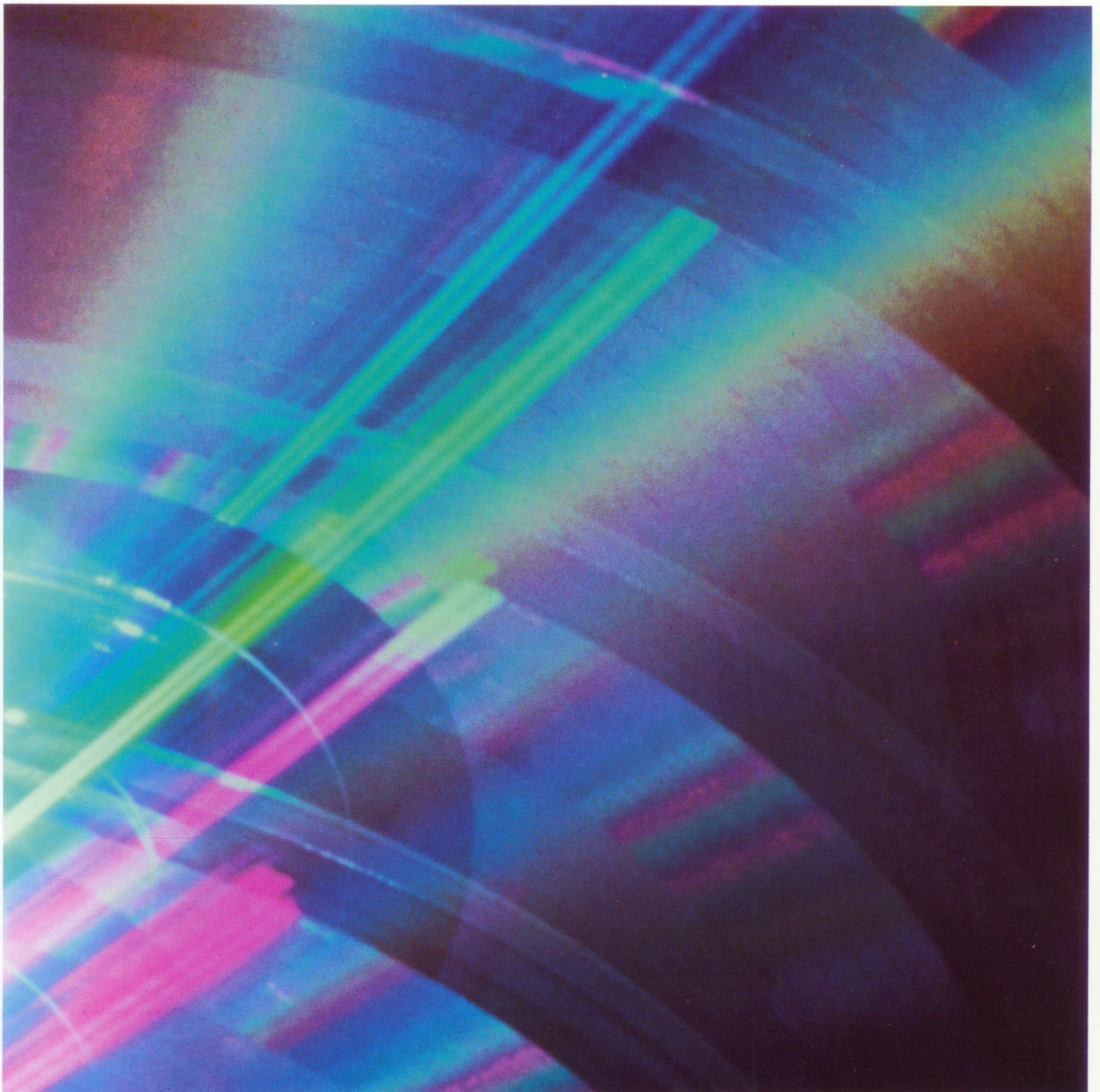


HP 9000 Series 800 Computer Systems

HP-UX Documentation Guide



READER COMMENT CARD

System Technology Division

HP-UX Documentation Guide

Manual Part Number 92453-90009 November 1988

A reader comment card helps us improve the readability and accuracy of the document. It is also a vehicle for recommending enhancements to the product or manual. Please use it to make improvements.

SERIOUS ERRORS such as technical inaccuracies that may render a program or a hardware device inoperative should be reported to your HP Response Center or directly to a Support Engineer. An engineer will enter the problem on HP's STARS (Software Tracking and Reporting System). This will ensure that critical and serious problems receive appropriate attention as soon as possible.

Editorial suggestions (please give page numbers involved): _____

Recommended improvements (attach additional information if needed): _____

Name: _____ Date: _____

Job Title: _____ Phone: _____

Company: _____

Address: _____

HP 1000 Series _____ (e.g., E-series, A400, A600, etc.)

HP 3000 Series _____ (e.g., 37, 68, 930, etc.)

HP 9000 Series _____ (e.g., 300, 840, etc.)

☐ Check here if you would like a reply.

Hewlett-Packard has the right to use submitted suggestions without obligation, with all such ideas becoming property of Hewlett-Packard.

Fold and Tape



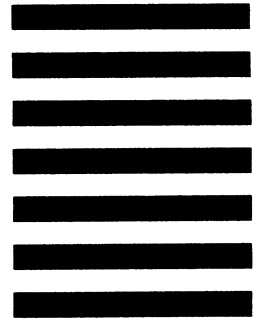
NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS PERMIT NO. 1070, CUPERTINO, CA 95014

- POSTAGE WILL BE PAID BY ADDRESSEE -

HP-UX Learning Products Manager
Mailstop 48SO
Hewlett-Packard Company
Systems Technology Division
19483 Pruneridge Avenue
Cupertino, California 95014-9786



Fold and Tape

HP 9000 Series 800 Computer Systems

HP-UX Documentation Guide



19483 PRUNERIDGE AVENUE, CUPERTINO, CA 95014-9786

NOTICE

The information contained in this document is subject to change without notice.

HEWLETT-PACKARD MAKES NO WARRANTY OF ANY KIND WITH REGARD TO THIS MATERIAL, 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 for incidental or consequential damages in connection with the furnishing, performance or use of this material.

Hewlett-Packard assumes no responsibility for the use or reliability of its software on equipment that is not furnished by Hewlett-Packard.

This document contains proprietary information which is protected by copyright. All rights are reserved. No part of this document may be photocopied, reproduced or translated to another language without the prior written consent of Hewlett-Packard Company.

Copyright © 1988 by HEWLETT-PACKARD COMPANY

Printing History

New editions are complete revisions of the manual. Update packages, which are issued between editions, contain additional and replacement pages to be merged into the manual by the customer. The date on the title page and back cover of the manual changes only when a new edition is published. When an edition is reprinted, all the prior updates to the edition are incorporated. No information is incorporated into a reprinting unless it appears as a prior update.

First Edition
Second Edition

February 1988
November 1988

A.B2.00
A.B3.00

Preface

The *HP-UX Documentation Guide* describes the manual set for the HP 9000 Series 800 computers. Read this manual first when you receive your new system.

The first chapter is an introduction to this documentation guide.

The second chapter is a graphical display of all the manuals in the manual set. Manuals are ordered by skill level and related tasks.

The third chapter contains detailed information on each manual.

Some of the manuals in this guide reference UNIX and VAX, as well as other terms. UNIX and System V are registered trademarks of AT&T in the U.S.A. and other countries. DEC and VAX are trademarks of Digital Equipment Corporation.

Table of Contents

Chapter 1 Introduction

Chapter 2 Manual Maps

Introduction	2-1
--------------------	-----

Chapter 3 Manual List

Introduction	3-1
Audience	3-2
Manual Information	3-2
General User's Series	3-3
A Beginner's Guide to HP-UX	3-4
A Beginner's Guide to Text Editing	3-5
A Beginner's Guide to Using Shells	3-6
HP-UX Concepts and Tutorials: Text Editors and Processors	3-7
HP-UX Concepts and Tutorials: Text Formatters	3-9
HP-UX Reference	3-11
HP-UX User's Guide	3-12
Using the HP 9000 ITE	3-14
Data Communications Series	3-15
ARPA/Berkeley Services Reference Pages	3-17
HP 9000 NetIPC Programmer's Guide (for the Series 300 and 800)	3-18
HP 9000 Series 800 Networking Overview: LAN, X.25, NS, ARPA and NFS	3-19
HP-UX SNA3270 and Gateway/SNA3270 Reference Manual	3-21
HP-UX SNA3770 and Gateway/SNA3770 Reference Manual	3-22
HP-UX SNALink and Gateway/SNALink Manager's Reference Manual	3-23
HP-UX SNA3179G and Gateway/SNA3179G Reference Manual	3-24
HP-UX SNA/9000 Manual Reference Pages	3-25
Installing ARPA Services/9000 Series 800	3-26
Installing LAN/9000 Series 800	3-27
Installing Network Services (NS)/9000 Series 800	3-28
LAN/9000 Series 800 Berkeley IPC Programmer's Guide	3-29
LAN/9000 Series 800 LLA Programmer's Guide	3-30
LAN Reference Pages	3-31
Network Services Reference Pages	3-32
NFS Services Reference Pages	3-33
NS Cross-System Network Manager Reference Manual	3-34
NS Cross-System NFT Reference Manual	3-36
Programming and Protocols for NFS Services/800	3-37
Troubleshooting LAN, NS, ARPA Services/9000 Series 800	3-38
Using and Administering NFS Services/9000 Series 800	3-39
Using ARPA Services/9000 Series 800	3-41
Using Network Services (NS)/9000 Series 800	3-43

Table of Contents (Continued)

Interfacing and Networking Hardware Series.....	3-45
CIO LAN Interface Controller (LANIC) Installation and Reference Manual.....	3-46
HP 27110B CIO/HP-IB Interface Card Installation and Reference Manual.....	3-48
HP 27111A CIO/HP-FL Interface Card Installation and Service Manual.....	3-50
HP 27114A Asynchronous FIFO Interface Reference Manual	3-51
HP 98196A Asynchronous 6-Channel Multiplexer Hardware Reference Manual.....	3-53
LAN Cable and Accessories Installation Manual.....	3-55
Graphics Series	3-57
Advanced Graphics Package Programmer's Manual.....	3-58
Device-Independent Graphics Library Programmer Manual.....	3-60
DGL/AGP Device Drivers Manual	3-61
HP GKS Device Drivers Library	3-64
HP GKS User's Guide.....	3-67
Starbase Device Drivers Library Manual.....	3-68
Starbase Display List Programmers Manual	3-73
Starbase Graphics Techniques	3-75
Starbase Reference.....	3-80
Information Management Series.....	3-81
ALLBASE/HP-UX HP IMAGE Message Manual.....	3-82
ALLBASE/HP-UX HP IMAGE Reference Manual.....	3-83
ALLBASE/HP-UX HP SQL C Application Programming Guide	3-85
ALLBASE/HP-UX HP SQL COBOL Application Programming Guide	3-87
ALLBASE/HP-UX HP SQL Database Administration Guide	3-89
ALLBASE/HP-UX HP SQL FORTRAN Application Programming Guide.....	3-91
ALLBASE/HP-UX HP SQL Master Index	3-93
ALLBASE/HP-UX HP SQL Message Manual.....	3-94
ALLBASE/HP-UX HP SQL Pascal Application Programming Guide	3-95
ALLBASE/HP-UX Quick Reference Guide	3-97
ALLBASE/HP-UX IQUERY Reference Manual.....	3-99
ALLBASE/HP-UX ISQL Reference Manual.....	3-101
ALLBASE/HP-UX SQL Reference Manual.....	3-103
ALLBASE/NET User's Guide	3-105
Migration Series	3-106
HP FORTRAN 77/HP-UX Migration Guide	3-107
HP Pascal/HP-UX Migration Guide	3-108
Migrating to ALLBASE/HP-UX User's Guide.....	3-109
PORT/RX Migration Analysis Utility Manual.....	3-110
PORT/RX Migration User's Guide.....	3-111
PORT/RX Reference Manual	3-113
Programming for Portability Guide	3-114
Native Language Support Series.....	3-115
Native Language I/O Access User's Guide.....	3-116
Native Language I/O System Administrator's Guide.....	3-119
Kanji Code Book	3-122
Japanese Input Method Guide	3-123
Simplified Chinese Code Book	3-124
Simplified Chinese Input Method Guide	3-125
Traditional Chinese Code Book.....	3-126
Traditional Chinese Input Method Guide	3-127

Table of Contents (Continued)

Programmer's Series	3-128
Advanced UNIX Programming	3-129
HP-UX Concepts and Tutorials: Device I/O and User Interfacing	3-130
HP-UX Concepts and Tutorials: Programming Environment	3-131
HP-UX Concepts and Tutorials: Shells and Miscellaneous Tools	3-134
HP-UX Concepts and Tutorials: UUCP	3-136
HP Symbolic Debugger Quick Reference Guide	3-139
HP Symbolic Debugger User's Guide	3-140
Programmer's Series: Languages	3-142
ADB Tutorial	3-143
Assembly Language Reference Manual	3-144
HP C Reference Manual	3-146
HP C Programmer's Guide	3-149
HP C Quick Reference Guide	3-151
HP C/HP-UX Reference Manual Supplement	3-152
HP FORTRAN 77/HP-UX Programmer's Guide	3-153
HP FORTRAN 77 Quick Reference Guide	3-155
HP FORTRAN 77/HP-UX Reference Manual	3-156
HP Pascal Programmer's Guide	3-159
HP Pascal Quick Reference Guide	3-162
HP Pascal Reference Manual	3-164
Series 800 HP-UX Real-Time Programming Manual	3-166
System Administrator's Series	3-169
HP 9000 Series 800 System Administrator's Manual	3-170
Installing and Updating HP-UX -- HP 9000 Series 800	3-173
System Administration Basics - A Menu-oriented Approach	3-174

Index

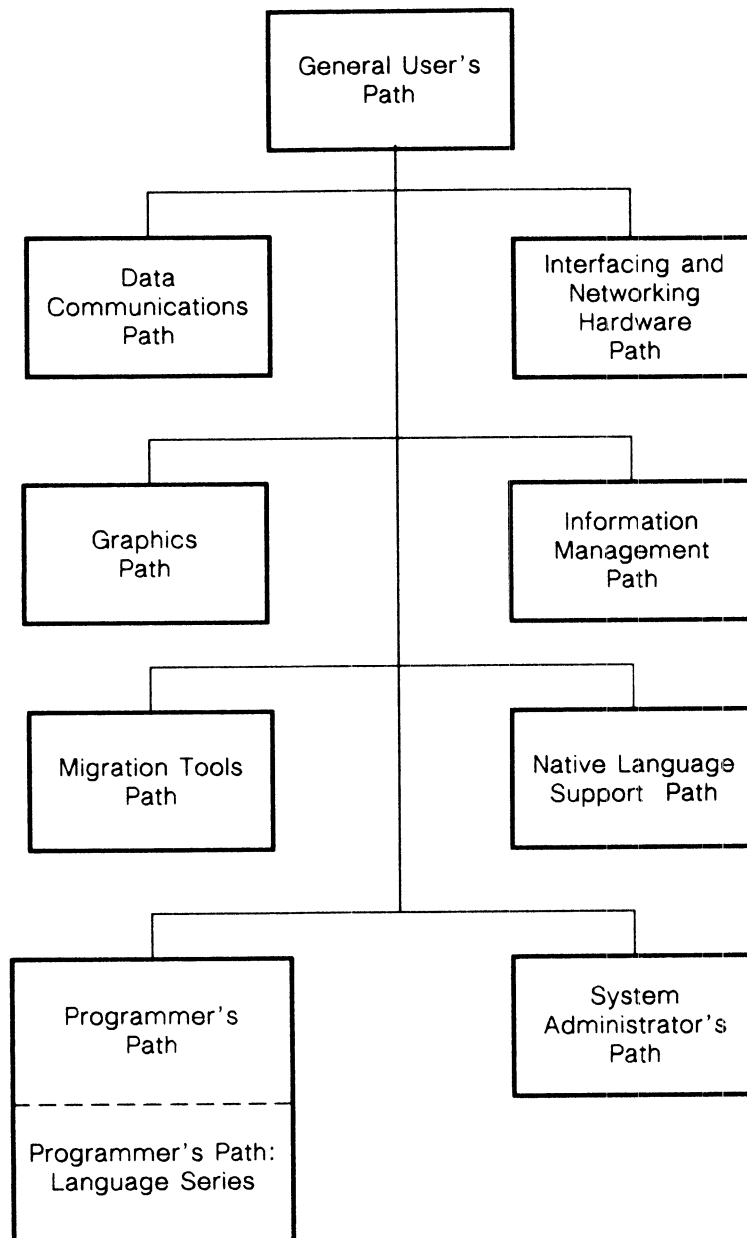
Introduction

Every time you use your computer you may need to use the documentation. How do you know which manuals to read? On the computer, your files are organized in a certain way; that structure allows you to know where they are and find them quickly. This manual organizes the manual set so you will know where to find the information you need.

This *Documentation Guide* is the first manual you should read in the HP-UX manual set. It shows how the other manuals fit together and what material is covered in each manual.

The *Documentation Guide* contains three chapters, including this introduction. Chapter 2 is a set of Manual Maps and Chapter 3 is a Manual List. The Manual Maps illustrate the manual set in a flowchart style. They lead you through a path of manuals that relate to the skills that you are learning. The Manual List gives you overview information for each manual.

HP-UX Manual Set



Legend

-  Critical Path
-  Optional

LG200061_014a

Manual Maps

Introduction

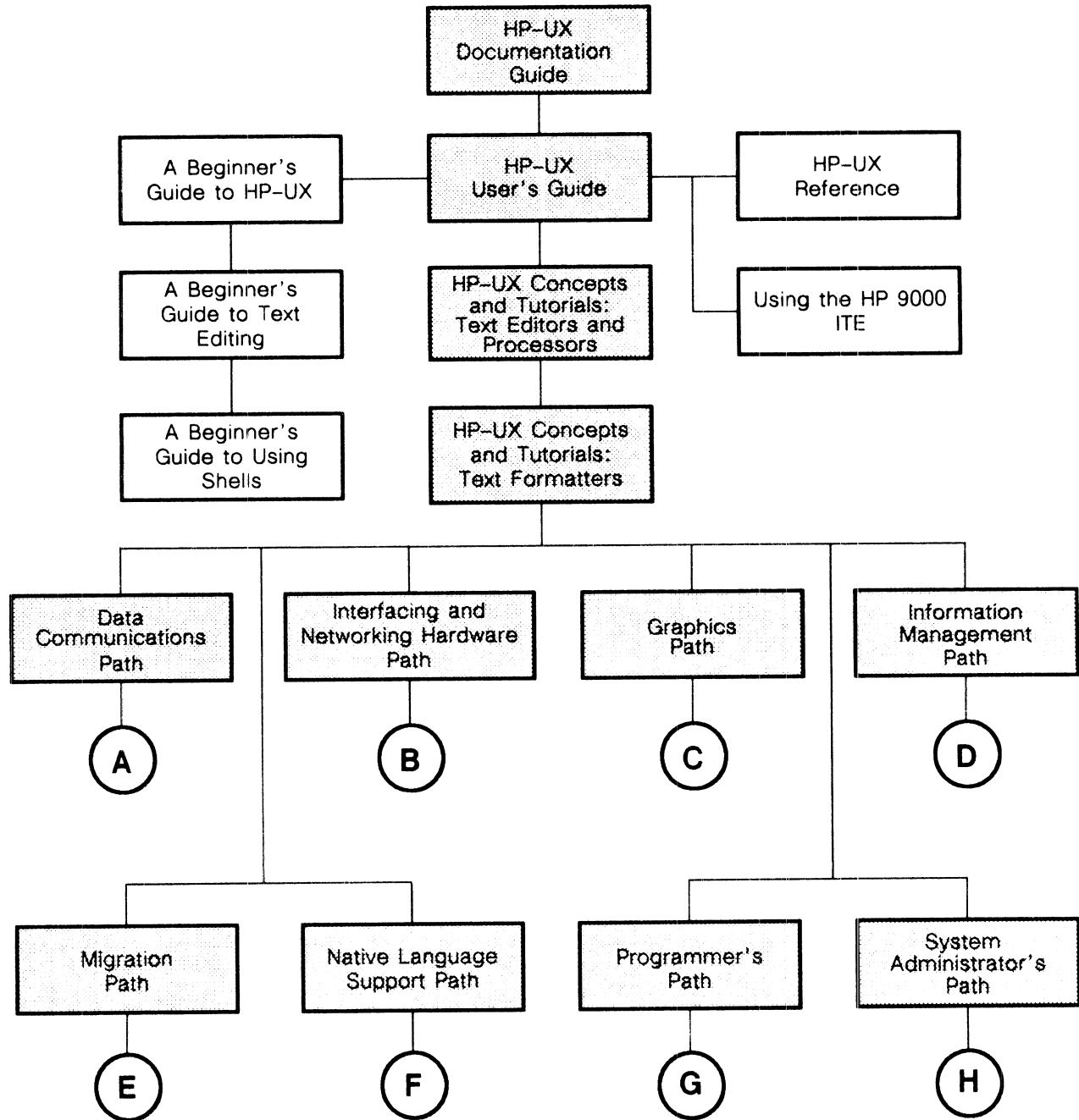
Manual maps show you how the documentation set is laid out. As flowcharts they show the order of the manual set. The manual maps are divided into "paths"; a set of skills defines each path. The manual map begins with the General User's Path (where all users will start). Some manuals are listed in more than one path to reflect overlapping skills.

The manual maps show you two types of manuals: manuals you need to read to become a proficient user, and optional skills manuals. Required reading manuals teach skills that are essential to your growth as an HP 9000 Series 800 user. Reference guides are useful when you need a more detailed reminder. Optional skills manuals will broaden your knowledge of your system.

The manuals you should read to become proficient in each skill area are shown on the manual maps by shaded boxes. These manuals are generally user guides or tutorials.

Reference manuals are shown on the sides of the maps. These are supplementary guides that you will find useful in day-to-day operations. These manuals are optional reading. Also optional are manuals that present different skills; you may read all, none, or some of these manuals.

