Glanceplus, VSAR, and lsol are provided as General Purpose Tools.

- **Mass Storage Tools**
  The performance and diagnostic tools are used for mass storage driver development. Diskbench, SCU, DT tools are provided as part of mass storage tools.

- **Network Tools**
  The performance and diagnostic tools can be used for network driver development. The netperf, pkgen, and nttcp tools are provided as part of network tools.
Sample Drivers

Sample drivers in HP-UX 11i v1 DDK provide C program sources for functional drivers. They also include supplemental README files, driver installation notes, Makefiles, etc. These include a set of sample drivers that are specific to:

- **Mass Storage**
  
  The qlisp pSCSI HBA driver is provided as a mass storage specific sample driver. This driver includes driver sources, Makefiles, build scripts, and README for pSCSI HBA sample driver.

- **Network**
  
  A Native network sample driver (enet) is provided as part of network sample drivers. This driver includes; driver sources, Makefiles, build scripts, and README for enet sample drivers.

- **Miscellaneous**
  
  The following three drivers are included in the Miscellaneous section:
  
  — iklpm — printer class driver
  — pcishm — Shared memory access driver
  — rdisk — rdisk driver

  These drivers are provided with emphasis on DLKM and Kernel Tunable features. Driver sources, README, Makefiles and build scripts are provided for each of these three drivers.

Build Environment (BE)

Included are the necessary sample Makefile, master, system and space.h files required to build and install drivers.

As part of the BE, the following are provided:

- **Sample Makefiles**
  
  Sample Makefiles can be further used for generating your own Makefiles for driver development.

- **Sample Configuration files**
  
  These files include a sample master, system and space.h file required for installing the driver.
Certification Tools

- **Diskbench**
  The **Diskbench** (DB) is a tool used to measure performance of a disk subsystem, HBA and driver in terms of throughput for sequential operation and number of I/Os for random operation.

- **Netperf**
  The **Netperf** is a benchmark to measure various aspects of network performance. Its primary focus is on bulk data transfer and request/response performance using either TCP or UDP and Berkeley sockets interface.

Configuration and Administration Tools

- **lsof**
  The **list open files** (lsof) lists information about files opened by processes for various UNIX dialects like SCO UnixWare, Solaris, HP-UX, etc.

Performance Analysis Tools

1. **Data Test Program (DT)**
   The **Data Test Program** (DT) is a generic data test program used to verify correct operation of peripherals and I/O subsystems, and for obtaining performance information.

2. **GlancePlus**
   GlancePlus are performance monitoring and diagnostic tools providing immediate system information.

3. **PKGEN**
   PKGEN is a program that allows the user to generate various kinds of packets on a LAN, for the TCP/IP world.

4. **SCU**
   The **SCSI Utility** (SCU) is used for normal maintenance of SCSI peripherals. This utility can be used for device specific setup, diagnostics, and querying of various device information.

5. **VSAR**
   The **Visual System Activity Recorder** (VSAR) is a performance tool that collects statistics from the OS. This is a performance tool that provides CPU, network, disk and key performance statistics useful in getting a first level understanding of system activity.

6. **NTTCP**
   NTTCP measures the transfer rate and (other numbers) on a TCP, UDP or UDP multicast connections.
Sample Build and Configuration File

As part of the Build Environment (BE), the following sample build and install files are provided. Since a driver can be a DLKM and Non-DLKM driver (Static only), the sample build and configuration files are also provided accordingly.

Non-DLKM (static only) Driver Build and Configuration Files:

- **makefile**
  Sets the Build Environment for driver building, builds and installs the driver.

- **master**
  This file defines the characteristics of the driver. This file contains the kernel configuration information.

- **drivername_space.h**
  This file contains tunable parameters definitions of a driver.

DLKM Driver Build and Configuration Files:

- **makefile**
  Sets the Build Environment for driver building and installing a driver and calls `mod32.mk` file.

- **mod32.mk**
  Defines build options and builds a driver on a 32-bit system environment.

- **mod64.mk**
  Defines build options and builds a driver on a 64-bit system environment.

- **master**
  This file defines the characteristics of the DLKM module. This file contains the kernel configuration information.

- **system**
  System configuration information for the DLKM module.

- **space.h**
  This file contains tunable parameters definitions of a DLKM module.

