



Pascal 3.1

Documentation Guide and Master Index

for HP 9000 Series 200/300 Computers

Manual Reorder No. 98615-90016

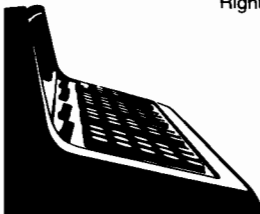
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Printing History

New editions of this manual will incorporate all material updated since the previous edition. Update packages may be issued between editions and contain replacement and additional pages to be merged into the manual by the user. Each updated page will be indicated by a revision date at the bottom of the page. A vertical bar in the margin indicates the changes on each page. Note that pages which are rearranged due to changes on a previous page are not considered revised.

The manual printing date and part number indicate its current edition. The printing date changes when a new edition is printed. (Minor corrections and updates which are incorporated at reprint do not cause the date to change.) The manual part number changes when extensive technical changes are incorporated.

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Pascal 3.1 Documentation Guide

Introduction

This guide takes you on “sight-seeing tours” of the Pascal 3.1 manuals. Here is what it contains:

- A list of the manuals in this set.
- A “sight-seeing tour” of each manual.
- A look at the Master Index.

Pascal 3.1 Manuals

Here are the manuals provided with the Pascal 3.1 Workstation system:

- *Pascal 3.1 User's Guide*
- *An Introduction to Programming and Problem Solving with Pascal*
- *Pascal 3.1 Workstation System* (two volumes)
 - *Volume I: Main Command Level and Subsystems*
 - *Volume II: Programming and Configuration Topics*
- *Pascal 3.1 Procedure Library*
- *Pascal 3.1 Graphics Techniques*
- *HP Pascal Language Reference*
- *MC68000 User's Manual*
- *MC68020 User's Manual* (you may not receive this manual with your system)
- *MC68881 User's Manual* (you may not receive this manual with your system)

Note

The product number for Pascal 3.1 is the HP 98615C. The product number for Pascal 3.0 is the HP 98615B. You can order the HP 98615E (“Right to Execute”) or HP 98615R (“Right to Reproduce”) products for either system, with which you will receive an additional copy of the Pascal manuals. Since the product numbers provide no indication of whether you have a 3.0 or a 3.1 system, the Pascal 3.1 manuals are shipped with both of these ‘E’ or ‘R’ products. (These 3.1 manuals are a superset of the 3.0 manuals, so you will not lose any 3.0 information.) For a list of the enhancements provided by the 3.1 system, see “System History” in the “Technical Reference” appendix of the *Pascal 3.1 Workstation System* manual (Volume I).

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Individual Manual “Tours”

The following paragraphs describe the purpose and contents of each manual.

Note

You are highly encouraged to pick up and leaf through each manual as you read through its description. This exercise will help you to quickly familiarize yourself with their content and organization.

Installation Guide (for your model of computer)

An installation manual is shipped with your computer (*not* with the Pascal System). It describes the tasks of setting up the computer and then attaching the keyboard and monitor. It also describes how you can verify that your computer is operating properly. However, the tasks of installing and verifying peripheral devices, such as disc drives and printers, is described in the following manual.

Series 200/300 Peripheral Installation Guide

This manual describes the tasks of configuring and installing peripherals that you can use with your Series 200/300 computer. Here are some peripherals included:

- Memory and interface cards.
- Discs.
- Printers.
- Plotters and other graphics devices.

The manual also covers the task of configuring the Pascal system software to “talk to” these devices (such as hardware switch settings and device drivers required).

Pascal 3.1 User’s Guide

This guide begins where the *Peripheral Installation Guide* left off. It describes how to load the Pascal System and get it “up and running.” It also takes you on a “tour” of the system and its subsystems, as well as shows you how to enter and run a short Pascal program. This manual is also a task-oriented manual.

- Chapter 1 discusses a “little-known secret to success.” (If you don’t read the chapter, it will be still “little-known.”)
- Chapter 2 shows you how to load the Pascal system.
- Chapter 3 shows you how to prepare blank discs for use and how to make back-up copies of the system discs.
- Chapter 4 describes using the keyboard and display. You need only read the section that describes your computer’s keyboard.
- Chapter 5 shows you how to begin using commands.
- Chapter 6 introduces you to the Editor, which you will use to enter a document.
- Chapter 7 introduces you to the Filer, which you will be using to manage the files in which you will be storing documents and programs.
- Chapter 8 describes using the Compiler, which you will be using to transform a source program into a form that the computer can execute.