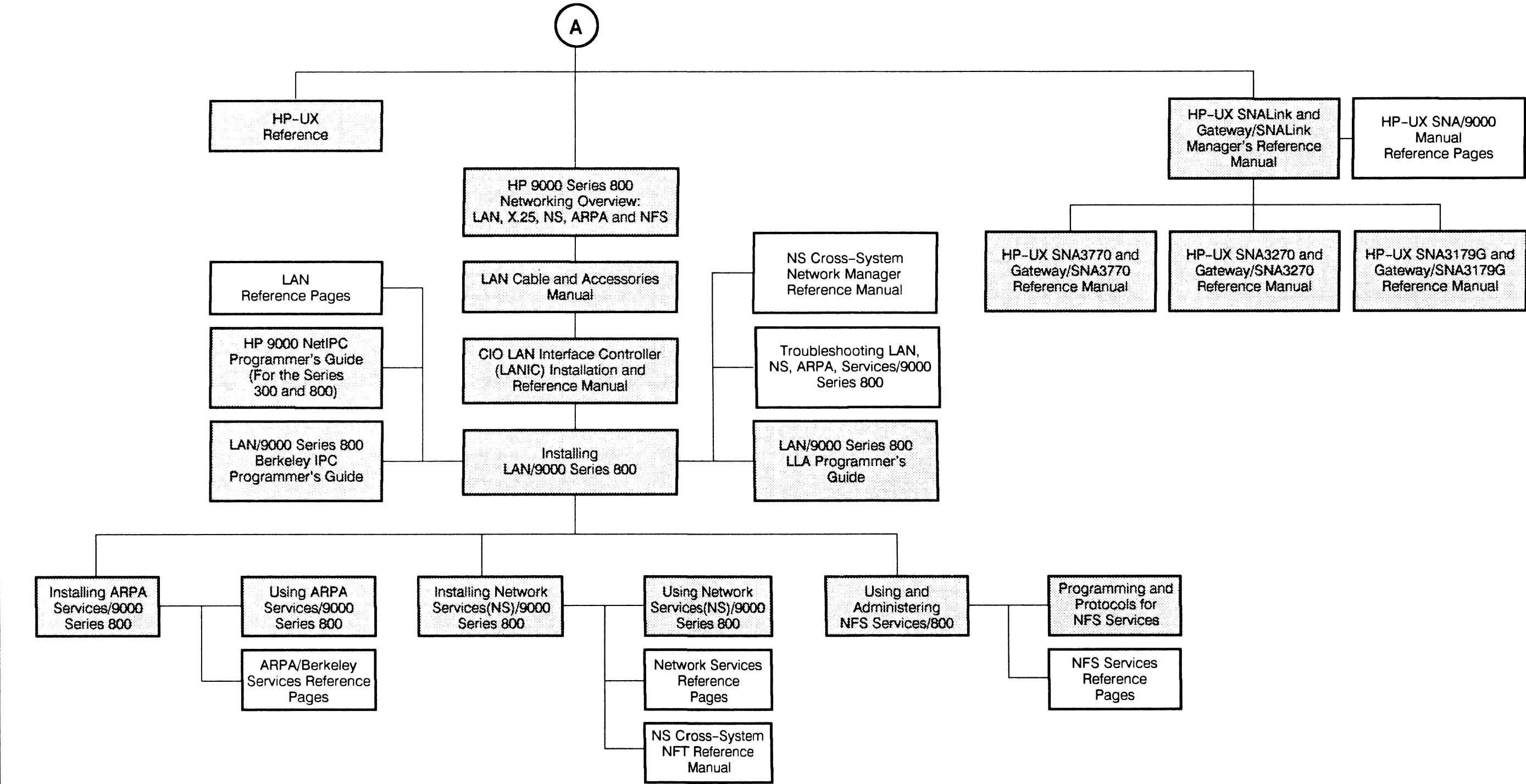
General User's Path



Legend

- Critical Path
- Optional

LG200061_001b

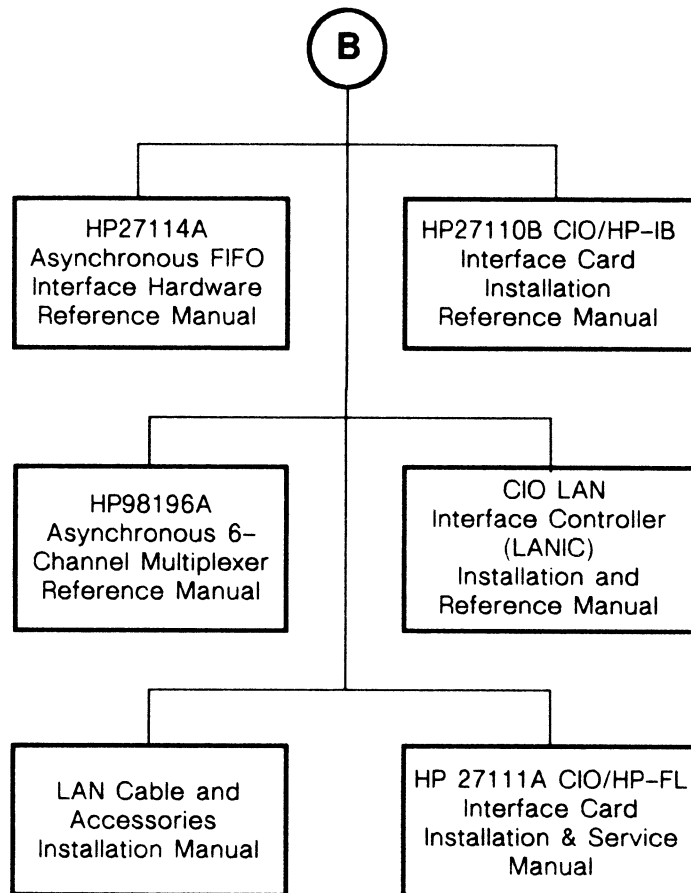


Legend

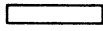
-  Critical Path
-  Optional

LG200061_015

Interfacing and Networking Hardware Path

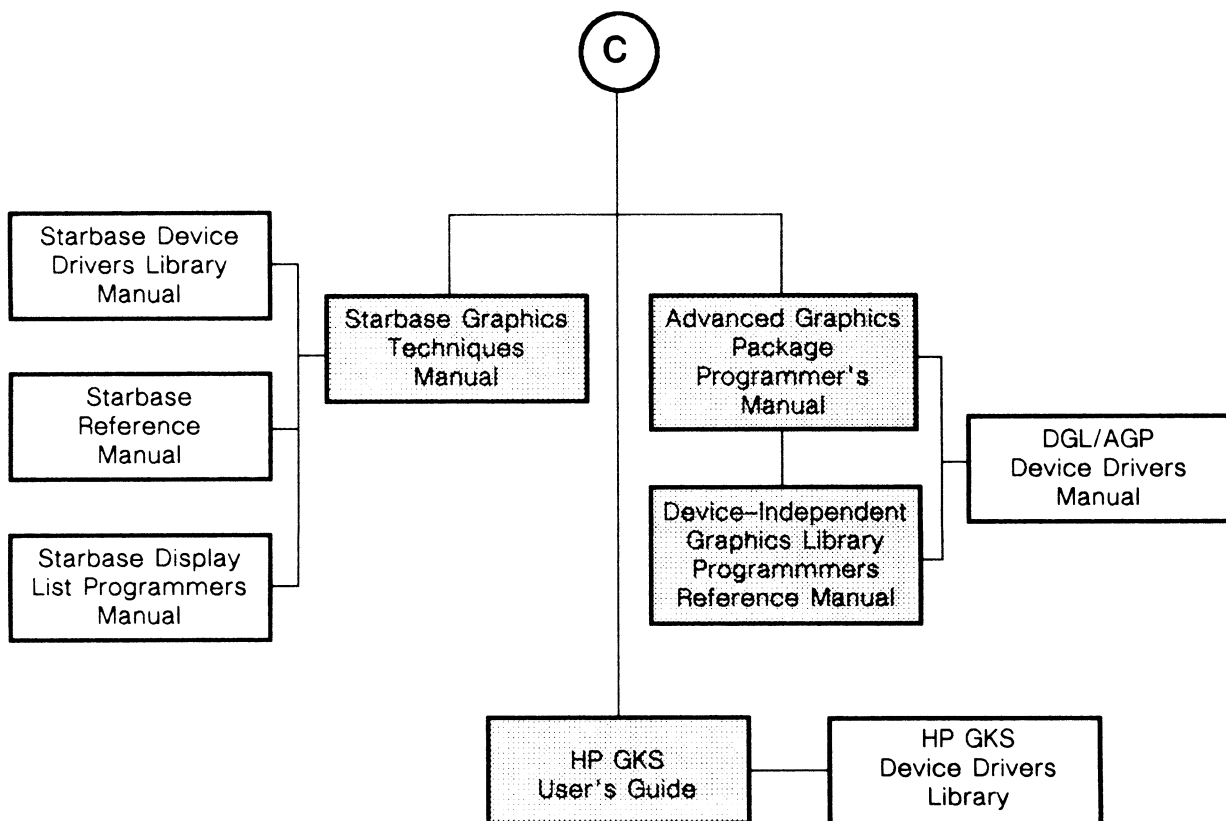


Legend

-  Critical Path
-  Optional

LG200061_007b

Graphics Path

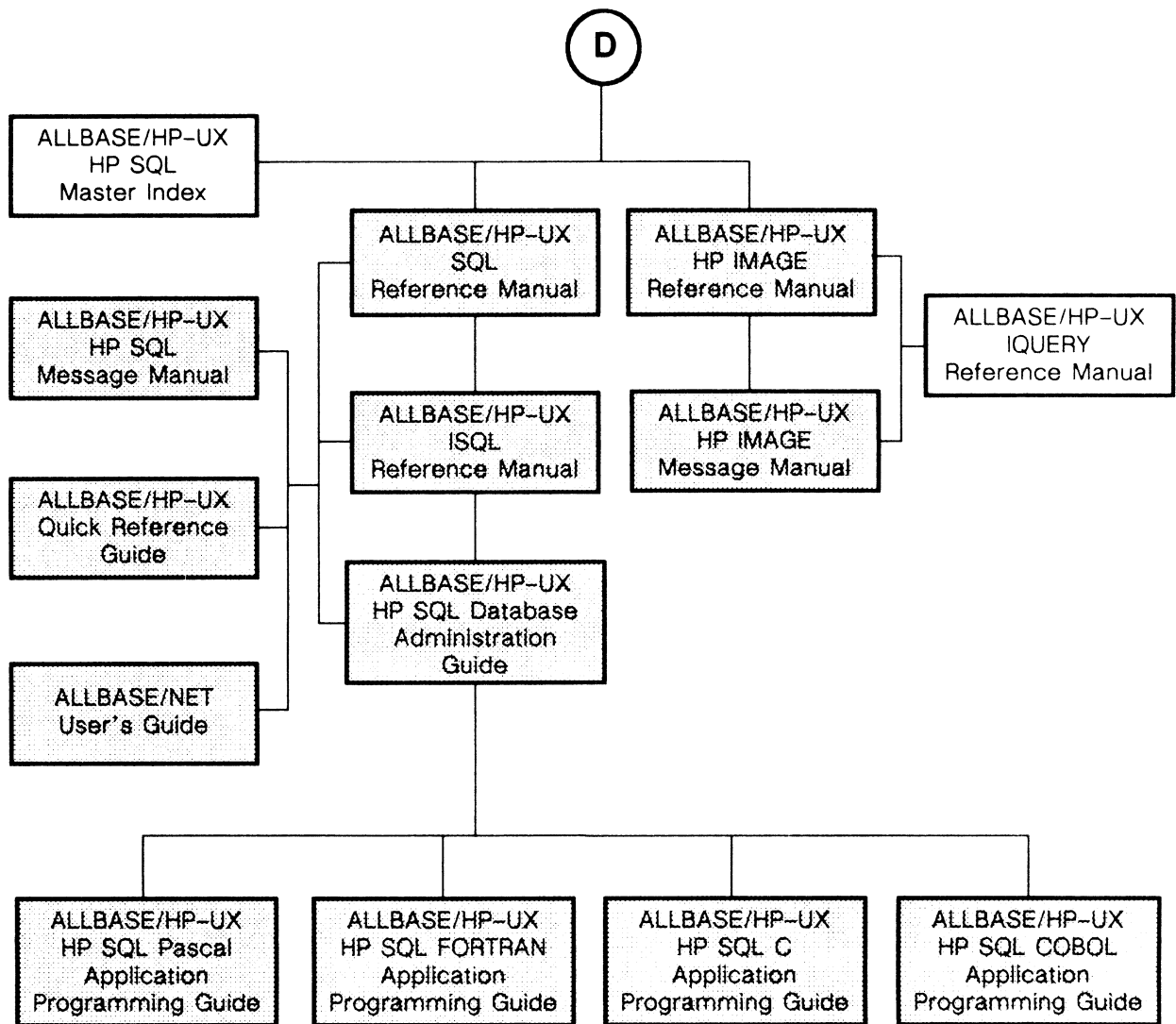


Legend

- Critical Path
- Optional

LG200061_003b

Information Management Path

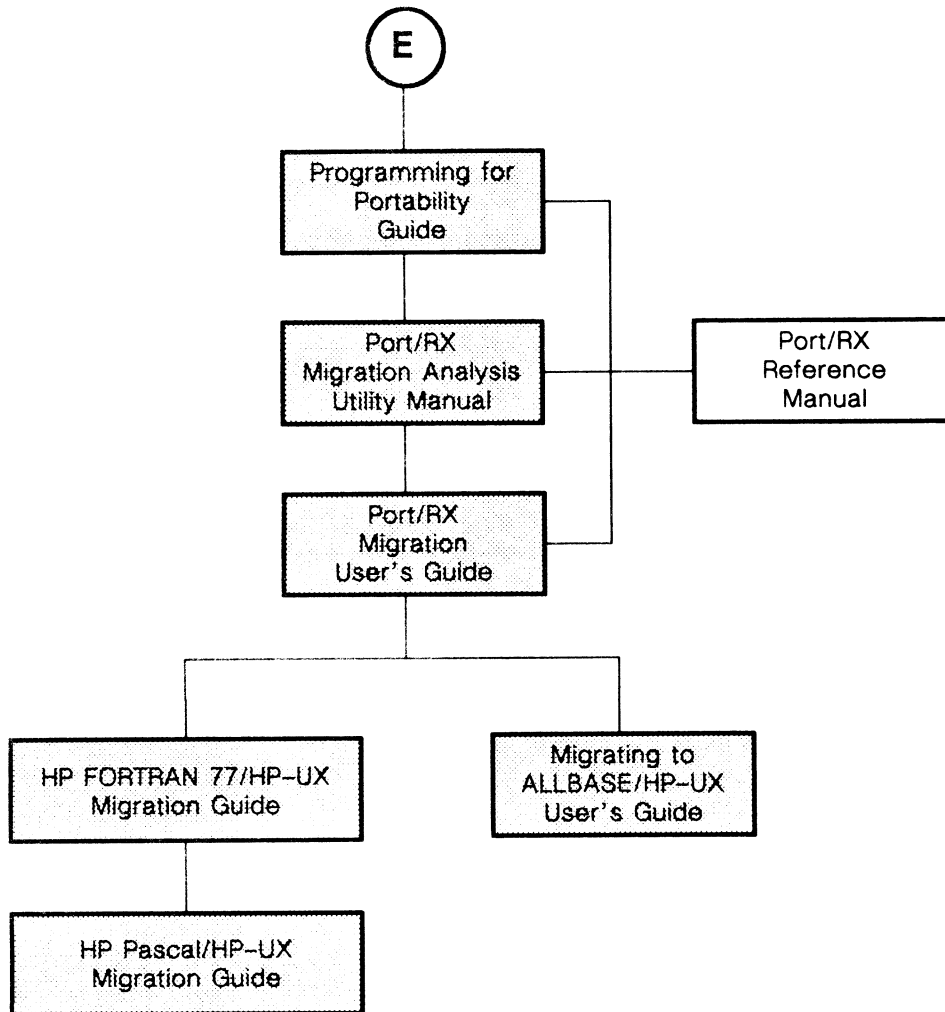


Legend

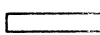
- Critical Path
- Optional

LG200061_008b

Migration Tools Path

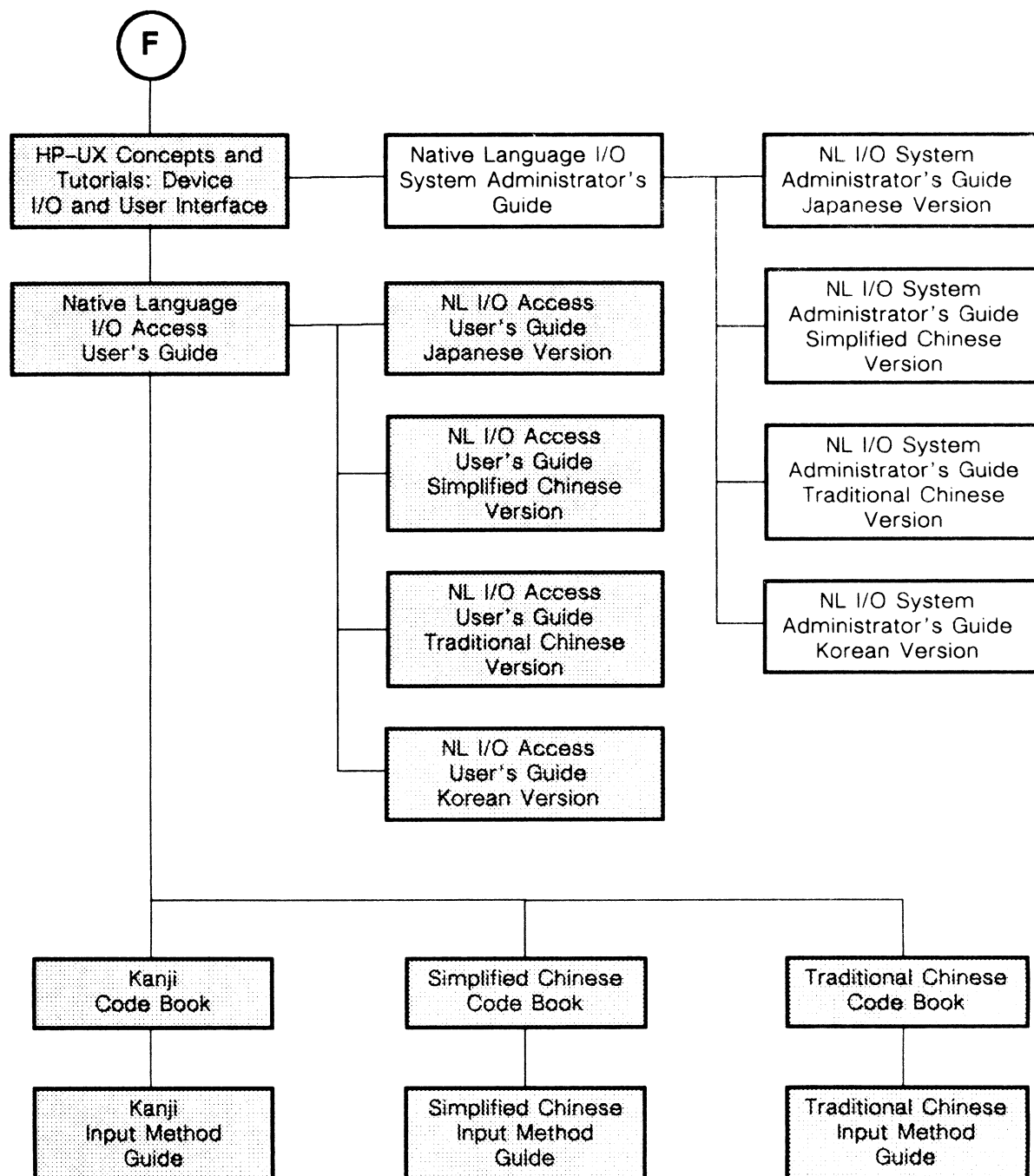


Legend

-  Critical Path
-  Optional

LG200061_009b

Native Language Support Path

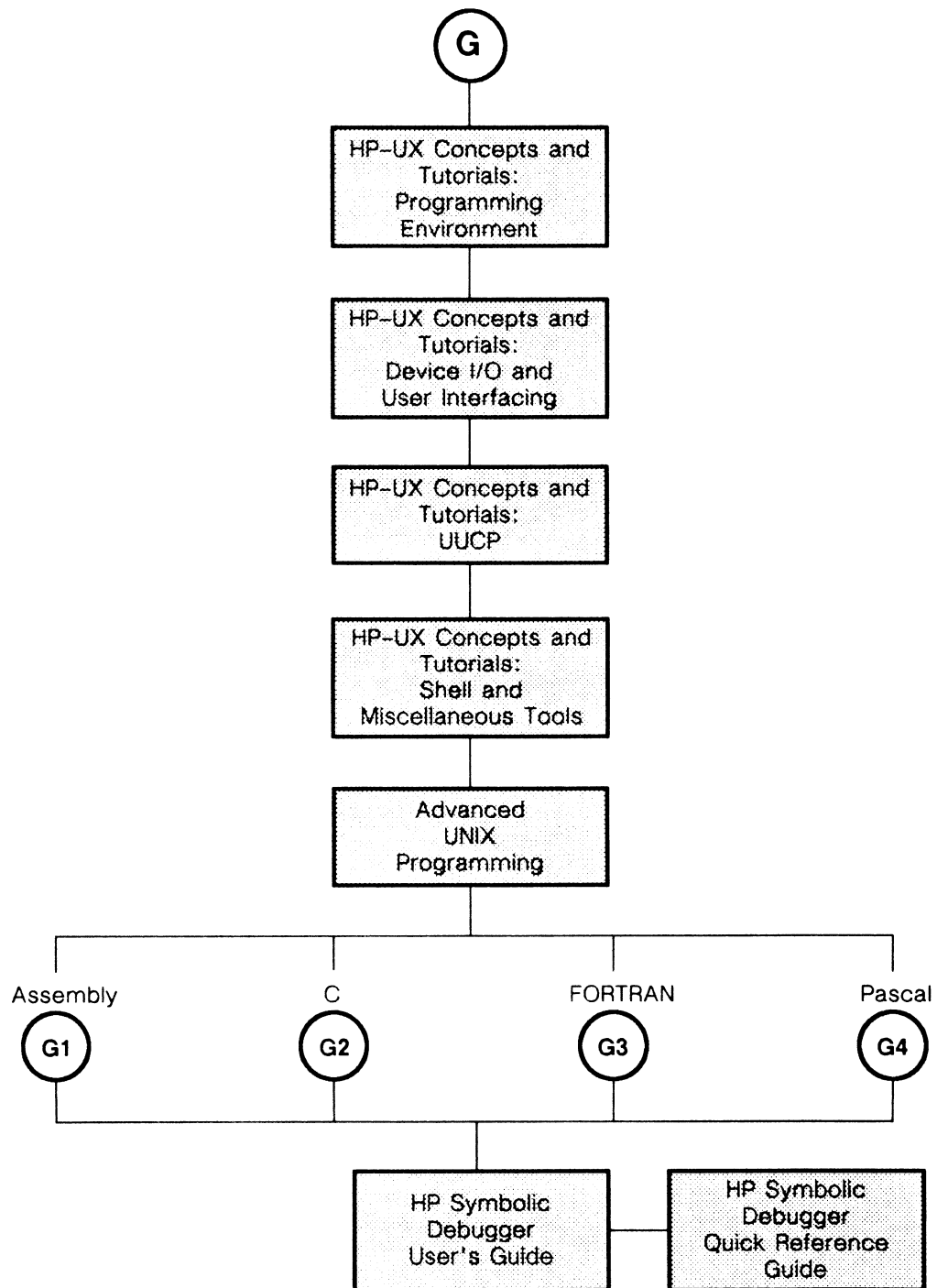


Legend

- Critical Path
- Optional

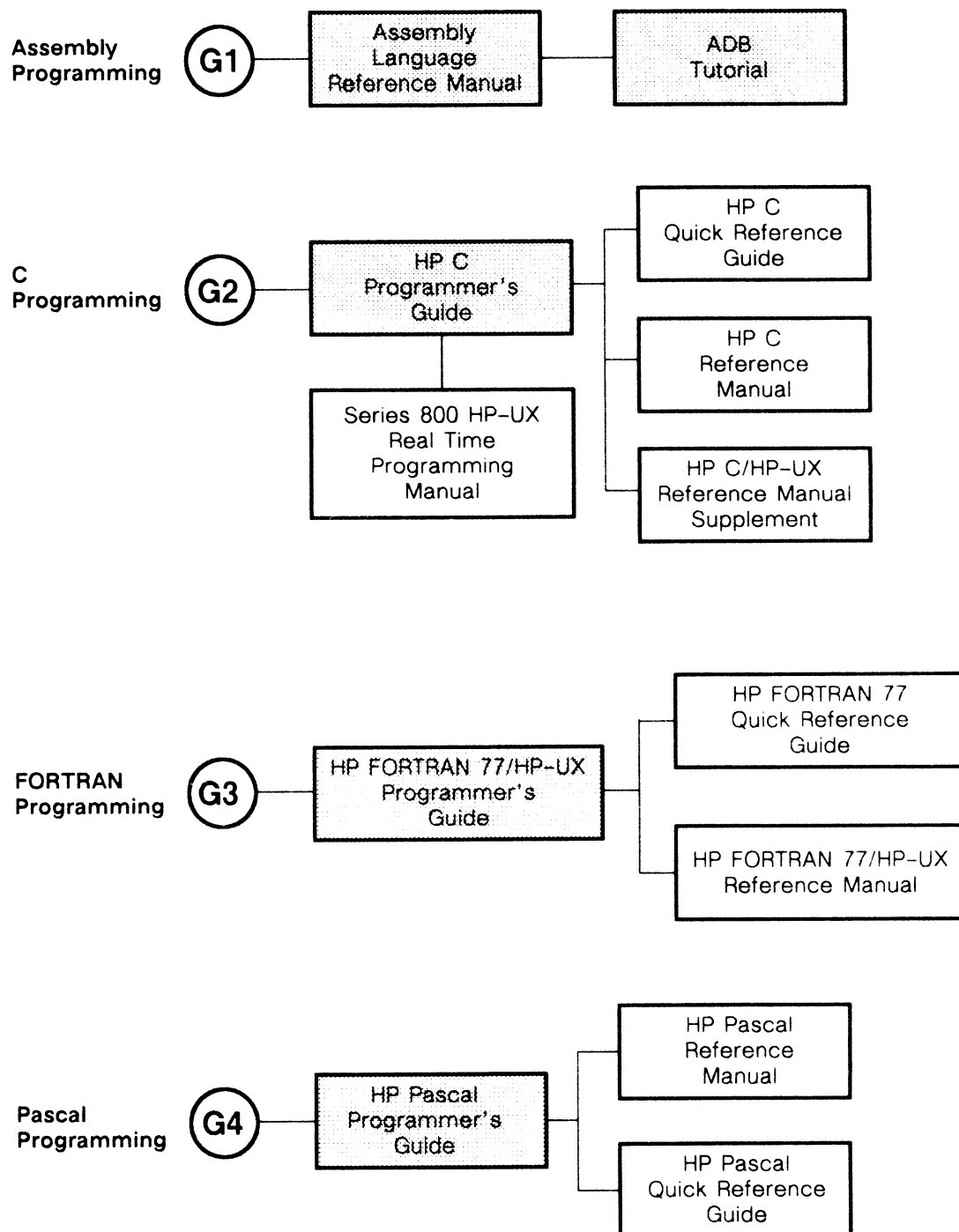
LG200061_016

Programmer's Path



LG200061_011b

Programmer's Path: Language Series

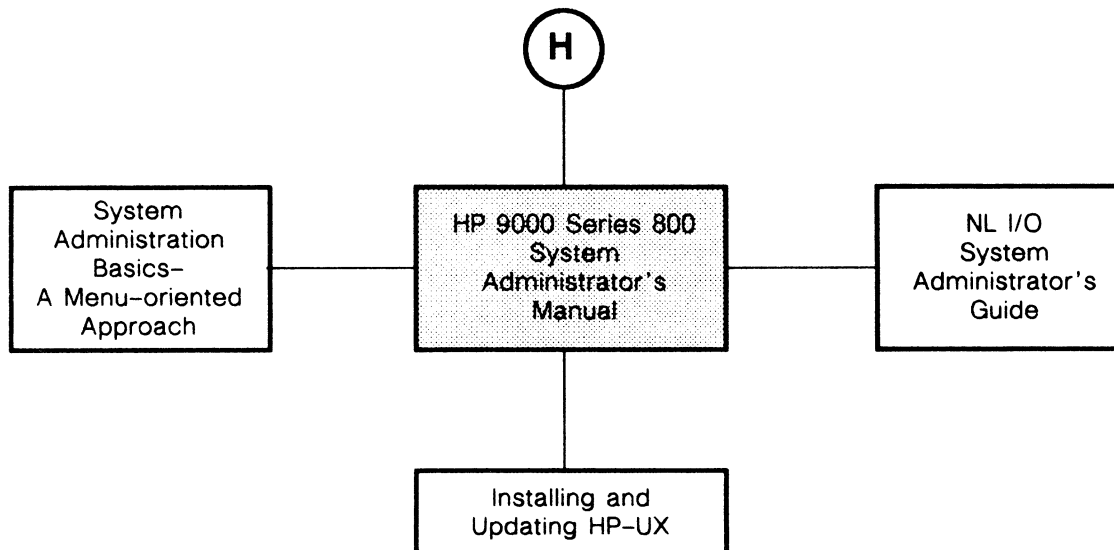


Legend

- Critical Path
- Optional

LG200061_012b

System Administrator's Path



Note:

Each product's manual set includes System Administration information to install and maintain that product on HP-UX.

Legend

-  Critical Path
-  Optional

Manual List

Introduction

The manual lists show you the manual set divided into groups of user skills. These groups of skills are called "series". The series and the manuals within them are in the same order as the manual maps in Chapter 2. The manual list contains the manual title, manual series, part number, intended audience, the abstract, and the table of contents.

The following series divisions are used in the manual list:

- General User's Series
- Data Communications Series
- Interfacing and Networking Hardware Series
- Graphics Series
- Information Management Series
- Migration Series
- Native Language Support Series
- Programmer's Series
- Programmer's Series: Languages
- System Administrator's Series

Audience

The audience specification of the manual list gives the background skill level of the potential reader.

- A General User is any user. A manual written for a General User assumes no particular skill level. The General User's skill level is complete after learning the skills contained in the General User's Path (or Series) manuals.
- An Experienced User is a user who has learned the skills that are presented in the General User's Path (or Series).
- A Programmer is a user who has worked less than six months as a programmer. A manual written for a Programmer assumes basic knowledge of HP-UX, an editor, the linking and execution process, and a programming language.
- An Experienced Programmer is a programmer with more advanced skills and working knowledge. A manual written for an Experienced Programmer assumes that all the basic skills required for a Programmer are known in depth.
- A System Administrator is a user who has had training or experience as a member of the systems operations staff.
- A Network Manager is a user who has experience in using and setting up a computer network.
- A Database Administrator is a user who has experience in using and setting up a database system.
- HP Field Engineers are Hewlett-Packard personnel who may help you with hardware installation.

Manual Information

The abstract of each manual contains a short paragraph that gives an overview of the manual.

The table of contents from each manual shows you chapter or section titles and topics. Some manuals do not have chapters or sections and are arranged by topics. This information lets you explore the manuals before you pull them off your shelf.

General User's Series

Manual Title	Audience
<i>A Beginner's Guide to HP-UX</i> (98594-90000)	General Users
<i>A Beginner's Guide to Text Editing</i> (98594-90010)	General Users
<i>A Beginner's Guide to Using Shells</i> (98594-90020)	General Users
<i>HP-UX Concepts and Tutorials: Text Editors and Processors</i> (97089-90022)	General Users
<i>HP-UX Concepts and Tutorials: Text Formatters</i> (97089-90032)	General Users
<i>HP-UX Reference</i> (92453-90016)	Experienced HP-UX Users and Programmers
<i>HP-UX User's Guide</i> (92453-90001)	General Users
<i>Using the HP 9000 ITE</i> (92453-90011)	General Users

A Beginner's Guide to HP-UX

GENERAL USER'S SERIES

PART-NUMBER: 98594-90000

AUDIENCE: General Users

This book introduces the fundamental concepts of HP-UX. It is designed to teach these concepts through descriptions and examples.

Chapter 1: Introduction

Chapter 2: Getting Started: Your First Work Session

Chapter 3: Working with Files

Chapter 4: Organizing Your Files: Directories

Chapter 5: Command Syntax and the On-Line Reference

Chapter 6: Sending and Receiving Mail

A Beginner's Guide to Text Editing

GENERAL USER'S SERIES

PART-NUMBER: 98594-90010

AUDIENCE: General Users

This guide provides information on the editor of choice for HP-UX users, vi. Basic commands for entering, modifying, and saving text are presented along with some more advanced topics, such as moving and copying text, and searching for and replacing text patterns.

Chapter 1: Introduction

Chapter 2: Using vi: An Introductory Tutorial

Chapter 3: A Closer Look at Editing with vi

Chapter 4: Moving and Copying Text

Chapter 5: Searching for Patterns in Files

Chapter 6: Setting Your vi Environment

A Beginner's Guide to Using Shells

GENERAL USER'S SERIES

PART-NUMBER: 98594-90020

This guide introduces the role of the shell in an HP-UX system. Concepts common to all shells are discussed, and features unique to each shell are briefly introduced.

Chapter 1: Introduction

Chapter 2: An Overview of Shells

Chapter 3: Expanding Your Use of the Shell

Chapter 4: Setting Up Your Shell Environment

Chapter 5: Example Login Scripts

HP-UX Concepts and Tutorials: Text Editors and Processors

GENERAL USER'S SERIES

PART-NUMBER: 97089-90022

AUDIENCE: General Users

This manual describes the text editors and processors that are a basic part of HP-UX. These editors include: edit (an interactive editor), ex (extended editor, it has more features than edit), vi (a display oriented text editor), sed (a non-interactive stream editor), and awk (a programming language for manipulating text and data files).

Section 1: Introduction to Text Editors and Processors

Section 2: Regular Expressions

- Introduction
- Where are REs Used
- Simple Matches

Section 3: The Vi/Ex Editor

- Introducing the Vi/Ex Editor
- Starting and Ending a Session
- Basic Editing: Cursor and Display Control
- Basic Editing: Manipulating Text
- Intermediate Editing: Using Text Objects
- Intermediate Editing: Copying and Moving Blocks of Text
- Intermediate Editing: Search and Replace Operations
- Intermediate Editing: Editing Multiple Files
- Intermediate Editing: File Manipulation Techniques
- Using Ex Commands
- Advanced Editing: Shell Operations
- Editor: Configuring the Vi/Ex Editor
- Using Ex

Section 4: sed

- sed: A Non-Interactive Streaming Editor
- Forming Editor Commands
- Writing Command Scripts

Section 5: Ed

- The Ed Editor
- Creating an Ordinary File
- Getting Acquainted with Ed
- Moving Around in the File
- Adding, Deleting, and Correcting Text
- Special Ed Commands
- The Shell Interface
- Miscellaneous

Section 6: Edit: An Interactive Line Editor

Section 7: Awk: A Programming Language for Manipulating Data

- Introduction
- The Command Line
- Structure of Awk Programs
- Predefined Variables
- Output
- Details of Awk Programming
- Error Messages
- Notes on the Design
- Notes of Awk Implementation
- Annotated Examples
- References

HP-UX Concepts and Tutorials: Text Formatters

GENERAL USER'S SERIES

PART-NUMBER: 97089-90032

AUDIENCE: General Users

This manual describes the nroff text formatter and the formatting macro packages, mm and tbl.

Chapter 1: The Nroff/Troff Text Processors

- Introduction
- Usage
- Summary and Index
- Escape Sequences
- Predefined General Number Registers
- Predefined Read-Only Number Registers

Chapter 2: Reference Manual

- The Basics
- Page Control
- Text Filling and Adjusting
- Vertical Spacing
- Line Length and Indenting
- Macros, Strings, Diversion, and Position Traps
- Number Registers
- Tabs, Leaders, and Fields
- Input and Output Conventions and Character Translations
- More Functions
- Hyphenation
- Output Line Numbering
- Conditional Acceptance of Input
- Environment Switching
- Insertions from the Standard Input
- Input/Output File Switching
- Miscellaneous
- Output and Error Messages
- Tutorial Examples

Chapter 3: MM: Memorandum Macros

- Introduction
- Usage
- Formatting Concepts
- Paragraphs and Headings
- Lists
- Memorandum and Released-Paper Style Documents
- Displays
- Footnotes
- Page Headers and Footers
- Table of Contents and Cover Sheet
- References

Chapter 3: MM: Memorandum Macros (cont.)

- Miscellaneous Features
- Errors and Debugging
- Extending and Modifying MM Macros
- Summary
- Footnote Examples
- Tables

Chapter 4: Tbl: A Program to Format Tables

- Usage
- Input Commands
- Global Options
- Format Section
- Data to be Printed
- Additional Command Lines
- Examples

HP-UX Reference

GENERAL USER'S SERIES

PART-NUMBER: 92453-90016

AUDIENCE: Experienced HP-UX Users and Programmers

This manual describes all of the commands and subroutines for HP-UX. Each section is arranged in alphabetical order.

Section 1: Commands and Application Programs

Section 1M: System Maintenance Procedures

Section 2: System Calls

Section 3: Subroutines

Section 4: Special Files

Section 5: File Formats

Section 6: Games (no games are supported)

Section 7: Miscellaneous Facilities

Section 9: Glossary

**** There is no Section 8 ****

HP-UX User's Guide

GENERAL USER'S SERIES

PART-NUMBER: 92453-90001

AUDIENCE: General Users

The purpose of this guide is to introduce and define terms covered within the scope of this guide; to provide a novice level tutorial of user tasks; to provide a task oriented tutorial for the experienced system users; and to direct the user to other sources within the HP-UX documentation set for further information.

Chapter 1: Introduction to HP-UX

- Compatibility
- Standard Features
- Realtime Enhancements
- Supported Tools for HP-UX
- Structure of HP-UX
- Chapter Review

Chapter 2: The HP-UX File System

- Files
- Sample Filenames (with and without extensions)
- Directories
- Chapter Review

Chapter 3: Before You Begin

- Manual Conventions
- The System Administrator
- Uppercase and Lowercase Entries
- Frequently Used Keys
- Correcting Typing Errors
- Standard HP-UX Command Format
- Successfully Completed Tasks
- Online Documentation
- Chapter Review

Chapter 4: Getting Started Tutorial

- Tutorial Task Summary

Chapter 5: More About HP-UX

- More on Files
- I/O Redirection
- Pipes and Filters
- Multiple Commands
- Background Execution
- Conditional Execution
- Metacharacters
- Quoting Metacharacters
- Chapter Review

Chapter 6: User's Tutorial

- Creating Shell Scripts
- Concatenating Files
- Sorting Contents of a File
- Comparing File Contents
- Searching for a File
- Receiving and Sending Mail
- Command History
- Chapter Review

Chapter 7: Useful Utilities

- Introduction
- Utilities
- Chapter Summary

Using the HP 9000 ITE

GENERAL USER'S SERIES

PART-NUMBER: 92453-90011

AUDIENCE: General Users

This manual explains how to use the ITE (Internal Terminal Emulator) with the 4602A keyboard. It is similar to the user manuals for HP terminals.

Contents:

Description of the ITE

- Keyboard Requirements
- Description of a System Console
- Additional Considerations

Using the Keyboard

- Character Entry Group
- Numeric Group
- Display Control Group
- Edit Group
- Function Key Group
- System Control Group

The Display

- Memory Addressing Scheme
- Cursor Sensing
- Cursor Positioning
- Screen Relative Addressing
- Absolute Addressing
- Cursor Relative Addressing
- Combining Absolute and Relative Addressing
- Display Enhancements
- Raster Control
- Accessing Color

Configuring the ITE

- Configuring Function Keys
- Terminal Configuration Menu

ITE Escape Sequences

- Sequence Types

Data Communications Series

Manual Title	Audience
<i>ARPA/Berkeley Services Reference Pages</i> (50952-90032)	Experienced HP-UX and ARPA/Berkeley Services Users
<i>HP 9000 NetIPC Programmer's Guide (for the Series 300 and 800)</i> (98194-90002)	NetIPC Programmers
<i>HP 9000 Series 800 Networking Overview: LAN, X.25, NS, ARPA and NFS</i> (50980-90021)	Networking Users
<i>HP-UX SNA3270 and Gateway/SNA3270 Reference Manual</i> (36590-90000)	End Users and System Administrators
<i>HP-UX SNA3770 and Gateway/SNA3770 Reference Manual</i> (98184-90000)	End Users and System Administrators
<i>HP-UX SNALink and Gateway/SNALink Manager's Reference Manual</i> (36592-90000)	System Administrators
<i>HP-UX SNA3179G and Gateway/SNA3179G Reference Manual</i> (B1001-90000)	End Users and System Administrators
<i>HP-UX SNA/9000 Manual Reference Pages</i> (36592-90003)	End Users and SNA System Administrators
<i>Installing ARPA Services/9000 Series 800</i> (98194-90007)	ARPA/Berkeley Services Network Managers
<i>Installing LAN/9000 Series 800</i> (98194-90009)	LAN Network Managers
<i>Installing Network Services (NS)/9000 Series 800</i> (98194-90008)	NS Network Managers
<i>LAN/9000 Series 800 Berkeley IPC Programmer's Guide</i> (98194-90003)	LAN Programmers
<i>LAN/9000 Series 800 LLA Programmer's Guide</i> (98194-90006)	LAN Programmers
<i>LAN Reference Pages</i> (98194-90004)	LAN Programmer's and Network Managers
<i>Network Services Reference Pages</i> (50951-90031)	NS Programmers and Network Managers
<i>NFS Services Reference Pages</i> (50970-90030)	Experienced HP-UX and NFS Services Users
<i>NS Cross-System Network Manager Reference Manual</i> (5958-8564)	Network Managers
<i>NS Cross-System NFT Reference Manual</i> (5958-8563)	NS Programmers and Users

*Programming and Protocols for NFS Services / 800
(50970-90010)*

NFS Programmers

*Troubleshooting LAN, NS, ARPA Services / 9000
Series 800 (98194-90010)*

LAN, NS and ARPA/Berkeley Services
Network Managers

*Using and Administering NFS Services / 9000 Series
800 (50970-90000)*

NFS Users and Network Managers

*Using ARPA Services / 9000 Series 800
(50980-90001)*

Users of the ARPA and Berkeley Services

*Using Network Services (NS) / 9000 Series 800
(50980-90040)*

NS Programmers and Users

ARPA/Berkeley Services Reference Pages

DATA COMMUNICATIONS SERIES

PART-NUMBER: 50952-90032

AUDIENCE: Experienced HP-UX users who use, program with
and manage the ARPA/Berkeley Services software

This manual contains the reference pages for ARPA/Berkeley.

Section 1: ARPA and Berkeley Commands

Section 1M: Network Management Commands

Section 2: IPC System Calls

Section 3: Library Functions for IPC

Section 4: File Formats for ARPA Configuration Files

Section 7: Special Files Describing Protocols and Facilities

HP 9000 NetIPC Programmer's Guide (for the Series 300 and 800)

DATA COMMUNICATIONS SERIES

PART-NUMBER: 98194-90002

AUDIENCE: NetIPC Programmers

This manual describes Network Interprocess Communication (NetIPC) programming.

Chapter 1: NetIPC Concepts

- Chapter Overview
- Sockets
- Connections
- Establishing a VC Connection
- Sending and Receiving Data
- Shutting Down a Connection
- Summary of NetIPC Calls

Chapter 2: Cross-System NetIPC

- Chapter Overview
- Software Revision Codes
- Local and Remote NetIPC Calls
- HP 9000 to HP 1000 NetIPC
- HP 9000 to HP 3000 NetIPC
- Process Scheduling

Chapter 3: NetIPC Calls

- Programming Languages
- Include Files and Libraries
- HP 1000 to Series 800 Migration
- NetIPC Common Parameters
- Syntax Conventions
- NetIPC Reference Pages

Appendix A: HP Character Set

Appendix B: Sample NetIPC Programs

Appendix C: Error Messages

Appendix D: System Calls and NetIPC Sockets

Appendix E: LAN/9000 Series 800 Migration

Appendix F: Porting NetIPC Programs

HP 9000 Series 800 Networking Overview: LAN, X.25, NS, ARPA and NFS

DATA COMMUNICATIONS SERIES

PART-NUMBER: 50980-90021

AUDIENCE: General users

This booklet describes the LAN/9000 Series 800 Link software product, the X.25/800 Link product, the Network Services (NS)/9000 Series 800 product, the ARPA Services/9000 Series 800 product, and the NFS Services/800 product.

Before You Begin

- Nodes and Networks
- Routes, Paths, and Protocols
- Network Addresses and Host or Node Names
- Bus Networks
- X.25 Packet Switching Networks
- LAN-to-LAN Routers
- Network Architecture and the OSI Model

Networking Software

- Links and Services
- LAN-Based Overview
- X.25-Based Overview

The LAN Product

- Interprocess Communication
- Diagnostics
- Documentation

The X.25 Product

- Interprocess Communication with Berkeley Sockets
- Diagnostics
- Documentation

The NS Product

- Network File Transfer
- Remote File Access
- Interprocess Communication
- Link Level Access
- Diagnostics
- Documentation

The ARPA Product

- ARPA Services
- Berkeley Services
- Interprocess Communication
- Diagnostics
- Documentation

The NFS Product

NFS Services

Diagnostics

Documentation

Documentation Guide

Manual Descriptions

Documentation Map

HP-UX SNA3270 and Gateway/SNA3270 Reference Manual

DATA COMMUNICATIONS SERIES

PART-NUMBER: 36590-90000

AUDIENCE: Programmers and System Administrators

This manual describes the HP-UX SNA3270 and HP-UX Gateway/SNA3270 products for the HP 9000 Series 300 and Series 800 systems. The manual provides the information to install, configure, and use these SNA3270 products and to perform some basic troubleshooting of the products.

Chapter 1: Introduction to SNA3270

Chapter 2: Using SNA3270

Chapter 3: The Keyboard

Chapter 4: File Transfer

Chapter 5: Installing SNA3270

Chapter 6: Identifying the SNA Host Connection

Chapter 7: Troubleshooting SNA3270

Appendix A: Messages and Codes

Appendix B: SNA3270 Product Files

Appendix C: Printer Emulation Considerations

HP-UX SNA3770 and Gateway/SNA3770 Reference Manual

DATA COMMUNICATIONS SERIES

PART-NUMBER: 98184-90000

AUDIENCE: Programmers and System Administrators

This manual describes the HP-UX SNA3770 and HP-UX Gateway/SNA3770 products for the HP 9000 Series 300 and Series 800 systems. The manual provides the information to install, configure, and use these SNA3770 products and to perform some basic troubleshooting of the products.

Chapter 1: Introduction to SNA3770

Chapter 2: Using SNA3770

Chapter 3: Console Facility

Chapter 4: Installing SNA3770

Chapter 5: Configuring SNA3770

Chapter 6: Identifying the SNA Host Connection

Chapter 7: Starting and Stopping SNA3770

Chapter 8: Managing SNA3770

Chapter 9: Troubleshooting SNA3770

Appendix A: Messages and Codes

Appendix B: SNA3770 Product Files

Appendix C: Printer Emulation Considerations

Appendix D: SNA3770 Quick Reference

HP-UX SNALink and Gateway/SNALink Manager's Reference Manual

DATA COMMUNICATIONS SERIES

PART-NUMBER: 36592-90000

AUDIENCE: Programmers and System Administrators

This manual describes the HP-UX SNALink and HP-UX Gateway/SNALink products for the HP 9000 Series 300 and Series 800 systems. The manual provides the information to install, configure, and use these SNALink products and to perform some basic troubleshooting of the products.

Chapter 1: Introduction to SNALink

Chapter 2: Installing SNALink

Chapter 3: Configuring SNALink

Chapter 4: Identifying the Host Connection

Chapter 5: Starting and Stopping SNALink

Chapter 6: Managing SNALink

Chapter 7: Troubleshooting SNALink

Appendix A: Messages and Codes

Appendix B: SNALink Product Files

Appendix C: Modem Requirements

Appendix D: SNA Host Sense Codes

Appendix E: SDLC Card Installation Requirements

HP-UX SNA3179G and Gateway/SNA3179G Reference Manual

DATA COMMUNICATIONS SERIES

PART-NUMBER: B1001-90000

AUDIENCE: Programmers and System Administrators

This manual describes the HP-UX SNA3179G and HP-UX Gateway/SNA3179G products for the HP 9000 Series 300 and Series 800 systems. The manual provides the information to install, configure, and use these SNA3179G products and to perform some basic troubleshooting of the products.

Chapter 1: Introducing HP-UX SNA3179G

Chapter 2: Before Using SNA3179G

Chapter 3: Using SNA3179G

Chapter 4: Installing SNA3179G

Chapter 5: Configuring SNA3179G

Chapter 6: Troubleshooting SNA3179G

Appendix A: SNA3179G Product Files

Appendix B: Unsupported IBM Data Stream Constructs

Appendix C: Typewriter Keyboard Reference Tables

Appendix D: APL Keyboard Reference

HP-UX SNA/9000 Manual Reference Pages

DATA COMMUNICATIONS SERIES

PART-NUMBER: 36592-90003

AUDIENCE: End Users and SNA System Administrators

This manual contains the man pages related to the following products.

HP-UX SNALink and Gateway /SNALink

HP-UX SNA3270 and Gateway /SNA3270

HP-UX SNA3770 and Gateway /SNA3770

HP-UX SNA3179G and Gateway /SNA3179G

Installing ARPA Services/9000 Series 800

DATA COMMUNICATIONS SERIES

PART-NUMBER: 98194-90007

AUDIENCE: ARPA Network Managers

This manual is for network managers of the HP 9000 Series 800 systems using the ARPA product. The manual explains how to install, configure and maintain the ARPA product software.

Chapter 1: Product Overview

Chapter 2: Installing ARPA Services/9000 Series 800

Chapter 3: Maintaining ARPA Services/9000 Series 800

Chapter 4: Internetwork Mail Routing

Appendix A: Error Messages

Appendix B: Sendmail Files

Installing LAN/9000 Series 800

DATA COMMUNICATIONS SERIES

PART-NUMBER: 98194-90009

AUDIENCE: LAN Network Managers

This manual is for network managers of the HP 9000 Series 800 systems using the LAN product. It introduces and explains networking concepts and terminology. The manual also explains how to install, configure and maintain the LAN product software.

Chapter 1: Product Overview

Chapter 2: Networking Concepts

Chapter 3: Installing LAN/9000 Series 800

Chapter 4: Maintaining LAN/9000 Series 800

Appendix A: Network Memory Configuration

Appendix B: Error Messages

Appendix C: Subnetwork Example

Appendix D: Glossary

Installing Network Services (NS)/9000 Series 800

DATA COMMUNICATIONS SERIES

PART-NUMBER: 98194-90008

AUDIENCE: NS Network Managers

This manual is for network managers of the HP 9000 Series 800 systems using the NS product. This manual explains how to install, configure and maintain the NS product software.

Chapter 1: Product Overview

Chapter 2: Installing NS/9000 Series 800

Chapter 3: Maintaining NS/9000 Series 800

Appendix A: Error Messages

LAN/9000 Series 800 Berkeley IPC Programmer's Guide

DATA COMMUNICATIONS SERIES

PART-NUMBER: 98194-90003

AUDIENCE: LAN Programmers

This manual describes BSD IPC in detail for programmers who will be writing distributed application programs.

Chapter 1: Overview of BSD IPC

Chapter 2: BSD IPC Using Stream Sockets

- Preparing Address Variables
- Writing the Server Process
- Writing the Client Process
- Sending and Receiving Data
- Closing a Socket
- Example Using Stream Sockets

Chapter 3: Advanced Topics for Stream Sockets

- Socket Options
- I/O Multiplexing with Select
- Nonblocking I/O
- Using Shutdown
- Using Read and Write to Make Stream Sockets Transparent
- Sending and Receiving Out of Band Data

Chapter 4: BSD IPC Using Datagram Sockets

- Preparing Address Variables
- Writing the Server and Client Processes
- Binding Socket Addresses to Datagram Sockets
- Sending and Receiving Messages
- Closing a Socket
- Example Using Datagram Sockets

Chapter 5: Advanced Topics for Datagram Sockets

- Specifying a Default Socket Address
- I/O Multiplexing with Select
- Nonblocking I/O
- Using Broadcast Addresses

Chapter 6: Programming Hints

- Troubleshooting
- Port Addresses
- Using Diagnostic Utilities as Troubleshooting Tools
- Adding a Server Process to the Internet Daemon
- Summary Tables for System and Library Calls

LAN/9000 Series 800 LLA Programmer's Guide

DATA COMMUNICATIONS SERIES

PART-NUMBER: 98194-90006

AUDIENCE: LAN Programmers

This manual is the primary reference source for programmers who will be writing or maintaining programs that access the LAN linic drivers provided by the LAN/9000 Series 800 product.

Chapter 1: LLA Concepts

- LLA and the OSI Model
- OSI Layer 2
- Device Files
- HP-UX Calls
- NETCTRL and NETSTAT Commands
- ioctl(2) Syntax
- Address Conversion Routines
- LLA Error Codes

Chapter 2: Using LLA

- Opening a Network Device File
- Logging a User-Level Address
- Logging a Destination Address
- Reading Data
- Writing Data
- Synchronizing I/O Operations
- Closing a Network Device File

Chapter 3: Network I/O Control Commands

- Collecting and Resetting Interface Statistics
- Managing Network Addresses
- Resetting an Interface
- Managing Broadcast Packets
- Managing Multicast Packets

Chapter 4: LLA Examples

- File Transfer Program

Appendix A: Implementation Differences

- Network I/O Control Commands

Appendix B: LLA Layer 2 Protocols

- Ethernet Frame Structure
- IEEE 802.3 Frame Structure
- Ethernet and IEEE 802.3 Packet Comparison

LAN Reference Pages

DATA COMMUNICATIONS SERIES

PART-NUMBER: 98194-90004

AUDIENCE: LAN Programmer's and Network Managers

This kit includes the *LAN Reference Pages* as well as tabs for your other networking reference pages, i.e., the Network Services Reference pages, the ARPA/Berkeley Services Reference pages, and the NFS Services Reference pages. The *LAN Reference Pages* contain manual reference pages for nodal management, logging, tracing, troubleshooting, NetIPC (network interprocess communication), and BSD IPC (Berkeley interprocess communication).

Network Services Reference Pages

DATA COMMUNICATIONS SERIES

PART-NUMBER: 50951-90031

AUDIENCE: Network Managers and All Programmers

This manual is a printed copy of the online NS/9000 Series 800 manual reference pages.

NFS Services Reference Pages

DATA COMMUNICATIONS SERIES

PART-NUMBER: 50970-90030

AUDIENCE: Experienced HP-UX users who use, program with, and manage the NFS Services Software

This manual contains the reference pages for NFS Services.

NS Cross-System Network Manager Reference Manual

DATA COMMUNICATIONS SERIES

PART-NUMBER: 5958-8564

AUDIENCE: Network Managers

This manual is a generic reference manual for NS network managers. It is provided as a supplement to the network manager reference manuals. The dual purpose of this manual is to document information specific to network operations across different types of NS systems and to introduce main features in each NS system.

Section 1: Introduction

- Overview
- How the Manual is Organized

Section 2: Network Architecture and Components

- Network Architecture
 - NS/1000 Network Architecture and Components
 - NS3000/V Network Architecture and Components
 - NS3000/XL Network Architecture and Components
 - NS/9000 Series 300, 500 Network Architecture and Components
 - NS/9000 Series 800 Network Architecture and Components
 - DEC VAX Computer NS Architecture

Section 3: Network Configuration

- Common NS Configuration Components
 - NS/1000 Configuration
 - NS3000/V Configuration
 - NS3000/XL Configuration
 - NS/9000 Configuration
 - DEC VAX Computer NS Configuration

Section 4: Network Information Utilities

- NS/1000 Information Utilities
- NS3000/V Information Utilities
- NS3000/XL Information Utilities
- NS/9000 Information Utilities
- DEC VAX Computer NS Information Utilities

Section 5: Quick Verification

- Setting Up Your Systems
 - HP 1000 Initiator
 - HP 3000 Initiator
 - HP 9000 Initiator
 - DEC VAX Computer Initiator
- Cleaning Up Your Systems
- Troubleshooting Suggestions

Section 6: Diagnostics and Troubleshooting

- NS/1000 Diagnostics and Troubleshooting
- NS3000/V Diagnostics and Troubleshooting
- NS3000/XL Diagnostics and Troubleshooting
- NS/9000 Series 300 and 500 Diagnostics and Troubleshooting
- NS/9000 Series 800 Diagnostics and Troubleshooting
- DEC VAX Computer NS Diagnostics and Troubleshooting

Appendix A: Bibliography

Appendix B: System Commands

Appendix C: NS Commands

Appendix D: Network Installation

- NS/1000 Network Installation
- NS3000/V Installation
- NS3000/XL Installation
- NS/9000 Series 300 Installation
- NS/9000 Series 500 Installation
- NS/9000 Series 800 Installation
- DEC VAX Computer NS Installation

NS Cross-System NFT Reference Manual

DATA COMMUNICATIONS SERIES

PART-NUMBER: 5958-8563

AUDIENCE: NS Programmers and Users

This manual explains NFT operations that involve more than one type of computer.

