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# CONVEX Documentation Catalog



*The leader  
in affordable  
supercomputing*

To ensure that our customers worldwide have ready access to the full capabilities of CONVEX supercomputers, CONVEX Computer Corporation offers a wide variety of hardware and software documentation. Much of it is produced in-house by teams of professional technical writers working in partnership with engineers who develop the systems and software that have made CONVEX the leader in supercomputing.

CONVEX documentation is designed to meet the needs of novice as well as advanced users, system managers, programmers, software developers, and others involved in supercomputing for engineering and scientific applications.

For information on documentation to support third-party software that runs on CONVEX supercomputers, consult the current edition of the CONVEX ATLAS.

The catalog gives a brief description of the manuals and includes a price list and an order form with which to order documentation. Documents may be ordered individually, in kits, or in sets that include several related manuals and appropriate binders. Subscription service is available for kits and sets as indicated on the price list.

Content of documentation sets is indicated below by a pair of heavy lines extending across the page. Content of kits is indicated by lighter lines that span only the text column of the page. Not all documentation kits are part of a set.

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## SOFTWARE DOCUMENTATION

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### ConvexOS Documentation Set (DSW-001)

CONVEX UNIX Primer (DSW-133) introduces the CONVEX operating system. This primer explains logging in and out of the system, basic commands, and many of the tasks users frequently perform. Also included in this primer is a description of the Info System, which provides online help and examples for operating system commands.

GNU Emacs User's Manual (DSW-050) describes basic and advanced editing commands for the GNU Emacs screen editor.

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### ConvexOS Programmer's Reference Documentation Kit (DSW-330)

ConvexOS Programmer's Reference (DSW-332) contains copies of online man pages.

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## **CONVEX Architecture Reference Documentation Kit (DHW-045)**

CONVEX Architecture Reference (DHW-005) describes the data types, register set, protection system, logical address space, and memory of the CONVEX architecture. Chaining and pipelining and the different processing units of CONVEX systems are also documented.

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## **CONVEX UNIX Tutorial Papers Documentation Kit (DSW-170)**

CONVEX UNIX Tutorial Papers (DSW-002) is a collection of papers describing various subjects and commands related to the CONVEX operating system. These papers describe general information about the operating system and other topics, including document preparation, programming, supporting tools and languages, and maintenance. Many of these papers are written by the author of the described utility, and are addressed to varying levels of operating system expertise.

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## **CONVEX System Management Documentation Kit (DSW-015)**

ConvexOS System Manager's Guide (DSW-004) presents information needed to manage and maintain a CONVEX system effectively. This document is tailored to system managers who are responsible for administering resources on CONVEX systems. Included are descriptions for booting and initializing a system, configuring devices, authorizing users, setting up mail and communications, performing backups and system accounting functions, and monitoring system resources.

CONVEX Processor Operations Guide (DHW-015) provides instructions for the routine operation of the CONVEX supercomputer, including booting procedures.

CONVEX System Generation Guide (DSW-154) provides instructions for generating customized versions of the operating system.

ConvexOS Tape System Guide (DSW-016) is a complete guide to managing, using, and operating the tape system, including how to use unlabeled tapes or labeled tapes that conform to the ANSI standard.

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## **CONVEX POSIX Documentation Kit (DSW-310)**

CONVEX POSIX Concepts (DSW-312) provides an overview of POSIX, what conformance is, and how IEEE Std 1003.1-1988 (POSIX.1) interacts with ConvexOS and languages.

CONVEX POSIX Impacts (DSW-313) describes the effects on operations to be expected when POSIX-conforming ConvexOS and languages are installed.

CONVEX POSIX Conformance Document (DSW-311) identifies how ConvexOS conforms to IEEE Std 1003.1-1988 (POSIX.1). It should be used with the POSIX.1 standard to explain CONVEX implementation-defined features.

IEEE Std 1003.1-1988 (DSW-314) (POSIX.1) is the first of the POSIX standards to be adopted and represents a standard system-call interface and environment based on the UNIX operating system.

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## **ConvexOS Utilities User's Guides Documentation Kit (DSW-005)**

CONVEX Assembly Language User's Guide (DSW-006) describes the CONVEX assembler. This guide explains how the assembler works and describes briefly the hardware architecture. It also describes the assembly statement, opcodes, operands, calling conventions, performance optimization, and debugging.