- Chapter 9 briefly discusses the Assembler, Librarian, and Debugger subsystems.
- Chapter 10 is devoted to helping you set up your programming “environment.”
- In Chapter 11, you will be entering, storing, compiling, and running a short Pascal program.
- The Task Reference briefly summarizes the steps for common procedures.
- There is also a subject index at the rear of this manual.

An Introduction to Programming and Problem Solving with Pascal

This is a textbook that will teach you the Pascal programming language. You should read it if you have not programmed using the Pascal language before, or if you have never programmed before. It is a combination of task-oriented information (such as discussions of how to solve particular programming problems) and object-oriented information (such as descriptions of reserved words and standard procedures).

- The STYLE CLINICS section lists the programming style tips given throughout the book.
- Chapter 1 describes the steps involved in developing programs in any computer language.
- Chapter 2 takes a closer look at developing algorithms. A thorough understanding and *application* of these principles will help you to become a good programmer as quickly as possible. You should memorize and follow the maxim:

“Think First, Code Later.”

- Chapters 3 through 10 present lots of advice and examples of Pascal programming.
- Chapter 11 presents a well organized summary of the “program design methods” that have been taught in the book.
- Appendices include the following: syntax diagrams, a list of standard identifiers, character sets, bibliography, selected answers to exercises, and subject index.

Pascal 3.1 Workstation System, Volume I: Main Command Level and Subsystems

This manual describes the HP Series 200/300 Pascal Workstation system. By reading it, you will learn how to use individual commands as well as how to use the subsystems (Editor, Filer, etc.). The chapters that describe the subsystems first take a task-oriented approach at introducing you to using the subsystem, and then provide an object-oriented discussion of each command at the end of the chapter. The last two chapters provide more task-oriented discussions of standard and special configurations and “non-disc” mass storage devices.

- Chapter 1 contains an overview of the manual.
- Chapter 2 provides a quick reference and detailed descriptions of Main Level commands.
- Chapter 3 describes the File System of the Pascal Workstation System.
- Chapters 4 through 9 describe the subsystems of the Workstation system: Editor, Filer, Pascal Compiler, Assembler, Librarian, and Debugger. The first part of each chapter describes using the subsystem, while the latter part describes each command. Pay special attention to the concept of *modules*, because the system itself is composed of modules. An understanding of these structures will greatly increase your ability to use the system to the fullest extent.
- Appendices discuss these topics: System History, file interchange between Series 200/300 BASIC and Pascal language systems, physical and software memory maps, command summaries, glossary, error messages, and subject index.

Pascal 3.1 Workstation System, Volume II: Programming and Configuration Topics

This manual describes using the Workstation-specific language features of this system. For instance, it describes programming with features of HP Pascal that are not contained in the “standard” Pascal language of most other computers. Some chapters also provide some handy techniques for making common computations with “standard” Pascal features. Here are the chapters and topics therein:

- Chapter 10 provides an overview of the Pascal language and software libraries provided with this system. It shows that the language consists of the “ANSI/ISO Pascal” standard, *plus* several additional enhancements.
- Chapters 11 through 17 describe using Workstation extensions of the following standard Pascal features:
 - Data types and structures
 - Program flow
 - Numeric computation
 - String manipulation
 - Programming with files
 - Dynamic variables and heap management
 - Error trapping and simulation
- Chapter 18 first describes how the system boots itself and then describes how you can alter this “standard” configuration.
- Chapter 19 describes using “non-disc” mass storage devices: EPROM and Magnetic Bubble Memory cards, and cartridge tape drives.
- Chapter 20 describes how to “port” programs written for Series 200 computers to Series 300 computers. It first describes the hardware differences between Series 300 and 200 machines, and then discusses several considerations to make when determining how to port a particular program.
- A list of errors and subject index are also included at the end of this manual.

Pascal 3.1 Procedure Library

This manual describes the library of procedures and functions provided with the Workstation Pascal System. It begins with an overview of modules and the mechanics of using them. The I/O Procedure Library is then covered in detail using a task-oriented approach. Several general and specific examples are provided. The last section of the book provides an object-oriented discussion of each procedure and function in the Procedure Library.