Section 1: Introduction

- Overview
- Three-Node Model
- File Copying Formats
- Using this Manual

Section 2: Initiator Command Syntax

- NS/1000 DSCOPY Syntax
- NS3000 DSCOPY Syntax
- NS/9000 DSCOPY Syntax
- DSCOPY for the VAX Computer
- PC DSCOPY Command Syntax
- Interchange Format Options
- Common Options
- Special Characters

Section 3: HP 1000 Source File

- RTE-A File System
- Supported Target Nodes

Section 4: HP 3000 Source File

- MPE File System
- Supported Target Nodes

Section 5: HP 9000 Source File

- HP-UX File System
- Supported Target Nodes

Section 6: VAX/VMS Source File

- RMS File System
- Supported Target Nodes

Section 7: PC Source File

- DOS Stream Files
- Supported Target Nodes

Appendix A: DSCOPY Examples

Programming and Protocols for NFS Services/800

DATA COMMUNICATIONS SERIES

PART-NUMBER: 50970-90010

AUDIENCE: Programmers

This manual contains overviews of Remote Procedure Call (RPC), External Data Representation (XDR) and Yellow Pages. An RPC programming guide is also included, along with protocol specifications for RPC, XDR and YP.

Chapter 1: Documentation Overview

Chapter 2: NFS Services Overview

- Remote Procedure Call (RPC)
- External Data Representation (XDR)
- Yellow Pages (YP)

Chapter 3: RPC Programming Guide

- Layers of RPC
- Highest RPC Layer
- Intermediate RPC Layer
- Lowest RPC Layer
- Additional RPC Features
- Additional RPC Examples
- Synopsis of RPC Routines

Chapter 4: XDR Protocol Specification

- XDR Library Primitives
- XDR Stream Access
- XDR Stream Implementation
- XDR Standard
- Advanced XDR Topics
- Synopsis of XDR Routines

Chapter 5: RPC Protocol Specification

- RPC Model
- RPC Protocol Requirements
- RPC Message Protocol
- Portmapper Program Protocol

Chapter 6: YP Protocol Specification

- YP Database Servers
- YP Binders

Troubleshooting LAN, NS, ARPA Services/9000 Series 800

DATA COMMUNICATIONS SERIES

PART-NUMBER: 98194-90010

AUDIENCE: LAN, NS and ARPA Network Managers

This manual is for network managers of the HP 9000 Series 800 systems using the LAN, NS and/or ARPA products. This manual describes troubleshooting procedures, diagnostic utilities, event logging facilities, and tracing facilities for the network.

Chapter 1: Overview

Chapter 2: Diagnostic Utilities

Chapter 3: RLB Diagnostic

Chapter 4: Network Event Logging

Chapter 5: Network Tracing

Chapter 6: Troubleshooting Guidelines

Appendix A: Link Level Trace Examples

Appendix B: Error Messages

Using and Administering NFS Services/9000 Series 800

DATA COMMUNICATIONS SERIES

PART-NUMBER: 50970-90000

AUDIENCE: NFS Users and Network Managers

This manual describes the NFS services and explains common NFS commands. It also tells how to install, configure, maintain and troubleshoot the NFS Services product software. Yellow Pages (YP) configuration, maintenance and troubleshooting is included. This manual contains reference information on NFS Services vs. local HP-UX and migrating from RFA to NFS.

Chapter 1: Documentation Overview

Chapter 2: NFS Services Overview

- NFS Services
- Virtual Home Environment (VHE)

Chapter 3: Common Commands

- Key Terms
- NFS Commands
- Yellow Pages Overview
- YP Commands

Chapter 4: Installation

- Key Terms
- Prepare the System
- Install Software
- Add a Computer to the Network
- Relink Programs

Chapter 5: NFS Configuration and Maintenance

- Key Terms
- Guidelines
- NFS Configuration
- Maintenance

Chapter 6: YP Configuration and Maintenance

- Key Terms
- YP Databases
- YP Commands
- YP Configuration
- Verify YP
- Disable YP
- YP Maintenance

Chapter 7: YHE Configuration and Maintenance

- Configuration Overview
- Configuration
- Configuration Refinements
- VHE Maintenance
- Advanced Usage

Chapter 8: Troubleshooting

Key Terms

Troubleshooting References

Guidelines

Flowchart Format

Troubleshoot NFS

Troubleshoot Yellow Pages

Troubleshoot VHE

Appendix A: HP NFS Services vs. Local HP-UX

Migrating from RFA to NFS

Using ARPA Services/9000 Series 800

DATA COMMUNICATIONS SERIES

PART-NUMBER: 50980-90001

AUDIENCE: Users of the ARPA and Berkeley Services

This manual contains introductory information on the ARPA and Berkeley services, a user's view of internetwork mailing, and chapters explaining how to use the ARPA and Berkeley services.

Chapter 1: Documentation Overview

- Manual Overview
- Reference Manual Guide

Chapter 2: Services Overview

- Introduction
- Getting Started
- The ARPA/Berkeley Services
- Services Listed by Function
- Obtaining General Information

Chapter 3: Sending Mail

- Introduction
- Using Sendmail
- Sendmail Operations Overview

Chapter 4: Listing Hosts with Ruptime

- Using Ruptime
- Displaying Ruptime Status Lines

Chapter 5: Listing Users with Rwho

- Using Rwho

Chapter 6: Logging into a Host with Telnet

- Using Telnet
- Giving Telnet Commands When Telnet is in Its Input State
- Checking the Behavior of Carriage Returns from a Remote Host
- Disconnecting from a Remote Host and/or Exiting Telnet
- Obtaining Help
- Temporarily Returning to HP-UX on Your Local Host
- Obtaining Telnet Status
- Connecting to a Remote Host When You Invoke Telnet

Chapter 7: Logging into a Host with Rlogin

- Determining If You Need to Change the Rlogin Escape Character
- Determining What Size Characters to Send with Rlogin
- Using Rlogin
- If you Get Unexpected Results after Logging into a Remote Host
- Logging Out of the Remote Host and Exiting Rlogin
- Temporarily Returning to HP-UX on Your Local Host
- Passing the Rlogin Escape Character to a Remote Program
- Logging into a Remote Host as Someone Else

Chapter 7: Logging into a Host with Rlogin (cont'd.)

- Giving Other Remote Users Rlogin Access to Your Local Account
- Using Rlogin's "Shorthand" Syntax

Chapter 8: Transferring Files with Ftp

- Using Ftp
- Disconnecting from a Remote Host and Exiting Ftp
- Obtaining Help
- Temporarily Returning to HP-UX on Your Local Host
- How Ftp Treats "Wild Card" Characters, or Metacharacters
- Performing Directory Operations with Ftp
- Transferring Files with Ftp
- Performing Other File Operations with Ftp
- Obtaining Ftp Status
- Setting Up Automatic Remote Login for Ftp
- The Public Ftp Account
- Specifying Ftp Settings and Connecting to a Remote Host When You Invoke Ftp

Chapter 9: Transferring Files with Rcp

- File Copy Concepts
- Using Rcp
- Performing Copy Operations with Rcp
- Copying Remote Files and Directories as Someone Else on the Remote Host
- Giving Other Remote Users Rcp Access to Your Local Account

Chapter 10: Executing Commands with Remsh

- Using Remsh
- Executing Commands on a Remote Host with Remsh
- Executing More Than One Remote Command with Remsh
- Using Shell Metacharacters with Remsh
- Using Remsh with Remote Commands That Do Not Take Input
- Using Remsh to Execute a Command as Someone Else on a Remote Host
- Giving Other Remote Users Remsh Access to Your Local Account
- Using Remsh's "Shorthand" Syntax

Using Network Services (NS)/9000 Series 800

DATA COMMUNICATIONS SERIES

PART-NUMBER: 50980-90040

AUDIENCE: NS Programmers and Users

This manual defines the rules and procedures for developing and executing programs on an NS/9000 Series 800 system.

Chapter 1: Introduction

- Overview
- Network Architecture
- User Services
- Nodal Management Services and Features
- Node Names

Chapter 2: Network File Transfer

- Overview
- Three-Node Model
- File Copying Formats
- Dscopy Command
- Dscopy Examples
- Security
- Using Escape Characters
- HP-UX Signals
- Errors
- Dscopy Options

Chapter 3: Remote File Access

- Overview
- File System Terminology
- Netunam(1)
- Netunam(3N)
- Accessing Multiple Computers
- Using RFA With a Local Working Directory
- Terminating your Login to a Remote Computer
- Establishing a Remote Working Directory
- Using HP-UX Commands With RFA
- Using HP-UX System Calls With RFA

Appendix A: ASCII Character Set

Appendix B: Error Messages

- Overview
- DSCOPY Error Messages
- Errnet Values

Appendix C: NS/9000 Series 800 Migration

NS/9000 Series 800 for DS/1000-IV Users

NS/1000 to NS/9000 Series 800 Migration

NS/9000 to NS/9000 Series 800 Migration

Interfacing and Networking Hardware Series

Manual Title	Audience
<i>CIO LAN Interface Controller (LANIC) Installation and Reference Manual</i> (5959-2259)	HP Field Engineers and Network Managers
<i>HP 27110B CIO/HP-IB Interface Card Installation and Reference Manual</i> (27110-90005)	HP Field Engineers and System Administrators
<i>HP 27111A CIO/HP-FL Interface Card Installation and Service Manual</i> (27111-90001)	HP Field Engineers and System Administrators
<i>HP 27114A Asynchronous FIFO Interface Hardware Reference Manual</i> (27114-90001)	HP Field Engineers and System Administrators
<i>HP 98196A Asynchronous 6-Channel Multiplexer Hardware Reference Manual</i> (98196-90002)	HP Field Engineers and System Administrators
<i>LAN Cable and Accessories Installation Manual</i> (5955-7680)	HP Field Engineers and Network Managers

CIO LAN Interface Controller (LANIC) Installation and Reference Manual

INTERFACING AND NETWORKING HARDWARE SERIES

PART-NUMBER: 5959-2259

AUDIENCE: HP Field Engineers and Network Managers

This manual provides installation, servicing, and troubleshooting information for the IEEE 802.3 LAN Interface Controller (LANIC) card on HP 9000 Series 800 systems that use Channel Input/Output (CIO).

Chapter 1: General Information

- Product Overview
- Link-Level (Station) Address
- Identification
- Specifications
- Test Equipment and Special Tools
- Support Strategy
- Equipment Supplied

Chapter 2: Site Preparation

Chapter 3: Installation/Configuration

- Inspection
- Power Requirements
- Determining the Link-Level Address
- SQE Jumper Setting
- Installation
- Start-Up and Verification
- Installing the Software

Chapter 4: Functional Description

Chapter 5: Removal and Replacement

- LANIC Card and Connector Cable
- Replacing Components on the LANIC Card

Chapter 6: Troubleshooting

- Safety Considerations
- Troubleshooting Strategy
- Maintenance
- Local Area Network Device Adapter Diagnostic
- Running LANDAD

Chapter 7: Replaceable Parts

Ordering Information
Field Replaceable Units

Chapter 8: Reference

Technical Manual Reference
Glossary of Terms

Chapter 9: Schematics and Diagrams

Appendix A: HP 28641A ThinMAU

Appendix B: HP 30241A ThickMAU

Appendix C: Ethernet

Appendix D: Twisted-pair MAU

HP 27110B CIO/HP-IB Interface Card Installation and Reference Manual

INTERFACING AND NETWORKING HARDWARE SERIES

PART-NUMBER: 27110-90005

AUDIENCE: HP Field Engineers and System Administrators

This manual describes the installation, servicing, and troubleshooting of the 27110B CIO/HP-IB Card.

Chapter 1: General Information

- Standard Product
- Specifications
- HP-IB Supported Functions

Chapter 2: Site Preparation

Chapter 3: Installation

- Unpacking and Examining the HP-IB Card
- Storage
- General Guidelines for HP-IB Configuration
- Installation and Checkout
- Reshipment

Chapter 4: Preventive Maintenance

- Preventive Maintenance and Cleaning Instructions

Chapter 5: Functional Description

- Overview
- Backplane Interface
- HP-IB Interface
- DMA Requirements

Chapter 6: Removal and Replacement

- Required Tools
- Repair Environment
- Removal and Replacement Procedures

Chapter 7: Adjustments

Chapter 8: Troubleshooting

- Card Self-Test
- LED Interpretation

Chapter 9: Replaceable Parts

- Replaceable Parts
- Ordering Parts

Chapter 10: Reference

HP Computer Users Documentation Index

HP-IB Tutorial Description

Chapter 11: Product History

Chapter 12: Diagrams

HP 27111A CIO/HP-FL Interface Card Installation and Service Manual

INTERFACING AND NETWORKING HARDWARE SERIES

PART-NUMBER: 27111-90001

AUDIENCE: HP Field Engineers and System Administrators

The HP 27111A is Channel I/O device adapter for connecting an HP Precision Architecture computer to supported peripherals over a fiber optic data link. This manual describes the HP 27111A, including installation, service and troubleshooting information.

Chapter 1: General Information

Chapter 2: Site Preparation

Chapter 3: Installation and Configuration

Chapter 4: Preventative Maintenance

Chapter 5: Functional Description

Chapter 6: Removal and Replacement

Chapter 7: Adjustments

Chapter 8: Troubleshooting and Diagnostics

Chapter 9: Replaceable Parts

Chapter 10: Reference

Chapter 11: Product History

HP 27114A Asynchronous FIFO Interface Reference Manual

INTERFACING AND NETWORKING HARDWARE SERIES

PART-NUMBER: 27114-90001

AUDIENCE: HP Field Engineers and System Administrators

This manual provides installation and configuration procedures, principles of operation, parts lists, and schematic diagrams for the HP 27114A Asynchronous FIFO Interface (AFI).

Chapter 1: General Information

- Functional Description
- Equipment Supplied
- Identification
- Test Equipment and Special Tools
- Support Strategy
- Specifications

Chapter 2: Site Preparation

Chapter 3: Installation and Configuration

- Inspection
- Repacking the AFI
- Storage
- Power Requirements
- Cabling Information
- Configuration Switches
- Installation
- Start-Up and Verification
- Installing the Software

Chapter 4: Preventive Maintenance

Chapter 5: Functional Description

- I/O Channel Interface Control Circuitry
- FIFO Data Path
- FIFO Control State Machine
- Frontplane Interface
- Frontplane Signal Definitions
- Logic Sense
- Data Transfer
- Register Definitions
- ARQ Interrupts

Chapter 6: Removal and Replacement

Chapter 7: Adjustments

Chapter 8: Troubleshooting and Diagnostics

Safety Considerations

Troubleshooting Strategy

Maintenance Aids

Asynchronous FIFO Interface Device Adapter Diagnostic

Detailed Test Descriptions

Chapter 9: Replaceable Parts

Replaceable Parts

Ordering Information

Exchange PCAs

Chapter 10: Reference

Technical Manual Reference

Chapter 11: Product History

Chapter 12: Diagrams

HP 98196A Asynchronous 6-Channel Multiplexer Hardware Reference Manual

INTERFACING AND NETWORKING HARDWARE SERIES

PART-NUMBER: 98196-90002

AUDIENCE: HP Field Engineers and System Administrators

The HP 98196A Asynchronous 6-Channel Multiplexer (with modem control) provides supported HP Channel I/O computers with the ability to connect up to six local or remote peripherals, such as terminals, that conform to RS-232-C or CCITT V.24 and V.28 specifications. This manual describes the HP 98196A, including installation, service and troubleshooting information.

Chapter 1: General Information

- Overview
- Description
- Features and Specifications Table
- Documentation Required for Installation
- Product Identification Information
- Support Strategy
- System Console
- Buffer Capacity

Chapter 2: Site Preparation Requirements

Chapter 3: Installation and Configuration

- Overview
- Unpacking and Examining the PCA
- Checking Power Requirements
- Inserting the Card
- Removing the Card
- Testing the Unit
- Attaching the Cables
- Configuration

Chapter 4: Preventive Maintenance

Chapter 5: Functional Description

- Overview
- Main Sub-assemblies
- Circuit Organization

Chapter 6: Removal and Replacement

- Overview
- Removal of the EPROM

Chapter 7: Adjustments

Chapter 8: Troubleshooting and Diagnostics

- Overview
- Description of Self-test
- Troubleshooting

Chapter 9: Component Parts

- Overview
- Component Parts
- Ordering Information

Chapter 10: Reference

- Overview
- Other References
- Glossary
- Safety Ground
- Supported Modem Lines
- Connecting Cables (RS-232-C)

Chapter 11: Product History

Chapter 12: Diagrams

- Backplane Interface Circuit
- Microprocessor Circuit
- Memory Interface Circuit
- Serial Communications Controller
- Frontplane Interface Circuit
- 62-Pin Connector
- Port Pin Assignments
- Components Location Diagram

LAN Cable and Accessories Installation Manual

INTERFACING AND NETWORKING HARDWARE SERIES

PART-NUMBER: 5955-7680

AUDIENCE: HP Field Engineers and Network Managers

This manual describes how to install the coaxial cable plant for Hewlett-Packard's IEEE-802.3-compatible local area networks. It describes thick and thin coaxial Local Area Network (LAN) cables, connectors, terminators, grounding straps, surge protectors, repeaters, Media Attachment Units (MAUs), thin MAUs, Attachment Unit Interface (AUI) cables, and stub cables. Also included is information on network design and planning.

Chapter 1: General Information

- Scope of This Manual
- LAN Overview
- Network Specifications
- More Information

Chapter 2: Planning Considerations

- Selecting the Cable
- Routing the Cable
- Grounding and Power
- Cable Runs Between Unconnected Buildings

Chapter 3: Backbone LAN Cable Installation

- Backbone LAN Cabling Summary
- Installation Procedures
- Testing the Installed Cable

Chapter 4: ThinLAN Cable Installation

- ThinLAN Cabling Summary
- Installation Procedures
- Testing the Installed Cable

Chapter 5: Device Connections

- General Information
- Connecting Devices
- Fabricating AUI Cables

Chapter 6: Cable Verification

Appendix A: Using a TDR

- General Information
- TDR Test Procedure
- Example TDR Test

Appendix B: Cable Diagrams

- LAN Cables
- Repeater Cable
- AUI Cable (802.3)
- Branch Cable (Ethernet)
- Stub Cables and Internal Cables
- SRM Cables

Appendix C: Configuration Examples

Appendix D: 3Com EtherSeries Networks

Appendix E: SRM Networks

- Resource Management Multiplexer Link
- Resource Management COAX Link
- Hybrid SRM Networks
- Coax Link and IEEE 802.3 LAN

Appendix F: Emergency Release for Crimp Tools

- N Connector Crimp Tool
- BNC Connector Crimp Tool
- D Connector Pin Crimp Tool

Graphics Series

Manual Title	Audience
<i>Advanced Graphics Package Programmer's Manual</i> (97085-90012)	Graphics Programmer
<i>Device-Independent Graphics Library Programmer's Manual</i> (97084-90010)	Graphics Programmer
<i>DGL/AGP Device Drivers Manual</i> (97084-90028)	Graphics Programmer
<i>HP GKS Device Drivers Library</i> (98672-90011)	Graphics Programmer
<i>HP GKS User's Guide</i> (98672-90000)	Beginning Graphics Programmer
<i>Starbase Device Drivers Library Manual</i> (98592-90016)	Graphics Programmer
<i>Starbase Display List Programmer's Manual</i> (98674-90002)	Graphics Programmer
<i>Starbase Graphics Techniques</i> (98592-90076)	Experienced Programmer with little or no graphics experience
<i>Starbase Reference</i> (98592-90063)	Experienced Graphics Programmer

Advanced Graphics Package Programmer's Manual

GRAPHICS SERIES

PART-NUMBER: 97085-90012

AUDIENCE: Graphics Programmer

This manual contains both generic tutorial information concerning Advanced Graphics Package (AGP) and supplemental information which is specific to the HP-UX operating system. This manual also provides AGP subroutine user's and reference information. It contains a user's section and an alphabetical collection of reference pages of the subroutines that make up the Advanced Graphics Package.

Overview

- Introduction
- Device Independence
- Division for the Graphics Task
- Two Step Image Production

Concepts

- Introduction
- Graphics Output Primitives
- Attributes
- Viewing Transformations
- Segments and Output
- Input
- Control

Output Primitives

- General
- Current Position
- 2-D and 3-D Availability
- Move
- Line
- Polyline
- Polygon
- Marker
- Output Primitive Attributes
- General Attributes
- Polygon-Specific Attributes
- Text
- Text Specific Attributes

Viewing Transformations

- General
- Two-Dimensional Viewing Transformation
- Three-Dimensional Viewing Transformation
- Advanced Capabilities

Segments and Primitives

- General
- Segment Creation, Renaming, and Deletion
- Attributes of Segments
- New-Frame-Action

Input

- General
- Button Device
- Keyboard Device
- Locator Device
- Valuator Device
- Pick Device

Control

- General
- Initialization and Termination
- Inquiry
- Timing
- Escape Functions
- Error Handling

HP-UX Systems

- HP 9000 Series AGP Structure
- Programming Languages
- Linking AGP Programs
- Functionality Issues
- Porting

Subroutine Definitions

Font Descriptions

Error Messages

Glossary

Index

Device-Independent Graphics Library Programmer Manual

GRAPHICS SERIES

PART-NUMBER: 97084-90010

AUDIENCE: Graphics Programmer

This manual provides Device-Independent Graphics Library (DGL) tutorial and reference information. Application programmers can use it to learn the features of DGL as well as for reference material as they write their application programs.

DGL Concepts

- Introduction
- Functional Areas
- Graphics Primitives
- Primitive Attributes
- Viewing Transformations
- Input
- Control

HP-UX Systems

- HP 9000 Series DGL Structure
- Programming Languages
- Linking DGL Programs
- Functionality Issues
- Porting

DGL Reference

DGL/AGP Device Drivers Manual

GRAPHICS SERIES

PART-NUMBER: 97084-90028

AUDIENCE: Graphics Programmers

This manual outlines the usage of device drivers for the Device-Independent Graphics Library and the Advanced Graphics Package.

HP 2393A Terminal Device Driver

- General Information
- Graphics Display Device Driver
- Locator Device Driver
- Pick Device Driver
- Valuator Device Driver

HP 2397A Terminal Device Driver

- General Information
- Graphics Display Device Driver
- Locator Device Driver
- Pick Device Driver
- Valuator Device Driver

HP 2563 Line Printer

- General Information
- Graphics Display Device Driver

HP 2623A Graphics Terminal

- General Information
- Graphics Display Device Driver
- Locator Device Driver
- Pick Device Driver
- Valuator Device Driver

HP 2625A/2628A Graphics Terminal

- General Information
- Graphics Display Device Driver
- Locator Device Driver
- Pick Device Driver
- Valuator Device Driver

HP 2627A Graphics Terminal

- General Information
- Graphics Display Device Driver
- Locator Device Driver
- Pick Device Driver
- Valuator Device Driver

HP 2647F Graphics Terminal

- General Information
- Graphics Display Device Driver
- Locator Device Driver

HP 2647F Graphics Terminal (cont'd.)

Pick Device Driver
Valuator Device Driver

HP 2686A LaserJet Device Driver

General Information
Graphics Display Device Driver

HP 2686A LaserJet Device Driver

General Information
Graphics Display Device Driver

HP 2932A /2933A /2934A Line Printers

General Information
Graphics Display Device Driver

HP 7470A Graphics Plotter

General Information
Graphics Display Device Driver
Locator Device Driver

HP 7475A Graphics Plotter

General Information
Graphics Display Device Driver
Locator Device Driver

HP 7550A Graphics Plotter

General Information
Alphanumeric Device Driver
Button Device Driver
Graphics Display Device Driver
Locator Device Driver

HP 7580A /B, 7585A /B and 7586B Drafting Plotters

General Information
Graphics Display Device Driver
Locator Device Driver

HP 9111A Graphics Tablet

General Information
Button Device Driver
Locator Device Driver
Pick Device Driver
Valuator Device Driver

HP 98627A Graphics Interface

General Information
Graphics Display Device Driver

Alphanumeric Device Drivers

General Information
Logical Devices Supported
Alphanumeric Specific Device Driver
Alphanumeric Generic Device Driver

Button Device Drivers

- General Information
- Logical Devices Supported
- Button Specific Device Driver
- Button Generic Device Driver

Keyboard Device Drivers

- General Information
- Logical Devices Supported
- Keyboard Specific Device Driver
- Keyboard Generic Device Driver

Starbase Handlers

- General Information
- Button
- Graphics Display
- Locator (AGP/DGL)
- Pick (AGP only)
- Valuator (AGP)/DGL)

HP GKS Device Drivers Library

GRAPHICS SERIES

PART-NUMBER: 98672-90011

AUDIENCE: Graphics Programmers

This manual outlines the capabilities and usage of device drivers for the Hewlett-Packard Graphics Kernel System (HP-GKS). This manual is organized around device drivers. The *ANSI GKS Specification* contains the standard specification for GKS. The *HP-GKS User's Guide* contains information specific to the Hewlett-Packard implementation. Knowledge of GKS and HP-GKS as described in these manuals is a prerequisite for using this manual.

The HP-GKS Device Driver Library

- Introduction
- Device Drivers
- Device Identifiers
- Logical Device Support
- Operation Mode
- Special Device Files
- Programmatic Access to Device-Specific Information
- HP-GKS Logical Device Support

The CADplt Device Driver

- Special Device Files
- Operation Modes
- Serial Device Configuration
- Output Characteristics

The GKS Metafile Driver

- Special Device Files
- General Characteristics
- Metafile Format
- Output Characteristics
- Metafile Reader Characteristics

The HP-GL Device Driver

- Special Device Files
- Operation Modes
- Serial Device Configuration
- Output Characteristics
- locator 1
- stroke 1
- valuator 1
- valuator 2
- pick 1
- HP 9111 Digitizer
- Operation Modes
- locator 1
- stroke 1
- valuator 1
- valuator 2

The HP-GL Device Driver (cont'd.)

- choice 1
- pick 1

The HP-HIL Device Driver

- Special Device Files
- Operation Modes
- The 46020a and 46021a Keyboard
- Use of HP-HIL Keyboards
- The 46060a, 46060b and 46095a Mice and the 80409a Track Ball
- The 46086a Button Box
- The 45911a, 46087a and 46088a Digitizers
- The 46087a and 46088a Digitizers with 4-button Puck

The Terminal Device Drivers

- Special Device Files
- Operation Modes
- Device Configuration
- Output Characteristics
- locator 1
- stroke 1
- valuator 1
- valuator 2
- choice 1
- pick 1
- Miscellaneous Information

The Keyboard Device Drivers

- Special Device Files
- Operation Modes
- Use of Keyboards
- Miscellaneous Information

The Starbase Memory Drivers

- Controlling Memory Buffer Sizes
- Controlling Memory Buffer Depth
- Color Table Considerations
- Special Device Files
- Operation Modes
- Output Characteristics

HP Windows/9000 Device Driver

- Logical Device Support
- See-Through Color
- Special Device Files
- Operation Modes
- Special Linking Consideration
- Device Coordinate Space
- Caution
- Shared Resource Considerations
- Performance Considerations
- Input Devices Accessible through Windows
- An Example

The HP 300 Display Device Drivers

- Special Device Files
- Operation Modes
- Device Configuration
- Output Characteristics

The HP 9836A Device Drivers

- Special Device Files
- Operation Modes
- Output Characteristics

The HP 98550A Device Driver

- The HP 98548A Display
- The HP 319C Graphics Display System

The HP 98550A Display

- Special Device Files
- Operation Mode
- Simultaneous Open Workstations
- Device Configuration
- Output Characteristics
- Performance Considerations

The HP 98556 Device Driver**The HP 98700/10 Display Device Driver**

- Special Device Files
- Operation Modes
- Device Configuration
- Simultaneous Open Workstations
- Output Characteristics

The HP 98720/21 Device Driver

- Device Identifiers and Color Table Considerations
- Special Device Files
- Operation Modes
- Simultaneous Open Workstations
- Output Characteristics
- Performance Considerations

The HP 98730/31 Device Driver

- Device Description
- Setting Up the Device
- Using the HP 98730 and HP 98731 with Windows/9000
- Logical Device Support
- Wstype and Conid Files
- Simultaneously Open Workstations
- Output Characteristics
- Performance Considerations

The Starbase-on-X11 Device Driver

- Device Driver Description
- Linking an Application with the Starbase-on-X11 Device Driver
- Logical Device Support
- Wstype and Conid Files
- Output Characteristics

HP GKS User's Guide

GRAPHICS SERIES

PART-NUMBER: 98672-90000

AUDIENCE: Beginning Graphics Programmers

The Hewlett-Packard Graphics Kernel System (HP-GKS) is a subroutine library for 2-dimensional computer graphics programming. HP-GKS is implemented on top of the HP Starbase Graphics Library to take advantage of the Device Drivers and special features of the Starbase System. Knowledge of ANSI GKS, as described in the *ANSI GKS Specification* (ANS-X3.124-1985), is a prerequisite for using this manual. This manual explains the specifics of how Hewlett-Packard implemented those parts of GKS that required implementation decisions.

Introduction

Installing HP-GKS

Using HP-GKS

wstype - The Workstation Type File

conid - The Connection Identifier File

HP-GKS Implementation Characteristics

Escape Functions

Appendix A: Performance Hints

Appendix B: HP-GKS File Set

Appendix C: HP-GKS Errors

Appendix D: Implementation Differences

Appendix E: Using HP-GKS From C

Appendix F: Using HP-GKS from Pascal

Starbase Device Drivers Library Manual

GRAPHICS SERIES

PART-NUMBER: 98592-90016

AUDIENCE: Programmers Experienced With Graphics

This manual describes the device-dependent features of all the supported HP graphics peripherals.

Introduction

- Organization of Manual
- Structure of Starbase
- Driver Compatibility With High Level Starbase
- Graphic Escape Sequences (gescapes)

The CADplt Device Driver

- Device Description
- Setting Up the Device
- Device Initialization
- Starbase Functionality
- Gescapes

HP CGM Device Driver

- Device Description
- Linking the Driver
- Initialization
- Starbase Functionality
- Gescapes
- CGM Elements Produced by the hpcgm Driver

The HP-GL Device Driver

- Device Description
- Setting Up the Device
- Device Initialization
- Starbase Functionality
- Gescapes

The HP-HIL Device Driver

- Device Description
- Setting Up the Device
- Device Initialization
- Starbase Functionality
- Gescapes

The HP Keyboard Device Driver

- Device Description
- Setting Up the Device
- Device Initialization
- Starbase Functionality

The HP Locator Keyboard Device Driver

- Device Description
- Setting up the Device
- Initialization
- Starbase Functionality
- Gescapes

The Starbase Memory Driver

- Device Description
- Setting up the Device
- Device Initialization
- Starbase Functionality
- SMD Errors
- Gescapes

The Terminal Device Driver

- Device Description
- Setting Up the Device
- Device Initialization
- Starbase Functionality
- Gescape

The HP Windows/9000 Device Driver

- Device Description
- Setting Up the Device
- Device Initialization
- Performance of Starbase Windows
- Input From Graphics Windows
- Performance of Starbase Input in Windows
- Fast Alpha and Font Manager Functionality
- Gescapes

The HP 300H Device Driver

- Device Description
- Setting Up the Device
- Initialization
- Starbase Functionality
- Fast Alpha and Font Manager Functionality
- Gescapes
- Performance Tips
- Cautions

The HP 300L Device Driver

- Device Description
- Setting Up the Device
- Initialization
- Starbase Functionality
- Fast Alpha and Font Manager Functionality
- Gescapes
- Performance Tips
- Cautions

The HP 9836A Device Driver

- Device Description
- Setting up the Device
- Initialization
- Starbase Functionality

The HP 98550A Device Driver

- Device Description
- Frame Buffer Access
- Setting Up the Device
- Initialization
- Starbase Functionality
- Performance Notes
- Gescapes

The HP 98556 Device Driver

- Device Description
- Hardware Overview
- Setting up the Device
- Initialization
- Starbase Functionality
- Fast Alpha and Font Manager Functionality
- Performance Notes
- Cautions
- Gescapes

The HP 98700 Device Driver

- Device Description
- Setting Up the Device
- Initialization
- Starbase Functionality
- Fast Alpha and Font Manager Functionality
- Gescapes
- Performance Tips
- Cautions

The HP 98710 Device Driver

- Device Description
- Setting Up the Device
- Initialization
- Starbase Functionality
- Gescapes
- Performance Tips
- Example Program - Using 98710 with Windows
- Cautions

The HP 98720 Device Driver

- Device Description
- Setting Up the Device on Series 300
- Setting Up the Device on Series 800
- Special Device Files (mknod) on Series 300
- Special Device Files (mknod) on Series 800
- Linking the Driver
- Device Initialization
- Starbase Functionality
- Fast Alpha and Font Manager Functionality
- Raster Text Support
- Gescapes
- Performance Tips
- Cautions

The HP 98720W Window Device Driver

- Device Description
- Usage and Restrictions
- Setting Up the Device on a Series 300
- Setting Up the Device on Series 800
- Linking the Driver
- Device Initialization
- Starbase Functionality
- Fast Alpha and Font Manager Functionality
- Gescapes
- Performance Tips
- Cautions

The HP 98721 Device Driver

- Device Description
- Setting Up the Device on Series 300
- Setting Up the Device on Series 800
- Special Device Files (mknod) on Series 300
- Special Device Files (mknod) on Series 800
- Linking the Driver
- Device Initialization
- Starbase Functionality
- Gescapes
- Performance Tips
- Cautions

The HP 98730 Device Driver

- Device Description
- Setting Up the Device on Series 300
- Setting Up the Device on the Series 800
- Address Space Usage on Series 300
- Special Device Files (mknod) On Series 300
- Special Device Files (mknod) On the Series 800
- Linking the Driver
- Usage and Restrictions
- Device Initialization
- Starbase Functionality
- Fast Alpha and Font Manager Functionality
- Gescapes
- Performance Tips
- Cautions

The HP 98731 Device Driver

- Device Description
- Setting Up the Device on Series 300
- Setting Up the Device on the Series 800
- Address Space Usage on Series 300
- Special Device Files (mknod) on Series 300
- Special Device Files (mknod) on the Series 800
- Linking the Driver
- Usage and Restrictions
- Device Initialization
- Starbase Functionality
- Gescapes
- Performance Tips
- Cautions

The X 10 Windows Device Driver

- Device Description
- Setting Up a Starbase/X Environment
- Linking the Starbase/Xn Driver with an Application
- Programmatic Initialization
- Starbase Functionality
- Programming Strategy

The Starbase-on-X 11 Device Driver

- Device Description
- Setting Up a sox11 Environment
- Linking the sox11 Driver with an Application
- Programmatic Initialization
- Starbase Functionality
- Programming Strategy

Printer Command Language Formatter

- Overview
- Printer Configurations
- Software Structure
- Setting Up the Special Device File
- Configuration File
- Configuration File Template
- Printer Parameters
- Print Modes
- Using the Graphics Print Procedures
- Linking and Running Your Program
- Warning and Error Messages
- Setting Up the Spooler
- Special Considerations for Non-Spoiled Serial Output

Gescapes

- Introduction

Starbase Display List Programmers Manual

GRAPHICS SERIES

PART-NUMBER: 98674-90002

AUDIENCE: Graphics Programmers

This manual is for the graphics programmer who will be using the Starbase Display List subsystem. This subsystem is referred to as the "display list" or the "Starbase Display List" throughout the manual.

Chapter 1: Introduction

What is a Display List?

Chapter 2: Overview

Introduction
Preparation
Compiling and Linking Display List Programs
A Simple Example Program in C
The Progressive Example Program
Opening and Closing a Display List
Opening and Closing Segments
Building a Segment Network
Displaying Segments and Elements
Picking
Editing Segments
Display List Labels
Controlling Traversal
Segment Name and Reference Control
Deleting Segments
Inquiring Segment Information
Application Data
Starbase State

Chapter 3: Functionality

Opening and Closing Display Lists
Opening and Closing Display List Segments
Adding Elements to a Segment
Display List Labels
Element Positioning and Type
Element Deletion
Copying Segments
Segment Network Control
Display and Refresh
Renaming Segments and References
Segment Deletion
Traversal Control
Picking
Application Data
Archive and Retrieval of Segments
Debugging
Namesets and Filters
Notes

Appendix A: Special Considerations

- DC Primitives and Operations
- Function Return Values Lost During Traversal
- Starbase State Segment Open Display Flag FALSE
- Multiple Display List Labels - Same Identifier
- Gescape calls in a Segment
- Z-buffer Loop Count Problems

Appendix B: Performance Considerations

- Performance Improvements

Appendix C: Program Listings

- Stick Man Example Program -- C
- Stick Man Example Program -- Pascal
- Stick Man Example Program -- FORTRAN77
- House Plan Example Program -- C
- Name Set Utility Example Program -- C
- Name Set Utility Example Program -- FORTRAN77
- Name Set Utility Example Program -- Pascal
- Notes

Display List Device Driver

- Device Description
- Setting Up the Device
- Initialization
- Exceptions to Standard Starbase Support

Display Reference

Starbase Graphics Techniques

GRAPHICS SERIES

PART-NUMBER: 98592-90076

AUDIENCE: Experienced Programmers With Little or No Graphics Experience.

This manual begins with a low-level program which draws a line. It gives a progressive example of how to draw a graph. Later chapters present more advanced topics.

Overview: An Overview of Starbase

Welcome to Starbase

Chapter 1: An Introduction to Starbase Graphics

Actually Doing Something

Why Graphics?

Preparation

The Progressive Example

Scaling

Viewports

Labels

Tic Marks

Chapter 2: Functional Review

Introduction

The Routines

Chapter 3: View Control and the Graphics Pipeline

Introduction

View Control

Graphics Pipeline

Chapter 4: Controlling Starbase

Introduction

Opening a Device

Clearing the Viewing Surface

Buffer Mode

Bringing the Image Up-to-Date

Error Handling

Chapter 5: Output Primitives

Introduction

Line Primitives

Markers

Text

Polygon Primitives

Raster Operations

Performance Issues

Chapter 6: Using Starbase Text

- Introduction
- The Character Sets
- Writing Text
- The Text Transformations
- Character Reference Points
- Selecting Character Size and Shape
- Text Alignment
- Text Path
- Text Orientation
- Text Density
- More Elegant Fonts
- The Text Rectangle
- Selecting Alternate Character Sets
- Three-Dimensional Text
- Annotation Text
- Matrix Stack Transformations for Text
- Integer Text
- Defining Your Own Character Set

Chapter 7: Color Graphics

- Color!
- Overview of Color Devices
- Controlling Color
- Special Effects
- Effective Use of Color
- Reproducing Color Graphics

Chapter 8: Frame Buffer Control and Raster Operations

- Introduction
- Smooth Image Transitions
- Drawing Modes
- Enabling Selected Planes
- Bank Switching
- Image Blending
- Pixel Pan and Zoom
- Double Buffering
- Block Operations

Chapter 9: Starbase Input

- Introduction
- Initialization for Input
- Graphics Input Devices
- Input Methods
- Graphics Echoes
- Inputs From Other HP-HIL Devices
- Input From a Windows/9000 Window

Chapter 10: The Transformation Matrix Stack

- Introduction
- Why Starbase Supports Other Transformation Matrices
- The "Real" Graphics Pipeline
- 2D Transformation Matrices
- The Starbase Matrix Stack
- Using the Matrix Stack
- 3D Transformation Matrices

Chapter 10: The Transformation Matrix Stack (cont'd)
Perspective
Three-Dimensional Transformation Examples
Integer Transformations

Chapter 11: Picking
Introduction
A Picking Example
Highlighting
A Highlighting Example

Chapter 12: Hidden-Surface Removal
Introduction

Chapter 13: Rendering
Introduction
Depth Cueing
Shading
Smooth Shading
Light Attributes
Advanced Depth-Cueing
Back-Facing Polygons
Surface Coefficients

Chapter 14: B-Splines
Introduction
What's a B-Spline Look Like, Anyway?
Knot Vectors
Three-Dimensional Spline Curves
Spline Surfaces
A More Realistic Example
Rational Splines
Trimming Curves
Trimming Curve Examples

Chapter 15: Storing, Retrieving, and Printing Images
Introduction
Procedures Discussed in this Chapter
Overview of Capabilities
Plane vs. Full Depth
Plane-Major and Pixel-Major Bitmaps
Bitmap Storage to a File and Retrieval
Printing Images From Bitmaps or Files

Chapter 16: The Starbase Memory Driver
Introduction
Creating a Memory Buffer
The SMD and the Font Manager Library
Current Frame Buffer Architectures

Chapter 17: Device-Independent Programming
Introduction
What Does Device Independence Mean?
Inquiries: Pointers to Elsewhere
Inquiries: The Frame Buffer
Inquiries: Determining the Active Device

Chapter 17: Device-Independent Programming (cont'd)

- Inquiries: A Device's Physical Limits
- Viewing
- Isotropic Windows
- Using Windows/9000
- Spooling Graphical Output

Chapter 18: Enhancing Performance

- Introduction
- Switching Attribute Types
- Switching Primitive Types
- Using High-Level Commands
- Specifying Colors
- Buffering Operations
- An Example Program
- Avoiding "Picking Up" the Graphics Cursor
- Turning Semaphore Operations Off
- Rendering
- Using Multiple Output Devices Simultaneously

Chapter 19: Using "Escape" Calls

- Introduction
- Calling "gescape"
- Reading the Hardware Color Map
- ITE Escape Sequences

Chapter 20: Computer Graphics Metafile

- Introduction
- The CGM Routines
- Creating a Metafile
- Example CGM Program
- Creating an Interpreter
- Example Interpreter Program

Glossary

Appendix A: Device Initialization

- Specifying a Device
- Device Initialization Information
- Special Files for "mknod"

Appendix B: Example Program Listings

- Introduction
- Language Comparisons of the "Progressive Example"
- RGB Color Cube Program
- RGB Mechanical Model Program
- CMY Color Cube Program
- HSL Color Cylinder Program
- HSL Mechanical Model Program
- RGB/HSL Color Definition Program
- Luminous Intensity Distribution Curves for Spotlights

Appendix C: Quick References

Roadmap to Starbase Routines

C

FORTRAN

Pascal

Appendix D: Error Messages

Introduction

The Starbase Error Files

Starbase Reference

GRAPHICS SERIES

PART-NUMBER: 98592-90063

AUDIENCE: Experienced Graphics Programmers

This manual is a companion volume to the Starbase Graphics Techniques. This manual contains an alphabetized list of Starbase Graphics routines.