**CONVEX adb Debugger User's Guide (DSW-009)** introduces the adb assembly language debugger. This guide describes the basic operations and advanced uses of adb, including break points, command files, signal handling, command list execution, command procedures, and maps. It also explains how to use adb with C and FORTRAN programs.

**CONVEX Text Editors User's Guide (DSW-010)** describes the various text editors available on the CONVEX system. Specifically, this guide describes the vi, ex, and sed text editors. The optional full-screen editor, Emacs, is also described.

**CONVEX Loader User's Guide (DSW-011)** describes how to create executable files on CONVEX systems. This guide details the ld command, object files, and available libraries. It explains how to create executable files from C, FORTRAN, and assembly-language programs and from combinations of the three.

**CONVEX Guide to Software Development (DSW-008)** describes various tools used in developing software on CONVEX systems. This guide describes how to program using the CONVEX UNIX shell tools, how to use the make utility, how to write and debug programs. It also explains some high-level programming tools and tools for effectively documenting software.

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### **CONVEX Ada Documentation Kit (DSW-145)**

**CONVEX Ada User's Guide (DSW-146)** describes the CONVEX Ada compiler and support tools. This guide documents how to use the Ada program libraries, how to call FORTRAN or C programs from an Ada program, and how to compile, link, and execute Ada programs. Basic Ada concepts are reviewed whenever necessary.

**CONVEX Ada Debugger User's Guide (DSW-147)** explains how to use the CONVEX Ada debugger. This guide describes how to invoke the debugger and customize its operation, how to use the on-line help utility, and how to perform various debugging tasks. Frequent examples illustrate the commands.

**CONVEX Ada Debugger Reference (DSW-148)** provides complete reference information for each Ada debugger command, including examples for each parameter. Also included are descriptions of many Ada debugging concepts.

**CONVEX Ada Optimization Guide (DSW-144)** presents background; principles; compiler options; methods for improving program performance using scalar, vector, and parallel optimization; and analysis aids. Readers need not be familiar with the CONVEX implementation of scalar, vector, and parallel optimization.

**CONVEX Ada Quick Reference (DSW-149)** summarizes the commands for compiling and linking Ada programs, managing Ada program libraries, and debugging Ada programs.

**CONVEX Ada Programmer's Reference (DSW-121)** contains copies of online man pages.

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### **CONVEX C Documentation Kit (DSW-085)**

**CONVEX ANSI C Concepts (DSW-083)** is a high-level introduction to the ANSI C standardized programming language. It also explains the best approach in porting applications to CONVEX C V4.0. Differences between this compiler and previous compilers are listed.

**CONVEX C User's Guide (DSW-086)** describes how to develop C applications on CONVEX systems. This guide explains how to compile, link, debug, and execute

C programs. It also describes compiler optimizations, and gives a short explanation of each error message produced by the compiler.

**CONVEX C Language Reference Manual (DSW-088)** discusses some topics of the C language such as compatibility modes, data types and representations, language calling conventions, input and output, runtime library, and preprocessor.

**CONVEX C Quick Reference (DSW-087)** is a quick reference to the CONVEX C language statement formats, preprocessor statements, variable declarations, special characters, and operators. It also contains a catalog of all the ANSI C function prototypes.

**CONVEX C Optimization Guide (DSW-089)** presents background; principles; directives; compiler options; methods for improving program performance using scalar, vector, and parallel optimization; and analysis aids. Readers need not be familiar with the CONVEX implementation of scalar, vector, and parallel optimization.

**CONVEX C Programmer's Reference (DSW-048)** contains copies of online man pages.

**CONVEX C Master Index (DSW-084)** is an aid to finding information in the CONVEX C User's Guide, Language Reference Manual, Optimization Guide, and ANSI C Concepts.

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### **CONVEX FORTRAN Documentation Kit (DSW-035)**

**CONVEX FORTRAN User's Guide (DSW-038)** describes how to develop software on CONVEX systems. This guide explains how to compile, link, debug, and execute FORTRAN programs. The guide also describes I/O operations, error processing, programming efficiency, and software compatibility information.

**CONVEX FORTRAN Language Reference Manual (DSW-037)** defines the components of the CONVEX FORTRAN language. This manual describes the CONVEX extensions and enhancements to FORTRAN.

**CONVEX FORTRAN Quick Reference (DSW-039)** provides a brief summary of FORTRAN statements, directives, and compiler options.