System Support

Should difficulties arise during the development and test phases of writing a driver, HP may provide assistance in isolating problems to determine if:

- HP hardware is not at fault
- HP software (firmware) is not at fault by removing user-written kernel drivers.

When HP hardware, software, and firmware are not at fault, seek help from the third party from whom that software or hardware was obtained.
## System Requirements

All components of the DDK require a HP-UX 11.11 operating system.

## Installation Locations

### Document Hierarchy

The HP-UX 11i v1 DDK documents will be installed into the directory hierarchy as shown in Table 1-1, "Document Hierarchy."

<table>
<thead>
<tr>
<th>Document</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>All the components of the DDK are installed automatically under this directory only.</td>
<td><code>/opt/ddk/11.11/</code></td>
</tr>
<tr>
<td>White Papers</td>
<td><code>/opt/ddk/11.11/DOCS/White_papers/kwdb.pdf</code></td>
</tr>
<tr>
<td></td>
<td><code>/opt/ddk/11.11/DOCS/White_papers/transport_options.pdf</code></td>
</tr>
<tr>
<td></td>
<td><code>/opt/ddk/11.11/DOCS/White_papers/driver_packaging.pdf</code></td>
</tr>
<tr>
<td></td>
<td><code>/opt/ddk/11.11/DOCS/White_papers/sol2hp_porting.pdf</code></td>
</tr>
<tr>
<td></td>
<td><code>/opt/ddk/11.11/DOCS/White_papers/linux_2_hp_porting_guide.pdf</code></td>
</tr>
<tr>
<td></td>
<td><code>/opt/ddk/11.11/DOCS/White_papers/sol8_2_hp_scsi_interface_porting.pdf</code></td>
</tr>
<tr>
<td>FAQ</td>
<td><code>/opt/ddk/11.11/DOCS/11iv1-FAQs.pdf</code></td>
</tr>
</tbody>
</table>
Sample Driver Hierarchy

The HP-UX 11i v1 DDK Sample Drivers will be installed into the directory hierarchy shown in Table 1-2, “Sample Driver Hierarchy.”

Table 1-2 Sample Driver Hierarchy

<table>
<thead>
<tr>
<th>Sample Driver</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network</td>
<td>/opt/ddk/11.11/sampldrvs/net/enet/11.11.1.0/&lt;sources, README, Makefiles, supplementals, etc.&gt;</td>
</tr>
<tr>
<td>Mass Storage</td>
<td>/opt/ddk/11.11/sampldrvs/ms/qlisp/11.11.1.0/&lt;sources, README, Makefiles, supplementals, etc.&gt;</td>
</tr>
<tr>
<td>Misc.</td>
<td>/opt/ddk/11.11/sampldrvs/misc/iklpm/11.11.1.0/sources, README, Makefiles, supplementals, etc.&gt;</td>
</tr>
<tr>
<td></td>
<td>/opt/ddk/11.11/sampldrvs/misc/pcism/11.11.1.0/sources, README, Makefiles, supplementals, etc.&gt;</td>
</tr>
<tr>
<td></td>
<td>/opt/ddk/11.11/sampldrvs/misc/rdisk/11.11.1.0/sources, README, Makefiles, supplementals, etc.&gt;</td>
</tr>
</tbody>
</table>

Revision numbers in the versioning scheme are used only for sample drivers. Sample drivers are not overwritten when new versions are installed. Both new and previous HP-UX versions of the sample drivers are retained.

Build Environment Hierarchy

The HP-UX 11i v1 DDK BE will be installed on a system into a directory hierarchy as shown in Table 1-3, “BE Hierarchy.”

Table 1-3 BE Hierarchy

<table>
<thead>
<tr>
<th>BE</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample Makefiles, master, system and space.h</td>
<td>/opt/ddk/11.11/BE//DLKM/&lt;makefile, mod32.mk, mod64.mk, master, space.h, system&gt;</td>
</tr>
<tr>
<td></td>
<td>/opt/ddk/11.11/BE/Static_only/&lt;makefile, master, drivername_space.h&gt;</td>
</tr>
</tbody>
</table>
Tool Hierarchy

The HP-UX 11i v1 DDK tools will be installed into the directory hierarchy as shown in Table 1-4, “Tool Hierarchy.”