Information Management Series

Manual Title	Audience
<i>ALLBASE/HP-UX HP IMAGE Message Manual</i> (36217-90010)	Application Programmers and Database Administrators
<i>ALLBASE/HP-UX HP IMAGE Reference Manual</i> (36217-90002)	Application Programmers and Database Administrators
<i>ALLBASE/HP-UX HP SQL C Application Programming Guide</i> (36217-90014)	C Programmers
<i>ALLBASE/HP-UX HP SQL COBOL Application Programming Guide</i> (36217-90058)	COBOL Application Programmers
<i>ALLBASE/HP-UX HP SQL Database Administration Guide</i> (36217-90005)	Database Administrators
<i>ALLBASE/HP-UX HP SQL FORTRAN Application Programming Guide</i> (36217-90013)	FORTRAN Application Programmers
<i>ALLBASE/HP-UX HP SQL Master Index</i> (36217-90042)	All HP SQL Users
<i>ALLBASE/HP-UX HP SQL Message Manual</i> (36217-90009)	Application Programmers and Database Administrators
<i>ALLBASE/HP-UX HP SQL Pascal Application Programming Guide</i> (36217-90007)	Pascal Application Programmers
<i>ALLBASE/HP-UX Quick Reference Guide</i> (36217-90012)	Application Programmers and Database Administrators
<i>ALLBASE/HP-UX IQUERY Reference Manual</i> (36217-90003)	Application Programmers and Database Administrators
<i>ALLBASE/HP-UX ISQL Reference Manual</i> (36217-90004)	Application Programmers and Database Administrators
<i>ALLBASE/HP-UX SQL Reference Manual</i> (36217-90001)	Application Programmers, Database Administrators, and Advanced Users
<i>ALLBASE/NET User's Guide</i> (36217-90093)	System Administrators

ALLBASE/HP-UX HP IMAGE Message Manual

INFORMATION MANAGEMENT SERIES

PART-NUMBER: 36217-90010

AUDIENCE: Application Programmers and Database Administrators

This manual explains the causes of warning and error conditions which may occur during use of HP IMAGE. It also presents actions to be taken in response to these warning and error conditions.

Chapter 1: Introduction

- Messages Documented in This Manual
- Using This Manual
- How Messages are Documented
- How Messages are Returned
- Resolving Errors

Chapter 2: HP IMAGE Messages

- HPIUtil Messages
- Library Procedure Call Messages

Chapter 3: DBCORE Messages

Chapter 4: Console Messages

ALLBASE/HP-UX HP IMAGE Reference Manual

INFORMATION MANAGEMENT SERIES

PART-NUMBER: 36217-90002

AUDIENCE: Application Programmers and Database Administrators

This manual introduces and explains HP IMAGE databases. It also presents concepts associated with database management and access.

Chapter 1: Introduction

- Using this Manual
- What is a Database?
- Features of HP IMAGE
- The Database Environment
- Database Personnel
- Using HP IMAGE
- About the Examples

Chapter 2: Database Structure and Security

- The DBEnvironment
- Database Structure
- Functional Roles of Data Items
- Data Set Types
- HP IMAGE Index Types
- Database Security
- Security for Database Utilities

Chapter 3: Database Access and Manipulation

- Overview of Database Access
- Opening the Database
- Adding Data to the Database
- Retrieving Data From the Database
- Methods of Reading Data
- Updating Data in the Database
- Transactions in HP IMAGE
- Locking Data During Transactions
- Database Structural Information

Chapter 4: Creating the DBEnvironment

- The DBEnvironment
- Recovery and the DBEnvironment
- The DBEnvironment Files
- DBEnvironment Creation Considerations
- Creating the DBEnvironment
- Changing the DBEnvironment Parameters

Chapter 5: Creating a Database

- Overview
- Designing a Database
- Writing the Schema
- Password Definition
- Data Item Definition
- Data Set Definition (Relations)
- Data Set Definition (Manual Master)
- Data Set Definition (Automatic Master)
- Data Set Definition (Detail)
- Processing the Schema
- \$PAGE
- \$TITLE
- Sample Schema for the Inventory Database

Chapter 6: Data Manipulation

- HP IMAGE Procedures/Parameters

Chapter 7: Maintaining the DBEnvironment

- DBEnvironment Maintenance
- Logging
- Backing Up the DBEnvironment
- Backing Up the Log File
- Restoring the DBEnvironment
- Rollforward Recovery
- Recovery Considerations

Chapter 8: Maintaining the Database

- Restructuring the Database
- Moving the Database to Another DBEnvironment
- Improving Database Performance

Chapter 9: Using HPIUtil

Chapter 10: HP IMAGE Internal Structures and Techniques

- Overview of Processes
- HP IMAGE Indexes
- Locking Data
- Space Allocation

Appendix A: Sample Programs

- Sample Pascal Program
- Sample C Program

Appendix B: Sample Databases

- Files in the hpimage Directory
- Files in the sampled db Directory
- Files in the programs Directory
- The creator File
- The schinv File
- Data in the INVTRY Database

Appendix C: HP IMAGE Maximum Limits

ALLBASE/HP-UX HP SQL C Application Programming Guide

INFORMATION MANAGEMENT SERIES

PART-NUMBER: 36217-90014

AUDIENCE: C Programmers

This manual describes how to write a C program that accesses an HP SQL DBEnvironment. It presumes the reader already has a working knowledge of C and is familiar with the information in the *SQL Reference Manual*.

Chapter 1: Introduction

- HP SQL C Programs
- The HP SQL C Preprocessor
- The Stored Section
- The Compiler and the Linker
- The Executable Program
- Maintaining HP SQL Programs
- The Rest of this Manual

Chapter 2: Using the HP SQL C Preprocessor

- The Preprocessor and Program Development
- Preprocessor Modes
- Preprocessor Input and Output
- Invoking the C Preprocessor
- Preprocessing Errors

Chapter 3: Embedding SQL Commands

- General Rules for Embedding SQL
- Declaring the sqlca
- Declaring Host Variables
- Starting a DBE Session
- Defining Transactions
- Implicit Status Checking
- Terminating a DBE Session
- Defining and Manipulating Data
- Explicit Status Checking
- Obtaining HP SQL Messages

Chapter 4: Host Variables

- Using Host Variables
- Declaring Host Variables

Chapter 5: Runtime Status Checking

- The Importance of Status Checking
- The sqlca
- Approaches to Status Checking

Chapter 6: Overview of Data Manipulation

- The Query
- Simple Data Manipulation
- Introducing the Cursor
- Sequential Table Processing
- BULK Table Processing
- Dynamic Operations

Chapter 7: Simple Data Manipulation

- Simple Data Manipulation Commands
- Transaction Management
- Program Using SELECT, UPDATE, DELETE, and INSERT

Chapter 8: Sequential Table Processing

- Sequential Table Processing Commands
- Transaction Management
- Program Using UPDATE WHERE CURRENT

Chapter 9: BULK Table Processing

- BULK Table Processing Commands
- Transaction Management
- Program Using BULK INSERT

Chapter 10: Dynamic Operations

- Dynamic Versus Nondynamic Commands
- SQL Commands for Dynamic Operations
- How to Handle Dynamic Non-Queries
- How to Handle Dynamic Queries

ALLBASE/HP-UX HP SQL COBOL Application Programming Guide

INFORMATION MANAGEMENT SERIES

PART-NUMBER: 36217-90058

AUDIENCE: COBOL Application Programmers

This manual describes how to write a COBOL program that accesses an HP SQL DBEnvironment. It presumes the reader already has a working knowledge of COBOL and is familiar with the information in the *SQL Reference Manual*.

Chapter 1: Introduction

- HP SQL COBOL Programs
- The HP SQL COBOL Preprocessor
- The Stored Section
- The Compiler and the Linker
- The Executable Program
- Maintaining HP SQL Programs
- The Rest of This Manual

Chapter 2: Using the HP SQL COBOL Preprocessor

- The Preprocessor and Program Development
- Preprocessor Modes
- Preprocessor Input and Output
- Invoking the COBOL Preprocessor
- Preprocessing Errors

Chapter 3: Embedding SQL Commands

- General Rules for Embedding SQL
- Declaring the SQLCA
- Declaring Host Variables
- Starting a DBE Session
- Defining Transactions
- Implicit Status Checking
- Terminating a DBE Session
- Defining and Manipulating Data
- Explicit Status Checking
- Obtaining HP SQL Messages

Chapter 4: Host Variables

- Using Host Variables
- Declaring Host Variables

Chapter 5: Runtime Status Checking

- The Importance of Status Checking
- The SQLCA
- Approaches to Status Checking

Chapter 6: Overview of Data Manipulation

- The Query
- Simple Data Manipulation
- Introducing the Cursor
- Sequential Table Processing
- BULK Table Processing
- Dynamic Operations

Chapter 7: Simple Data Manipulation

- Simple Data Manipulation Commands
- Transaction Management
- Program Using SELECT and UPDATE
- Program Using SELECT, DELETE, and INSERT

Chapter 8: Sequential Table Processing

- Sequential Table Processing Commands
- Transaction Management
- Program Using UPDATE WHERE CURRENT

Chapter 9: BULK Table Processing

- BULK Table Processing Commands
- Transaction Management
- Program Using BULK INSERT

Chapter 10: Dynamic Operations

- Dynamic Versus Nondynamic Commands
- SQL Commands for Dynamic Operations
- How to Handle Dynamic Non-Queries
- How to Handle Dynamic Queries

ALLBASE/HP-UX HP SQL Database Administration Guide

INFORMATION MANAGEMENT SERIES

PART-NUMBER: 36217-90005

AUDIENCE: Database Administrators

This manual describes how to design, create, and maintain an HP SQL database. The reader should be familiar with relational database concepts and have a working knowledge of HP SQL.

Section 1: Introduction

- DBA Tasks
- HP SQL
- HP SQL Databases
- HP SQL Data Access
- HP SQL Objects
- The hpdb User
- The Organization of This Guide

Section 2: Logical Design

- From Data to Tables
- Table Design
- View Design
- Index Design
- Security Design
- Defining the DBEnvironment Scope

Section 3: Physical Design

- HP SQL Files
- Storage Requirements for DBEnvironment Configuration
- Calculating Database Storage
- Allocating Storage to DBEFiles and DBEFileSets
- Shared Memory Requirements
- Implementing the Design

Section 4: Creating Databases

- Configuring a DBEnvironment
- Creating DBEFileSets and DBEFiles
- Creating Tables
- Creating Views
- Creating Indexes
- Loading Tables
- Command Files

Section 5: Managing Security

- Authority Types
- Who Can Have Authority
- Using DBA Authority
- Granting/Revoking CONNECT Authority
- Granting/Revoking RESOURCE Authority
- Granting/Revoking RUN Authority

Section 5: Managing Security (cont'd)

- Granting/Revoking Table and View Authorities
- Controlling Table Access With Views
- Authority Verification

Section 6: Starting and Terminating a DBE Session

- The DBECon File
- The DBEnvironment Directory
- Using START DBE
- Connecting to a DBE
- Using Autostart
- Terminating a DBE Session

Section 7: Logging and Recovery

- Transactions
- HP SQL Logging
- Backing Up the DBEnvironment
- HP SQL Recovery
- Altering the Log File

Section 8: Maintenance

- DBEnvironment Maintenance
- Database Maintenance
- Application Maintenance
- Performance Guidelines

Section 9: System Catalog**Appendix A: HP SQL Limits**

- System Control Limits
- Space Management Limits
- Logical Data Limits

Appendix B: Authorities Required by SQL Commands**Appendix C: Syntax Summary**

- Data Types
- Expressions
- Search Conditions
- SQL Commands

Appendix D: ISQL Command Summary**Appendix E: Sample Database**

- The hpsql Directory Files
- Sample DBEnvironment Files
- Sample Data
- Sample Program Files

Appendix F: SQLUtil Commands

ALLBASE/HP-UX HP SQL FORTRAN Application Programming Guide

INFORMATION MANAGEMENT SERIES

PART-NUMBER: 36217-90013

AUDIENCE: FORTRAN Application Programmers

This manual describes how to write a FORTRAN program that accesses an HP DBEnvironment. It presumes the reader already has a working knowledge of FORTRAN and is familiar with the information in the *SQL Reference Manual*.

Chapter 1: Introduction

- HP SQL FORTRAN Programs
- The HP SQL FORTRAN Preprocessor
- The Stored Section
- The Compiler and the Linker
- The Executable Program
- Maintaining HP SQL Programs
- The Organization of This Manual

Chapter 2: Using the HP SQL FORTRAN Preprocessor

- The Preprocessor and Program Development
- Preprocessor Modes
- Preprocessor Input and Output
- Invoking the FORTRAN Preprocessor
- Preprocessing Errors

Chapter 3: Embedding SQL Commands

- General Rules for Embedding SQL
- Declaring the SQLCA
- Declaring Host Variables
- Starting a DBE Session
- Defining Transactions
- Implicit Status Checking
- Terminating a DBE Session
- Defining and Manipulating Data
- Explicit Status Checking
- Obtaining HP SQL Messages

Chapter 4: Host Variables

- Using Host Variables
- Declaring Host Variables

Chapter 5: Runtime Status Checking

- The Importance of Status Checking
- The SQLCA COMMON Block
- Approaches to Status Checking

Chapter 6: Overview of Data Manipulation

- The Query
- Simple Data Manipulation
- Introducing the Cursor
- Sequential Table Processing
- Dynamic Operations

Chapter 7: Simple Data Manipulation

- Simple Data Manipulation Commands
- Transaction Management
- Program Using SELECT, UPDATE, DELETE, and INSERT

Chapter 8: Sequential Table Processing

- Sequential Table Processing Commands
- Transaction Management
- Program Using UPDATE WHERE CURRENT

Chapter 9: Dynamic Operations

- Dynamic Versus Nondynamic Commands
- SQL Commands for Dynamic Operations
- How to Handle Dynamic Non-Queries
- Program Using EXECUTE IMMEDIATE
- Program Using PREPARE and EXECUTE

ALLBASE/HP-UX HP SQL Master Index

INFORMATION MANAGEMENT SERIES

PART-NUMBER: 36217-90042

AUDIENCE: All HP SQL Users

This manual combines the Tables of Contents of the key documents in the HP SQL manual set for the convenience of the user.

ALLBASE/HP-UX HP SQL Message Manual

INFORMATION MANAGEMENT SERIES

PART-NUMBER: 36217-90009

AUDIENCE: Application Programmers and Database Administrators

This manual explains the causes of warning and error conditions which may occur during use of SQL, ISQL, or the preprocessors. It also presents actions to be taken in response to these warning and error conditions.

Chapter 1: Introduction

- Types of Messages
- How Messages are Returned
- Using this Manual
- Using the HELP Command
- Using Other Manuals

Chapter 2: HP SQL Messages

ALLBASE/HP-UX HP SQL Pascal Application Programming Guide

INFORMATION MANAGEMENT SERIES

PART-NUMBER: 36217-90007

AUDIENCE: Pascal Application Programmers

This manual describes how to write a Pascal program that accesses an HP SQL DBEnvironment. It presumes the reader already has a working knowledge of Pascal and is familiar with the information in the *SQL Reference Manual*.

Chapter 1: Introduction

- HP SQL Pascal Programs
- The HP SQL Pascal Preprocessor
- The Stored Section
- The Compiler and the Linker
- The Executable Program
- Maintaining HP SQL Programs
- The Rest of This Manual

Chapter 2: Using the HP SQL Pascal Preprocessor

- The Preprocessor and Program Development
- Preprocessor Modes
- Preprocessor Input and Output
- Invoking the Pascal Preprocessor
- Preprocessing Errors

Chapter 3: Embedding SQL Commands

- General Rules for Embedding SQL
- Declaring the SQLCA
- Declaring Host Variables
- Starting a DBE Session
- Defining Transactions
- Implicit Status Checking
- Terminating a DBE Session
- Defining and Manipulating Data
- Explicit Status Checking
- Obtaining HP SQL Messages

Chapter 4: Host Variables

- Using Host Variables
- Declaring Host Variables

Chapter 5: Runtime Status Checking

- The Importance of Status Checking
- The SQLCA
- Approaches to Status Checking

Chapter 6: Overview of Data Manipulation

- The Query
- Simple Data Manipulation
- Introducing the Cursor
- Sequential Table Processing
- BULK Table Processing
- Dynamic Operations

Chapter 7: Simple Data Manipulation

- Simple Data Manipulation Commands
- Transaction Management
- Program Using SELECT and UPDATE
- Program Using SELECT, DELETE, and INSERT

Chapter 8: Sequential Table Processing

- Sequential Table Processing Commands
- Transaction Management
- Program Using UPDATE WHERE CURRENT

Chapter 9: BULK Table Processing

- BULK Table Processing Commands
- Transaction Management
- Program Using BULK INSERT

Chapter 10: Dynamic Operations

- Dynamic Versus Nondynamic Commands
- SQL Commands for Dynamic Operations
- How to Handle Dynamic Non-Queries
- How to Handle Dynamic Queries

ALLBASE/HP-UX Quick Reference Guide

INFORMATION MANAGEMENT SERIES

PART-NUMBER: 36217-90012

AUDIENCE: Application Programmers and Database Administrators

This manual contains commands, syntax, and general information for HP SQL. It presumes that the reader is already knowledgeable about HP SQL functionality and is using this manual as a reference.

Chapter 1: SQL Syntax

- Expressions
- Search Conditions
- SQL Commands

Chapter 2: ISQL Syntax

- Invocation
- ISQL Filenames
- ISQL Commands

Chapter 3: HP SQL Data Types

Chapter 4: HP SQL Preprocessors

- FORTRAN Preprocessor
- Preprocessor Input and Output
- FORTRAN Data Type Compatibility
- HP SQL Conversion Rules
- Pascal Preprocessor

Chapter 5: SQLUTIL

- Invocation
- SQLUTIL Commands

Chapter 6: HP IMAGE Database Definition Language

- Database Name Definition Part
- Password Definition Part
- Data Item Definition Part
- Data Set Definition Part
- Schema Processor Commands

Chapter 7: HP IMAGE Procedures

- Calling and HP IMAGE Procedure
- HP IMAGE Procedures

Chapter 8: HP IMAGE HPIUtil Commands

- Invocation of HPIUtil
- HPIUtil

Chapter 9: HP IMAGE/IQUERY Access Modes and Data Types

Database Access Modes

Data Types

Chapter 10: IQUERY Syntax

Invocation of IQUERY

Clauses

Operators

IQUERY Commands

ALLBASE/HP-UX IQUERY Reference Manual

INFORMATION MANAGEMENT SERIES

PART-NUMBER: 36217-90003

AUDIENCE: Application Programmers and Database Administrators

This manual describes IQUERY and how to use it. The reader should be familiar with the information presented in the *HP IMAGE Reference Manual* and have a thorough understanding of network architecture.

Chapter 1: Introduction to IQUERY

- What is IQUERY?
- HP IMAGE Database Structure
- The Sample Database
- Database Transactions and IQUERY
- Database Access
- Getting Started With IQUERY
- Organization of This Manual

Chapter 2: Selecting Data

- Introduction to the Data Selection Commands
- Selecting Data Entries
- Using the FIND Command
- Using the LIST Command
- Using the FIND JOIN Command
- Manipulating Select Files

Chapter 3: Modifying Data

- Introduction to the Data Modification Commands
- Using the ADD Command
- Using the DELETE Command
- Using the REPLACE Command
- Using the KEYUP Command
- Using the MIGRATE Command

Chapter 4: Reporting Data

- Introduction to the Data Reporting Commands
- Using the REPORT ALL Command
- Using the REPORT Command
- Using the LIST Command

Chapter 5: Executing IQUERY Commands from a File

- Using an Input File
- Using Command Files
- Executing a File from Another File
- Continuing a Command
- Using IQUERY Commands in a File
- Special Command File Capability

Chapter 6: IQUERY Commands

Appendix A: IQUERY Error and Warning Messages

Appendix B: Sample Databases

- Copying the Files

- Files in the sampled_b Directory

- Creating the Databases

- The creator File

- The schsale

- Data in the SALES Database

ALLBASE/HP-UX ISQL Reference Manual

INFORMATION MANAGEMENT SERIES

PART-NUMBER: 36217-90004

AUDIENCE: Database Administrators and Application Programmers

This manual describes ISQL and how to use it. ISQL is a facility for executing SQL commands interactively. You can also invoke SQLUtil from ISQL. SQL is a facility for maintaining HP SQL DBEnvironments. The reader should be familiar with basic relational database concepts and have an introductory understanding of HP SQL.

Chapter 1: Introduction

- ISQL
- Uses for ISQL
- Elements of ISQL
- ISQL Command Categories
- Authorization
- ISQL Command Structure
- Reading More About ISQL

Chapter 2: Using ISQL

- Invoking ISQL
- Starting a DBE Session
- Leaving ISQL
- Managing Transactions
- Sources of Commands
- Command Termination
- Prompting Mode
- Aborting Commands
- Special Characters
- SET Options
- Parameters
- Getting Help
- The SELECT Command
- Other SQL Commands
- Data Definition Information
- Data Utility
- Using Command Files
- Using the Command Buffer
- The Command History Buffer
- Profile Files
- The Welcome File
- Synonym Files
- Installing a Module
- Issuing System Commands
- Issuing SQLUtil Commands
- Handling Errors
- Running ISQL From a Script

Chapter 3: ISQL Commands

Appendix A: ISQL Command Summary

Appendix B: SQL Syntax Summary

- Data Types

- Expressions

- Search Conditions

- SQL Commands

Appendix C: Sample Database

- The hpsql Directory Files

- Sample DBEnvironment Files

- Sample Data

- Sample Program Files

ALLBASE/HP-UX SQL Reference Manual

INFORMATION MANAGEMENT SERIES

PART-NUMBER: 36217-90001

AUDIENCE: Application Programmers, Database Administrators, and Advanced Users

This manual presents the syntax and semantics of SQL. SQL is the language used to define, access, and maintain data in an HP SQL database. The reader should be familiar with basic relational database and programming concepts.

Chapter 1: Introduction

- HP SQL
- HP SQL Databases
- HP SQL Data Access
- HP SQL Objects
- HP SQL Users
- Queries
- SQL Command Categories
- SQL Language Structure
- Reading More About SQL

Chapter 2: Using SQL

- Creating Databases
- Controlling Database Access
- Data Definition
- Starting and Terminating a DBE Session
- Data Manipulation
- Transaction Management
- Application Programming
- Dynamic Preprocessing
- Database Administration

Chapter 3: Names

- Basic Names
- DBEUserIDs
- Owner Names
- Compound Identifiers
- Host Variable Names
- DBEnvironment and DBECon File Names
- System File Names
- Special Names

Chapter 4: Data Types

- Type Specifications
- Value Comparisons
- Overflow and Truncation
- Underflow
- Type Conversion
- Null Values
- Decimal Operations

Chapter 5: Expressions

EXPRESSION
AGGREGATE FUNCTION
CONSTANT

Chapter 6: Search Conditions

SEARCH CONDITION
BETWEEN PREDICATE
COMPARISON PREDICATE
LIKE PREDICATE
NULL PREDICATE

Chapter 7: SQL Commands

Appendix A: SQL Syntax Summary

Data Types
Expressions
Search Conditions
SQL Commands

Appendix B: ISQL Command Summary

Appendix C: Sample Database

The hpsql Directory Files
Sample DBEnvironment
Sample Data
Sample Program Files

ALLBASE/NET User's Guide

INFORMATION MANAGEMENT SERIES

PART-NUMBER: 36217-90093

AUDIENCE: System Administrators

This user's guide describes how to install and use ALLBASE/NET.

Chapter 1: Introduction

- How DA Works
- Hardware and Software Requirements
- Files Used by DA on the Client Node
- Files Used by DA on the Server Node

Chapter 2: Getting Started

- Installation of DA
- Purpose of DAUtil
- Using DAUtil

Chapter 3: Accessing an Alias DBEnvironment

- Using ISQL
- Using the Preprocessor
- Running an Application Program
- Using ALLBASE/QUERY
- Authorizations
- Connecting to a Remote DBEnvironment

Chapter 4: DAUtil Commands

Appendix A: DA File Names

Appendix B: Error Messages

Migration Series

Manual Title	Audience
<i>HP FORTRAN 77/HP-UX Migration Guide</i> (92430-90003)	Experienced FORTRAN Programmers
<i>HP Pascal/HP-UX Migration Guide</i> (92431-90004)	Experienced Pascal Programmers
<i>Migrating to ALLBASE/HP-UX User's Guide</i> (36217-90008)	Database Administrators and Application Programmers
<i>PORT/RX Migration Analysis Utility Manual</i> (92561-90002)	Experienced Programmers
<i>PORT/RX Migration User's Guide</i> (92561-90003)	Experienced Programmers
<i>PORT/RX Reference Manual</i> (92561-90004)	Experienced Programmers
<i>Programming for Portability Guide</i> (92561-90001)	Experienced RTE Programmers

HP FORTRAN 77/HP-UX Migration Guide

MIGRATION SERIES

PART-NUMBER: 92430-90003

AUDIENCE: Experienced FORTRAN Programmers

This manual explains the differences between FORTRAN 7X (on the HP 1000) and HP FORTRAN 77 (on the HP 9000 Series 800). It also explains how to convert FORTRAN 7X programs and data to HP FORTRAN 77.

Chapter 1: Introduction

Chapter 2: Language Differences

- Additional Features
- Limitations
- Other Differences
- Changed Features

Chapter 3: Converting FORTRAN 7X To FORTRAN 77

- FORTRAN Convert Overview
- Automatic Conversion
- Manual Conversion
- Using FORTRAN Convert
- What FORTRAN Convert Does
- Conversion Scripts
- Complete Example

Chapter 4: Convert Migration Checklist

Chapter 5: Converting HP FORTRAN 77 to FORTRAN 7X

- FORTRAN Back Convert Overview
- Automatic Conversion
- Manual Conversions
- Using FORTRAN Back Convert
- What FORTRAN Back Convert Does
- Conversion Scripts
- Complete Example

Appendix A: FORTRAN Convert Error Messages

Appendix B: FORTRAN Back Convert Error Messages

HP Pascal/HP-UX Migration Guide

MIGRATION SERIES

PART-NUMBER: 92431-90004

AUDIENCE: Experienced Pascal Programmers

This manual explains the syntactic, semantic, and packing algorithm differences between Pascal/1000, Pascal/9000 and HP Pascal. It explains how to change a Pascal/1000 program to a HP Pascal/HP-UX program.

Chapter 1: Introduction

Chapter 2: Differences

- New Features
- Missing Features
- Changing Features

Chapter 3: Source Program Migration

- Overview
- Missing Features
- Changed Features

Chapter 4: Data File Migration

- File Format Conversion
- ASCII Data Files
- Binary Data Files

Chapter 5: Migration Examples

- Data File Migration

Appendix A: Migration Checklist

Appendix B: User-Callable Library Routines

- New Routines
- Implemented Routines
- Unimplemented Routines

Migrating to ALLBASE/HP-UX User's Guide

MIGRATION SERIES

PART-NUMBER: 36217-90008

AUDIENCE: Database Administrators and Application Programmers

This manual provides an overview of HP IMAGE features and procedures involved in migrating from IMAGE/1000-I or IMAGE/1000-II to HP IMAGE. The user should be familiar with the RTE-A, RTE-6, or RTE-IVB operating systems on HP 1000, and familiar with the HP-UX operating system on the HP 9000 Series 800. The user should also have a working knowledge of IMAGE/1000-I or IMAGE/1000-II, and at least one high-level programming language.

Chapter 1: HP IMAGE Overview

- HP IMAGE Features
- Overview of Migration Method
- Personnel Requirements for HP IMAGE
- Review Summary

Chapter 2: Migration Tools

- Migration Tools
- Database Migration
- Application Program Migration
- Review Summary

Chapter 3: Database Migration Procedure

- Summary of Database Migration Procedure
- Review Summary
- Review Exercises
- Solutions to Review Exercises

Chapter 4: Application Program Migration

- Procedure Summary
- Application Migration on the HP 9000
- Translator Access Summary
- Direct Access Summary
- Review Summary
- Review Exercises
- Review Exercises Solutions

Chapter 5: Query Migration

- IQUERY
- Migration Process
- Review Summary

Appendix A: Migration Guidelines

Appendix B: MAU Output

Appendix C: Error Messages

Appendix D: Glossary

PORT/RX Migration Analysis Utility Manual

MIGRATION SERIES

PART-NUMBER: 92561-90002

AUDIENCE: Experienced Programmers

This manual describes the limitations of the Migration Analysis Utility (MAU), how to use the product, how to interpret MAU output, and how to use the MAU dictionary. Error Messages are listed, with their meanings. The Migration Analysis Utility (MAU) analyzes RTE application programs for migration to Real-Time HP-UX.

Limitations

Environment

Installation

Description

Using MAU

Output From MAU

Output Examples

Dictionary

Error Messages

PORT/RX Migration User's Guide

MIGRATION SERIES

PART-NUMBER: 92561-90003

AUDIENCE: Experienced Programmers

The PORT/RX migration package includes the Migration Analysis Utility floating point data format conversion routines, file transfer and conversion utilities, and the RTE emulation software on HP-UX. This manual provides instructions for transporting program source files from RTE to HP-UX and making the needed conversions for compatibility with the emulation software.

Chapter 1: Introduction

- RTE Emulation Implementation
- Review of PORT/RX Components
- Migration Phases
- Multiple Environment Variable
- Migration Example

Chapter 2: Transfer Files From RTE to HP-UX

- Media and Utilities
- Transfer Files
- Rename Source Files

Chapter 3: Modify Source Files

- HP-UX Command Interpreters
- HP-UX for RTE Users
- Editors
- Compilation Scripts
- Emulated File System
- Operating System Consideration
- RTE Features Not Emulated
- Alignment Considerations

Chapter 4: Language and Subsystem Specifics

- FORTRAN
- Pascal
- Assembly Code
- FORMS
- IMAGE

Chapter 5: Modify Data Files

- ASCII Data Files
- Binary Data Files

Chapter 6: Run, Debug, and Consider Performance

- The RTE Command Interpreter Rtesh
- Real-Time Priorities
- Symbolic Debugger xdb
- Performance Considerations

Chapter 7: Converting RTE Programs to Native HP-UX

Recommended Migration and Conversion Procedure

Functionality Comparison Table

Input/Output

Interprocess Communication

Resource Management

Program to System Communication

Program Control

Memory Management

File Management

Mixing RTE and HP-UX Environments

Chapter 8: System Administration

PORT/RX Internal Implementation

Installation Procedure

PORT/RX Environment Maintenance

Appendix A: Troubleshooting

Appendix B: Graphics Compatibility

PORT/RX Reference Manual

MIGRATION SERIES

PART-NUMBER: 92561-90004

AUDIENCE: Experienced Programmers

The PORT/RX Reference manual provides descriptions of commands, calls, and tables included in the RTE emulation software on HP-UX. Presented in "HP-UX man page" format, the subject matter is divided into sections.

Utilities

System Library

File Management

Files and Data Structures

Drivers

Programming for Portability Guide

MIGRATION SERIES

PART-NUMBER: 92561-90001

AUDIENCE: Experienced RTE Programmers

This guide provides an introduction to the subject of portability, describes programming language differences between RTE and HP-UX, and discusses operating system dependencies. Subsystem considerations include Graphics, IMAGE, and DS/1000-IV.

Chapter 1: Introduction

- Defining Portability
- Commitment to Compatibility

Chapter 2: Languages

- FORTRAN 77
- Pascal
- Macro/1000 and Microcode

Chapter 3: Operating System

- Minimizing Dependencies
- RTE Emulation

Chapter 4: Subsystems

- Graphics
- IMAGE
- DS/1000-IV

Native Language Support Series

Manual Title	Audience
<i>*Native Language I/O Access User's Guide</i> (92559-90001) (English version)	General Users
<i>*Native Language I/O System Administrator's Guide</i> (92559-90002) (English version)	System Administrators
<i>Kanji Code Book</i> (98861-90003)	General Users who enter Japanese characters
<i>Japanese Input Method Guide</i> (98861-90009)	General Users
<i>Simplified Chinese Code Book</i> (92550-90002)	General Users who enter Simplified Chinese characters
<i>Simplified Chinese Input Method Guide</i> (92550-90001)	General Users
<i>Traditional Chinese Code Book</i> (92552-90002)	General Users who enter Traditional Chinese characters
<i>Traditional Chinese Input Method Guide</i> (92552-90001)	General Users

*These books have been translated and localized in Japanese, Simplified Chinese, Traditional Chinese, and Korean. Localization consists of adding country specific examples and additional explanations. The part numbers for these translated books are as follows:

<i>Native Language I/O Access User's Guide:</i>	<i>Native Language I/O System Administrator's Guide:</i>
Japanese Version (92557-90004)	Japanese Version (92557-90003)
Simplified Chinese Version (92550-90004)	Simplified Chinese Version (92550-90003)
Traditional Chinese Version (92552-90004)	Traditional Chinese Version (92552-90003)
Korean Version (92555-90004) (The Korean Code and Input Methods information is included in this book)	Korean Version (92555-90003)

Native Language I/O Access User's Guide

NATIVE LANGUAGE SUPPORT SERIES

PART-NUMBER: 92559-90001

AUDIENCE: General Users

This manual explains how to use the Native Language Input/Output (NL I/O) subsystem on the HP 9000 Series 800 and Series 300 computers. A programming section for advanced users and/or programmers is included. The keyboard functions and input methods for Japanese, Simplified Chinese, Traditional Chinese and Korean are briefly described. In addition, this guide provides a reference section for the NL I/O commands.

Chapter 1: Introduction

- What is Native Language I/O?
- What is Host Conversion?
- How to Use This Manual
- Who Should Read This Manual
- Compatibility and Security Issues
- Definition of NL I/O Terms

Chapter 2: Native Language I/O

- Code Conventions and Translations
- Structure of the NL I/O Modules
- File Directory Structure

Chapter 3: Using NL I/O Commands

- Using the NLIOSTART(UTIL)
- Using the NLIO Command
- Using the NLIOENV Command
- Programming Examples

Chapter 4: Reference Section

- LP(UTIL)
- NLIO(DEV)
- NLIO(UTIL) Command
- NLIOENV(UTIL) Command
- NLIOINIT(ADMIN)
- NLIOSTART(UTIL)
- WDEDIT(UTIL)
- WDUTIL(UTIL)

Chapter 5: NL I/O X Window System

- Setting Up the NL I/O X Window Environment
- The Input Window
- X Library
- X-Ray Library
- Terminal Emulator

Chapter 6: Japanese Code Mapping

- HP-16 to HP-15 Mapping
- HP-15 to HP-16 Mapping

Chapter 7: The Kanji Input Window

Chapter 8: Kanji Key Functions

- Kanji Key
- Romanji/Katakana Key
- Hiragana/Katakana Key
- CONV/NEXT Key
- NOCONV Key
- WORD Key
- AUX Key
- PREV Key
- ERASE Key
- CANCEL (KILL) Key

Chapter 9: Japanese Input Methods

- Setting Up Parameters
- Multiple Phrase Conversion
- Word Conversion
- Single Kanji Conversion
- Code Conversion
- No Conversion
- Control Characters
- Gakushuu

Chapter 10: Japanese Input Modes

- Japanese Input Modes
- Japanese Designation Modes

Chapter 11: The User Dictionary

- System Dictionary
- User Dictionaries
- Setting and Closing a Word Dictionary
- Creating a User Dictionary
- Editing a User Dictionary (WDEDIT)
- Maintaining a User Dictionary (WDUTIL)

Chapter 12: Simplified Chinese Key Functions

Chapter 13: Simplified Chinese Input Methods

- Setting Up Parameters
- Simplified Chinese Input Method
- Using the Phonetic or Pinyin Input Mode
- Using the Tsang-Chieh Input Mode
- Using Rapid Tsang-Chieh Input Mode
- Using the Full-Size ASCII Input Mode
- Using the Code Input Mode
- Using the HP-15 Code Input Mode

Chapter 14: Traditional Chinese Key Functions

Chapter 15: Traditional Chinese Input Methods

- Setting Up Parameters
- Traditional Chinese Input Method
- Using the Phonetic or Pinyin Input Mode
- Using the Tsang-Chieh Input Mode
- Using Rapid Tsang-Chieh Input Mode
- Using the Full-Size ASCII Input Mode

Chapter 15: Traditional Chinese Input Methods (cont'd)

Using the Telegram Code Input Mode

Using the HP-15 Code Input Mode

Chapter 16: Korean Key Functions

Chapter 17: Korean Input Methods

Setting Up Parameters

Korean Input Method

Using the Hangul/Hanja Input Mode

Using the Full-Size ASCII Input Mode

Using the Code Input Mode

Appendix A: Error Messages

Native Language I/O System Administrator's Guide

NATIVE LANGUAGE SUPPORT SERIES

PART-NUMBER: 92559-90002

AUDIENCE: System Administrators

This guide tells system administrators how to install the Native Language I/O subsystem on the HP 9000 Series 300 and Series 800 computers. Section I explains how to install Asian language-dependent printers and terminals. Host computer hardware and software requirements are also covered. Japanese, Simplified Chinese, Traditional Chinese and Korean peripherals are covered in separate sections. The following additional fonts are covered in this manual: Japanese, Traditional Chinese and Korean simplex fonts and Japanese designer fonts.