**CONVEX FORTRAN Optimization Guide (DSW-034)** presents background; principles; directives; compiler options; methods for improving program performance using scalar, vector, and parallel optimization; and analysis aids. Readers need not be familiar with the CONVEX implementation of scalar, vector, and parallel optimization.

**CONVEX FORTRAN Programmer's Reference (DSW-041)** contains copies of online man pages.

**CONVEX FORTRAN Master Index (DSW-033)** is an aid to finding information in the CONVEX FORTRAN User's Guide and Language Reference Manual.

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### **CONVEX Consultant Documentation Kit (DSW-024)**

**CONVEX Consultant User's Guide (DSW-025)** describes various debugging tools. This guide describes `csd`, the source-code debugger; `pmd`, the postmortem dump utility; and the `gprof`, `bprof`, and `prof` profilers. This guide is addressed to experienced FORTRAN and C programmers.

**CONVEX Consultant Programmer's Reference (DSW-029)** contains copies of online man pages.

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## **CONVEX COVUEshell Documentation Kit (DSW-135)**

**CONVEX COVUEshell Reference Manual (DSW-136)** describes the CONVEX version of Digital Equipment Corporation's Digital Command Language (DCL). DCL-like commands supported on CONVEX systems are described in detail.

**CONVEX COVUEshell Quick Reference (DSW-153)** lists alphabetically all COVUEshell commands, lexical functions, and qualifiers.

**CONVEX COVUEshell System Manager's Guide (DSW-076)** explains how to configure and maintain COVUEshell. It describes configuration considerations, initializing and maintaining related files, how to configure and use COVUEshell as a login shell, and how to specify ConvexOS reference names from within COVUEshell.

**CONVEX COVUEshell Programmer's Reference (DSW-081)** contains copies of online man pages.

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## **CONVEX COVUEnet Documentation Kit (DSW-150)**

**CONVEX COVUEnet User's Guide (DSW-137)** explains how to use a CONVEX supercomputer as part of a DECnet network. It explains how to log in to remote nodes using COVUEnet software and how to copy, list, rename, and delete remote files. It also describes how to use the mail utility to send mail to and from CONVEX and VAX nodes in the COVUEnet-DECnet configuration.

**CONVEX COVUEnet Programmer's Guide (DSW-282)** explains how to use COVUEnet from within source programs, both for remote file access and for task-to-task communication.

**CONVEX COVUEnet Reference Manual (DSW-283)** describes how to use commands in the CONVEX COVUEnet software. It describes in detail user commands, the remote file access library, task-to-task function calls, and Network Control Program (NCP) commands.

**CONVEX COVUEnet System Manager's Guide (DSW-138)** explains how to administer a CONVEX system as part of a DECnet network. This guide provides an overview of the CONVEX COVUEnet network management software. It explains how to install, start, and stop the network; how to establish a default account and proxy logins; describes the Network Control Program (NCP); and explains how to use NCP commands to configure, control, monitor, and test the network. It also explains how to configure the mail utility and use it with COVUEnet.

**CONVEX COVUEnet Programmer's Reference (DSW-284)** contains copies of online man pages.

**CONVEX COVUEnet Master Index (DSW-280)** provides an aid to finding information in the COVUEnet documentation.

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## **CONVEX COVUEedt Documentation Kit (DSW-155)**

**CONVEX COVUEedt Reference Manual (DSW-139)** describes the CONVEX version of the Digital Equipment Corporation EDT text editor. It explains how to create and modify files using the EDT-type commands.

**CONVEX COVUEedt Programmer's Reference (DSW-156)** contains copies of online man pages.

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## **CONVEX COVUElib Documentation Kit (DSW-165)**

**CONVEX COVUElib User's Guide (DSW-152)** contains information about the CONVEX version of Digital Equipment Corporation's runtime library routines. It explains how COVUElib translates file names under COVUEshell, how to use arguments and string descriptors in CONVEX FORTRAN, and the differences between VAX/VMS and COVUElib runtime library functionality.

**CONVEX COVUElib Quick Reference (DSW-167)** lists alphabetically all COVUElib commands, lexical functions, and qualifiers.

**CONVEX COVUElib Programmer's Reference (DSW-166)** contains copies of online man pages.

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## **CONVEX COVUEbatch Documentation Kit (DSW-160)**

**CONVEX COVUEbatch Guide (DSW-151)** describes how to use and maintain the COVUEbatch batch processing software. It explains how to submit jobs from a VAX to a CONVEX system; how to display and remove jobs from a CONVEX batch queue; and how to initialize, start, stop, and delete COVUEbatch queues.