<table>
<thead>
<tr>
<th>Tool</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certification Tools</td>
<td>/opt/ddk/11.11/tools/cert/diskbench/<strong>binaries, documents</strong></td>
</tr>
<tr>
<td></td>
<td>/opt/ddk/11.11/tools/cert/netperf/<strong>binaries, documents</strong></td>
</tr>
<tr>
<td>Configuration and administration tools</td>
<td>/opt/ddk/11.11/tools/config_admin/lsof/<strong>binaries, documents</strong></td>
</tr>
<tr>
<td>Performance analysis tools</td>
<td>/opt/ddk/11.11/tools/perf/DT/<strong>binaries, documents</strong></td>
</tr>
<tr>
<td></td>
<td>/opt/ddk/11.11/tools/perf/GlancePlus/<strong>documents</strong></td>
</tr>
<tr>
<td></td>
<td>/opt/ddk/11.11/tools/perf/PKGEN/<strong>binaries, documents</strong></td>
</tr>
<tr>
<td></td>
<td>/opt/ddk/11.11/tools/perf/SCU/<strong>binaries, documents</strong></td>
</tr>
<tr>
<td></td>
<td>/opt/ddk/11.11/tools/perf/VSAR/<strong>binaries, documents</strong></td>
</tr>
</tbody>
</table>

Some of the tools run under particular default directories such as /opt/, /usr/local/, etc. When tools are installed as part of HP-UX 11i v1 DDK, they have a soft link created to their default directories.

Component Depot Names

The Driver Development Kit (DDK) consists of:

DDK — ddk11_11.1.0.depot

The entire Driver Development Kit.

BE — ddk.bell_11.1.0.depot

All build tools and sample Makefiles.

docs — ddk.docs11_11.1.0.depot

This includes the HP-UX 11i v1 Driver Development Guide (DDG), HP-UX 11i v1 Driver Development Reference Guide (DDR), Whitepapers and FAQs.
Sample Drivers

- ddk.net_drvs11_11.1.0.depot
  Sample driver sources include enet Makefiles, readme and supplemental files.
- ddk.ms_drvs11_11.1.0.depot
  Mass Storage HBA qlisp sample driver sources, Makefiles, readme and supplemental files.
- ddk.misc_drvs11_11.1.0.depot
  Miscellaneous sample drivers; iklpm, pcishm, ramdisk sample driver sources, Makefiles, readme and supplemental files.

Tools

- ddk.misc_tool11.1.0.depot — General purpose tools.
- ddk.ms_tool11_11.1.0.depot — Mass storage tools.
- ddk.net_tool11_11.1.0.depot — Network tools.

Versioning

Versioning is maintained for the HP-UX 11i v1 Driver Development Kit. All components except sample drivers are replaced when a new release of the same component is installed on a system. Sample drivers from previous versions are retained to allow easy comparison of changes between versions. It is advised to make a backup copy of all components except the sample drivers if you want to keep access to previous release components.

Verifying Component System Availability

HP-UX 11i v1 Driver Development Kit users are advised to check the availability of the (DDK) and its components on their systems before downloading to avoid downloading the same product on the system again. All HP-UX 11i v1 DDK components available on that system can be done using the following command:

#swlist -l product B11_11DDK
Installing the Driver Development Kit (DDK)

There are two ways of installing the DDK:

1. Installing entire DDK product
   
   HP-UX 11i v1 DDK depot file installs the entire driver development environment with all its components, such as documentation, tools, sample drivers and build environment.

2. Independent component installation
   
   The *HP-UX 11i v1 Driver Development Kit* can also be installed in parts, installing each component independently. Each component comes in its own depot so users can install that depot independently using the individual component depot.

**NOTE** Whether installing the whole DDK or only a component, use the `swlist -l product B11_11DDK` to view which components have been installed.

To list the products inside the bundle refer to the following sections and examples.

**Entire DDK (11iv1-DDK.depot)**

```bash
# swlist -l product B11_11DDK

# B11_11DDK               11_11.1.0   HP-UX 11.11 DDK Version 1.0
B11_11DDK.MISC11_11_1_0  11_11.1.0   Misc. Sample driver’s 1.0.0 for 11.11 DDK 1.0
B11_11DDK.DOCS           11_11.1.0   Documents of 11.11 DDK-DDG, DDR, Whitepapers, FAQs
```

**Independent Component (11iv1-docs.depot)**

```bash
# swlist -l product B11_11DDK

B11_11DDK.DOCS          11_11.1.0   Documents of 11.11 DDK-DDG, DDR, Whitepapers, FAQs
```