Chapter 1: Introduction

Chapter 2: Host Computer System Requirements

- Introduction

- Hardware Requirements

- Software Requirements

Chapter 3: Japanese Host Computer Installation Procedures

- Introduction

- Hardware Installation Procedures

- Software Installation Procedures

Chapter 4: Japanese Terminals

- Introduction

- Terminal Installation Procedures

- Terminal Configuration Procedures

Chapter 5: Japanese Printers

- Introduction

- HP 41063A (HP-IB) and HP 35713A Printers

- HP 41063A (RS-232C) Printer

- HP C1200A (RS-232C) Printer

Chapter 6: Japanese Stick Fonts

- Japanese Stick Font Directories

- Installing Japanese Stick Fonts

- Configuring Japanese Stick Fonts

Chapter 7: Japanese Window and FA/FM Fonts

- Font Files for the X Window System

- Font Files for FA/FM Libraries

Chapter 8: The Japanese Simplex Font

- Introduction

- Series 800 Japanese Simplex Font

- Series 300 Japanese Simplex Font

Chapter 9: Japanese Designer Fonts

Introduction

Japanese Helvetica Font

Japanese Roman Font

Chapter 10: Simplified Chinese Host Computer Installation Procedures

Introduction

Hardware Installation Procedures

Software Installation Procedures

Chapter 11: Simplified Chinese Terminals

Introduction

Terminal Installation Procedures

Terminal Configuration Procedures

Chapter 12: Simplified Chinese Printers

Introduction

HP 41063A (HP-IB) Printer

HP 41063A (RS-232C) Printer

HP C1200A (RS-232C) Printer

Chapter 13: Simplified Chinese Stick Fonts

Simplified Chinese Stick Font Directories

Installing Simplified Chinese Stick Fonts

Configuring Simplified Chinese Stick Fonts

Chapter 14: Simplified Chinese Window Fonts

Font Files for the X Window System

Chapter 15: Traditional Chinese Host Computer Installation Procedures

Introduction

Hardware Installation Procedures

Software Installation Procedures

Chapter 16: Traditional Chinese Terminals

Introduction

Terminal Installation Procedures

Terminal Configuration Procedures

Chapter 17: Traditional Chinese Printers

Introduction

HP 41063A (HP-IB) Printer

HP 41063A (RS-232C) Printer

HP C1200A (RS-232C) Printer

Chapter 18: Traditional Chinese Stick Fonts

Traditional Chinese Stick Font Directories

Installing Traditional Chinese Stick Fonts

Configuring Traditional Chinese Stick Fonts

Chapter 19: Traditional Chinese Window Fonts

Font Files for the X Window System

Chapter 20: Traditional Chinese Simplex Font

Introduction

Series 800 Traditional Chinese Simplex Font

Series 300 Traditional Chinese Simplex Font

Chapter 21: Hangul (Korean) Host Computer Installation Procedures

Introduction

Hardware Installation Procedures

Software Installation Procedures

Chapter 22: Hangul (Korean) Terminals

Introduction

Terminal Installation Procedures

Terminal Configuration Procedures

Chapter 23: Hangul (Korean) Printers

Introduction

HP C1200A (RS-232C) Printer

Chapter 24: Hangul (Korean) Stick Fonts

Hangul Stick Font Directories

Installing Hangul Stick Fonts

Configuring Hangul Stick Fonts

Chapter 25: Hangul (Korean) Window Fonts

Font Files for the X Windows System

Chapter 26: Hangul (Korean) Simplex Font

Introduction

Series 800 Hangul Simplex Font

Series 300 Hangul Simplex Font

Appendix A: X10 Window System Files

Japanese X10 Window System Fonts

Simplified Chinese X10 Window System Fonts

Traditional Chinese X10 Window System Fonts

Korean X10 Window System Fonts

Kanji Code Book

NATIVE LANGUAGE SUPPORT SERIES

PART-NUMBER: 98861-90003

AUDIENCE: General User who enters Japanese characters

This manual explains how to use Kanji code for host conversion input on the HP 9000 Series 800 and Series 300 computers. This entire manual is written in Japanese.

Japanese Input Method Guide

NATIVE LANGUAGE SUPPORT SERIES

PART-NUMBER: 98861-90009

AUDIENCE: General User

This manual explains how to use the Japanese input methods for host conversion input on the HP 9000 Series 800 and Series 300 computers. This entire manual is written in Japanese.

Simplified Chinese Code Book

NATIVE LANGUAGE SUPPORT SERIES

PART-NUMBER: 92550-90002

AUDIENCE: General User who enters Simplified Chinese characters

This manual explains how to use Simplified Chinese code for host conversion input on the **HP 9000 Series 800** and **Series 300** computers. This entire manual is written in Chinese.

Simplified Chinese Input Method Guide

NATIVE LANGUAGE SUPPORT SERIES

PART-NUMBER: 92550-90001

AUDIENCE: General User

This manual explains how to use Simplified Chinese input methods for host conversion input on the HP 9000 Series 800 and Series 300 computers. This entire manual is written in Chinese.

Traditional Chinese Code Book

NATIVE LANGUAGE SUPPORT SERIES

PART-NUMBER: 92552-90002

AUDIENCE: General User who enters Traditional Chinese characters

This manual explains how to use Traditional Chinese code for host conversion input on the HP 9000 Series 800 and Series 300 computers. This entire manual is written in Traditional Chinese.

Traditional Chinese Input Method Guide

NATIVE LANGUAGE SUPPORT SERIES

PART-NUMBER: 92552-90001

AUDIENCE: General Users

This manual explains how to use Traditional Chinese input methods for host conversion input on the HP 9000 Series 800 and Series 300 computers. This entire manual is written in Chinese.

Programmer's Series

Manual Title	Audience
<i>Advanced UNIX Programming</i> (92453-90007)	Experienced C Programmers
<i>HP-UX Concepts and Tutorials: Device I/O and User Interfacing</i> (97089-90054)	Programmers
<i>HP-UX Concepts and Tutorials: Programming Environment</i> (97089-90042)	Beginning HP-UX Programmers
<i>HP-UX Concepts and Tutorials: Shells and Miscellaneous Tools</i> (97089-90062)	Beginning HP-UX Programmers
<i>HP-UX Concepts and Tutorials: UUCP</i> (97089-90053)	Programmers
<i>HP Symbolic Debugger Quick Reference Guide</i> (92435-90002)	Experienced Programmers
<i>HP Symbolic Debugger User's Guide</i> (92435-90001)	Experienced Programmers

Advanced UNIX Programming

PROGRAMMER'S SERIES

PART-NUMBER: 92453-90007

AUDIENCE: Experienced C Programmers

This book by Marc J. Rochkind (Englewood Cliffs, New Jersey, Prentice-Hall, Inc., 1985) describes UNIX system calls and how to use them to access the file system. It also explains how to facilitate multitasking and interprocess communication.

Preface

Chapter 1: Fundamental Concepts

Chapter 2: Basic File I/O

Chapter 3: Advanced File I/O

Chapter 4: Terminal I/O

Chapter 5: Processes

Chapter 6: Basic Interprocess Communication

Chapter 7: Advanced Interprocess Communication

Chapter 8: Signals

Chapter 9: Miscellaneous System Calls

Appendix A: System V Process Attributes

Appendix B: Standard Subroutines

Bibliography

HP-UX Concepts and Tutorials: Device I/O and User Interfacing

PROGRAMMER'S SERIES

PART-NUMBER: 97089-90054

AUDIENCE: Programmers

This manual presents three topics: Device I/O Library (DIL) Routines, Native Language Support (NLS), and Curses and Terminfo. Each section has its own table of contents, indices, and appendices.

Section 1: Device I/O Library (DIL) Routines

- Interfacing Concepts
- General-Purpose Routines
- Controlling the HP-IB Interface
- Controlling the CPIO Interface
- Series 500 Dependencies
- Series 200/300 Dependencies
- Integral PC Dependencies
- Series 800 Model 840 Dependencies
- Character Codes

Section 2: Using Curses and Terminfo

- Introduction
- Display Data Handling
- Keyboard Input
- Display Highlighting
- Multiple Windows
- Multiple Terminals
- Low-Level Terminfo Usage
- A Larger Example
- Program Routines
- Curses Routines
- Description of Routines
- Terminfo Routines
- Termcap Compatibility Routines

Section 3: Series 300/800 Native Language Support

- Overview
- Introduction to NLS
- Using International Applications
- Administering Prelocalized Software
- Developing International Software
- Native Language Support Library and Commands
- Task Reference of NLS Routines
- Character Representation and Sets
- Peripheral Configuration

HP-UX Concepts and Tutorials: Programming Environment

PROGRAMMER'S SERIES

PART-NUMBER: 97089-90042

AUDIENCE: Beginning HP-UX Programmers

This tutorial describes how to write programs that interface with the HP-UX operating system in a non-trivial way. This includes programs that use files by name, that use pipes, that invoke other commands as they run, or that attempt to catch interrupts and other signals during execution.

Section 1: HP-UX Programming

- Introduction
- Basics
- The Standard I/O Library
- Low-Level I/O
- Processes
- Signals - Interrupts and All That
- Appendix - The Standard I/O Library

Section 2: Using C Library Routines

- Standard Input/Output Routines
- Math Routines
- String Manipulations
- Date and Time Manipulation

Section 3: Lint C Program Checker

- Introduction
- Error Detection
- Problem Detection
- How to Use Lint
- Directives

Section 4: Ratfor: A Preprocessor for a Rational FORTRAN

- Language Description
- Experience
- Conclusions
- Usage on HP-UX

Section 5: The M4 Macro Processor

- General
- Usage
- Defining Macros
- Arguments
- Arithmetic Functions
- File Manipulation
- System Commands
- Conditionals
- String Manipulation
- Printing

Section 6: Yacc - Yet Another Compiler-Compiler

- Basic Specification
- Actions
- Lexical Analysis
- How the Parser Works
- Ambiguity and Conflicts
- Precedence
- Error Handling
- The Yacc Environment
- Hints for Preparing Specifications
- Advanced Topics
- References
- Appendix A: A Simple Example
- Appendix B: Yacc Input Syntax
- Appendix C: An Advanced Example
- Appendix D: Old Features Supported but Not Encouraged

Section 7: The ADB Debugger

- Command Format
- Displaying Information
- Debugging C Program
- Setting Breakpoints
- Advanced Breakpoint Usage
- Other Breakpoint Facilities
- Maps
- Variables and Registers
- Formatted Dumps
- Patching
- Anomalies
- Command Summary
- Format Summary
- Expression Summary

Section 8: C Debugger (cdb)

- Introduction
- Viewing Commands
- Job Control Commands
- Breakpoint Commands
- Assertion Control Commands and Signal Handling Commands
- Record, Playback, and Other cdb Commands

Section 9: Make a Program for Maintaining Computer Programs

- Introduction
- Basic Features
- Description Files and Substitutions
- Command Usage
- Implicit Rules
- Example
- Suggestion and Warnings
- Appendix: Suffixes and Transformation Rules

Section 10: SCCS User's Guide

- Introduction
- Terms
- Creating SCCS Files
- Removing SCCS Files
- Getting Files for Compilation
- Changing Files (Creating Deltas)
- Restoring Old Versions
- The Help Command
- Auditing Changes
- Files Used by SCCS
- Concurrent Editing
- Saving Yourself
- Using the Admin Command
- Maintaining Different Branches
- SCCS's Protection Facilities
- Using Scs With Make
- Using SCCS on a Multi-User Project
- Quick Reference

Section 11: Lex: A Lexical Analyzer Generator

- Introduction
- Lex Source
- Lex Regular Expressions
- Lex Actions
- Ambiguous Source Rules
- Lex Source Definitions
- Usage
- Lex and Yacc
- Examples
- Left-Context Sensitivity
- Character Set
- Summary of Source Format
- Caveats and Bugs

HP-UX Concepts and Tutorials: Shells and Miscellaneous Tools

PROGRAMMER'S SERIES

PART-NUMBER: 97089-90062

AUDIENCE: Beginning HP-UX Programmers

This manual covers seven topics: Bourne Shell Programming, C Shell Programming, Korn Shell Programming, BC (Desk Calculator), DC (Desk Calculator), Mailx, and Vt (Virtual Terminal). Each section may have its own table of contents, appendices, or indices.

Section 1: The Bourne Shell

- Using Shell Commands
- Shell Scripts
- Basic Shell Programming
- Advanced Programming
- Detailed Reference
- Appendix A: Helpful Tips for Shell Programmers
- Glossary

Section 2: The C Shell

- Introduction
- HP-UX Standard Shells
- Shell Startup and Termination
- Command History
- Aliases
- Command Substitution
- Metacharacters in csh
- Using Metacharacters as Normal Characters
- Built-In Shell Variables
- Numeric Shell Variables
- File Evaluation
- Csh Commands
- Jobs
- C Shell Scripts
- Subject Index

Section 3: The Korn Shell

- Introducing the Korn Shell
- Starting and Stopping the Shell
- Using Metacharacters
- Aliasing: Abbreviating Commands
- Substitution Capabilities
- Editing Command-lines
- Basic Ksh Programming
- Controlling Jobs
- Advanced Concepts and Commands
- Command Reference

Section 4: BC: An Arbitrary-Precision Desk-Calculator Language

- Running BC
- Simple Computations With Integers
- Bases
- Scaling
- Functions
- Subscripted Variables (Arrays)
- Control Statements
- Some Details
- Three Important Things
- Notation

Section 5: DC: An Interactive Desk Calculator

- Synoptic Description
- Detailed Description

Section 6: Mailx

- Introduction
- Common Usage
- More About Sending Mail
- Additional Features
- Non-Interactive Mail
- Command Line Options
- Message Format
- Glossary
- Summary of Commands, Options, and Escapes

Section 7: Vt: Virtual Terminal

- Using vt
- Installing vt

HP-UX Concepts and Tutorials: UUCP

PROGRAMMER'S SERIES

PART-NUMBER: 97089-90053

AUDIENCE: Programmers

This manual describes how to use "HoneyDanBer uucp", an HP-UX facility that transfers files among Series 300 and 800 HP-UX and UNIX systems linked by RS-232-C modem or direct connections.

SECTION 1: HDBuucp

Chapter 1: Introduction and Orientation

- Conceptualizing the Tasks
- Contacting Remote System SAs

Chapter 2: Configuring uucp

- An Overall View of uucp
- Edit rc to Set the Hostname
- Edit passwd to Provide a Login
- Edit inittab to Start a getty
- Edit dialtic or Dialer for Using a Modem
- Edit Systems for Calling Data
- Edit Dialcodes to Supply Phone Strings
- Edit Permissions to Control Systems
- Edit Poll to Provide for Polling Systems
- Edit Devices for Modem Info
- Edit ADMIN for Comments
- Make Device Files for RS-232-C
- Continuing to Setup uucp

Chapter 3: Installing uucp Hardware

- Selecting a Modem or Direct Connection
- Illustrated Typical Connections
- Special Connectors
- Making a Decision and Continuing
- Installing a Phone Line
- Installing An Interface Card
- Installing a Modem

Chapter 4: Testing and Using uucp

- Using cu for an Initial Test
- Trying A uucp Call

Chapter 5: Making uucp Work

- Major Sources of Problems
- The .Log Directory Files
- Debugging With .Admin/errors
- The .Admin/xferstat File
- The DIALOG file
- Running uucico With Debugging Output

Chapter 6: Uucp Files and Structure

- Examples of uucp Data Transfer
- The Spool Directory
- Library Files
- ADMIN Files
- Binary Files
- The Status Files
- Some Cleanup Scripts
- Forwarding through Several Systems
- The uux Command
- Miscellaneous Commands

Chapter 7: Uucp Facility Daemons

- Running the uucp Utility
- Invoking uucp Daemons

Appendix A: Using cu

- Using cu with a Modem Connection
- Cu with Direct Connection
- After Connecting

Appendix B: The X.25 Network

- Description of X.25
- Configuring uucp for X.25

Appendix C: An Arbitrary Quick Procedure

Appendix D: HDBuucp Conversion

SECTION 2: UUCP

Chapter 1: Introduction and Orientation

- Conceptualizing the Tasks
- Contacting Remote System SAs

Chapter 2: Configuring uucp

- An Overall View of uucp
- Edit rc to Set the Hostname
- Edit passwd to Provide a Login
- Edit inittab to Start a getty
- Edit dialit.c to Accomodate a Modem
- Edit L.sys for Calling Data
- Edit L-dialcodes to Supply Phone Strings
- Edit L.cmds to Specify Commands
- Edit L-devices for Modem Info
- Edit USERFILE to Specify Search Info
- Edit FWDFILE and ORIGFILE for Forwarding
- Edit ADMIN for Comments
- Make Device Files for RS-232-C
- How to Continue

Chapter 3: Installing uucp Hardware

- Selecting a Modem or Direct Connection
- Illustrated Typical Connections
- Special Connectors
- Making a Decision and Continuing

Chapter 3: Installing uucp Hardware (cont'd)

- Installing a Phone Line
- Installing An Interface Card
- Installing a Modem

Chapter 4: Testing and Using uucp

- Using cu for an Initial Test
- Trying A uucp Call

Chapter 5: Making uucp Work

- Major Sources of Problems
- The LOGFILE
- Debugging With ERRLOG
- The SYSLOG file
- The DIALLOG file
- Running uucico With Debugging Output

Chapter 6: Uucp Files and Structure

- Examples of uucp Data Transfer
- The Spool Directory
- Library Files
- ADMIN File
- Binary Files
- The Status Files
- Some Cleanup Scripts
- Forwarding through Several Systems
- The uux Command
- Miscellaneous Commands
- Using the Mail Facility

Chapter 7: Uucp Facility Daemons

- Running The uucp Utility
- Invoking uucp Daemons

Chapter 8: Using cu

- Using cu with a Modem Connection
- Cu with Direct Connection
- After Connecting

Chapter 9: The X.25 Network

- Description of X.25
- Configuring uucp for X.25

Chapter 10: An Arbitrary Quick Procedure

HP Symbolic Debugger Quick Reference Guide

PROGRAMMER'S SERIES

PART-NUMBER: 92435-90002

AUDIENCE: Experienced Programmers

This quick reference guide lists and defines the commands used for debugging programs. It should be used with the *HP Symbolic Debugger User's Guide*.

Symbolic Debugger Commands

Record and Playback Commands

Record All Commands

Data Viewing and Modification Commands

Data Viewing Options

Special and Program Variables

HP-UX Command Line Options

HP-UX Symbolic Debugger Commands

HP Symbolic Debugger User's Guide

PROGRAMMER'S SERIES

PART-NUMBER: 92435-90001

AUDIENCE: Experienced Programmers

This manual explains how to debug computer programs on the HP-UX Operating System. It assumes that the user has had some experience with symbolic debuggers and HP-UX.

Chapter 1: Program Overview

- Introduction
- The Operating Environment
- Features and Capabilities
- User Manual Conventions
- Language Conventions

Chapter 2: Using the HP Symbolic Debugger

- Program Preparation
- Debugger Interface
- Beginning a Sample Session
- Specifying Locations
- Viewing Source Code and Moving Within Files
- Using the Step Command
- Searching for a String in Source Code
- Setting Breakpoints
- Displaying and Deleting Breakpoints
- Displaying and Modifying Data
- Limitations

Chapter 3: Language Conventions

- Special Variables
- Finding a Variable
- Expression Conventions
- Procedure Call Conventions
- Command Conventions

Chapter 4: Commands

- Job Control Commands
- File Viewing Commands
- Window Mode Commands
- Single Step Commands
- Assertion Control Commands
- Breakpoint Commands
- Data Viewing Commands
- Data Modifying Commands
- State Viewing Commands
- Stack Viewing Commands
- Signal Control Commands
- Record and Playback Commands
- Macro Facility
- Miscellaneous Commands

Chapter 5: Sample Sessions

- A Sample Session in HP C
- A Sample Session in HP Pascal
- A Sample Session in HP FORTRAN 77
- A Sample Session in Mixed Languages

Appendix A: Error Messages

- User Errors
- HP Symbolic Debugger Errors

Appendix B: Debug Differences

- Program Location
- Command Changes

Appendix C: Language Operators

Appendix D: HP-UX Dependencies

- Compiling and Linking
- Commands
- Debug Installation
- Limitations

Appendix E: MPE XL Dependencies

- Compiling and Linking
- The HP Symbolic Debugger Run String Command
- Debug Installation
- Limitations

Programmer's Series: Languages

Manual Title	Audience
<i>ADB Tutorial</i> (92432-90002)	Experienced Assembly Language Programmers
<i>Assembly Language Reference Manual</i> (92432-90001)	Experienced Assembly Language Programmers
<i>HP C Reference Manual</i> (92434-90001)	Experienced C Programmers
<i>HP C Programmer's Guide</i> (92434-90002)	Experienced C Programmers
<i>HP C Quick Reference Guide</i> (92434-90003)	Experienced C Programmers
<i>HP C/HP-UX Reference Manual Supplement</i> (92434-90004)	Experienced C Programmers
<i>HP FORTRAN 77/HP-UX Programmer's Guide</i> (92430-90004)	Experienced FORTRAN Programmers
<i>HP FORTRAN 77 Quick Reference Guide</i> (5957-4687)	FORTRAN Programmers
<i>HP FORTRAN 77/HP-UX Reference Manual</i> (92430-90005)	Experienced FORTRAN Programmers
<i>HP Pascal Programmer's Guide</i> (31502-90002)	Experienced Pascal Programmers
<i>HP Pascal Quick Reference Guide</i> (31502-90003)	Pascal Programmers
<i>HP Pascal Reference Manual</i> (31502-90001)	Pascal Programmers
<i>Series 800 HP-UX Real-Time Programming Manual</i> (92453-90003)	Experienced C Programmers

ADB Tutorial

PROGRAMMER'S SERIES: LANGUAGES

PART-NUMBER: 92432-90002

AUDIENCE: Experienced Assembly Language Programmers

This tutorial describes the use of ADB, a program that you can use to debug assembly language programs. It also presents the ADB command format, and explains how to debug C programs, set breakpoints, and use maps. A complete command summary is provided following the tutorial.

Invocation

ADB Command Format

Displaying Information

Debugging C Programs

Maps

Variables and Registers

Formatted Dumps

Patching

Debugging Already Running Processes

Anomalies

Command Summary

Assembly Language Reference Manual

PROGRAMMER'S SERIES: LANGUAGES

PART-NUMBER: 92432-90001

AUDIENCE: Experienced Assembly Language Programmers

This manual describes the HP-UX Assembler for those programmers who need to write code as close to machine language as possible.

Chapter 1: The Assembly Language

- Assembler Features
- Structure of the Source Program
- Symbols and Constants
- Registers and Register Mnemonics
- Expressions
- Operands and Completers
- Macro Processing

Chapter 2: Programming for HP-UX

- Spaces
- Subspaces
- Location Counters
- Compiler Conventions
- System Calls
- Assembly Listing

Chapter 3: Assembler Directives and Pseudo-Operations

- Assembler Directives
- Programming Aids

Chapter 4: The Instruction Set

- Instruction Operands
- Memory Reference Instructions
- Immediate Instructions
- Branch Instructions
- Computational Instructions
- System Control Instructions
- Assist (Coprocessor) Instructions
- Pseudo-Instructions

Chapter 5: Programming Examples

- Binary Search for Highest Bit Position
- Copying a String
- Dividing a Double-Word Dividend
- Demonstrating the Procedure Calling Convention
- Output of the cc -S Command

Chapter 6: Assembling Your Program

- Invoking the Assembler
- Error Message Catalog
- Linking an Assembly Program

Appendix A: Error Messages

- Warning Messages
- Error Messages
- Panic Messages
- User Warnings
- Limit Errors
- Branching Errors

Appendix B: Instruction Summaries

HP C Reference Manual

PROGRAMMER'S SERIES: LANGUAGES

PART-NUMBER: 92434-90001

AUDIENCE: Experienced C Programmers

This manual fully describes the C programming language as it operates on all HP computer systems. It includes information about C lexical elements, data types, specifiers, type conversions, expressions, and operators. The manual also describes library routines that perform useful functions and are accessible from HP C programs.

Chapter 1: Introduction

Syntax Conventions

Chapter 2: Lexical Elements

Tokens
Keywords
Identifiers
Constants
Floating-Point Constants
Integer Constants
Enumeration Constants
Character Constants
String Literals
Operator Tokens
Punctuators
Commands

Chapter 3: Data Types and Declarations

Program Structure
Declarations
Storage-Class Specifiers
Type Specifiers
Structure and Union Specifiers
Enumeration
Declarators
Type Names
Type Definitions Using typedef
Initialization
Function Definitions

Chapter 4: Type Conversions

Usual Unary Conversions
Usual Binary Conversions
Arithmetic Conversions

Chapter 5: Expressions

- Operator Precedence
- lvalue and rvalue Expressions
- Primary Expressions
- Postfix Operators
- Array Subscripting
- Function Calls
- Structure and Union Members
- Postfix Increment and Decrement Operators
- Unary Operators
- Prefix Increment and Decrement Operators
- Address and Indirection Operators
- Unary Arithmetic Operators
- The sizeof Operator
- Cast Operators
- Multiplicative Operators
- Additive Operators
- Bitwise Shift Operators
- Relational Operators
- Equality Operators
- Bitwise AND Operator
- Bitwise Exclusive OR Operator
- Bitwise Inclusive OR Operator
- Logical AND Operator
- Logical OR Operator
- Conditional Operator
- Assignment Operators
- Comma Operator
- Constant Expressions

Chapter 6: Statements

- Labeled Statements
- Compound Statement or Block
- Expression and Null Statements
- Selection Statements
- The if Statement
- The switch Statement
- Looping Statements
- The while Statement
- The do Statement
- The for Statement
- Jump Statements
- The goto Statement
- The continue Statement
- The break Statement
- The return Statement

Chapter 7: Preprocessor Directives

- Source File Inclusion
- Macro Replacement
- Conditional Compilation
- Line Control
- Pragmas

Chapter 8: C Library Functions

- Header Files

- Using the Library Functions

- Standard Input/Output Functions <stdio.h>

- The printf Function

- Math Functions <math.h>

- Character Conversion and Classification Macros <ctype.h>

- String Manipulation Functions

- Date and Time Functions <time.h>

- Memory Functions

- General Utilities

Appendix A: System-Dependent Information

- Lexical Elements

- Data Types and Declarations

- Type Conversions

- Expressions

- C Statements

- Preprocessor

- Library Functions and Header Files

Appendix B: Syntax Summary

HP C Programmer's Guide

PROGRAMMER'S SERIES: LANGUAGES

PART-NUMBER: 92434-90002

AUDIENCE: Experienced C Programmers

This manual discusses how to program in the C programming language. It includes information on topics such as storage and alignment comparisons, calling other languages, using the optimizer, and debugging.

Chapter 1: Introduction to HP C

Chapter 2: Storage and Alignment Comparisons

HP C on HP-UX

C Data Types on Other Systems

Chapter 3: Calling Other Languages

HP C and HP Pascal

HP C and HP FORTRAN 77

Examples of Corresponding Types

Chapter 4: The Optimizer

Introduction to the Optimizer

When to Use the Optimizer

Invoking the Optimizer on HP-UX

Level 1 Optimization Modules

Level 2 Optimization Modules

HP C Guidelines for Using the Optimizer

HP C Optimizer Assumptions

What to Do If the Optimized Program Fails

Chapter 5: Debugging HP C Programs

The HP Symbolic Debugger and HP C

Sample Debugging Session

Chapter 6: Programming for Portability

Things to Avoid

Things to Do

Examples

Appendix A: Migrating C Programs

Migrating an Application

Byte Order

Data Alignment

Unsupported Keywords

Unsupported Identifiers

Predefined Macro Names

White Space

Hexadecimal Escape Sequence

Multicharacter Character Constants

Invalid Structure References

Leading Underscore

Library Functions

Floating-Point Format

Bit Fields

Data Storage and Alignment

Typedefs

HP C Quick Reference Guide

PROGRAMMER'S SERIES: LANGUAGES

PART-NUMBER: 92434-90003

AUDIENCE: Experienced C Programmers

This manual is a quick reference to the HP C programming language. It summarizes C language elements, the syntax of statements, and lists the syntax for the commands and compiler directives on HP computers.

Chapter 1: HP C Language Elements

- Keywords
- C Operators
- C Operator Precedence
- Escape Sequences
- Declarations

Chapter 2: C Statements

- Statement Types
- Labeled Statements
- Compound Statements
- Expression and Null Statements
- Selection Statements
- Looping Statements
- Jump Statements

Chapter 3: Preprocessor Directives

Chapter 4: Pragmas

Chapter 5: C Library Functions

- Standard Input/Output Functions
- Math Functions
- Character Conversion and Classification Macros
- String Manipulation Functions
- Date and Time Functions
- Memory Functions
- General Utilities

Appendix A: HP-UX Compiler

- Compiling on HP 9000 Series 800 Computers
- Running HP C Programs

HP C/HP-UX Reference Manual Supplement

PROGRAMMER'S SERIES: LANGUAGES

PART-NUMBER: 92434-90004

AUDIENCE: Experienced C Programmers

This supplement contains all HP-UX specific information on how to use the C programming language. It is intended to be used with the *HP C Reference Manual*.

Chapter 1: Compiling and Running HP C Programs

- Compiling HP C Programs

- Pragmas

- Running HP C Programs

Chapter 2: HP C/HP-UX Implementation Topics

- Data Types

- Volatile Type Specifier

- Bit Fields

- IEEE Floating-Point Standard

- Lexical Elements

- Unreachable Code

- Structures and Unions

- Identifier of Program Scope

- Overflow or Underflow Expressions

- Pointers

- Maximum Size of an Array

- Scope of extern Declarations

- Conversions Between Floats and Doubles

- Statements

- Preprocessor

- The varargs Macros

- Location of Files

Chapter 3: Using Intrinsics

- INTRINSIC Pragma

- INTRINSIC_FILE Pragma

Chapter 4: The Listing Facility

- Listing Format

- Listing Pragmas

- Listing Options

Appendix A: Diagnostic Messages

- Warning Messages

- Error Messages

- Panic Messages

- Internal Panic Messages

HP FORTRAN 77/HP-UX Programmer's Guide

PROGRAMMER'S SERIES: LANGUAGES

PART-NUMBER: 92430-90004

AUDIENCE: Experienced FORTRAN Programmers

This manual contains a detailed discussion of selected FORTRAN topics. This manual is intended for experienced programmers who have some familiarity with HP systems, data processing concepts, and the FORTRAN programming language.

Chapter 1: Data Storage

- Variable Types
- Addressing Mode
- The EQUIVALENCE Statement

Chapter 2: Formatted Input/Output

- List-Directed Statements
- Formatted Statements
- Summary of the Descriptors
- Format Specifications
- Alternative Methods of Specifying Input/Output
- Using the Implied DO Loop

Chapter 3: File Handling

- Disc Files
- Internal Files

Chapter 4: Subprograms

- Subroutines
- Functions
- Arguments to Subprograms
- Multiple Entries into Subprograms
- Common Blocks
- Block Data Subprograms
- Using the SAVE Statement

Chapter 5: Writing Efficient Programs

- Compile-Time Efficiency
- Run-Time Efficiency
- Code Space Efficiency
- Data Space Efficiency

Chapter 6: Programming for Portability

- Restricting Programs to the HP FORTRAN 77 Standard
- Using Consistent Data Storage
- Writing Programs That Can Be Easily Modified
- Avoiding Unstructured FORTRAN 77 Features

Chapter 7: Introduction to HP-UX

- Using the MAN Command
- Invoking the Compiler and Linker
- Passing Run-String Parameters to a FORTRAN 77 Program
- File Preconnection and Redirection
- Compiler Options and Directives

Chapter 8: Debugging FORTRAN 77 Programs

- Common Run-Time Errors
- The TABLES Directive
- The RANGE Directive
- Debugging Lines, the DEBUG Directive, and -D Compiler Options
- CATCHEM and RESTOREM for Procedure Traceback
- +T Compiler Option
- The xdb Symbolic Debugger

Chapter 9: HP 9000 Series 800 Architecture and FORTRAN 77 Storage Assignment

- Memory Data Areas
- Local Variables
- Saved Variables
- COMMON
- Summary of the Memory Area Assignment
- Accessing Data
- The ALIAS, LITERAL__ALIAS, and EXTERNAL__ALIAS Directives

Chapter 10: Interfacing with Other Languages and the HP-UX Operating System

- Interfacing with Other Languages
- Interfacing with the HP-UX Operating System
- Communicating Through COMMON

Chapter 11: Porting FORTRAN Programs from Other Computer Systems

- A Common Problem: Implicit SAVE
- Using Short Integers and Short Logicals
- Bit Manipulation with FORTRAN 77

Chapter 12: Enhancing the Efficiency of FORTRAN 77 Programs

- Group Related Routines
- Shift Data from the Data Area to the Stack Area
- Manipulating Large Arrays
- Use the Optimizer

HP FORTRAN 77 Quick Reference Guide

PROGRAMMER'S SERIES: LANGUAGES

PART-NUMBER: 5957-4687

AUDIENCE: FORTRAN Programmers

This manual is a quick reference guide for the HP FORTRAN 77 programming language. It assumes that the reader has been trained in the FORTRAN language, and is knowledgeable of FORTRAN programming techniques.

Chapter 1: HP FORTRAN 77 Elements

- The HP FORTRAN 77 Character Set
- Special Symbols
- Truth Table for Logical Operators
- Keywords
- Data Types

Chapter 2: HP FORTRAN 77 Statements

- Statement Classification
- How to Use the Syntax Diagrams

Chapter 3: HP FORTRAN 77 Intrinsic Functions

- Arithmetic
- Bit Manipulation
- Character
- Numeric Conversion
- Transcendental
- Miscellaneous

Chapter 4: HP FORTRAN 77/V on the HP 3000

- HP FORTRAN 77/V Commands
- :Run FTN.PUB.SYS Command
- Compiler Directives

Chapter 5: HP FORTRAN 77/UX on the HP 9000 Series 500

- Compiling Programs
- Compiler Directives

Chapter 6: HP FORTRAN 77/UX on the HP 9000 Series 800

- Compiling Programs
- Compiler Directives

Chapter 7: HP FORTRAN 77/XL on the Series 900 HP 3000

- Compiling Programs
- :RUN FTNCOMP.PUB.SYS
- Compiler Directives

HP FORTRAN 77/HP-UX Reference Manual

PROGRAMMER'S SERIES: LANGUAGES

PART-NUMBER: 92430-90005

AUDIENCE: Experienced FORTRAN Programmers

This manual fully describes HP FORTRAN 77 as it operates on the HP-UX operating system. It provides information on all data types and statements in the language and also describes the compiler diagnostic messages. It also presents tables of intrinsic functions and gives Hewlett-Packard's implementation of the ASCII character set.

Chapter 1: Introduction to HP FORTRAN 77

- The FORTRAN 77 Compiler
- FORTRAN Vocabulary
- Source File Structure
- Page Eject with Cntl-L

Chapter 2: Language Elements

- The FORTRAN 77 Character Set
- Special Symbols
- Keywords
- Symbolic Names
- Comments
- Data Types
- Variables
- Expressions

Chapter 3: FORTRAN Statements

- FORTRAN Statement Format
- Statement Classification
- Order of Statements
- Statements

Chapter 4: Input/Output

- Formatted Input/Output
- Format Specifications
- Format and Edit Descriptors
- Edit Descriptors
- Repeat Specification
- Nesting of Format Specifications
- Unformatted Input/Output
- List-Directed Input/Output
- Namelist-Directed Input/Output

Chapter 5: Compiling and Running Programs

- Compiling FORTRAN Programs
- Listing Format
- Preparing Programs for Execution
- Running FORTRAN Programs
- Using the PROGRAM Statement

Chapter 6: Run-Time Errors and Exceptions

- +T Compiler Option
- Procedure Traceback with CATCHEM and RESTOREM
- Trapping Run-Time Errors

Chapter 7: Interfacing with non-FORTRAN Subprograms and HP-UX

- FORTTRAN and Pascal
- FORTTRAN and C
- Built-In Functions
- HP-UX System Calls from FORTRAN

Chapter 8: Compiler Directives

Chapter 9: System-Specific Features of HP-UX

- Using the PAUSE Statement
- System-Specific Limits
- System Intrinsics

Chapter 10: Using Files in HP FORTRAN 77

- File Definition and Representation
- File Access
- File Formats
- Scratch Files
- Stream I/O Using FSTREAM
- File Descriptor I/O Using FNUM
- Using FSET
- File Positioning with the BACKSPACE Statement
- End-of-Line Edit Descriptors -- NN, NL, and \$
- Carriage Control

Chapter 11: Data Format in Memory

- Integer Format
- Short Integer Format
- Real Format
- Double Precision Format
- Complex Format
- Double Complex Format
- Logical Format
- Short Logical Format
- Character Format
- Hollerith Format
- Byte of Logical*1 Format

Appendix A: Compile-Time Diagnostic Messages

- Compile-Time Diagnostics
- Diagnostic Messages
- Compile-Time Errors
- Compile-Time Warnings
- ANSI Warnings
- Run-Time Errors

Appendix B: Intrinsic Functions and Math Subroutines

- Invoking an Intrinsic Function
- Generic and Specific Function Names
- Summary of the Intrinsic Functions
- Random Number Generator Functions
- HP-UX Intrinsic Functions
- System Calls and Library Routines
- Function Descriptions

Appendix C: FORTRAN Comparisons

- Extensions to the Standard
- Comparison of HP FORTRAN 77 and FORTRAN 66/V
- Comparison of HP FORTRAN 77 and FORTRAN 7X

Appendix D: HP Character Set

Appendix E: Vector Instructions Set (VIS) Subroutines

HP Pascal Programmer's Guide

PROGRAMMER'S SERIES: LANGUAGES

PART-NUMBER: 31502-90002

AUDIENCE: Experienced Pascal Programmers

This manual discusses selected HP Pascal topics in detail. It explains statement interaction but does not explain every feature of HP Pascal. Some topics covered are: HP Pascal procedure options, compiler options, and how HP Pascal works on the HP-UX operating system.

Chapter 1: Introduction

Chapter 2: Program Structure

- Introduction
- Syntactic Structure
- Compilation Unit Structure
- External Interfaces

Chapter 3: Input/Output

- Introduction
- General File Information
- Opening Files
- Associate Procedure
- Sequential Input/Output
- Textfile Input/Output
- Direct Input/Output
- Closing Files

Chapter 4: Predefined HP Pascal Data Types

- Introduction
- Values of Predefined Constants
- Ranges of Predefined Data Types
- Shortint
- Predefined Modules

Chapter 5: Allocation and Alignment

- Introduction
- Allocation, Alignment, and Packing Algorithm
- Unpacked Variables
- Packed Variables
- Arrays
- Records
- Packed Arrays
- Packed Records
- Crunched Arrays and Records
- Crunched Sets
- Enumerations and Subranges
- Files
- Sets
- Strings

Chapter 6: Dynamic Variables

- Introduction
- Globalanyptr Variables
- Localanyptr Variables
- New Procedure
- Dispose Procedure
- Mark and Release Procedures
- P__getheap and P__rtnheap Procedures
- Getheap and Rtnheap Procedures

Chapter 7: Parameters

- Introduction
- Value vs. Reference Parameters
- ANYVAR Parameters
- READONLY Parameters
- Conformant Array Parameters
- Routines as Parameters
- Hidden Parameters

Chapter 8: Procedure Options

- Introduction
- EXTENSIBLE
- DEFAULT__PARMS
- UNCHECKABLE__ANYVAR
- UNRESOLVED
- INLINE

Chapter 9: External Routines

- Introduction
- EXTERNAL Directive
- Calling C from HP Pascal
- Calling COBOL II from HP Pascal
- Calling FORTRAN 77 from HP Pascal
- Calling FORTRAN/3000 from HP Pascal
- Calling SPL from HP Pascal
- Switch Stubs
- How Non-Pascal Programs Call Pascal Routines

Chapter 10: Intrinsic

- Introduction
- Using Intrinsic
- Defining Intrinsic
- How to Build or Change an Intrinsic File

Chapter 11: Error Recovery and Debugging

- Introduction
- Error Recovery
- ARITRAP and HPENBLTRAP Intrinsic
- XLIBTRAP Intrinsic
- XARITRAP Intrinsic
- XCONTRAP Intrinsic
- HPTOOLSET/XL and Symbolic Debuggers

Chapter 12: The Optimizer

- Introduction
- When to Use the Optimizer
- Invoking the Optimizer

Chapter 12: The Optimizer (cont'd)

- Level One Optimization
- Level Two Optimization
- Optimizer Assumptions
- Writing Programs That are Easily Optimized
- What to Do if the Optimized Program Fails

Appendix A: Compiler Options

- Introduction
- System Independent Options
- System Dependent Options

Appendix B: HP-UX Dependencies

- Introduction
- System Dependent Features
- HP-UX Extensions
- Compiling, Linking, and Running Your Program

Appendix C: Compiler Limits and Values

Appendix D: HP Pascal Error Messages

Appendix E: Undetected Errors

HP Pascal Quick Reference Guide

PROGRAMMER'S SERIES: LANGUAGES

PART-NUMBER: 31502-90003

AUDIENCE: HP Pascal Programmers

The quick reference guide gives the syntax of every HP Pascal statement, including restrictions on statement parameters. It does not explain statements or concepts, as it is intended only to refresh the reader's memory for syntactic details.