**CONVEX COVUEbatch Programmer's Reference (DSW-162)** contains copies of online man pages.

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## **CONVEX COVUEbinary Documentation Kit (DSW-285)**

**CONVEX COVUEbinary User's Guide (DSW-286)** describes the COVUEbinary utility that allows VAX data files to be read and written by FORTRAN programs running on a CONVEX system.

**CONVEX COVUEbinary Programmer's Reference (DSW-287)** contains copies of online man pages.

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## **CONVEX Networking Utilities Documentation Kit (DSW-140)**

**CONVEX Networking Concepts (DSW-128)** provides a basic understanding of CONVEX TCP/IP networking for users, system managers, and programmers.

**CONVEX Networking Utilities User's Guide (DSW-141)** details the use of networking utilities, including telnet and rctp. The guide covers basic tasks like logging in to another system, copying files between systems, and executing commands on remote systems.

**CONVEX Interprocess Communication (IPC) Programming Guide (DSW-143)** describes methods for communicating between machines on a network or processes on a single machine. This guide explains how to write C language programs to implement pipes, shared memory, sockets, and other Interprocess Communication (IPC) facilities.

**CONVEX Networking Utilities System Manager's Guide (DSW-142)** contains information for administering systems on a CONVEX TCP/IP network. This guide describes installing, configuring, and testing the software used by local area networks (LANs). Also included in this guide are instructions for changing system files and troubleshooting network problems.

**CONVEX Networking Utilities Master Index (DSW-119)** provides an aid to finding information in the CONVEX networking utilities documentation.

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## **CONVEX CX.25 Documentation Kit (DSW-200)**

**CONVEX CX.25 Concepts (DSW-204)** describes the CONVEX CX.25 packet network interface software, which connects CONVEX C Series supercomputers to Packet Switched Data Networks that comply with CCITT recommendations. The Concepts manual contains a product overview, a glossary, and a description of software and hardware features.

**CONVEX CX.25 Programmer's Guide (DSW-202)** describes how an application program can access CX.25 to establish a communication link, transfer data over virtual circuits, handle unexpected events such as interrupt and reset packets, and terminate the communication link.

**CONVEX CX.25 System Manager's Guide (DSW-201)** provides information necessary to maintain and administer the CX.25 software, including line control, setting the initialization parameters, description of initialization parameters and defaults, and using the menu system and incoming call server.

**CONVEX CX.25 Packet Assembly/Disassembly (PAD) User's Guide Application Note (DSW-203)** describes how to use the CX.25 Packet Assembly/Disassembly (PAD) program. This guide explains how to establish a connection with a remote host, set and display parameters to control the remote session, and transfer data between local and remote hosts.

**CONVEX CX.25 Programmer's Reference (DSW-206)** contains copies of online man pages.

**CONVEX CX.25 Master Index (DSW-205)** provides an aid to finding information in the CONVEX CX.25.

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## **CONVEX Network File System (NFS) Documentation Kit (DSW-110)**

**CONVEX NFS User's Guide (DSW-112)** provides information about various nfs related utilities. This guide explains how to use nfs, rpc, xdr, and yp, the yellow pages.

**CONVEX NFS Reference Set (DSW-111)** provides an overview of CONVEX nfs. It describes the architecture and how to use it effectively. The set includes six reference manuals detailing rpc programming, and nfs, rpc, xdr, and yp protocols.

**CONVEX NFS System Manager's Guide (DSW-113)** provides information for administering nfs. This guide explains how to install, maintain, and debug nfs and its related utilities.

**CONVEX NFS Programmer's Reference (DSW-114)** contains copies of online man pages.

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## **CONVEX Network Computing System (NCS) Documentation Kit (DSW-190)**

**Introduction to CONVEX NCS (DSW-115)** provides a high-level description of the Network Computing System and describes the CONVEX implementation of NCS.

**Apollo Managing the NCS Location Broker (DSW-192)** describes the administration of the Location Broker, a component of the Network Computing System. Location Broker software is a crucial part of the runtime support for programs based on NCS. These programs can include both user applications and system facilities.

**Apollo Network Computing System (NCS) Reference (DSW-193)** describes the Network Computing System (NCS), Network Computing Architecture, how to develop distributed applications using NCS, a description of the Network Interface Definition language, and NCS system calls.