- Chapter 1 provides an overview of using the procedures and functions provided in the Procedure Library. You **must** read this chapter (or be familiar with the concepts) if you want to painlessly use the rest of the manual.
- Chapters 2 through 9 describe general I/O programming techniques.
- Chapters 10 through 13 describe specific techniques for using the HP-IB, Datacomm, Serial, and GPIO interfaces.
- Chapter 14 is an *advanced* programmer’s tutorial on using the “system devices” such as the beeper, softkeys, clock, timers, and other built-in hardware features.

- Chapter 15 is also an *advanced* programmer's tutorial on how to segment large programs into smaller ones at run time (to decrease memory requirements).
- The Procedure Library Reference section describes individual procedures and functions provided by the Procedure Library.
- There is also a glossary and subject index at the end of the manual.

Pascal 3.1 Graphics Techniques

This manual describes graphics concepts and then graphics programming techniques. It is mostly a task-oriented manual, although it does contain an object-oriented Graphics Procedures Reference appendix which describes the procedures and functions provided by the GRAPHICS modules.

- This manual begins in Chapter 1 by describing some fundamental graphics concepts and programming techniques.
- Chapter 2 continues with additional concepts and techniques.
- Chapter 3 describes color graphics and interactive graphics programming techniques.
- Appendix A provides several program listings.
- Appendix B provides descriptions of GRAPHICS procedures and functions provided in the Procedure Library (these descriptions are *exact* copies of descriptions found in the Reference section of the *Pascal Procedure Library* manual).
- This manual also has a subject index.

HP Pascal Language Reference

This manual describes HP Pascal reserved words, standard identifiers, procedures, and functions, and terms. It is entirely an object-oriented manual.

- The Keyword Dictionary section describes these topics: manual organization; symbols, identifiers, reserved words, operators, statements, procedures, and other features of the HP Standard Pascal language.
- The HP-UX Implementation section describes the specific features of the Series 200/300 HP-UX Pascal Compiler (which is irrelevant *unless* you also have a Series 200/300 HP-UX system).
- The Workstation Implementation section describes these specific features of the Series 200/300 Pascal Workstation System: Compiler options, implementation restrictions, UCSD Pascal extensions, Series 200 system programming extensions, Series 200/300 Pascal Workstation File System, heap management, and error messages.

MC68000 User's Manual

This manual describes the hardware operation, assembly language¹, and machine language of the Motorola MC68000 and MC68010 microprocessors. (Note that only 68000 and 68010 processors, not 68008 processors, are used in Series 200 machines; MC68010 and MC68020 are used in Series 300 computers.) You will only need to read it if you are going to be programming in assembly language. It is mostly an object-oriented manual.

- Section 1 describes MC68000 and MC68010 hardware architecture.
- Section 2 describes addressing modes and data organization.
- Section 3 details the instruction set.
- Section 4 describes how "exceptions" are processed.
- Appendix A discusses condition codes in detail.
- Appendix B provides an alphabetical reference of the Assembler language instructions, and Appendix C summarizes the format of these instructions.
- Appendices D, E, and F show how to determine the time required to execute instructions for different processors in the MC68000 family.
- Appendix G discusses the looping instructions available with the MC 68010 processor.

MC68020 User's Manual

This manual contains hardware specifications and assembly language instruction syntax¹ for the MC68020 microprocessor. (This manual is not shipped all systems.)

MC68881 User's Manual

This manual contains hardware specifications and assembly language instruction syntax¹ for the MC68881 floating-point math co-processor. (This manual is not shipped all systems.)

¹ Extensions to and deviations from this assembly language are described in the "Assembler" chapter in Volume I of the *Pascal Workstation System* manual.

Manual Comment Sheet Instruction

If you have any comments or questions regarding this manual, write them on the enclosed comment sheets and place them in the mail. Include page numbers with your comments wherever possible.

If there is a revision number, (found on the Printing History page), include it on the comment sheet. Also include a return address so that we can respond as soon as possible.

The sheets are designed to be folded into thirds along the dotted lines and taped closed. Do not use staples.

Thank you for your time and interest.

Happy Programming !

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UG: Pascal 3.1 User's Guide

WS I: Pascal 3.1 Workstation System, Vol. I

WS II: Pascal 3.1 Workstation System, Vol. II

PL: Pascal 3.0 Procedure Library

GT: Pascal 3.0 Graphics Techniques

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