Chapter 1: Programs

- Compilation__Unit
- Program__Heading
- Block

Chapter 2: Declarations

Chapter 3: Statements

Chapter 4: Expressions

- Expression
- Selector
- Pointer__Dereference

Chapter 5: Language Elements

- Reserved Words
- Special Symbols
- Identifier
- Unsigned__Integer
- Signed__Integer
- Unsigned__Real
- Signed__Real
- String__Literal

Chapter 6: Input/Output

- File Procedures and Functions

Chapter 7: Predefined Procedures and Functions

- System Independent
- System Dependent

Chapter 8: System Programming Extensions

- System Programming Extension Reserved Words
- System Programming Extension Predefined Identifiers
- TRY__RECOVER__Statements
- Type
- Expression
- Option Specification

Appendix A: Compiler Options

- System Independent Compiler Options
- HP Standard Options
- HP Pascal Options
- System Programming Options
- System Dependent Compiler Options
- MPE XL Options
- MPE XL and HP-UX Options
- HP-UX Options

Appendix B: Intrinsic

Appendix C: HP Pascal and Other Languages

- EXTERNAL Directive
- Calling C from HP Pascal
- Calling COBOL II from HP Pascal
- Calling FORTRAN 77 from HP Pascal
- Calling SPL from HP Pascal

HP Pascal Reference Manual

PROGRAMMER'S SERIES: LANGUAGES

PART-NUMBER: 31502-90001

AUDIENCE: Pascal Programmers

This manual gives the syntax, semantics and simple examples of each statement. It does not contain tutorial material or examples of how the statements interact with each other.

Chapter 1: Introduction

Extensions to ANSI/IEEE and ISO Pascal

Chapter 2: Language Elements

BASIC SYMBOLS

Reserved Words

Identifiers

Numbers

Comments

Separators

String Literals

Chapter 3: Data Types

Simple Types

Structured Types

Pointer Types

Type Compatibility

Assignment Compatibility

Chapter 4: Expressions

Operands

Operators

Chapter 5: The Declaration Section

Constant Definition

Label Declaration

Type Definition

Variable Declaration

Chapter 6: Statements

Compound Statements

BEGIN .. END

Empty Statements

Assignment

CASE

IF .. THEN

IF .. THEN .. ELSE

FOR .. TO

FOR .. DOWNTO

REPEAT .. UNTIL

WHILE .. DO

Chapter 6: Statements (cont d)

- WITH .. DO
- GOTO
- Procedures

Chapter 7: Program Structure

- Program Heading
- Block
- Declaration Part
- Procedure
- Function
- Module
- EXPORT
- IMPORT
- Implement

Chapter 8: Procedures and Functions

- Conformance
- Directives
- FORWARD Directive
- Recursion
- Functions Calls

Chapter 9: Predefined Routines

- Procedures for Allocation and Deallocation
- String Procedures
- String Functions
- Transfer Procedures
- Program Control Procedures
- MODCAL/3000 Compatibility Procedures
- Arithmetic Functions
- Predicate Functions
- Numeric Conversion Functions
- Transfer Functions
- Ordinal Functions

Chapter 10: Input and Output

- I/O Standard Procedures and Functions
- Implicit Data Conversion
- Formatting of Output to Textfiles

Chapter 11: System Programming Extensions

- Language Elements
- Data Types
- Expressions
- Declaration Section
- Statements
- Procedures and Functions
- Predefined Routines

Appendix A: Error Messages

Appendix B: ASCII Character Codes

Series 800 HP-UX Real-Time Programming Manual

PROGRAMMER'S SERIES

PART-NUMBER: 92453-90003

AUDIENCE: Experienced C Programmers

This manual explains how to use the real-time features of HP-UX that are a superset of System V features such as priority scheduling, asynchronous I/O, reliable signals and preallocation of disc space. It also discusses standard AT&T features that can be useful in real-time programs such as process locking, shared memory, semaphores, and messages.

Chapter 1: Introduction

- What is Real Time?
- Adding Real-Time Capability to the UNIX Operating System
- Real-Time Features in HP-UX
- Real-Time Programming with HP-UX Features

Chapter 2: Privilege Groups

- Introduction
- Available Privileges
- Retrieving Your Group Access List
- Retrieving Privileges Assigned to Your Groups
- Removing Privileges From a Process With `setgroups(2)`
- Chapter Summary

Chapter 3: Priority Scheduling

- Introduction
- The RTPRIO Privilege
- Setting or Changing the Real-Time Priority of a Process
- Reading the Real-Time Priority of a Process with `rtprio(1)`
- Setting the Priority of a Real-Time Process to be Time-Shared
- The Effect of `nice(1)` on Real-Time Priorities
- Chapter Summary

Chapter 4: Memory Locking

- Introduction
- Memory Locking and the HP-UX Process Model
- Locking With `plock(2)`
- Locking With `datalock(3C)`
- Locking Shared Memory Segments with `shmctl(2)`
- Chapter Summary

Chapter 5: Signals: Software Interrupts

- Introduction
- Available Signals
- Sending a Signal
- Preparing to Receive a Signal
- Receiving and Handling a Signal
- Waiting for a Signal
- A Software Fault Tolerance Example Using Signals
- Chapter Summary

Chapter 6: Time-Based Scheduling

- Introduction
- Time-Related Data Structures
- Time Retrieval
- Time-Scheduling Programs
- Chapter Summary

Chapter 7: Shared Memory

- Introduction
- Overview of System V Interprocess Communication Facilities
- Shared Memory Segment Data Structure
- The Shared Memory Interface
- Chapter Summary

Chapter 8: Synchronization with Semaphores

- Introduction
- The Semaphore Set and Semaphore Set Data Structure
- The Semaphore Set Interface
- Chapter Summary

Chapter 9: Messages

- Introduction
- The Data Structure Associated with a Message Queue Identifier
- The Message Interface
- Receiving a Message on a Message Queue with msgrnd()
- A Time and Attendance Transaction Processing Example Using Messages
- Removing the Message Queue Identifier with msgctl(2)
- Chapter Summary

Chapter 10: Pipes

- Introduction
- A Functional Comparison of Pipes and Named Pipes (FIFOs)
- Programming Examples Using Pipes
- Programming Examples Using FIFOs
- Using Pipes
- Using FIFOs

Chapter 11: System Asynchronous I/O

- Introduction
- System Asynchronous I/O Overview
- System Asynchronous I/O Facilities, Devices and Device Drivers
- Using O_NDELAY or FIONBIO to Do Nonblocking I/O
- Enabling a Driver to Send SIGIO when I/O is Possible
- Checking if an I/O Request Should be Issued to One or More
Devices with select(2)
- Chapter Summary

Chapter 12: Disk I/O

- Introduction
- Getting Good File System Performance
- Optimum Raw Disk I/O Performance
- Chapter Summary

Appendix A: A Comparison of Real-Time Features in the RTE and HP-UX Operating Systems

Overview

Program Control

Resource Management

Time Operations

Standard I/O

Asynchronous I/O

Interprocess Communication

Operating System and Hardware Functionality

Event Scheduling on Interrupts

Privileged Operation

System Administrator's Series

Manual Title	Audience
<i>HP 9000 Series 800 System Administrator's Manual</i> (92453-90004)	System Administrators
<i>Installing and Updating HP-UX -- HP 9000 Series 800</i> (92453-90019)	System Administrators
<i>System Administration Basics -- A Menu-oriented Approach</i> (92453-90017)	System Administrators

HP 9000 Series 800 System Administrator's Manual

SYSTEM ADMINISTRATOR'S SERIES

PART-NUMBER: 92453-90004

AUDIENCE: System Administrators

This manual enables the System Administrator to perform first-time system installation and configuration and provides information for performing system administration tasks. It enables the System Administrator to tailor the operating system to make use of its resources efficiently, provides detailed information for system designers to customize their operating system, and provides training aids for the assistant System Administrator.

Chapter 1: Introduction

- The System Administrator
- Responsibilities of the System Administrator
- Conventions Used in this Manual
- User Survey Form

Chapter 2: Getting Started

- Installing HP-UX
- Updating HP-UX
- After Installing HP-UX
- Customizing a System
- Using the System Administration Manager

Chapter 3: System Startup and Shutdown

- System Boot
- Booting Problems
- After Booting
- Login
- Changes You May Want to Make
- Shutting Down the System

Chapter 4: Customizing the HP-UX System

- Setting the System Clock
- Maintaining System Security
- Creating Groups
- Setting Up the LP Spooler
- Administering UUCP

Chapter 5: System Administration Tasks

- Communicating With System Users
- Adding/Removing Users
- Overview of the I/O System Device Drivers
- Adding/Removing Peripheral Devices
- Adding a CIO Expander
- Adding Terminals and Modems
- Adding a Tape Drive
- Adding Disks and Cartridge Tape Drives
- General-Purpose Instruments
- Removing Peripheral Devices

Chapter 5: System Administration Tasks (cont'd)

- Access Port
- Changing and Creating System Run Levels
- Backing Up the File System
- Updating the HP-UX System

Chapter 6: System Accounting

- Goals of System Accounting
- Overview of System Accounting
- Daily Usage and Installation
- Disk Space Usage Accounting
- Connect Session Accounting
- Process Accounting
- Charging Fees to Users
- Accounting Summary and Report
- Updating the Holidays File
- Fixing Corrupted Files
- Sample Accounting Shell Scripts

Chapter 7: System Reconfiguration

- System Reconfiguration Summary
- The System Reconfiguration Process
- Swap Space Configuration
- Controlling Disk Use
- Creating a New File System
- Adding a New Disk
- Mounting and Unmounting File Systems

Chapter 8: Troubleshooting

- System Panic
- Manual System Dump
- Using savecore
- Power Fail Recovery
- /etc/passwd File Recovery
- /dev/tty File Recovery
- Dealing With an Unresponsive Terminal
- On-Line Diagnostics
- System Activity Reporter

Chapter 9: System Management Concepts

- The Superuser
- Processes
- IDs
- File System Implementation
- The HP-UX File Structure
- Memory Management

Appendix A Error Messages

- ISL Error Messages
- Booting Diagnostic Error Messages
- Booting Error Messages
- Spooling Errors

Appendix B System Accounting Files

Files in the /usr/adm directory

Files in the /usr/adm/acct/nite directory

Files in the /usr/adm/acct/sum directory

Files in the /usr/adm/acct/fiscal directory

Appendix C Using the fsck Command

How fsck Handles Inconsistencies

Appendix D System Parameters

Installing and Updating HP-UX -- HP 9000 Series 800

SYSTEM ADMINISTRATOR'S SERIES

PART-NUMBER: 92453-90019

AUDIENCE: System Administrators

This manual explains how to install and update the HP-UX operating system (and optional subsystems) on HP 9000 Series 800 computers.

Chapter 1: Introduction

Chapter 2: Concepts

Chapter 3: Installing HP-UX

Chapter 4: Updating HP-UX

Chapter 5: Modifying HP-UX

Chapter 6: Root Disk Partitioning

Chapter 7: The Update Screens

Appendixes

Hardware paths; release-specific procedures.

System Administration Basics – A Menu-oriented Approach

SYSTEM ADMINISTRATOR'S SERIES

PART-NUMBER: 92453-90017

AUDIENCE: System Administrators

This manual describes SAM, the System Administration Manager, a menu-driven package that simplifies some of the most commonly performed system administration tasks.

Chapter 1: Introduction

- What is System Administration?
- Installing Your System
- Updating Your System
- What is the System Administration Manager?
- What SAM Can Do For You
- To Invoke SAM
- Tips for Using SAM

Chapter 2: Account Management

- Account Administration and SAM
- What is a User?
- Why Use Passwords?
- Provide the Real Name, Too
- User Groups
- What is the Home Directory?
- What Does the Startup Program Do?
- Adding a New Account
- Deleting or Deactivating a User
- Reactivating a User
- Showing User Information
- Modifying User Information
- Adding a New Group
- Deleting a Group Account
- Showing Users in a Group
- Add or Delete Users in a Group

Chapter 3: File System Management

- Maintaining the File System
- Managing the File System
- Making a New File System
- Unmounting a File System
- Listing or Enabling Swap Devices
- Checking Disk Information

Chapter 4: Backup and Recovery

- Backup Considerations
- Backup and Recovery with SAM
- Performing a Full Backup
- Performing an Incremental Backup
- Setting a Schedule for an Automated Backup
- Recovering an Index of Files
- Recovering Selected Files

Chapter 4: Backup and Recovery (cont'd)

- Display Index Files
- Displaying the Logfile
- Displaying and Modifying - List of Backup Filesets

Chapter 5: System Configuration

- Adding Terminals
- Configuring the Kernel
- Converting to Long Filenames

Chapter 6: Spool System Configuration

- LP Spooler Management
- Starting and Stopping the Spool System
- Adding a Printer
- Removing a Printer
- Starting or Stopping a Printner
- Listing Printer Information
- Setting the Default Printer

Chapter 7: UUCP Management

- The UUCP Network
- UUCP Network Administration
- Showing and Modifying Device Configurations
- Adding a Device
- Removing a Device
- Showing or Modifying System Configuration
- Adding a System
- Adding or Modifying Permissions
- Removing a System

Index

Special Characters

3Com EtherSeries Networks, 3-56

A

account management, SAM, 3-174

ADB

command format, 3-143

debugger, 3-132

Advanced graphics package

concepts, 3-58

control, 3-58

input, 3-58

overview, 3-58

segments and primitives, 3-58

viewing transformations, 3-58

AGP (See "Advanced graphics package")

allocation and alignment, HP Pascal, 3-159

application program migration, 3-110

ARPA Services/9000

installing, 3-26

maintaining, 3-26

product overview, 3-26

ARPA/Berkeley Services, overview, 3-41

ARPA and Berkeley commands, 3-17

ARPA, the product, 3-19

ASCII character set, 3-45

assembler directives and pseudo-operations, 3-144

assembly language, 3-144

Awk, a programming language for manipulating data, 3-8

B

b-spline, 3-77

Backbone LAN cable installation, 3-55

backup and recovery, SAM, 3-175

BC: an arbitrary-precision desk-calculator language, 3-135

Berkeley and ARPA commands, 3-17

Berkeley IPC, 3-29

Bourne shell, 3-134 (See also "Shells, an overview")

BSD IPC

an overview, 3-29

using datagram sockets, 3-29

- using stream sockets, 3-29

BULK table processing

- HP SQL C, 3-86
- HP SQL COBOL, 3-88
- HP SQL Pascal, 3-96

C

C (See "HP C")

C shell, 3-134 (See also "Shells, an overview")

cable diagrams, LAN, 3-56

cable verification, LAN, 3-55

COBOL (See "HP SQL COBOL")

code

- Kanji, 3-122
- Korean, 3-115
- Simplified Chinese, 3-124
- Traditional Chinese, 3-126

color graphics, 3-76

command syntax, HP-UX, 3-4

commands

- and application programs, 3-11
- using NL I/O, 3-116
- IQUERY, 3-100

comparison of real-time features (RTE vs. HP-UX), 3-167

compile-time diagnostic messages, 3-157

compiler options, HP Pascal, 3-161

compiling

- and running HP C programs, 3-152
- and running FORTRAN 77 programs, 3-156

components parts, HP 98196A, 3-54

configuration

- HP 27110B, 3-48
- HP 27111A, 3-50
- HP 27114A, 3-51
- HP 98196A, 3-53
- LANIC card, 3-46
- network, 3-34
- NFS, 3-39
- SNA3179G, 3-24
- SNA3770, 3-22
- SNALink, 3-23
- uucp, 3-136
- YP, 3-39

console, messages, 3-82

conversions, HP C, 3-146

converting

- FORTTRAN 77 to FORTRAN 7X, 3-107
- FORTTRAN 7X to FORTRAN 77, 3-107
- RTE programs to Native HP-UX, 3-112

crimp tools, emergency release for, 3-56

Cross-System NetIPC, 3-18

Cross-system NFT

- HP 1000 source file, 3-36
- HP 3000 source file, 3-36
- HP 9000 source file, 3-36
- initiator command syntax, 3-36
- PC source file, 3-36
- VAX/VMS source file, 3-36
- curses and terminfo, 3-130
- customizing the HP-UX system, 3-170

D

- DA file names, 3-105
- data file migration, Pascal, 3-108
- data files, modify, 3-111
- data format in memory, FORTRAN 77, 3-157
- data manipulation, 3-84
 - overview, HP SQL C, 3-86
 - overview, HP SQL FORTRAN, 3-91
 - HP SQL Pascal, 3-96
 - overview, HP SQL COBOL, 3-88
- data modification, IQUERY, 3-99
- data reporting, IQUERY, 3-99
- data selection, IQUERY, 3-99
- data types
 - and declaration, 3-146
 - HP Pascal, 3-164
 - predefined HP Pascal, 3-159
 - SQL, 3-104
- data viewing and modification commands, 3-139
- database
 - access and manipulation, 3-83
 - creating the, 3-83
 - maintaining the, 3-84
 - migration procedure, 3-110
 - structure and security, 3-83
- databases, creating (HP SQL), 3-89
- datagram sockets, using with BSD IPC, 3-29
- DAUtil commands, 3-105
- DBCORE, messages, 3-82
- DBE session, starting and termination, 3-90
- DBEnvironment
 - accessing an alias, 3-105
 - creating, 3-83
 - maintaining, 3-84
- DC: interactive calculator, 3-135
- debug differences, 3-141
- debugger, symbolic, 3-139
- debugging
 - already running processes, 3-143
 - error recovery and, HP Pascal, 3-160
 - FORTRAN 77 programs, 3-154, 3-157
 - HP C programs, 3-143, 3-149
- declaration section, HP Pascal, 3-164

- declarations, HP Pascal, 3-162
- designer fonts, Japanese, 3-119
- device connections, LAN, 3-55
- device drivers, 3-68
 - DGL/AGP, 3-61
 - HP-GKS, 3-64
 - terminal, 3-61
- device I/O library (DIL) routines, 3-130
- device initialization, 3-79
- Device-Independent Graphics Library (DGL), concepts, 3-60
- device-independent programming, 3-77
- diagnostic messages, HP C, 3-152
- diagnostic utilities
 - LAN, NS and ARPA, 3-38
 - network, 3-38
- diagnostics and troubleshooting, NS, 3-35
- directories, HP-UX, 3-4
- disk I/O, 3-167
- display list
 - device driver, 3-74
 - programs, 3-74
- drafting, plotters, 3-61
- drivers, RTE, 3-113
- DSCOPY EXAMPLE, 3-36
- dumps, formatted, 3-143
- dynamic operations, HP SQL C, 3-86
- dynamic variable, HP Pascal, 3-160

E

- Editors, HP-UX, 3-7
- Edit, an interactive line editor, 3-8
- Ed, editor, 3-7
- efficient programs in FORTRAN 77, 3-153
- emergency release for crimp tools, 3-56
- enhancing performance, 3-78
- error recovery and debugging, HP Pascal, 3-160
- expressions, HP Pascal, 3-162, 3-164
- expressions, SQL, 3-104
- external routines, HP Pascal, 3-160

F

- facilities, miscellaneous, 3-11
- file
 - access, remote, 3-43
 - formats, 3-11
 - formats, for ARPA configuration files, 3-17
 - handling, FORTRAN 77, 3-153
 - I/O, 3-129

- management, RTE, 3-113
- system management, SAM, 3-174
- system, HP-UX, 3-12
- transfer from RTE to HP-UX, 3-111
- transfer, network, 3-43
- Files, working with in HP-UX, 3-4
- FORTRAN 77 (See "HP FORTRAN 77")
- frame buffer control and raster operations, 3-76
- fsck command, 3-172
- Ftp, transferring files with, 3-42

G

Gateway

- SNA3179G, 3-24
- SNA3270, 3-21
- SNA3770, 3-22
- SNALink, 3-23

graphics

- color, 3-76
- escape calls, 3-78
- interface, 3-63
- pipeline, 3-75
- plotters, 3-61
- tablets, 3-63
- terminals, 3-61

H

Hangul (Korean)

- host computer installation, 3-121
- printers, 3-121
- stick fonts, 3-121
- terminals, 3-121

HDBuucp, 3-136

hidden-surface removal, 3-77

host computer installation

- Hangul (Korean), 3-121
- Japanese, 3-119
- Simplified Chinese, 3-120
- Traditional Chinese, 3-120

host variables, HP SQL C, 3-85

host variables, HP SQL Pascal, 3-95

Hosts, listing with Ruptime, 3-41

HP 1000 source file, cross-system NFT, 3-36

HP 27110B

- configuration, 3-48
- installation, 3-48
- site preparation, 3-48
- troubleshooting, 3-48

HP 27111A

- installation and configuration, 3-50
- preventive maintenance, 3-50
- site preparation, 3-50
- troubleshooting, 3-50

HP 27114A

- installation and configuration, 3-51
- preventive maintenance, 3-51
- site preparation, 3-51
- troubleshooting, 3-52

HP 3000 source file, cross-system NFT, 3-36

HP 9000 series 800 architecture and FORTRAN 77 storage assignment, 3-154

HP 9000 source file, cross-system NFT, 3-36

HP 98196A

- installation and configuration, 3-53
- site preparation, 3-53
- troubleshooting, 3-53

HP C

- debugger, 3-132
- language elements, 3-151
- library functions, 3-148, 3-151
- library routines, 3-131
- programming for portability, 3-149
- running programs, 3-152
- statements, 3-151

HP C/HP-UX implementation topics, 3-152

HP character set, 3-158

HP FORTRAN 77

- compiling and running programs, 3-156
- converting to FORTRAN 7X, 3-107
- efficient programs in, 3-153
- elements, 3-155
- formatted I/O, 3-153
- interfacing with other languages and HP-UX, 3-154
- interfacing with non-FOTRAN subprograms, 3-157
- intrinsic functions, 3-155
- programming for portability in, 3-153
- statements, 3-155, 3-156
- storage assignment and HP 9000 series 800 architecture, 3-154
- subprograms, 3-153

HP FORTRAN 77/UX on the HP 9000 series 500, 3-155

HP FORTRAN 77/UX on the HP 9000 series 800, 3-155

HP FORTRAN 77/V on the HP 3000, 3-155

HP GKS (Graphics Kernel System), 3-64

- intallation, 3-67
- using, 3-67

HP IMAGE/IQUERY access modes and data types, 3-98

HP IMAGE

- database definition language, 3-97
- HPIUtil commands, 3-97
- internal structures and techniques, 3-84
- maximum limits, 3-84
- messages, 3-82
- migration tools, 3-110
- overview, 3-110
- procedures, 3-97

HP Pascal

- allocation and alignment, 3-159
- data file migration, 3-108
- intrinsics, 3-160, 3-163
- migration checklist, 3-108
- parameters, 3-160
- procedure options, 3-160
- procedures and functions, 3-165
- program structure, 3-159, 3-162, 3-165
- source program migration, 3-108
- statements, 3-162, 3-164

HP SQL

- C preprocessor, 3-85
- C run-time status checking, 3-85
- COBOL preprocessor, 3-87
- COBOL run-time status checking, 3-87
- data types, 3-97, 3-104
- database maintenance, 3-90
- expressions, 3-104
- FORTRAN preprocessor, 3-91
- FORTRAN run-time status checking, 3-91
- limits, 3-90
- messages, 3-94
- names, 3-104
- Pascal preprocessor, 3-95
- Pascal run-time status checking, 3-95
- preprocessors, 3-97
- security management, 3-89
- syntax, 3-97, 3-102, 3-104

HP SQL commands, 3-104

- authorities required, 3-90
- embedding, 3-85, 3-87, 3-91, 3-95

HP symbolic debugger language conventions, 3-140

HP-GKS, implementation, 3-67

HP-UX

- compiler, 3-151
- file system, 3-12
- introduction to, 3-12
- modifying, 3-173
- programming, 3-131, 3-144
- systems, 3-60

HPIUtil, 3-84

I

IMAGE (see "HP IMAGE")

- initialization, device, 3-79
- initiator command syntax, cross-system NFT, 3-36
- input methods
 - Japanese, 3-117, 3-123
 - Korean, 3-117
 - Simplified Chinese, 3-117, 3-125
 - Traditional Chinese, 3-117, 3-127

- input (AGP), 3-58
- input/output, HP Pascal, 3-159, 3-162, 3-165
- installation and configuration
 - HP 27110B, 3-48
 - HP 27111A, 3-50
 - HP 27114A, 3-51
 - HP 98196A, 3-53
 - LANIC card, 3-46
- installation
 - network, 3-35
 - NFS, 3-39
- installing
 - ARPA Services/9000, 3-26
 - HP-GKS, 3-67
 - HP-UX, 3-173
 - LAN/9000, 3-27
 - SNA3179G, 3-24
 - SNA3270, 3-21
 - SNA3770, 3-22
 - SNALink, 3-23
 - uucp, 3-136
- interfacing FORTRAN 77 with other languages and HP-UX, 3-154
- interfacing FORTRAN with non-FORTRAN subprograms, 3-157
- Internal Terminal Emulator (See ITE)
- interprocess communication, 3-129
- intrinsic functions, HP FORTRAN 77, 3-155
- intrinsics, HP Pascal, 3-160, 3-163
- IPC, system calls, 3-17
- IQUERY/HP IMAGE access modes and data types, 3-98
- IQUERY
 - commands, 3-100
 - commands, executing from a file, 3-99
 - data modification, 3-99
 - data selection, 3-99
 - introduction, 3-99
 - reporting data, 3-99
 - syntax, 3-98
- ISQL
 - command summary, 3-90, 3-104
 - commands, 3-102
 - syntax, 3-97
 - using, 3-101
- ITE (Internal Terminal Emulator), 3-14
 - configuration, 3-14
 - escape sequences, 3-14

J

Japanese

- Code mapping, 3-116
- host computer installation, 3-119
- input methods, 3-117, 3-123
- input modes, 3-117
- printers, 3-119
- stick fonts, 3-119
- terminals, 3-119

K

Kanji

- code, 3-122
- input window, 3-116
- key functions, 3-117

key functions

- Kanji, 3-117
- Korean, 3-117
- Simplified Chinese, 3-117
- Traditional Chinese, 3-117

keyboard device driver, 3-68

Korean (See also "Hangul (Korean)")

- input methods, 3-117
- key functions, 3-117

Korn shell, 3-134 (See also "Shells, and overview")

L

LAN/9000

- installing, 3-27
- maintaining, 3-27
- product overview, 3-27

LAN

- backbone cable installation, 3-55
- cable diagrams, 3-56
- cable verification, 3-55
- device connections, 3-55
- planning considerations, 3-55
- reference pages, 3-31
- the product, 3-19
- ThinLAN cable installation, 3-55

language

- and subsystem specifics (RTE to HP-UX), 3-111
- differences, FORTRAN 7X to FORTRAN 77, 3-107
- elements, FORTRAN 77, 3-156
- elements, HP Pascal, 3-162, 3-164
- portability, 3-114

LANIC card

- installation and configuration, 3-46
- site preparation, 3-46
- troubleshooting, 3-46
- lexical elements, HP C, 3-146
- lex: a lexical analyzer generator, 3-133
- library functions for IPC, 3-17
- line printers (DGL/AGP), 3-61
- link level trace examples, 3-39
- Lint C program checker, 3-131
- LLA
 - concepts, 3-30
 - LAN linic drivers, 3-30
 - Layer 2 protocols, 3-30
 - using, 3-30
- logging and recovery, 3-90
- Login scripts, 3-6

M

- M4 macro processor, 3-131
- Mail, sending and receiving on HP-UX, 3-4
- mailx, 3-135
- maintaining, LAN/9000, 3-27
- maintenance
 - preventive (HP 27111A), 3-50
 - preventive (HP 27114A), 3-51
- maintenance, HP SQL database, 3-90
- MAU output, 3-110
- MAU, migration analysis utility, 3-110
- memorandum macros, MM, 3-10
- memory locking, 3-166
- messages, HP IMAGE, 3-82
- metafile, computer graphics, 3-79
- migrating
 - C programs, 3-149
 - from RFA to NFS, 3-40
- migration
 - analysis utility, 3-110
 - application program, 3-110
 - checklist, FORTRAN 7X to FORTRAN 77, 3-107
 - checklist, Pascal, 3-108
 - guidelines, 3-110
 - limitations, 3-110
 - query, 3-110
 - tools, HP IMAGE, 3-110
- MM: memorandum macros, 3-10
- modifying HP-UX, 3-173

N

names, SQL, 3-104

Native Language I/O, 3-116

native language support, 3-130

NetIPC

- calls, 3-18

- concepts, 3-18

Network Services (NS)/9000, product overview, 3-28

Network Services, reference pages, 3-32

network

- architecture and components, 3-34

- configuration, 3-34

- event logging, 3-39

- file transfer, 3-43

- I/O control commands, LLA, 3-30

- information utilities, 3-34

- installation, 3-35

- management commands, 3-17

- tracing, 3-38

networking software, 3-19

NFS Services

- overview, 3-37, 3-39

- reference pages, 3-33

NFS

- common commands, 3-39

- configuration and maintenance, 3-39

- installation, 3-39

- programming and protocols for, 3-37

- the product, 3-20

- troubleshooting, 3-40

NFT, cross-system, 3-36

NL I/O, 3-116

- commands, using, 3-116

- host computer system requirements, 3-119

- X window system, 3-116

nroff/troff text processors, 3-10

NS cross-system NFT, 3-36

NS/9000

- installing, 3-28

- maintaining, 3-28

- product overview, 3-28

- series 800 migration, 3-45

NS

- commands, 3-35

- reference pages, 3-32

- the product, 3-19

O

- operating systems, portability, 3-114
- optimizer, HP C, 3-149
- optimizer, HP Pascal, 3-160
- output primitives, 3-75
- output primitives, advanced graphics, 3-58

P

- parameters, HP Pascal, 3-160
- Pascal (See "HP Pascal")
- patching, 3-143
- PC source file, cross-system NFT, 3-36
- performance enhancement, 3-78
- physical design, HP SQL, 3-89
- picking, Starbase graphics, 3-77
- pipes and messages, 3-167
- plotters
 - drafting, 3-61
 - graphics, 3-61
- portability
 - languages, 3-114
 - operating systems, 3-114
 - programming for, 3-114
 - subsystems, 3-114
- porting FORTRAN programs from other computer systems, 3-154
- pragmas, HP C, 3-151
- preprocessor directives, 3-147
- preprocessor directives, HP C, 3-151
- preventive maintenance, HP 27110B, 3-48
- printer command language formatter, 3-72
- printers
 - Hangul (Korean), 3-121
 - Japanese, 3-119
 - line (DGL/AGP), 3-61
 - Simplified Chinese, 3-120
 - Traditional Chinese, 3-120
- printing, retrieving, and storing images, 3-77
- priority scheduling, 3-166
- privilege groups, 3-166
- program for maintaining computer programs, 3-132
- protocols and facilities, files describing, 3-17

Q

query migration, 3-110

R

Ratfor, a preprocessor for Rational FORTRAN, 3-131

Rcp, transferring files with, 3-42

real-time programming, 3-166

record all commands, 3-139

record and playback commands, 3-139

remote file access, 3-43

Remsh, executing commands with, 3-42

rendering, 3-77

retrieving, storing, and printing images, 3-77

RFA to NFS, migrating, 3-40

RLB diagnostic, LAN, NS and ARPA, 3-38

Rlogin, logging into a host with, 3-41

root disk partitioning, 3-173

RPC

- programming guide, 3-37

- protocol specification, 3-37

RTE to HP-UX, files transfer, 3-111

RTE

- drivers, 3-113

- emulation software on HP-UX, 3-113

- file management, 3-113

- system library, 3-113

- utilities, 3-113

run-time status checking

- HP SQL C, 3-85

- HP SQL COBOL, 3-87

- HP SQL FORTRAN, 3-91

- HP SQL Pascal, 3-95

Ruptime, listing hosts with, 3-41

Rwho, listing users with, 3-42

S

SCCS users guide, 3-133

SDLC card installation requirements, 3-23

search conditions, 3-104

security management, HP SQL, 3-89

sed, editor, 3-7

segments and primitives, 3-58

sendmail files, ARPA Services/9000, 3-26

Sendmail, ARPA/Berkeley Services, 3-41

sequential table processing, 3-88, 3-96

- HP SQL C, 3-86

- HP SQL FORTRAN, 3-92

- shared memory, 3-167
- Shells, an overview, 3-6
- Shells, Bourne, Korn and C, 3-134
- signals: software interrupts, 3-167
- simplex fonts
 - Hangul (Korean), 3-121
 - Japanese, 3-119
 - Traditional Chinese, 3-121
- Simplified Chinese
 - host computer installation, 3-120
 - input method, 3-125
 - input methods, 3-117
 - key functions, 3-117
 - printers, 3-120
 - stick fonts, 3-120
 - terminals, 3-120
- site preparation
 - HP 27110B, 3-48
 - HP 27111A, 3-50
 - HP 27114A, 3-51
 - HP 98196A, 3-53
 - LANIC card, 3-46
- SNA/9000 reference pages, 3-25
- SNA3179G
 - configuring, 3-24
 - installing, 3-24
 - introduction, 3-24
 - product files, 3-24
 - troubleshooting, 3-24
 - using, 3-24
- SNA3270
 - identifying the SNA host connection, 3-21
 - installing, 3-21
 - introduction, 3-21
 - product files, 3-21
 - troubleshooting, 3-21
 - using, 3-21
- SNA3770
 - configuring, 3-22
 - identifying the SNA host connection, 3-22
 - installing, 3-22
 - introduction, 3-22
 - product files, 3-22
 - troubleshooting, 3-22
 - using, 3-22
- SNALink
 - configuring, 3-23
 - identifying the SNA host connection, 3-23
 - installing, 3-23
 - introduction, 3-23
 - product files, 3-23
 - troubleshooting, 3-23
- source files, modify (RTE to HP-UX), 3-111
- source program migration, Pascal, 3-108
- special files, 3-11
- spool system configuration, SAM, 3-175

- SQL (See "HP SQL")
- SQLUtil commands, 3-90
- SQLUTIL, 3-97
- SRM networks, 3-56
- Starbase
 - controlling, 3-75
 - display list (functionality), 3-74
 - display list, 3-74
 - handlers, 3-63
 - input, 3-76
 - memory driver, 3-68
 - overview, 3-75
 - text, using, 3-76
- Stick fonts
 - Hangul (Korean), 3-121
 - Japanese, 3-119
 - Simplified Chinese, 3-120
 - Traditional Chinese, 3-121
- storage and alignment comparisons, HP C, 3-149
- storing, retrieving, and printing images, 3-77
- stream sockets, using with BSD IPC, 3-29
- subprograms, FORTRAN 77, 3-153
- subroutines, 3-11
- subsystems, portability, 3-114
- symbolic debugger commands, 3-139
- synchronization with semaphores, 3-167
- system
 - accounting, 3-171
 - administration tasks, 3-170
 - administration, PORT/RX migration, 3-112
 - administration, SAM, 3-174
 - asynchronous I/O, 3-167
 - calls, 3-11
 - configuration, SAM, 3-175
 - library, RTE, 3-113
 - maintenance procedures, 3-11
 - management concepts, 3-171
 - reconfiguration, 3-171
 - startup and shutdown, 3-170
 - V process attributes, 3-129
- system-specific features of HP-UX, 3-157

T

- table processing
 - BULK (HP SQL C), 3-86
 - BULK (HP SQL Pascal), 3-96
 - BULK, 3-88
 - sequential (HP SQL C), 3-86
 - sequential (HP SQL FORTRAN), 3-92
 - sequential (HP SQL Pascal), 3-96
 - sequential, 3-88
- tables (tbl), a program to format, 3-10

- tbl, 3-10
- TDR use, LAN, 3-55
- Telnet, logging into a host with, 3-41
- terminal device driver, 3-68
- terminal I/O, 3-129
- terminals
 - Hangul (Korean), 3-121
 - Japanese, 3-119
 - Simplified Chinese, 3-120
 - Traditional Chinese, 3-120
- ThinLAN cable installation, 3-55
- time-based scheduling, 3-166
- Traditional Chinese
 - code, 3-126
 - host computer installation, 3-120
 - input method, 3-127
 - input methods, 3-117
 - key functions, 3-117
 - printers, 3-120
 - stick fonts, 3-120
 - terminals, 3-120
- transformation matrix stack, 3-76
- troff/nroff text processors, 3-10
- troubleshooting and diagnostics
 - HP 27111A, 3-50
 - HP 27114A, 3-52
 - HP 98196A, 3-53
 - LANIC card, 3-46
 - NS, 3-35
- troubleshooting procedure, network, 3-38
- troubleshooting
 - HP 27110B, 3-48
 - LAN, NS and ARPA, 3-38
 - NFS, 3-40
 - SNA3179G, 3-24
 - SNA3270, 3-21
 - SNA3770, 3-22
 - SNALink, 3-23
 - system management, 3-171
- type conversions, 3-146

U

- updating HP-UX, 3-173
- user-callable library routines, 3-108
- users, listing with rwho, 3-41
- user's tutorial, HP-UX, 3-13
- utilities
 - HP-UX, 3-13
 - network information, 3-34
 - RTE, 3-113
- UUCP
 - management, 3-175

configuring, 3-136
installing, 3-136

V

VAX/VMS source file, cross-system NFT, 3-36
Vi/Ex editors, 3-7
Vi
 an introductory tutorial, 3-5
 setting your environment, 3-5
view control and graphics pipeline, 3-75
Viewing transformations, 3-58
Vt: Virtual terminal, 3-135

X

XDR protocol specification, 3-37
X.25, the product, 3-19

Y

yac compiler, 3-132
YP protocol specification, 3-37
YP, configuration and maintenance, 3-39

Product Line Sales/Support Key

Key Product Line

A Analytical

CM Components

C Computer Systems

E Electronic Instruments & Measurement Systems

M Medical Products

P Personal Computation Products

* Sales only for specific product line

** Support only for specific product line

IMPORTANT: These symbols designate general product line capability. They do not insure sales or support availability for all products within a line, at all locations. Contact your local sales office for information regarding locations where HP support is available for specific products.

HEADQUARTERS OFFICES

If there is no sales office listed for your area, contact one of these headquarters offices.