**CONVEX NCS Programmer's Reference (DSW-117)** contains copies of online man pages.

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## **CONVEX CXbatch Documentation Kit (DSW-180)**

**CONVEX CXbatch Concepts (DSW-185)** describes the overall functioning of the CXbatch system. It also defines concepts and terms relevant to CXbatch.

**CONVEX CXbatch User's Guide (DSW-183)** describes how to use CXbatch, a utility that permits users to submit jobs for batch execution in queues. It explains how to submit jobs and how to remove jobs from a CXbatch queue. It also explains how to display the status of the queues within CXbatch, the commands within a request that has been submitted to a CXbatch queue, and the batch queue limits and shell strategy.

**CONVEX CXbatch System Manager's Guide (DSW-182)** describes how to configure, use, and maintain the CONVEX CXbatch system, a utility that permits users to submit jobs for batch execution in queues.

**CONVEX CXbatch System Manager's Utilities Reference Manual (DSW-184)** describes in detail how to use the qmgr and qmapmgr utilities for establishing and operating CXbatch.

**CONVEX CXbatch Programmer's Reference (DSW-186)** contains copies of online man pages.

**CONVEX CXbatch Master Index (DSW-181)** provides an index to the entire CXbatch documentation kit.

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## **CONVEX CXpa Documentation Kit (DSW-250)**

**CONVEX CXpa User's Guide (DSW-251)** describes how to improve program execution performance using CXpa. This guide explains how to execute your programs interactively under CXpa, how to use performance data files and command files to analyze programs more efficiently, and how to analyze your programs at the routine, loop, block, and parallel region levels.

**CONVEX CXpa Quick Reference (DSW-252)** summarizes, using the CXpa interface, how to invoke CXpa, how to compile programs for profiling, and how to control program execution.

**CONVEX CXpa Programmer's Reference (DSW-254)** contains copies of online man pages.

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## **CONVEX Device Drivers Documentation Kit (DSW-090)**

**CONVEX Guide to Writing Device Drivers (DSW-095)** includes information necessary to write a device driver for CONVEX supercomputers.

**CONVEX 68000 Tools User's Guide (DSW-091)** describes the 68000(tm) tools used to write device drivers. Primarily, this guide describes the cross compiler and the 68000 assembler, loader, and debugger.

**CONVEX 68000 Tools Programmer's Reference (DSW-092)** contains copies of online man pages.

**CONVEX IOP Interface Reference Manual (DHW-002)** describes the hardware of the CONVEX I/O processor (IOP) so a programmer can interface device driver software with the CONVEX IOP hardware.

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## **CONVEX VECLIB Documentation Kit (DSW-130)**

**CONVEX VECLIB User's Guide (DSW-132)** describes the VECLIB software library, which is a collection of FORTRAN subroutines optimized for use on CONVEX supercomputers. It describes routines for linear algebra operations such as dense and sparse vector operations, matrix operations, and linear equation solutions.

**CONVEX VECLIB Quick Reference (DSW-134)** provides a quick and efficient method for obtaining information on VECLIB. This reference lists subprogram names, purpose, and usage examples for all subprograms in VECLIB.

**CONVEX LSQPACK User's Guide (DSW-131)** describes the LSQPACK software library, which is a collection of subprograms for solving dense, real, and linear least squares problems.

**LINPACK User's Guide (DSW-026)** describes subroutines that solve or manipulate systems of linear equations. These subroutines are included in VECLIB, but some are not documented in the VECLIB User's Guide.

**Matrix Eigensystem Routines—EISPACK Guide (DSW-028)** describes subroutines that compute eigenvalues or eigenvectors for a variety of matrix types. These subroutines are included in VECLIB, but some are not documented in the VECLIB User's Guide.

**Matrix Eigensystem Routines—EISPACK Guide Extensions (DSW-027)** describes subroutines that compute eigenvalues or eigenvectors for three special classes of matrix problems and the singular value decomposition of an arbitrary matrix. These subroutines are included in VECLIB, but some are not documented in the VECLIB User's Guide.

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## **CONVEX Share Scheduler Documentation Kit (DSW-260)**

**CONVEX Share Scheduler Concepts (DSW-261)** introduces share scheduling and describes several Share utility programs. This guide teaches users how to work effectively in the Share environment.

**CONVEX Share Scheduler System Manager's Guide (DSW-265)** provides information on administering Share. This guide explains how to use Share utilities to configure, tune, and maintain Share.

**CONVEX Share Scheduler Programmer's Reference (DSW-267)** contains copies of online man pages.

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## **CONVEX CXwindows Documentation Set (DSW-240)**

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### **CONVEX CXwindows Toolkit Intrinsic Documentation Kit (DSW-230)**

**MIT Core X Toolkit Intrinsic (DSW-231)** CONVEX CXwindows Toolkit Intrinsic contains technical papers written at the Massachusetts Institute of Technology about the X Toolkit (a high-level programming interface to the X Window System).

**MIT Core X Toolkit Athena Widgets (DSW-232)** contains technical papers written at the Massachusetts Institute of Technology about the Athena Widget set, an extension to the X Toolkit.

**CONVEX CXwindows Programmer's Reference (DSW-214)** contains copies of online man pages.

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### **O'Reilly-Xlib/X Window System Documentation Kit (DSW-210)**

**O'Reilly-X Window System User's Guide (DSW-213)** The X Window System User's Guide, published by O'Reilly and Associates, provides information for the new user about common X client applications, window managers and other utilities.

**O'Reilly-Xlib Programming Manual (DSW-211)** Xlib Programming Manual, published by O'Reilly and Associates, provides a tutorial introduction to programming with Xlib, the lowest-level programming interface to the X Window System.

**O'Reilly-Xlib Reference Manual (DSW-212)** Xlib Reference Manual, also published by O'Reilly and Associates, is a companion volume to the Xlib Programming Manual that provides a complete reference for Xlib.

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## **CONVEX MathAdvantage Documentation Set (DSW-100)**

**CONVEX MathAdvantage User's Guide (DSW-052)** describes the information required to execute the CONVEX version of the MathAdvantage Library. It describes special features such as vector strides of 0, overlapping arrays, and single-precision subroutines.

**QTC MathAdvantage User Manual, FORTRAN Version (DSW-101)** describes the MathAdvantage scientific subroutine library, which optimizes the development of engineering and scientific application programs. It explains how to call the routines from a FORTRAN program and how the parameters are passed. It also describes the function of each of the subroutines.

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## **CONVEX Toolbox Documentation Set (DSW-340)**

**The Awk Programming Language, Alfred V. Aho, Brian W. Kernighan, Peter J. Weinberger (DSW-344)** describes the awk pattern-matching language for data-manipulation tasks. It includes a tutorial for getting started quickly, a detailed guide covering all features of awk, and several chapters of applications and examples, e.g., algorithms, data processing, database reporting.

**The KornShell Command and Programming Language, Morris I. Bolsky, David G. Korn (DSW-343)** contains a tutorial of basic KornShell concepts, a detailed guide to using and programming with KornShell, and a reference for ksh, the program that implements KornShell. It also includes a command quick reference.

**CONVEX Toolbox Programmer's Reference (DSW-342)** contains copies of online man pages.

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## **Software Documents not Associated with Kits or Sets**

**UNIX for VMS Users, Philip E. Bourne (DSW-380)** is a thorough introduction and guide to UNIX for VMS users, from basic concepts through programming, text processing, and networked communications. It includes a wealth of examples comparing VMS and UNIX, UNIX command summaries with VMS equivalents, and file summaries.

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### **CONVEX Architecture Reference Documentation Kit (DHW-045)**

CONVEX Architecture Handbook (DHW-005) describes the data types, register set, protection system, logical address space, and memory of the CONVEX architecture. Chaining and pipelining and the different processing units of CONVEX systems are also documented.

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### **CONVEX Removable Disk System (RDS) Documentation Kit (DHW-040)**

CONVEX Removable Disk System Installation Guide (DHW-042) contains installation procedures for the Removable Disk System (RDS). This guide includes instructions for unpacking and inspecting, installation guidelines, integrating the materials, and checking out the system once installed.

CONVEX Removable Disk System Operation Guide (DHW-043) provides operational procedures for using the Removable Disk System, such as installing storage modules, removing and storing storage modules, software configuration, and disk formatting. Included are descriptions and specifications of major RDS components as well as user maintenance procedures.

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### **CONVEX VMEbus Service Documentation Kit (DHW-050)**

CONVEX VIOP/VBCU Service Guide (DHW-051) describes the VMEbus Input/Output Processor (VIOP) and the VMEbus Control Unit (VBCU) and lists their electromechanical and environmental specifications. It also includes configuration and installation guidelines, and how to integrate them into the CONVEX UNIX operating system. Information is also provided on diagnostic tests for the VIOP and VBCU. Also included are maintenance procedures for all VME subsystem field replaceable units for which there are illustrated parts breakdowns.