ASIA

Hewlett-Packard Asia Ltd.
47/F, 26 Harbour Rd.,
Wanchai, **HONG KONG**
G.P.O. Box 863, Hong Kong
Tel: 5-8330833
Telex: 76793 HPA HX
Cable: HPASIAL TD

CANADA

Hewlett-Packard (Canada) Ltd.
6877 Goreway Drive
MISSISSAUGA, Ontario L4V 1M8
Tel: (416) 678-9430
Telex: 069-8644

EASTERN EUROPE

Hewlett-Packard Ges.m.b.h.
Liebigasse 1
P.O. Box 72
A-1222 **VIENNA**, Austria
Tel: (222) 2500-0
Telex: 13 4425 HEPA A

NORTHERN EUROPE

Hewlett-Packard S.A.
V. D. Hooplaan 241
P.O. Box 999
NL-118 LN 15 **AMSTELVEEN**
The Netherlands
Tel: 20 5479999
Telex: 18919 hpner

SOUTH EAST EUROPE

Hewlett-Packard S.A.
World Trade Center
110 Avenue Louis-Casai
1215 Cointrin, **GENEVA**, Switzerland
Tel: (022) 98 96 51
Telex: 27225 hpser
Mail Address:
P.O. Box
CH-1217 Meyrin 1
GENEVA
Switzerland

MIDDLE EAST AND CENTRAL AFRICA

Hewlett-Packard S.A.
Middle East/Central
Africa Sales H.Q.
7, rue du Bois-du-Lan
P.O. Box 364
CH-1217 Meyrin 1
GENEVA
Switzerland
Tel: (022) 83 12 12
Telex: 27835 hmea ch
Telefax: (022) 83 15 35

UNITED KINGDOM

Hewlett-Packard Ltd.
Nine Mile Ride
WOKINGHAM
Berkshire, RG113LL
Tel: 0344 773100
Telex: 848805/848814/848912

UNITED STATES OF AMERICA

Customer Information Center
(800) 752-0900
6:00 AM to 5 PM Pacific Time

EASTERN USA

Hewlett-Packard Co.
4 Choke Cherry Road
ROCKVILLE, MD 20850
Tel: (301) 948-6370

MIDWESTERN USA

Hewlett-Packard Co.
5201 Tollview Drive
ROLLING MEADOWS, IL 60008
Tel: (312) 255-9800

SOUTHERN USA

Hewlett-Packard Co.
2000 South Park Place
ATLANTA, GA 30339
Tel: (404) 955-1500

WESTERN USA

Hewlett-Packard Co.
5161 Lankershim Blvd.
NORTH HOLLYWOOD, CA 91601
Tel: (818) 505-5600

OTHER INTERNATIONAL AREAS

Hewlett-Packard Co.
Intercontinental Headquarters
3495 Deer Creek Road
PALO ALTO, CA 94304
Tel: (415) 857-1501
Telex: 034-8300
Cable: HEWPAC

ALGERIA

Hewlett-Packard Trading S.A.
Bureau de Liaison Alger
Villa des Lions
9, Hai Galloul
DZ-BORDJ EL BAHRI
Tel: 76 03 36
Telex: 63343 dlion dz

ANGOLA

Telectra Angola LDA
Empresa Técnica de Equipamentos
16 rue Cons. Julio de Vilhena

LUANDA

Tel: 35515.35516
Telex: 3134
E.P

ARGENTINA

Hewlett-Packard Argentina S.A.
Montaneses 2140/50
1428 **BUENOS AIRES**
Tel: 541-11-1441
Telex: 22796 HEW PAC-AR
A.C.E.P
Biotron S.A.C.I.M.e.I.
Av. Paso Colon 221, Piso 9
1399 **BUENOS AIRES**
Tel: 541-333-490,
541-322-587

Telex: 17595 BIONAR
M
Laboratorio Rodriguez
Corswant S.R.L.
Misiones, 1156 - 1876
Bernal, Oeste
BUENOS AIRES
Tel: 252-3958, 252-4991
A
Intermaco S.R.L.
Florida 537/71
Galeria Jardin - Local 28
1005 **BUENOS AIRES**
Tel: 393-4471/1928
Telex: 22796 HEW PAC-AR
P (Calculators)
Argentina Esanco S.R.L.
A/ASCO 2328
1416 **BUENOS AIRES**
Tel: 541-58-1981, 541-59-2767
Telex: 22796 HEW PAC-AR
A
All Computers S.A.
Montaneses 2140/50 5 Piso
1428 **BUENOS AIRES**
Tel: 781-4030/4039/783-4886
Telex: 18148 Ocmc
P

AUSTRALIA

Adelaide, South Australia Office

Hewlett-Packard Australia Ltd.
153 Greenhill Road
PARKSIDE, S.A. 5063
Tel: 61-8-272-5911
Telex: 82536
Cable: HEWPARD Adelaide
A*.C.C.M.E.P

Brisbane, Queensland Office

Hewlett-Packard Australia Ltd.
10 Payne Road
THE GAP, Queensland 4061
Tel: 61-7-300-4133
Telex: 42133
Cable: HEWPARD Brisbane
A.C.C.M.E.M.P

Canberra, Australia Capital Territory Office

Hewlett-Packard Australia Ltd.
Thynne Street, Fern Hill Park
BRUCE, A.C.T. 2617
P.O. Box 257,

JAMISON, A.C.T. 2614
Tel: 61-62-80-4244
Telex: 62650
Cable: HEWPARD Canberra
C.C.M.E.P

Melbourne, Victoria Office

Hewlett-Packard Australia Ltd.
31-41 Joseph Street
P.O. Box 221
BLACKBURN, Victoria 3130
Tel: 61-3-895-2895
Telex: 31-024
Cable: HEWPARD Melbourne
A.C.C.M.E.M.P

Perth, Western Australia Office

Hewlett-Packard Australia Ltd.
Herdsman Business Park
CLAREMONT, W.A. 6010
Tel: 61-9-383-2188
Telex: 93859
Cable: HEWPARD Perth
C.C.M.E.P

Sydney, New South Wales Office

Hewlett-Packard Australia Ltd.
17-23 Talavera Road
P.O. Box 308
NORTH RYDE, N.S.W. 2113
Tel: 61-2-888-4444
Telex: 21561
Cable: HEWPARD Sydney
A.C.C.M.E.M.P

AUSTRIA

Hewlett-Packard Ges.m.b.h.
Verkaufsbuero Graz
Grottenhofstrasse 94
A-8052 **GRAZ**
Tel: 43-316-291-5660
Telex: 312375
C.E

Hewlett-Packard Ges.m.b.h.
Liebigasse 1
P.O. Box 72
A-1222 **VIENNA**
Tel: 43-222-2500
Telex: 134425 HEPA A
A.C.C.M.E.M.P

BAHRAIN

Green Salon
P.O. Box 557
MANAMA
Tel: 255503-250950
Telex: 84419
P

Wael Pharmacy
P.O. Box 648
MANAMA
Tel: 256123
Telex: 8550 WAEL BN
E.M
Zayani Computer Systems
218 Shaik Mubarak Building
Government Avenue
P.O. Box 5918
MANAMA
Tel: 276278
Telex: 9015 plans bn
P

BELGIUM

Hewlett-Packard Belgium S.A./N.V.
Blvd de la Woluwe, 100
Woluwedel
B-1200 **BRUSSELS**
Tel: (02) 32-2-761-31-11
Telex: 23494 hewpac
A.C.C.M.E.M.P

BERMUDA

Applied Computer Technologies
Atlantic House Building
P.O. Box HM 2091
Par-La-Ville Road
HAMILTON 5
Tel: 295-1616
Telex: 380 3589/ACT BA
P

BOLIVIA

Arrellano Ltda
Av. 20 de Octubre #2125
Casilla 1383

LA PAZ

Tel: 368541
M

BRAZIL

Hewlett-Packard do Brasil S.A.
Alameda Rio Negro, 750-I. AND.
ALPHAVILLE
06400 Barueri SP
Tel: (011) 421.1311
Telex: (011) 71351 HPBR BR
Cable: HEWPACK Sao Paulo
C.M.E

Hewlett-Packard do Brasil S.A.
Praia de Botafogo 228-A-614
6. AND.-CONJ. 601
Edificio Argentina - Ala A
22250 **RIO DE JANEIRO, RJ**
Tel: (021) 552-6422
Telex: 21905 HPBR BR
Cable: HEWPACK Rio de Janeiro
E

Van Den Cientifica Ltda.
Rua Jose Bonifacio, 458
Todos os Santos
20771 **RIO DE JANEIRO, RJ**
Tel: (021) 593-8223
Telex: 33487 EGLB BR
A

ANAMED I.C.E.I. Ltda.
Rua Vergueiro, 360
04012 **SAO PAULO, SP**
Tel: (011) 572-1106
Telex: 24720 HPBR BR
M

Datatronix Electronica Ltda.
Av. Pacaembu 746-C11
SAO PAULO, SP
Tel: (118) 260111
CM

BRUNEI

Komputer Wisman Sdn Bhd
G6, Chandrawasen Cmplx,
Jalan Tutong
P.O. Box 1297.

BANDAR SERI BEGAWAN
NEGARA BRUNI DARUSSALAM
Tel: 673-2-2000-70/26711
C.E.P.

CAMEROON

Beriac
B. P. 23
DOUALA
Tel: 420153
Telex: 5351
C.P.

CANADA**Alberta**

Hewlett-Packard (Canada) Ltd.
3030 3rd Avenue N.E.
CALGARY, Alberta T2A 6T7
Tel: (403) 235-3100
A.C.C.M.E.*.M.P.*

Hewlett-Packard (Canada) Ltd.
11120-178th Street
EDMONTON, Alberta T5S 1P2
Tel: (403) 486-6666
A.C.C.M.E.M.P.

British Columbia

Hewlett-Packard (Canada) Ltd.
10691 Shellbridge Way
RICHMOND,
British Columbia V6X 2W8
Tel: (604) 270-2277
Telex: 610-922-5059
A.C.C.M.E.*.M.P.*
Hewlett-Packard (Canada) Ltd.
121 - 3350 Douglas Street
VICTORIA, British Columbia V8Z 3L1
Tel: (604) 381-6616
C

Manitoba

Hewlett-Packard (Canada) Ltd.
1825 Inkster Blvd.
WINNIPEG, Manitoba R2X 1R3
Tel: (204) 694-2777
A.C.C.M.E.M.P.*

New Brunswick

Hewlett-Packard (Canada) Ltd.
814 Main Street
MONCTON, New Brunswick E1C 1E6
Tel: (506) 855-8841
C

Nova Scotia

Hewlett-Packard (Canada) Ltd.
Suite 111
900 Windmill Road
DARTMOUTH, Nova Scotia B3B 1P7
Tel: (902) 469-7820
C.C.M.E.*.M.P.*

Ontario

Hewlett-Packard (Canada) Ltd.
3325 N. Service Rd., Unit W03
BURLINGTON, Ontario L7N 3G2
Tel: (416) 335-8644
C.M.*
Hewlett-Packard (Canada) Ltd.
552 Newbold Street
LONDON, Ontario N6E 2S5
Tel: (519) 686-9181
A.C.C.M.E.*.M.P.*

Hewlett-Packard (Canada) Ltd.
6877 Goreway Drive
MISSISSAUGA, Ontario L4V 1M8
Tel: (416) 678-9430
Telex: 069-83644
A.C.C.M.E.M.P.

Hewlett-Packard (Canada) Ltd.
2670 Queensview Dr.
OTTAWA, Ontario K2B 8K1
Tel: (613) 820-6483
A.C.C.M.E.*.M.P.*
Hewlett-Packard (Canada) Ltd.
3790 Victoria Park Ave.
WILLOWDALE, Ontario M2H 3H7
Tel: (416) 499-2550
C.E.

Quebec

Hewlett-Packard (Canada) Ltd.
17500 Trans Canada Highway
South Service Road
KIRKLAND, Quebec H9J 2X8
Tel: (514) 697-4232
Telex: 058-21521
A.C.C.M.E.M.P.*
Hewlett-Packard (Canada) Ltd.
1150 rue Claire Fontaine
QUEBEC CITY, Quebec G1R 5G4
Tel: (418) 648-0726
C

Hewlett-Packard (Canada) Ltd.
130 Robin Crescent
SASKATOON, Saskatchewan S7L 6M7
Tel: (306) 242-3702
C

CHILE

ASC Ltda.
Austria 2041
SANTIAGO
Tel: 223-5946, 223-6148
Telex: 392-340192 ASC CK
C.P.

Jorge Calcagni y Cia.
Av. Italia 634 Santiago
Casilla 16475
SANTIAGO 9
Tel: 9-011-562-222-0222
Telex: 392440283 JCYCL CZ
C.M.E.M.

Metrolab S.A.
Monjitas 454 of. 206
SANTIAGO
Tel: 395752, 398296
Telex: 340866 METLAB CK
A

Olympia (Chile) Ltda.
Av. Rodrigo de Araya 1045
Casilla 256-V
SANTIAGO 21
Tel: 225-5044
Telex: 340892 OLYMP
Cable: Olympiachile Santiagochile
C.P.

CHINA, People's Republic of
China Hewlett-Packard Co. Ltd.
47/F China Resources Bldg.
26 Harbour Road

HONG KONG
Tel: 5-8330833
Telex: 76793 HPA HX
Cable: HP ASIA LTD
A.*.M.*

China Hewlett-Packard Co. Ltd.
P.O. Box 9610, Beijing
4th Floor, 2nd Watch Factory Main
Shuang Yu Shou, Bei San Huan Road
Hai Dian District
BEIJING
Tel: 33-1947 33-7426
Telex: 22601 CTSHP CN
Cable: 1920 Beijing
A.C.C.M.E.M.P.

China Hewlett-Packard Co. Ltd.
CHP Shanghai Branch
23/F Shanghai Union Building
100 Yan An Rd. East
SHANG-HAI
Tel: 265550
Telex: 33571 CHPSB CN
Cable: 3416 Shanghai
A.C.C.M.E.M.P.

COLOMBIA

Instrumentación
H. A. Langebaek & Kier S.A.
Carrera 4A No. 52A-26
Apartado Aereo 6287
BOGOTA 1 D E
Tel: 212-1466
Telex: 44400 INST CO
Cable: AARIS Bogota
C.M.E.M.

Netromedicas Ltda.
Calle 123 No. 9B-31
Apartado Aereo 100-958
BOGOTA D.E., 10
Tel: 213-5267, 213-1615
Telex: 43415 HEGAS CO
A

Compumundo
Avenida 15 # 107-80
BOGOTA D.E.
Tel: 57-214-4458
Telex: 39645466 MARCO
P

Carvajal, S. A.
Calle 29 Norte No. 6A-40
Apartado Aereo 46
CALI
Tel: 9-011-57-3-621888
Telex: 39655650 CUJCL CO
C.E.P.

CONGO

Seric-Congo
B. P. 2105
BRAZZAVILLE
Tel: 815034
Telex: 5262

COSTA RICA

Cientifica Costarricense S.A.
Avenida 2, Calle 5
San Pedro de Montes de Oca
Apartado 10159
SAN JOSE
Tel: 9-011-506-243-820
Telex: 3032367 GALGUR CR
C.M.E.M.

O. Fischel R. Y. Cia. S.A.
Apartados 434-10174
SAN JOSE
Tel: 23-72-44
Telex: 2379
Cable: OFIR
A

CYPRUS

Telerexa Ltd.
P.O. Box 1152
Valentine House
8 Stassandrou St
NICOSIA
Tel: 45 628 62 698
Telex: 5845 tlrx cy
E.M.P.

DENMARK

Hewlett-Packard A/S
Kongevejen 25
DK-3460 **BIRKEROD**
Tel: 45-02-81-6640
Telex: 37409 hpas dk
A.C.C.M.E.M.P.
Hewlett-Packard A/S
Rølhedsvej 32
DK-8240 **RISSKOV**, Aarhus
Tel: 45-06-17-6000
Telex: 37409 hpas dk
C.E.

DOMINICAN REPUBLIC

Microprog S.A.
Juan Tomás Mejía y Cotes No. 60
Arroyo Hondo
SANTO DOMINGO
Tel: 565-6268
Telex: 4510 ARENTA DR (RCA)
P

ECUADOR

CYEDE Cia. Ltda.
Avenida Eloy Alfaro 1749
y Belgica
Casilla 6423 CCI
QUITO
Tel: 9-011-593-2-450975
Telex: 39322548 CYEDE ED
E.P.
Medtronic
Valladolid 524 Madrid
P.O. 9171, **QUITO**
Tel: 2-238-951
Telex: 2298 ECUAME ED
A

Hospitalar S.A.
Robles 625
Casilla 3590
QUITO
Tel: 545-250, 545-122
Telex: 2485 HOSPTL ED
Cable: HOSPITALAR-Quito
M
Ecuador Overseas Agencies C.A.
Calle 9 de Octubre #818
P.O. Box 1296 Guayaquil
QUITO
Tel: 306022
Telex: 3361 PBCGYE ED
M

EGYPT

Sakro Enterprises
P.O. Box 259
ALEXANDRIA
Tel: 802908, 808020, 805302
Telex: 54333
C

International Engineering Associates
6 El Gamea Street
Agouza
CAIRO
Tel: 71-21-68134-80-940
Telex: 93830 IEA UN
Cable: INTEGASSO
E

Sakro Enterprises
70 Mossadak Street
Dokki, Giza
CAIRO
Tel: 706 440, 701 807
Telex: 9337
C

S.S.C. Medical
40 Gezerat El Arab Street
Mohandessin
CAIRO
Tel: 803844, 805998, 810263
Telex: 20503 SSC UN
M.*

EL SALVADOR

IPESA de El Salvador S.A.
29 Avenida Norte 1223
SAN SALVADOR
Tel: 9-011-503-266-858
Telex: 301 20539 IPESA SAL
A.C.C.M.E.P.

ETHIOPIA

Seric-Ethiopia
P.O. Box 2764
ADDIS ABABA
Tel: 185114
Telex: 21150
C.P.

FINLAND

Hewlett-Packard Finland
Field Oy
Niittylanpolku IO
00620 **HELSINKI**
Tel: (90) 757-1011
Telex: 122022 Field SF
CM
Hewlett-Packard Oy
Piispankalliontie 17
02200 **ESPOO**
Tel: (90) 887-21
Telex: 121563 HEWPA SF
A.C.E.M.P.

FRANCE

Hewlett-Packard France
Z.I. Mercure B
Rue Berthelot
13763 Les Milles Cedex
AIX-EN-PROVENCE
Tel: 33-42-59-4102
Telex: 410770F
A.C.E.M.
Hewlett-Packard France
64, Rue Marchand Saillant
F-61000 **ALENCON**
Tel: (33) 29 04 42
C**
Hewlett-Packard France
Batiment Levitan
2585, route de Grasse
Bretelle Autoroute
06600 **ANTIBES**
Tel: (93) 74-59-19
C

FRANCE (Cont'd)

Hewlett-Packard France
28 Rue de la République
Boite Postale 503
25026 **BESANÇON CEDEX, FRANCE**
Tel: (81) 83-16-22
Telex: 361157
C.E.*

Hewlett-Packard France
ZA Kergaradec
Rue Fernand Forest
F-29239 **GOUEESNOU**
Tel: (98) 41-87-90
E

Hewlett-Packard France
Chemin des Mouilles
Boite Postale 162
69131 **ECULLY CEDEX** (Lyon)
Tel: 33-78-33-8125
Telex: 310617F
A.C.E.M.P.*

Hewlett-Packard France
Parc d'activités du Bois Briard
2 Avenue du Lac
F-91040 **EVRY CEDEX**
Tel: 3311/6077 9660
Telex: 692315F
C

Hewlett-Packard France
Application Center
5, avenue Raymond Chanas
38320 **EYBENS** (Grenoble)
Tel: (76) 62-57-98
Telex: 980124 HP GRENOB EYBE
C

Hewlett-Packard France
Rue Fernand Forest
Z.A. Kergaradec
29239 **GOUESNOU**
Tel: (98) 41-87-90

Hewlett-Packard France
Parc Club des Tanneries
Batiment B4
4, Rue de la Faisanderie
67381 **LINCOLSHEIM**
(Strasbourg)
Tel: (88) 76-15-00
Telex: 890141F
C.E*.M*.P.*

Hewlett-Packard France
Centre d'affaires Paris-Nord
Bâtiment Ampère
Rue de la Commune de Paris
Boite Postale 300
93153 **LE BLANC-MESNIL**
Tel: (1) 865-44-52
Telex: 211032F
C.E.M

Hewlett-Packard France
Parc d'activités Cadéra
Quartier Jean-Mermoz
Avenue du Président JF Kennedy
33700 **MÉRIGNAC** (Bordeaux)
Tel: 33-56-34-0084
Telex: 550105F
C.E.M

Hewlett-Packard France
3, Rue Graham Bell
BP 5149
57074 **METZ CEDEX**
Tel: (87) 36-13-31
Telex: 860602F
C.E

Hewlett-Packard France
Miniparc-ZIRST
Chemin du Vieux Chêne
38240 **MEYLAN** (Grenoble)
Tel: (76) 90-38-40
980124 HP Grenoble
C

Hewlett-Packard France
Bureau vert du Bois Briard
Chemin de la Garde
- CP 212 212
44085 **NANTES CEDEX**
Tel: (40) 50-32-22
Telex: 711085F
A.C.E.CM*.P

Hewlett-Packard France
125, Rue du Faubourg Bannier
45000 **ORLÉANS**
Tel: 33-38-62-2031
E.P.*

Hewlett-Packard France
Zone Industrielle de Courtaboeuf
Avenue des Tropiques
91947 **LES ULIS CEDEX** (Orsay)
Tel: 33-6-907 7825
Telex: 600048F
A.C.CM.E.M.P**

Hewlett-Packard France
15, Avenue de L'Amiral-Bruix
75782 **PARIS CEDEX 16**
Tel: 33-15-02-1220
Telex: 613663F
C.P.*

Hewlett-Packard France
242 Ter, Ave J Mermoz
64000 **PAU**
Tel: 33-59-80-3802
Telex: 550365F
C.E*

Hewlett-Packard France
6, Place Sainte Croix
86000 **POITIERS**
Tel: 33-49-41-2707
Telex: 792335F
C.E*

Hewlett-Packard France
47, Rue de Châtivesle
51100 **REIMS**
Tel: 33-26-88-6919
C.P.*

Hewlett-Packard France
Parc d'activités de la Poterie
Rue Louis Kerautél-Botmel
35000 **RENNES**
Tel: 33-99-51-4244
Telex: 740912F
A*.C.E.M.P.*

Hewlett-Packard France
98 Avenue de Bretagne
76100 **ROUEN**
Tel: 33-35-63-5766
Telex: 770035F
C.E

Hewlett-Packard France
4, Rue Thomas-Mann
Boite Postale 56
67033 **STRASBOURG CEDEX**
Tel: (88) 28-56-46
Telex: 890141F
C.E.M.P.*

Hewlett-Packard France
Le Péripole III
3, Chemin du Pigeonnier de la Cèpière
31081 **TOULOUSE CEDEX**
Tel: 33-61-40-1112
Telex: 531639F
A.C.E.M.P.*

Hewlett-Packard France
Les Cardoulines
Batiment B2
Route des Dolines
Parc d'activité de Valbonne
Sophia Antipolis
06560 **VALBONNE** (Nice)
Tel: (93) 65-39-40
C

Hewlett-Packard France
9, Rue Baudin
26000 **VALENCE**
Tel: 33-75-42-7616
C**

Hewlett-Packard France
Carolor
ZAC de Bois Briard
57640 **VIGY** (Metz)
Tel: (8) 771 20 22
C

Hewlett-Packard France
Parc d'activité des Prés
1, Rue Papin Cedex
59658 **VILLENEUVE D'ASCO**
Tel: 33-20-91-4125
Telex: 160124F
C.E.M.P

Hewlett-Packard France
Parc d'activités Paris-Nord 11
Boite Postale 60020
95971 Roissy Charles de Gaulle
VILLEPINTE
Tel: (1) 48 63 80 80
Telex: 211032F
C.E.M.P.*

GABON

Sho Gabon
P.O. Box 89
LIBREVILLE
Tel: 721 484
Telex: 5230

GERMAN FEDERAL REPUBLIC

Hewlett-Packard GmbH
Vertriebszentrum Mitte
Hewlett-Packard-Strasse
D-6380 **BAD HOMBURG**
Tel: (06172) 400-0
Telex: 410 844 hpbhg
A.C.E.M.P

Hewlett-Packard GmbH
Geschäftsstelle
Keithstrasse 2-4
D-1000 **BERLIN 30**
Tel: (030) 21 99 04-0
Telex: 018 3405 hpbld
A.C.E.M.P

Hewlett-Packard GmbH
Verbindungsstelle Bonn
Friedrich-Ebert-Allee 26
5300 **BONN**
Tel: (0228) 234001
Telex: 8869421

Hewlett-Packard GmbH
Vertriebszentrum Südwest
Schickardstrasse 2
D-7030 **BOBLINGEN**
Postfach 1427
Tel: (07031) 645-0
Telex: 7265 743 hep
A.C.CM.E.M.P

Hewlett-Packard GmbH
Zentralbereich Mktg
Herrenberger Strasse 130
D-7030 **BOBLINGEN**
Tel: (07031) 14-0
Telex: 7265739 hep

Hewlett-Packard GmbH
Geschäftsstelle
Schleefstr. 28a
D-4600 **DORTMUND-41**
Tel: (0231) 45001
Telex: 822858 hepdod
A.C.E

Hewlett-Packard GmbH
Reparaturzentrum Frankfurt
Berner Strasse 117
6000 **FRANKFURT/MAIN 60**
Tel: (069) 500001-0
Telex: 413249 hpffm

Hewlett-Packard GmbH
Vertriebszentrum Nord
Kapstadtring 5
D-2000 **HAMBURG 60**
Tel: 49-40-63-804-0
Telex: 021 613 032 hphh d
A.C.E.M.P

Hewlett-Packard GmbH
Geschäftsstelle
Heidering 37-39
D-3000 **HANNOVER 61**
Tel: (0511) 5706-0
Telex: 092 3259 hphan
A.C.CM.E.M.P

Hewlett-Packard GmbH
Geschäftsstelle
Rosslauer Weg 2-4
D-6800 **MANNHEIM**
Tel: 49-0621-70-05-0
Telex: 0462105 hpmhm
A.C.E

Hewlett-Packard GmbH
Geschäftsstelle
Messerschmittstrasse 7
D-7910 **NEU ULM**
Tel: 49-0731-70-73-0
Telex: 0712816 HP ULM-D
A.C.E*

Hewlett-Packard GmbH
Geschäftsstelle
Emmericher Strasse 13
D-8500 **NURNBERG 10**
Tel: (0911) 5205-0
Telex: 0623 860 hpnbg
C.CM.E.M.P

Hewlett-Packard GmbH
Vertriebszentrum Ratingen
Berliner Strasse 111
D-4030 **RATINGEN 4**
Postfach 31 12
Tel: (02102) 494-0
Telex: 589 070 hprad
A.C.E.M.P

Hewlett-Packard GmbH
Vertriebszentrum Muchen
Eschenstrasse 5
D-8028 **TAUFKIRCHEN**
Tel: 49-89-61-2070
Telex: 0524985 hpmch
A.C.CM.E.M.P

Hewlett-Packard GmbH
Geschäftsstelle
Ermisallee
7517 **WALDBRONN 2**
Postfach 1251
Tel: (07243) 602-0
Telex: 782 838 hepk
A.C.E

GREAT BRITAIN See United Kingdom**GREECE**

Hewlett-Packard A.E.
178, Kifissias Avenue
6th Floor
Halandri-**ATHENS**
Greece
Tel: 301116473 360. 301116726 090
Telex: 221 286 HPHLGR
A.C.CM** .E.M.P

Kostas Karayannis S.A.
8, Omirou Street
ATHENS 133
Tel: 32 30 303, 32 37 371
Telex: 215962 RKAR GR
A.C*.CM.E

Impexin
Intellect Div.
209 Mesogion
11525 **ATHENS**
Tel: 6474481/2
Telex: 216286
P

Haril Company
38, Mihalakopoulou
ATHENS 612
Tel: 7236071
Telex: 218767
M*
Hellamco
P.O. Box 87528
18507 **PIRAEUS**
Tel: 4827049
Telex: 241441
A

GUATEMALA

IPESA DE GUATEMALA
Avenida Reforma 3-48, Zona 9
GUATEMALA CITY
Tel: 316627, 317853, 66471/5
9-011-502-2-316627
Telex: 3055765 IPESA GU
A.C.CM.E.M.P

HONG KONG

Hewlett-Packard Hong Kong, Ltd.
G.P.O. Box 795

5th Floor, Sun Hung Kai Centre
30 Harbour Road, Wan Chai

HONG KONG

Tel: 852-5-832-3211

Telex: 66678 HEWPA HX

Cable: HEWPAK HONG KONG
E.C.P.

CET Ltd.

10th Floor, Hua Asia Bldg.

64-66 Gloucester Road

HONG KONG

Tel: (5) 200922

Telex: 85148 CET HX

CM

Schmidt & Co. (Hong Kong) Ltd.

18th Floor, Great Eagle Centre

23 Harbour Road, Wanchai

HONG KONG

Tel: 5-8330222

Telex: 74766 SCHMC HX

A.M.

ICELAND

Hewlett-Packard Iceland

Hoefdabakka 9

112 REYKJAVIK

Tel: 354-1-67-1000

Telex: 37409

A.C.C.M.E.M.P

INDIA

Computer products are sold through
Blue Star Ltd. All computer repairs
and maintenance service is done
through Computer Maintenance Corp.

Blue Star Ltd.

B. D. Patel House

Near Sardar Patel Colony

AHMEDABAD 380 014

Tel: 403531, 403532

Telex: 0121-234

Cable: BLUE FROST

A.C.C.M.E

Blue Star Ltd.

40/4 Lavelle Road

BANGALORE 560 001

Tel: 57881, 867780

Telex: 0845-430 BSLBIN

Cable: BLUESTAR

A.C.C.M.E

Blue Star Ltd.

Band Box House

Prabhadevi

BOMBAY 400 025

Tel: 4933101, 4933222

Telex: 011-71051

Cable: BLUESTAR

A.M.

Blue Star Ltd.

Sahas

414/2 Vir Savarkar Marg

Prabhadevi

BOMBAY 400 025

Tel: 422-6155

Telex: 011-71193 BSSS IN

Cable: FROSTBLUE

A.C.M.E.M

Blue Star Ltd.

Ka'ran, 19 Vishwas Colony

Alkapuri, **BORODA**, 390 005

Tel: 65235, 65236

Cable: BLUE STAR

A

Blue Star Ltd.

7 Hare Street

P.O. Box 506

CALCUTTA 700 001

Tel: 230131, 230132

Telex: 031-61120 BSNF IN

Cable: BLUESTAR

A.M.C.E

Blue Star Ltd.

133 Kodambakkam High Road

MADRAS 600 034

Tel: 472056, 470238

Telex: 041-379

Cable: BLUESTAR

A.M

Blue Star Ltd.

13 Community Center

New Friends Colony

NEW DELHI 110 065

Tel: 682547

Telex: 031-2463

Cable: BLUEFROST

A.C.C.M.E.M

Blue Star Ltd.

15/16 C Wellesley Rd.

PUNE 411 011

Tel: 22775

Cable: BLUE STAR

A

Blue Star Ltd.

2-2-47/1108 Bolarum Rd.

SECUNDERABAD 500 003

Tel: 72057, 72058

Telex: 0155-459

Cable: BLUEFROST

A.C.E

Blue Star Ltd.

T.C. 7/603 Poornima

Maruthunkuzhi

TRIVANDRUM 695 013

Tel: 65799, 65820

Telex: 0884-259

Cable: BLUESTAR

E

Computer Maintenance Corporation
Ltd

115, Sarojini Devi Road

SECUNDERABAD 500 003

Tel: 310-184, 345-774

Telex: 031-2960

C.C.

INDONESIA

BERCA Indonesia P.T.

P.O. Box 496/Jkt

Jl. Abdul Muis 62

JAKARTA

Tel: 21-373009

Telex: 46748 BERSAL IA

Cable: BERSAL JAKARTA

P

BERCA Indonesia P.T.

P.O. Box 2497/Jkt

Antara Bldg., 12th Floor

Jl. Medan Merdeka Selatan 17

JAKARTA-PUSAT

Tel: 21-340417

Telex: 46748 BERSAL IA

A.C.E.M.P

BERCA Indonesia P.T.

Jalan Kutai 24

SURABAYA

Tel: 67118

Telex: 31146 BERSAL SB

Cable: BERSAL-SURABAYA

A.C.E.M.P

IRAQ

Hewlett-Packard Trading S.A.

Service Operation

Al Mansoor City 9B/3/7

BAGHDAD

Tel: 551-49-73

Telex: 212-455 HEPAIRAQ IK

C

IRELAND

Hewlett-Packard Ireland Ltd.

Temple House, Temple Road

Blackrock, Co. **DUBLIN**

Tel: 88/333/99

Telex: 30439

C.E.P

Hewlett-Packard Ltd.

75 Belfast Rd, Carrickfergus

Belfast BT38 8PH

NORTHERN IRELAND

Tel: 09603-67333

Telex: 747626

M

ISRAEL

Eldan Electronic Instrument Ltd.

P.O. Box 1270

JERUSALEM 91000

Tel: 09603-67333

Telex: 747626

M

ISRAEL

Eldan Electronic Instrument Ltd.

P.O. Box 1270

JERUSALEM 91000

Tel: 09603-67333

Telex: 747626

M

Computation and Measurement

Systems (CMS) Ltd.

11 Masad Street

67060

ITALY

Hewlett-Packard Italiana S.p.A.

Traversa 99C

Via Giulio Petroni, 19

I-70124 **BARI**

Tel: (080) 41-07-44

C.M

Hewlett-Packard Italiana S.p.A.

Via Emilia, 51/C

I-40011 **BOLOGNA** Anzola Dell'Emilia

Tel: 39-051-731061

Telex: 511630

C.E.M

Hewlett-Packard Italiana S.p.A.

Via Principe Nicola 43G/C

I-95126 **CATANIA**

Tel: (095) 37-10-87

Telex: 970291

C

Hewlett-Packard Italiana S.p.A.

Via G. di Vittorio 10

20094 **CORSICO** (Milano)

Tel: 39-02-4408351

Hewlett-Packard Italiana S.p.A.

Viale Brigata Bisagno 2

16129 **GENOVA**

Tel: 39-10-541141

Telex: 215238

Hewlett-Packard Italiana S.p.A.

Viale G. Modugno 33

I-16156 **GENOVA PEGLI**

Tel: (010) 68-37-07

Telex: 215238

C.E

Hewlett-Packard Italiana S.p.A.

Via G. di Vittorio 9

I-20063 **CERNUSCO SUL**

NAVIGLIO

(Milano)

Tel: (02) 923691

Telex: 334632

A.C.C.M.E.M.P

Hewlett-Packard Italiana S.p.A.

Via Nuova Rivoltana 95

20090 **LIMITO** (Milano)

Tel: 02-92761

Hewlett-Packard Italiana S.p.A.

Via Nuova San Rocco a

Capodimonte, 62/A

I-80131 **NAPOLI**

Tel: (081) 7413544

Telex: 710698

A.C.C.M.E

Hewlett-Packard Italiana S.p.A.

Via Orazio 16

80122 **NAPOLI**

Tel: (081) 7611444

Telex: 710698

Hewlett-Packard Italiana S.p.A.

Via Pellizzo 15

35128 **PADOVA**

Tel: 39-49-664-888

Telex: 430315

A.C.C.M.E

Hewlett-Packard Italiana S.p.A.

Viale C. Pavese 340

I-00144 **ROMA EUR**

Tel: 39-65-48-31

Telex: 610514

A.C.C.M.E.P.

Hewlett-Packard Italiana S.p.A.

Via di Casellina 57/C

500518 **SCANDICCI-FIRENZE**

Tel: 39-55-753863

C.E.M

Hewlett-Packard Italiana S.p.A.

Corso Svizzera, 185

I-10144 **TORINO**

Tel: 39-11-74-4044

Telex: 221079

A.C.C.E

IVORY COAST

S.I.T.E.L.

Societe Ivoirienne de

Telecommunications

Bd. Giscard d'Estaing

Carrefour Marcori

Zone 4.A.