CONVEX VME SMD Disk Controller Service Guide (DHW-052) describes the VMEbus Storage Module Device (V/SMD) disk controller and lists the electromechanical and environmental specifications. It also includes configuration and installation guidelines, and how to integrate the disk controller into the CONVEX UNIX operating system. Information is also provided on diagnostic tests for the V/SMD

CONVEX VME ESDI Disk Controller Service Guide (DHW-053) describes the VME Enhanced Small Device Interface (V/ESDI) disk controller and lists the electromechanical and environmental specifications. It also includes configuration and installation guidelines, and how to integrate the disk controller into the CONVEX UNIX operating system. Information is also provided on diagnostic tests for the V/ESDI.

CONVEX VMEbus Tape Controller Service Guide (DHW-054) describes the VMEbus Tape Controller including a general description of the hardware, how to install and configure it, and how to operate it. Also included are pending level registers, execution level registers, error mux status bytes, and a configurator document.

**CONVEX VMEbus Ethernet Controller Service Guide (DHW-055)** describes the VMEbus Ethernet controller and lists the electromechanical and environmental specifications. It also includes configuration and installation guidelines, and how to integrate the disk controller into the CONVEX UNIX operating system. Information is also provided on diagnostic tests for the Ethernet controller.

**CONVEX VME Async/Printer Controller Service Guide (DHW-057)** describes the VMEbus Async/Printer controller and lists the electromechanical and environmental specifications. It also includes configuration and installation guidelines and how to integrate the controller into the CONVEX operating system. Information is also provided on diagnostic tests for the controller.

**CONVEX VMEbus UltraNet Interface Service Guide (DHW-049)** describes the VMEbus UltraNet host adapter controller and lists the electromechanical and environmental specifications. It also includes configuration and installation guidelines and how to integrate the host adapter controller into the CONVEX operating system. Information is also provided on diagnostic tests for the host adapter controller.

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### **CONVEX SPU UNIX Utilities Documentation Kit (DHW-007)**

**CONVEX SPU UNIX Utilities Manual (DHW-021)** describes the features of the CONVEX Service Processor Unit (SPU) Operating System utilities, including UNIX V7 commands, system call error numbers, file formats, and system management.

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### **CONVEX Maintenance Documentation Kit (C200 Series) (DHW-004)**

**CONVEX Maintenance Overview (DHW-100)** introduces the structure of the CONVEX Maintenance documentation for C Series supercomputers and includes a master index to all manuals that comprise the documentation.

**CONVEX Theory of Operation (DHW-095)** contains a broad system-level introduction and theory to the level necessary to support maintenance, and includes an overview of the C200 Series architecture with discussions of the scalar, vector, memory, I/O, and utility subsystems. This manual also contains information on essential CONVEX UNIX system files and vector instruction operations.

**CONVEX Installation Guide (DHW-096)** provides procedures for installing a system at a new site and for upgrading a system at an existing site. Areas discussed include safety, unpacking, cabinet installations, testing the system, running diagnostics, installing SPU operating system software, returning equipment, AC power requirements, and A/C specifications.

**CONVEX General Maintenance Guide (DHW-097)** provides a preventive maintenance schedule and procedures for maintaining a system, including, but not limited to, safety considerations, checking and adjusting DC power, software considerations, and test equipment and special tools.

**CONVEX Troubleshooting Guide (DHW-098)** contains indicator and error message information, troubleshooting procedures and flow charts, and a troubleshooting philosophy and methodology discussion. Areas discussed include system dead, fails during boot, fails during CONVEX UNIX process execution, fails diagnostics, indicators, hard error messages, I/O error messages, SPU operating system messages, CONVEX UNIX messages, crash dump procedure, ASP entry point listing, and wire lists.

**CONVEX Removal/Replacement and IPB Guide (DHW-099)** provides information required to remove, order, and install Field Replaceable Units and

associated components in CONVEX supercomputers, including safety considerations, returned item documentation, removal and replacement procedures, Illustrated Parts Breakdown (IPB), and part number identification.

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### **CONVEX Diagnostics Documentation Kit (C1, C120) (DHW-070)**

**CONVEX Processor Diagnostics Manual (C1, C120) (DHW-071)** documents the Service Processor Unit (SPU)-based processor diagnostics for the CONVEX C1 and C120 supercomputers. In addition to an overview of diagnostics, there are discussions of two diagnostic utilities, dshell and scan. SPU, memory, and CPU tests are also described.