Boite postale 2580

ABIDJAN 01

Tel: 353600

JAPAN (Cont'd)

Yokogawa-Hewlett-Packard Ltd.
Chuo Bldg., 5-4-20 Nishi-Nakajima
4-20 Nishinakajima, 5 Chome,
Yodogawa-ku

OSAKA, 532
Tel: (06) 304-6021
Telex: YHPOSA 523-3624
C.C.M.E.M.P.*

Yokogawa-Hewlett-Packard Ltd.
1-27-15, Yabe
SAGAMIHARA Kanagawa, 229
Tel: 0427 59-1311

Yokogawa-Hewlett-Packard Ltd.
Hamamatsu Motoshiro-Cho Daichi
Seimei Bldg 219-21, Motoshiro-Cho
Hamamatsu-shi

SHIZUOKA, 430
Tel: (0534) 56 1771
C.E

Yokogawa-Hewlett-Packard Ltd.
Shinjuku Daiichi Seimei Bldg.
2-7-1, Nishi Shinjuku
Shinjuku-ku. **TOKYO** 163
Tel: 03-348-4611
C.E.M

Yokogawa Hewlett-Packard Ltd.
9-1, Takakura-cho
Hachioji-shi, **TOKYO**, 192
Tel: 81-426-42-1231
C.E

Yokogawa-Hewlett-Packard Ltd.
3-29-21 Takaido-Higashi, 3 Chome
Suginami-ku **TOKYO** 168
Tel: (03) 331-6111
Telex: 232-2024 YHPTOK
C.C.M.E.P.*

Yokogawa Hokushin Electric
Corporation
Shinjuku-NS Bldg. 10F
4-1 Nishi-Shinjuku 2-Chome
Shinjuku-ku
TOKYO, 163
Tel: (03) 349-1859
Telex: J27584
A

Yokogawa Hokushin Electric Corp.
9-32 Nokacho 2 Chome
Musashino-shi
TOKYO, 180
Tel: (0422) 54-1111
Telex: 02822-421 YEW MTK J
A

Yokogawa-Hewlett-Packard Ltd.
Meiji-Seimei
Utsunomiya Odori Building
1-5 Odori, 2 Chome
UTSUNOMIYA, Tochigi 320
Tel: (0286) 33-1153
C.E

Yokogawa-Hewlett-Packard Ltd.
Yasuda Seimei Nishiguchi Bldg.
30-4 Tsuruya-cho, 3 Chome
Kanagawa-ku, **YOKOHAMA** 221
Tel: (045) 312-1252
C.C.M.E

JORDAN

Scientific and Medical Supplies Co.
P.O. Box 1387

AMMAN
Tel: 24907, 39907
Telex: 21456 SABCO JO
C.E.M.P

KENYA

ADCOM Ltd., Inc., Kenya
P.O. Box 30070

NAIROBI
Tel: 331955
Telex: 22639
E.M

KOREA

Samsung Hewlett-Packard Co. Ltd.
Dongbang Yeoeudo Building
12-16th Floors
36-1 Yeoeudo-Dong
Youngdeungpo-Ku

SEOUL
Tel: 784-4666, 784-2666
Telex: 25166 SAMSAN K
C.C.M.E.M.P

Young In Scientific Co., Ltd.
Youngwha Building
547 Shinsa Dong, Kangnam-Ku
SEOUL 135
Tel: 546-7771
Telex: K23457 GINSCO
A

Dongbang Healthcare
Products Co. Ltd.
Suite 301 Medical Supply Center
Bldg. 1-31 Dongsungdong
Jong Ro-gu, **SEOUL**
Tel: 764-1171, 741-1641
Telex: K25706 TKBKO
Cable: TKBEPKO
M

KUWAIT

Al-Khaldiya Trading & Contracting
P.O. Box 830

SAFAT
Tel: 424910, 411726
Telex: 22481 AREEG KT
Cable: VISCOUNT
E.M.A

Gulf Computing Systems
P.O. Box 25125
SAFAT
Tel: 435969
Telex: 23648
P

Photo & Cine Equipment
P.O. Box 270
SAFAT
Tel: 2445111
Telex: 22247 MATIN KT
Cable: MATIN KUWAIT
P

W.J. Towell Computer Services
18, Jules Koenig Street
SAFAT
Tel: 2462640/1
Telex: 30336 TOWELL KT
C

LEBANON

Computer Information Systems S.A.L.
Chammass Building
P.O. Box 11-6274 Dora

BEIRUT
Tel: 89 40 73
Telex: 42309 chasis le
C.E.M.P

LIBERIA

Unichemicals Inc.
P.O. Box 4509

MONROVIA
Tel: 224282
Telex: 4509
E

LUXEMBOURG

Hewlett-Packard Belgium S.A./N.V.
Blvd de la Woluwe, 100
Woluwedai
B-1200 **BRUSSELS**
Tel: (02) 762-32-00
Telex: 23-494 paloben bru
A.C.C.M.E.M.P

MADAGASCAR

Technique et Precision
12, rue de Nice
P.O. Box 1227
101 **ANTANANARIVO**
Tel: 22090
Telex: 22255
P

MALAYSIA

Hewlett-Packard Sales (Malaysia)
Sdn. Bhd.
9th Floor
Chung Khiaw Bank Building
46, Jalan Raja Laut
50736 **KUALA LUMPUR, MALAYSIA**
Tel: 03-2986555
Telex: 31011 HPSM MA
A.C.E.M.P.*

Protel Engineering
P.O. Box 1917
Lot 6624, Section 64
23/4 Pending Road
Kuching, **SARAWAK**
Tel: 36299
Telex: 70904 PROMAL MA
Cable: PROTELENG
A.E.M

MALTA

Philip Toledo Ltd.
Kirkirkara P.O. Box 11
Notabile Rd
MRIEHEL
Tel: 447 47, 455 66, 4915 25
Telex: Media MW 649
E.M.P

MAURITIUS

Blanche Birger Co. Ltd.
18, Jules Koenig Street
PORT LOUIS
Tel: 20828
Telex: 4296
P

MEXICO

Hewlett-Packard de Mexico,
S.A. de C.V.
Rio Nio No. 4049 Desp. 12
Fracc. Cordoba
JUAREZ
Tel: 161-3-15-62
P

Hewlett-Packard de Mexico,
S.A. de C.V.
Condominio Kadereyta
Circuito del Mezon No. 186 Desp. 6
COL. DEL PRADO - 76030 Qro.
Tel: 463-6-02-71
P

Hewlett-Packard de Mexico,
S.A. de C.V.
Monti Morelos No. 299
Fraccionamiento Loma Bonita 45060
GUADALAJARA, Jalisco
Tel: 36-31-48-00
Telex: 0684 186 ECOME
P
Microcomputadoras
Hewlett-Packard, S.A.
Monti Pelvoux 115
LOS LOMAS, Mexico, D.F.
Tel: 520-9127
P
Microcomputadoras Hewlett-Packard,
S.A. de C.V.
Monte Pelvoux No. 115
Lomas de Chapultepec, 11000
MEXICO, D.F.
Tel: 520-9127
P

Hewlett-Packard de Mexico,
S.A. de C.V.
Monte Pelvoux No. 111
Lomas de Chapultepec
11000 **MEXICO, D.F.**
Tel: 5-40-62-28, 72-66, 50-25
Telex: 17-74-507 HEWPACK MEX
A.C.C.M.E.M.P

Hewlett-Packard De Mexico (Polanco)
Avenida Ejercito Nacional #579
2day3er piso
Colonia Granada 11560
MEXICO D.F.
Tel: 254-4433
P

Hewlett-Packard de Mexico,
S.A. de C.V.
Czda. del Valle
409 Ote. 4th Piso
Colonia del Valle
Municipio de Garza
Garcia Nuevo Leon
66220 **MONTERREY**, Nuevo León
Tel: 83-78-42-40
Telex: 382410 HPMY
C

Infograficas y Sistemas
del Noreste, S.A.
Rio Orinoco #171 Oriente
Despacho 2001
Colonia Del Valle
MONTERREY
Tel: 559-4415, 575-3837
Telex: 483164
A.E

Hewlett-Packard de Mexico,
S.A. de C.V.
Blvd. Independencia No. 2000 Ote.
Col. Estrella
TORREON, COAH.
Tel: 171-18-21-99
P

MOROCCO

Etablissement Hubert Dolbeau & Fils
81 rue Karatchi
B.P. 11133
CASABLANCA
Tel: 3041-82, 3068-38
Telex: 23051, 22822
E

Gerep
2, rue Agadir
Boite Postale 156
CASABLANCA 01
Tel: 272093, 272095
Telex: 23 739
P

Sema-Maroc
Dept. Seric
6, rue Lapebie
CASABLANCA
Tel: 260980
Telex: 21641
C.P

NETHERLANDS

Hewlett-Packard Nederland B.V.
Startbaan 16
NL-1187 XR **AMSTELVEEN**
P.O. Box 667
NL-1180 AR **AMSTELVEEN**
Tel: (020) 547-6911
Telex: 13 216 HEPA NL
A.C.C.M.E.M.P
Hewlett-Packard Nederland B.V.
Bongerd 2
P.O. Box 41
NL 2900AA **CAPELLE A/D IJSSEL**
Tel: 31-20-51-6444
Telex: 21261 HEPAC NL
C.E

Hewlett-Packard Nederland B.V.
Pastoor Petersstraat 134-136
P.O. Box 2342
NL 5600 CH **EINDHOVEN**
Tel: 31-40-32-6911
Telex: 51484 hepae nl
C.E.P

NEW ZEALAND

Hewlett-Packard (N.Z.) Ltd.
5 Owens Road
P.O. Box 26-189
Epsom, **AUCKLAND**
Tel: 64-9-687-159
Cable: HEWPAK Auckland
C.C.M.E.P.*

Hewlett-Packard (N.Z.) Ltd.
184-190 Willis Street

WELLINGTON
P.O. Box 9443
Courtenay Place, **WELLINGTON 3**
Tel: 64-4-887-199
Cable: HEWPAK Wellington
C.C.M.E.P

Northrop Instruments & Systems Ltd.
369 Khyber Pass Road
P.O. Box 8602

AUCKLAND
Tel: 794-091
Telex: 60605
A.M

Northrop Instruments & Systems Ltd.
110 Mandeville St.
P.O. Box 8388
CHRISTCHURCH
Tel: 488-873
Telex: 4203
A.M

Northrop Instruments & Systems Ltd.
Sturdee House
85-87 Ghuznee Street
P.O. Box 2406
WELLINGTON
Tel: 850-091
Telex: NZ 3380
A.M

NIGERIA

Elmeco Nigeria Ltd.
45 Saka Tirubu St.
Victoria Island
LAGOS
Tel: 61-98-94
Telex: 20-117
E

NORTHERN IRELAND See United Kingdom

NORWAY

Hewlett-Packard Norge A/S
Folke Bernadottes vei 50
P.O. Box 3558
N-5033 **FYLLINGSDALEN** (Bergen)
Tel: 0047/5/16 55 40
Telex: 76621 hpnas n
C.E.M

Hewlett-Packard Norge A/S
Osterndalen 16-18
P.O. Box 34
N-1345 **OESTERAAS**
Tel: 47-2-17-1180
Telex: 76621 hpnas n
A.C.C.M.E.M.P

Hewlett-Packard Norge A/S
Boehmergt. 42
Box 2470
N-5037 **SOLHEIMSVIK**
Tel: 0047/5/29 00 90

OMAN

Khimji Ramdas
P.O. Box 19
MUSCAT/SULTANATE OF OMAN
Tel: 795 901
Telex: 3489 BROKER MB MUSCAT
P

Suhail & Saud Bahwan
P.O. Box 169
MUSCAT/SULTANATE OF OMAN
Tel: 734 201-3
Telex: 5274 BAHWAN MB
E

Imtac LLC
P.O. Box 9196
MINA AL FAHAL/SULTANATE OF OMAN
Tel: 70-77-27, 70-77-23
Telex: 3865 Tawoos On
A.C.M

PAKISTAN

Mushko & Company Ltd.
House No. 16, Street No. 16
Sector F-6/3
ISLAMABAD
Tel: 824545
Telex: 54001 Muski Pk
Cable: FEMUS Islamabad
A.E.P.*

Mushko & Company Ltd.
Oosman Chambers
Abdullah Haroon Road
KARACHI 0302
Tel: 524131, 524132
Telex: 2894 MUSKO PK
Cable: COOPERATOR Karachi
A.E.P.*

PANAMA

Electronico Balboa, S.A.
Calle Samuel Lewis, Ed. Alfa
Apartado 4929
PANAMA CITY
Tel: 9-011-507-636613
Telex: 368 3483 ELECTRON PG
C.M.E.M.P

PERU

Cia Electro Médica S.A.
Los Flamencos 145, Ofc. 301/2
San Isidro
Casilla 1030
LIMA 1
Tel: 9-011-511-4-414325, 41-3705
Telex: 39425257 PE PB SIS
C.M.E.M.P
SAMS S.A.
Arenida Republica de Panama 3534
San Isidro, **LIMA**
Tel: 9-011-511-4-229332/413984/
413226
Telex: 39420450 PE LIBERTAD
A.C.P

PHILIPPINES

The Online Advanced Systems Corp.
2nd Floor, Electra House
115-117 Esteban Street
P.O. Box 1510
Legaspi Village, Makati
Metro **MANILA**
Tel: 815-38-10 (up to 16)
Telex: 63274 ONLINE PN
A.C.E.M.P

PORTUGAL

Mundinter Intercambio
Mundial de Comércio S.A.R.L.
Av. Antonio Augusto Aguiar 138
Apartado 2761
LISBON
Tel: (19) 53-21-31, 53-21-37
Telex: 16691 munter p
M
Soquimica
Av. da Liberdade. 220-2
1298 **LISBOA** Codex
Tel: 56-21-82
Telex: 13316 SABASA
A

Telectra-Empresa Técnica de
Equipmentos Eléctricos S.A.R.L.
Rua Rodrigo da Fonseca 103
P.O. Box 2531
LISBON 1
Tel: (19) 68-60-72
Telex: 12598
C.M.E
C.P.C.S.I.
Rua de Costa Cabral 575
4200 **PORTO**
Tel: 499174/495173
Telex: 26054
C.P

PUERTO RICO

Hewlett-Packard Puerto Rico
101 Muñoz Rivera Av
Esu. Calle Ochoa
HATO REY, Puerto Rico 00918
Tel: (809) 754-7800
A.C.C.M.M.E.P

QATAR

Computer Arabia
P.O. Box 2750
DOHA
Tel: 428555
Telex: 4806 CHPARB
P

Nasser Trading & Contracting
P.O. Box 1563

DOHA

Tel: 422170
Telex: 4439 NASSER DH
M

SAUDI ARABIA

Modern Electronics Establishment
Hewlett-Packard Division
P.O. Box 281
Thuobah
AL-KHOBAR 31952
Tel: 895-1760, 895-1764
Telex: 671 106 HPMEEK SJ
Cable: ELECTA AL-KHOBAR
C.E.M

Modern Electronics Establishment
Hewlett-Packard Division
P.O. Box 1228
Redec Plaza, 6th Floor
JEDDAH
Tel: 644 96 28
Telex: 4027 12 FARNAS SJ
Cable: ELECTA JEDDAH
A.C.C.M.E.M.P

Modern Electronics Establishment
Hewlett-Packard Division
P.O. Box 22015
RIYADH 11495
Tel: 491-97 15, 491-63 87
Telex: 202049 MEERYD SJ
C.E.M

Abdul Ghani El Ajou Corp.
P.O. Box 78

RIYADH

Box 40 41 717
Tel: 200 932 EL AJOU
P

SCOTLAND See United Kingdom

SENEGAL

Societe Hussein Ayad & Cie.
76, Avenue Georges Pompidou
B.P. 305
DAKAR
Tel: 32339
Cable: AYAD-Dakar
E
Moneger Distribution S.A.
1, Rue Parent
B.P. 148
DAKAR
Tel: 215 671
Telex: 587
P
Système Service Conseil (SSC)
14, Avenue du Parachois
DAKAR ETOILE
Tel: 219976
Telex: 577
C.P

SINGAPORE

Hewlett-Packard Singapore (Sales)
Pte. Ltd.
1150 Depot Road
SINGAPORE, 0410
Tel: 4731788
Telex: 34209 HPSGSO RS
Cable: HEWPACK, Singapore
A.C.E.M.P

Dynamar International Ltd.
Unit 05-11 Block 6
Kolam Ayer Industrial Estate
SINGAPORE 1334
Tel: 747-6188

Telex: 26283 RS
CM

SOUTH AFRICA

Hewlett-Packard So Africa (Pty.) Ltd.
P.O. Box 120
Howard Place, **CAPE PROVINCE**
7450 South Africa

Tel: 27 121153-7954
Telex: 57-20006
A.C.C.M.E.M.P

Hewlett-Packard So Africa (Pty.) Ltd.
2nd Floor Juniper House
92 Overport Drive
DURBAN 4067
Tel: 27-31-28-4178
Telex: 6-22954
C

Hewlett-Packard So Africa (Pty.) Ltd.
Shop 6 Linton Arcade
511 Cape Road
Linton Grange
PORT ELIZABETH 6001
Tel: 27 141130 1201
Telex: 24-2916
C

Hewlett-Packard So Africa (Pty.) Ltd.
Fountain Center
Kalkoen Str.
Monument Park Ext 2
PRETORIA 0105
Tel: (012) 45 5725
Telex: 32163
C.E

Hewlett-Packard So Africa (Pty.) Ltd.
Private Bag Wendywood
SANDTON 2144
Tel: 27-11-802-5111, 27-11-802-5125
Telex: 4-20877 SA
Cable: HEWPACK Johannesburg
A.C.C.M.E.M.P

SPAIN

Hewlett-Packard Española, S.A.
Calle Entenza, 321
E-BARCELONA 29
Tel: 3/322 24 51, 321 73 54
Telex: 52603 hpbée
A.C.E.M.P

Hewlett-Packard Española, S.A.
Calle San Vicente S/N
Edificio Albia II-7B
48001 **BILBAO**
Tel: 4/423 83 06
A.C.E.M

Hewlett-Packard Española, S.A.
Crta. N-VI, Km. 16, 400
Las Rozas
E-MADRID
Tel: (1) 637.00.11
Telex: 23515 HPE
C.M

Hewlett-Packard Española, S.A.
Avda. S. Francisco Javier, S/N
Planta 10. Edificio Sevilla 2
E-SEVILLA 5, SPAIN
Tel: 54/64 44 54
Telex: 72933
A.C.M.P

Hewlett-Packard Española, S.A.
Isabel La Católica, 8
E-46004 VALENCIA
Tel: 34-6-361 1354
Telex: 63435
C.P

Hewlett-Packard Española, S.A.
Av. de Zugazarte, 8
Las Arenas-Guecho
E-48930 VIZCAYA
VIZCAYA
Tel: 34-423-83 06
Telex: 33032

SWEDEN

Hewlett-Packard Sverige AB
Östra Tullgatan 3
S-20011 **MALMO**
Box 6132
Tel: 46-40-702-70
Telex: (854) 17886 (via Spånga office)
C.P

Hewlett-Packard Sverige AB
Elementvagen 16
S-7022 7 **ÖREBRO**
Tel: 49-019-10-4820
Telex: (854) 17886 (via Spånga office)
C

Hewlett-Packard Sverige AB
Skalholtsgatan 9, Kista
P.O. Box 19
S-16393 **SPÅNGA**
Tel: (08) 750-2000
Telex: (854) 17886
Telefax: (08) 7527781
A.C.C.M.E.M.P
Hewlett-Packard Sverige AB
Box 266
Topasgatan 1A
S-42123 **VÄSTRA-FRÖLUNDA**
(Gothenburg)
Tel: 46-031-89-1000
Telex: (854) 17886 (via Spånga office)
A.C.C.M.E.M.P

SUDAN

Mediterranean Engineering
& Trading Co. Ltd.
P.O. Box 1025
KHARTOUM
Tel: 41184
Telex: 24052
C.P

SWITZERLAND

Hewlett-Packard (Schweiz) AG
Clarastrasse 12
CH-4058 **BASEL**
Tel: 41-61-33-5920
A.C.E.P
Hewlett-Packard (Schweiz) AG
7, rue du Bois-du-Lan
Case postale 365-1366
CH-1217 **MEYRIN** 1
Tel: (0041) 22-83-11-11
Telex: 27333 HPAG CH
A.C.C.M.E.M.P

SWITZERLAND (Cont'd) TOGO

Hewlett-Packard (Schweiz) AG
Allmend 2
CH-8967 **WIDEN**
Tel: 41-57-31-2111
Telex: 53933 hpag ch
Cable: HPAG CH
A.C.C.M.E.M.P

Hewlett-Packard (Schweiz) AG
Schwamendingenstrasse 10
CH-8050 **ZURICH**
Tel: 41-1-315-8181
Telex: 823 537 HPAG CH
C.P

SYRIA

General Electronic Inc.
Nuri Basha Ahnaf Ebn Kays Street
P.O. Box 5781

DAMASCUS

Tel: 33-24-87
Telex: 44-19-88
Cable: ELECTROBOR DAMASCUS
E

Middle East Electronics
P.O. Box 2308

DAMASCUS

Tel: 33 45 92
Telex: 411 771 Meesy
M

TAIWAN

Hewlett-Packard Taiwan Ltd.
THM Office

2, Huan Nan Road

CHUNG LI, Taoyuan

Tel: (034) 929-666

C

Hewlett-Packard Taiwan Ltd.

Kaohsiung Office

11/F, 456, Chung Hsiao 1st Road

KAOSHIUNG

Tel: (07) 2412318

C.E

Hewlett-Packard Taiwan Ltd.

8th Floor, Hewlett-Packard Building

337 Fu Hsing North Road

TAIPEI

Tel: (02) 712-0404

Telex: 24439 HEWPACK

Cable: HEWPACK Taipei

A.C.C.M.E.M.P

Ing Lih Trading Co.

3rd Floor, No. 7, Sect. 2

Jen Ai Road

TAIPEI 100

Tel: (02) 394-8191

Telex: 22894 SANKWANG

A

THAILAND

Unimesa Co. Ltd.

30 Patpong Ave., Suriwong

BANGKOK 5,

Tel: 235-5727, 234-0991/3

Telex: 84439 Simonco TH

Cable: UNIMESA Bangkok

A.C.E.M

Bangkok Business Equipment Ltd.

5/C-6 Dejo Road

BANGKOK

Tel: 234-8670, 234-8671

Telex: 87699-BEQUIPT TH

Cable: BUSIQUIPT Bangkok

P

Societe Africaine De Promotion

Immeuble Sageb

Rue d'Atakpame

P.O. Box 4150

LOME

Tel: 21-62-88

Telex: 5357

P

TRINIDAD & TOBAGO

Caribbean Telecoms Ltd.

Corner McAllister Street &

Eastern Main Road, Laventille

P.O. Box 732

PORT-OF-SPAIN

Tel: 624-4213

Telex: 22561 CARTEL WG

Cable: CARTEL, PORT OF SPAIN

C.M.E.M.P

Computer and Controls Ltd.

P.O. Box 51

1 Taylor Street

PORT-OF-SPAIN

Tel: (809) 622-7719/622-7985

Telex: 38722798 COMCON WG

LOGO AGENCY 1264

A.P

Feral Assoc.

8 Fitzgerald Lane

PORT-OF-SPAIN

Tel: 62-36864, 62-39255

Telex: 22432 FERALCO

Cable: FERALCO

M

TUNISIA

Tunisie Electronique S.A.R.L.

31 Avenue de la Liberte

TUNIS

Tel: 280-144

C.E.P

Tunisie Electronique S.A.R.L.

94, Av. Jugurtha, Mutuelleville

1002 **TUNIS-BELVEDERE**

Tel: 280144

Telex: 13238

C.E.P

Corema S.A.

1 ter. Av. de Carthage

TUNIS

Tel: 253-821

Telex: 12319 CABAM TN

M

TURKEY

E.M.A

Mediha Eldem Sokak No. 41/6

Yenisehir

ANKARA

Tel: 319175

Telex: 42321 KTX TR

Cable: EMATRADE ANKARA

M

Teknim Company Ltd.

Iran Caddesi No. 7

Karaklidere

ANKARA

Tel: 277800

Telex: 42155 TKNM TR

C.E

Kurt & Kurt A.S.

Mithatpasa Caddesi No. 75

Kat 4 Kizilay

ANKARA

Tel: 318875/6/7/8

Telex: 42490 MESR TR

A

Saniva Bilgisayar Sistemleri A.S.

Buyukdere Caddesi 103/6

Gayrettepe

ISTANBUL

Tel: 1673180

Telex: 26345 SANI TR

C.P

Best Inc.

Esentepe, Gazeteciler Sitesi

Keskin Kalem

Sokak 6/3, Gayrettepe

ISTANBUL

Tel: 172 1328, 173 3344

Telex: 42490

A

UNITED ARAB EMIRATES

Emitac Ltd.

P.O. Box 1641

SHARJAH

Tel: 591181

Telex: 68136 EMITAC EM

Cable: EMITAC SHARJAH

E.C.M.P.A

Emitac Ltd.

P.O. Box 2711

ABU DHABI

Tel: 820419-20

Cable: EMITACH ABUDHABI

Emitac Ltd.

P.O. Box 8391

DUBAI

Tel: 377591

Emitac Ltd.

P.O. Box 473

RAS AL KHAIMAH

Tel: 28133, 21270

UNITED KINGDOM ENGLAND

Hewlett-Packard Ltd.

Miller House

The Ring, **BRACKNELL**

Berks RG12 1XN

Tel: 44/344/424-898

Telex: 848733

E

Hewlett-Packard Ltd.

Elstree House, Elstree Way

BOREHAMWOOD, Herts WD6 1SG

Tel: 01 207 5000

Telex: 8952716

C.E

Hewlett-Packard Ltd.

Oakfield House, Oakfield Grove

Clifton **BRISTOL**, Avon BS8 2BN

Tel: 44-272-736 806

Telex: 444302

C.E.P

Hewlett-Packard Ltd.

9 Bridewell Place

LONDON EC4V 6BS

Tel: 44-01-583-6565

Telex: 298163

C.P

Hewlett-Packard Ltd.

Pontefract Road

NORMANTON, West Yorkshire WF6 1RN

Tel: 44/924/895 566

Telex: 557355

C.P

Hewlett-Packard Ltd.

The Quadrangle

106-118 Station Road

REDHILL, Surrey RH1 1PS

Tel: 44-737-686-55

Telex: 947234

C.E.P

Hewlett-Packard Ltd.

Avon House

435 Stratford Road

Shirley, **SOLIHULL**, West Midlands

B90 4BL

Tel: 44-21-745-8800

Telex: 339105

C.E.P

Hewlett-Packard Ltd.

Heathside Park Road

Cheadle Heath, Stockport

SK3 ORB, United Kingdom

Tel: 44-061-428-0828

Telex: 668068

A.C.E.M.P

Hewlett-Packard Ltd.

Harmon House

No. 1 George Street

UXBRIDGE, Middlesex UX8 1YH

Tel: 895 720 20

Telex: 893134/5

C.C.M.E.M.P

Hewlett-Packard Ltd.

King Street Lane

Winnersh, **WOKINGHAM**

Berkshire RG11 5AR

Tel: 44/734/784774

Telex: 8471789

A.C.E.M.P

NORTHERN IRELAND

Hewlett-Packard (Ireland) Ltd.

Carrickfergus Industrial Centre

75 Belfast Road, Carrickfergus

CO. ANTRIM BT38 8PM

Tel: 09603 67333

C.E

Cardiac Services Company

95A Finaghy Road South

BELFAST, BT10 0BY

Tel: 0232-625566

Telex: 747626

M

SCOTLAND

Hewlett-Packard Ltd.

1/3 Springburn Place

College Milton North

EAST KILBRIDE, G74 5NU

Tel: 041-332-6232

Telex: 779615

C.E

Hewlett-Packard Ltd.

SOUTH QUEENSFERRY

West Lothian, EH30 9TG

Tel: 031 331 1188

Telex: 72682 HPSQFYG

C.C.M.E.M.P

UNITED STATES

Hewlett-Packard Co.

Customer Information Center

Tel: (800) 752-0900

Hours: 6:00 AM to 5:00 PM

Pacific Time

Alabama

Hewlett-Packard Co.

2100 Riverchase Center

Building 100 - Suite 118

BIRMINGHAM, AL 35244

Tel: (205) 988-0547

A.C.M.P.*

Hewlett-Packard Co.

Hewlett-Packard Co.
5725 W. Las Positas Blvd.
PLEASANTON, CA 94566
Tel: (415) 460-0282
C

Hewlett-Packard Co.
4244 So. Market Court, Suite A
SACRAMENTO, CA 95834
Tel: (916) 929-7222
A*, C, E, M

Hewlett-Packard Co.
9606 Aero Drive
SAN DIEGO, CA 92123
Tel: (619) 279-3200
C, CM, E, M

Hewlett-Packard Co.
3003 Scott Boulevard
SANTA CLARA, CA 95054
Tel: (408) 988-7000
Telex: 910-338-0586
A, C, CM, E

Hewlett-Packard Co.
2150 W. Hillcrest Dr.
THOUSAND OAKS, CA 91320
(805) 373-7000
C, CM, E

Colorado
Hewlett-Packard Co.
2945 Center Green Court South
Suite A
BOULDER, CO 80301
Tel: (303) 499-6655
A, C, E

Hewlett-Packard Co.
24 Inverness Place, East
ENGLEWOOD, CO 80112
Tel: (303) 649-5000
A, C, CM, E, M

Connecticut
Hewlett-Packard Co.
500 Sylvan Av.
BRIDGEPORT, CT 06606
Tel: (203) 371-6454
C, E

Hewlett-Packard Co.
47 Barnes Industrial Road South
WALLINGFORD, CT 06492
Tel: (203) 265-7801
A, C, CM, E, M

Florida
Hewlett-Packard Co.
2901 N.W. 62nd Street
FORT LAUDERDALE, FL 33309
Tel: (305) 973-2600
C, E, M, P*

Hewlett-Packard Co.
6800 South Point Parkway
Suite 301
JACKSONVILLE, FL 32216
Tel: (904) 636-9955
C*, M**

Hewlett-Packard Co.
255 East Drive, Suite B
MELBOURNE, FL 32901
Tel: (305) 729-0704
CM, E

Hewlett-Packard Co.
6177 Lake Ellenor Drive
ORLANDO, FL 32809
Tel: (305) 859-2900
A, C, CM, E, P*

Hewlett-Packard Co.
4700 Bayou Blvd.
Building 5
PENSACOLA, FL 32503
Tel: (904) 476-8422
A, C, M

Hewlett-Packard Co.
5550 W. Idlewild, #150
TAMPA, FL 33614
Tel: (813) 884-3282
C, E, M, P

Georgia
Hewlett-Packard Co.
2015 South Park Place
ATLANTA, GA 30339
Tel: (404) 955-1500
Telex: 810-766-4890
A, C, CM, E, M, P*

Hewlett-Packard Co.
3607 Parkway Lane
Suite 300
NORCROSS, GA 30092
Tel: (404) 448-1894
C, E, P

Hawaii
Hewlett-Packard Co.
Pacific Tower
1001 Bishop St.
Suite 2400
HONOLULU, HI 96813
Tel: (808) 526-1555
A, C, E, M

Idaho
Hewlett-Packard Co.
11309 Chinden Blvd.
BOISE, ID 83714
Tel: (208) 323-2700
C

Illinois
Hewlett-Packard Co.
2205 E. Empire St
P.O. Box 1607
BLOOMINGTON, IL 61702-1607
Tel: (309) 662-9411
A, C, E, M**

Hewlett-Packard Co.
525 W. Monroe, #1308
CHICAGO, IL 60606
Tel: (312) 930-0010
C

Hewlett-Packard Co.
1200 East Diehl Road
NAPERVILLE, IL 60566
Tel: (312) 357-8800
C

Hewlett-Packard Co.
5201 Tollview Drive
ROLLING MEADOWS, IL 60008
Tel: (312) 255-9800
Telex: 910-687-1066
A, C, CM, E, M

Indiana
Hewlett-Packard Co.
11911 N. Meridian St.
CARMEL, IN 46032
Tel: (317) 844-4100
A, C, CM, E, M

Hewlett-Packard Co.
111 E. Ludwig Road
Suite 108
FT. WAYNE, IN 46825
Tel: (219) 482-4283
C, E

Iowa
Hewlett-Packard Co.
4070 22nd Av. SW
CEDAR RAPIDS, IA 52404
Tel: (319) 390-4250
C, E, M

Hewlett-Packard Co.
4201 Corporate Dr.
WEST DES MOINES, IA 50265
Tel: (515) 224-1435
A**, C, M**

Kansas
Hewlett-Packard Co.
North Rock Business Park
3450 N. Rock Rd.
Suite 300
WICHITA, KS 67226
Tel: (316) 684-8491
C, E

Kentucky
Hewlett-Packard Co.
305 N. Hurstbourne Lane,
Suite 100
LOUISVILLE, KY 40223
Tel: (502) 426-0100
A, C, M

Louisiana
Hewlett-Packard Co.
160 James Drive East
ST. ROSE, LA 70087
P.O. Box 1449
KENNER, LA 70063
Tel: (504) 467-4100
A, C, E, M, P

Maryland
Hewlett-Packard Co.
3701 Koppers Street
BALTIMORE, MD 21227
Tel: (301) 644-5800
Telex: 710-862-1943
A, C, CM, E, M

Hewlett-Packard Co.
2 Choke Cherry Road
ROCKVILLE, MD 20850
Tel: (301) 948-6370
A, C, CM, E, M

Massachusetts
Hewlett-Packard Co.
1775 Minuteman Road
ANDOVER, MA 01810
Tel: (617) 682-1500
A, C, CM, E, M, P*

Hewlett-Packard Co.
29 Burlington Mall Rd
BURLINGTON, MA 01803-4514
Tel: (617) 270-7000
C, E

Michigan
Hewlett-Packard Co.
4326 Cascade Road S.E.
GRAND RAPIDS, MI 49506
Tel: (616) 957-1970
C, M

Hewlett-Packard Co.
39550 Orchard Hill Place Drive
NOVI, MI 48050
Tel: (313) 349-9200
A, C, E, M

Hewlett-Packard Co.
560 Kirts Rd.
Suite 101
TROY, MI 48064
Tel: (313) 362-5180
C

Minnesota
Hewlett-Packard Co.
2025 W. Larpentree Ave.
ST. PAUL, MN 55113
Tel: (612) 644-1100
A, C, CM, E, M

Missouri
Hewlett-Packard Co.
1001 E. 101st Terrace Suite 120
KANSAS CITY, MO 64131-3368
Tel: (816) 941-0411
A, C, CM, E, M

Hewlett-Packard Co.
13001 Hollenberg Drive
BRIDGETON, MO 63044
Tel: (314) 344-5100
A, C, E, M

Nebraska
Hewlett-Packard
11626 Nicholas St.
OMAHA, NE 68154
Tel: (402) 493-0300
C, E, M

New Jersey
Hewlett-Packard Co.
120 W. Century Road
PARAMUS, NJ 07652
Tel: (201) 265-5000
A, C, CM, E, M

Hewlett-Packard Co.
20 New England Av. West
PISCATAWAY, NJ 08854
Tel: (201) 562-6100
A, C, CM, E

New Mexico
Hewlett-Packard Co.
7801 Jefferson N.E.
ALBUQUERQUE, NM 87109
Tel: (505) 823-6100
C, E, M

Hewlett-Packard Co.
1362-C Trinity Dr.
LOS ALAMOS, NM 87544
Tel: (505) 662-6700
C, E

New York
Hewlett-Packard Co.
5 Computer Drive South
ALBANY, NY 12205
Tel: (518) 458-1550
A, C, E, M

Hewlett-Packard Co.
9600 Main Street
CLARENCE, NY 14031
Tel: (716) 759-8621
C, E, M

Hewlett-Packard Co.
200 Cross Keys Office Park
FAIRPORT, NY 14450
Tel: (716) 223-9950
A, C, CM, E, M

Hewlett-Packard Co.
7641 Henry Clay Blvd.
LIVERPOOL, NY 13088
Tel: (315) 451-1820
A, C, CM, E, M

Hewlett-Packard Co.
No. 1 Pennsylvania Plaza
55th Floor
34th Street & 7th Avenue
MANHATTAN NY 10119
Tel: (212) 971-0800
C, M*

Hewlett-Packard Co.
15 Myers Corner Rd.
Hollowbrook Park, Suite 2D
WAPPINGERS FALLS, NY 12590
Tel: (914) 298-9125
CM, E

Hewlett-Packard Co.
2975 Westchester Ave
PURCHASE, NY 10577
Tel: (914) 935-6300
C, CM, E

Hewlett-Packard Co.
3 Crossways Park West
WOODBURY, NY 11797
Tel: (516) 682-7800
A, C, CM, E, M

North Carolina
Hewlett-Packard Co.
305 Gregson Dr.
CARY, NC 27511
Tel: (919) 467-6600
C, CM, E, M, P*

Hewlett-Packard Co.
9401 Arrow Point Blvd
Suite 100
CHARLOTTE, NC 28217
Tel: (704) 527-8780
C*

Hewlett-Packard Co.
5605 Roanne Way
GREENSBORO, NC 27420
Tel: (919) 852-1800
A, C, CM, E, M, P*

Ohio
Hewlett-Packard Co.
2717 S. Arlington Road
AKRON, OH 44312
Tel: (216) 644-2270
C, E

Hewlett-Packard Co.
4501 Erskine Road
CINCINNATI, OH 45242
Tel: (513) 891-9870
C, M

Hewlett-Packard Co.
15885 Sprague Road
CLEVELAND, OH 44136
Tel: (216) 243-7300
A, C, CM, E, M

Hewlett-Packard Co.
9080 Springboro Pike
MIAMISBURG, OH 45342
Tel: (513) 433-2223
A, C, CM, E*, M

Hewlett-Packard Co.
One Maritime Plaza, 5th Floor
720 Water Street
TOLEDO, OH 43604
Tel: (419) 242-2200
C

Hewlett-Packard Co.
675 Brooksedge Blvd.
WESTERVILLE, OH 43081
Tel: (614) 891-3344
C, CM, E*

Oklahoma
Hewlett-Packard Co.
3525 N.W. 56th St.
Suite C-100
OKLAHOMA CITY, OK 73112
Tel: (405) 946-9499
C, E*, M

**UNITED STATES
(Cont'd)**

Hewlett-Packard Co.
6655 South Lewis,
Suite 105
TULSA, OK 74136
Tel: (918) 481-6700
A*, C.E.M., P*

Oregon

Hewlett-Packard Co.
9255 S. W. Pioneer Court
WILSONVILLE, OR 97070
Tel: (503) 682-8000
A.C.E., M

Pennsylvania

Hewlett-Packard Co.
Heatherwood Industrial Park
50 Dorchester Rd.
Route 22
HARRISBURG, PA 17112-2799
Tel: (717) 657-5900
C

Hewlett-Packard Co.
111 Zeta Drive
PITTSBURGH, PA 15238
Tel: (412) 782-0400
A.C.E.M

Hewlett-Packard Co.
2750 Monroe Boulevard
VALLEY FORGE, PA 19482
Tel: (215) 666-9000
A.C.C.M.E.M

South Carolina

Hewlett-Packard Co.
Brookside Park, Suite 122
1 Harbison Way
COLUMBIA, SC 29212
Tel: (803) 732-0400
C.M

Hewlett-Packard Co.
545 N. Pleasantburg Dr.
Suite 100
GREENVILLE, SC 29607
Tel: (803) 232-8002
C

Tennessee

Hewlett-Packard Co.
One Energy Centr. Suite 200
Pellissippi Pkwy.
KNOXVILLE, TN 37932
Tel: (615) 966-4747
A.C.E.M.P

Hewlett-Packard Co.
3070 Directors Row
Directors Square
MEMPHIS, TN 38131
Tel: (901) 346-8370
A.C.E.M

Hewlett-Packard Co.
44 Vantage Way,
Suite 160
NASHVILLE, TN 37228
Tel: (615) 255-1271
A.C.E.M.P

Texas

Hewlett-Packard Co.
1826-P Kramer Lane
AUSTIN, TX 78758
Tel: (512) 835-6771
C.E.P*

Hewlett-Packard Co.
5700 Cromo Dr
EL PASO, TX 79912
Tel: (915) 833-4400
C.E., M**

Hewlett-Packard Co.
3952 Sandshell Drive
FORT WORTH, TX 76137
Tel: (817) 232-9500
C

Hewlett-Packard Co.
10535 Harwin Drive
HOUSTON, TX 77036
Tel: (713) 776-6400
A.C.E.M.P*

Hewlett-Packard Co.
3301 West Royal Lane
IRVING, TX 75063
Tel: (214) 869-3377
C.E

Hewlett-Packard Co.
109 E. Toronto, Suite 100
MCALLEN, TX 78501
Tel: (512) 630-3030
C

Hewlett-Packard Co.
930 E. Campbell Rd.
RICHARDSON, TX 75081
Tel: (214) 231-6101
A.C.C.M.E.M.P*

Hewlett-Packard Co.
1020 Central Parkway South
SAN ANTONIO, TX 78232
Tel: (512) 494-9336
A.C.E.M.P*

Utah

Hewlett-Packard Co.
3530 W. 2100 South St.
SALT LAKE CITY, UT 84119
Tel: (801) 974-1700
A.C.E.M

Virginia

Hewlett-Packard Co.
840 Greenbrier Circle
Suite 101
CHESAPEAKE, VA 23320
Tel: (804) 424-7105
C.E.M
Hewlett-Packard Co.
4305 Cox Road
GLEN ALLEN, VA 23060
Tel: (804) 747-7750
A.C.E.M.P*

Hewlett-Packard Co.
Tanglewood West Bldg.
Suite 240
3959 Electric Road
ROANOKE, VA 24018
Tel: (703) 774-3444
C.E.P

Washington

Hewlett-Packard Co.
15815 S.E. 37th Street
BELLEVUE, WA 98006
Tel: (206) 643-4004
A.C.C.M.E.M

Hewlett-Packard Co.
1225 Argonne Rd
SPOKANE, WA 99212
Tel: (509) 922-7000
C

West Virginia

Hewlett-Packard Co.
501 56th Street
CHARLESTON, WV 25304
Tel: (304) 925-0492
A.C.M

Wisconsin

Hewlett-Packard Co.
275 N. Corporate Dr.
BROOKFIELD, WI 53005
Tel: (414) 784-8800
A.C.E.*.M

URUGUAY

Pablo Ferrando S.A.C. e I.
Avenida Italia 2877
Casilla de Correo 370
MONTEVIDEO
Tel: 59-82-802-586
Telex: 398802586
A.C.M.E.M

Olympia de Uruguay S.A.
Maquinas de Oficina
Avda. del Libertador 1997
Casilla de Correos 6644
MONTEVIDEO
Tel: 91-1809, 98-3807
Telex: 6342 OROU UY
P

VENEZUELA

Hewlett-Packard de Venezuela C.A.
3A Transversal Los Ruices Norte
Edificio Segre 2 & 3
Apartado 50933
CARACAS 1050
Tel: (582) 239-4133
Telex: 251046 HEWPACK
A.C.C.M.E.M.P

Hewlett-Packard de Venezuela, C.A.
Centro Ciudad Comercial Tamanaco
Nivel C-2 (Nueva Etapa)
Local 53H05
Chuao. **CARACAS**
Tel: 928291
P

Albis Venezolana S.R.L.
Av. Las Marias, Ota. Alix,
El Pedregal
Apartado 81025
CARACAS 1080A
Tel: 747984, 742146
Telex: 24009 ALBIS VC
A

Tecnologica Medica del Caribe, C.A.
Multicentro Empresarial del Este
Ave. Libertador
Edif. Libertador
Nucleo "C" - Oficina 51-52
CARACAS
Tel: 339867/333780
M

Hewlett-Packard de Venezuela C.A.
Residencias Tia Betty Local 1
Avenida 3 y con Calle 75
MARACAIBO, Estado Zulia
Apartado 2646
Tel: 58-2-617-5669
Telex: 62464 HPMAR
C.E*

Hewlett-Packard de Venezuela C.A.
Urb. Lomas de Este
Torre Trebol — Piso 11
VALENCIA, Estado Carabobo
Apartado 3347
Tel: (5841) 222992
C.P

YUGOSLAVIA

Do Hermes
General Zdanova 4
YU-11000 **BEOGRAD**
Tel: (011) 342 641
Telex: 11433
A.C.E.M.P

Do Hermes
Celovska 73
YU-61000 **LJUBLJANA**
Tel: (061) 553 170
Telex: 31583
A.C.E.M.P
Elektrotelna
Titova 51
YU-61000 **LJUBLJANA**
CM

Do Hermes
Kralja Tomislava 1
YU-71000 **SARAJEVO**
Tel: (071) 35 859
Telex: 41634
C**P

ZAIRE

Computer & Industrial Engineering
25, Avenue de la Justice
B.P. 12797
KINSHASA, Gombe
Tel: 32063
Telex: 21552
C.P

ZAMBIA

R.J. Tilbury (Zambia) Ltd.
P.O. Box 32792
LUSAKA
Tel: 215590
Telex: 40128
E

ZIMBABWE

Field Technical Sales (Private) Limited
45, Kelvin Road North
P.O. Box 3458
SALISBURY
Tel: 705 231
Telex: 4-122 RH
E.P

September 1987

Part No. 92453-90009
Printed in U.S.A. 11/88
E1188