**CONVEX Diagnostic Utilities Manual (C1, C120) (DHW-072)** presents the diagnostic utilities for CONVEX C1 and C120 supercomputers. There is an explanation of the diagnostic environment and two diagnostic utilities, dshell and scan. All diagnostic utilities are contained in this manual. Also included are detailed explanations of all pertinent diagnostic file formats.

**CONVEX PBUS I/O System Diagnostics Manual (DHW-008)** describes the operation and interpretation of the various I/O system functional tests, including IOP/VIOP/HSP Channel Control Units and all peripheral devices. In addition to an introduction to diagnostics environment, there is an overview of the dshell utility and a discussion of the Event Governed Operating System and how it relates to device and peripheral diagnostics testing.

**CONVEX Diagnostics Documentation Master Index (DHW-073)** presents an overview to the diagnostics documentation available for the C1 and the C120 supercomputers.

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## **CONVEX Diagnostics Documentation Set (C200 Series) (DHW-080)**

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### **CONVEX Diagnostics Documentation Kit I/II (DHW-085)**

**CONVEX Processor Diagnostics Manual (DHW-081)** documents the Service Processor Unit (SPU)-based processor diagnostics for the CONVEX C1 and C120 supercomputers. In addition to an overview of diagnostics, there are discussions of two diagnostic utilities, dshell and scan. SPU, memory, and CPU tests are also described.

**CONVEX Diagnostics Master Index (DHW-083)** presents an overview to the diagnostics documentation available for the C200 Series supercomputers.

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### **CONVEX Diagnostics Documentation Kit III (DHW-090)**

**CONVEX PBUS I/O System Diagnostics Manual (DHW-008)** describes the operation and interpretation of the various I/O system functional tests, including IOP/VIOP/HSP Channel Control Units and all peripheral devices. In addition to an introduction to diagnostics environment, there is an overview of the dshell utility and a discussion of the Event Governed Operating System and how it relates to device and peripheral diagnostics testing.

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### **CONVEX Diagnostics Documentation Kit IV (DHW-105)**

**CONVEX Diagnostic Utilities Manual (DHW-082)** presents the diagnostic utilities for CONVEX C200 Series supercomputers. There is an explanation of the diagnostic environment and two diagnostic utilities, dshell and scan. All diagnostic utilities are contained in this manual. Also included are detailed explanations of all pertinent diagnostic file formats.

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## Hardware Documentation not Associated with Kits or Sets

**CONVEX Multibus Controller Configuration Guide (DHW-022)** describes the differences between CONVEX-supported and user-supported Multibus devices. It provides lists of standard address and interrupt levels, and includes tables and examples for determining the levels for standard and non-standard Multibus controller configurations.

**CONVEX Multibus X.25 Controller Installation Guide (DHW-038)** describes the Multibus X.25 controller and lists the electromechanical and environmental specifications. It also includes configuration and installation guidelines and how to integrate the controller into the CONVEX operating system. Information is also provided on diagnostic tests for the controller.

**CONVEX Integrated Disk Channel Service Guide (DHW-025)** describes the CONVEX Integrated Disk Channel and lists the electromechanical and environmental specifications. It also includes configuration and installation guidelines and how to integrate the CONVEX Integrated Disk Channel into the CONVEX operating system. Information is also provided on diagnostic tests for the CONVEX Integrated Disk Channel.

**CONVEX HSP User's Guide (DHW-030)** provides the information needed to design a high transfer rate application for those who want to design their own High-Speed Parallel (HSP) interface. The HSP provides a high-speed connection between a CONVEX system and other devices so data can be transmitted and received to and from other supercomputers, high-speed disks, and other devices.

**CONVEX HIA User's Guide (DHW-035)** describes the High-Speed Parallel Interface Adapter (HIA) and its various hardware and communications features, including how the HIA interacts with the HSP Channel Control Unit and the User Written Device Driver. This manual also contains port signals and bus protocols, HIA register descriptions, HIA user-port bus and backplane signals, and an example of a slave-mode driver.

**CONVEX HIA Service Guide (DHW-037)** describes the HSP Interface Adapter (HIA), including a general description of the hardware, how to install and configure it, removal/replacement procedures, and an illustrated parts breakdown. Also included are installation and operation procedures for the Farside-Echo (FSE) test hardware.

**CONVEX Computers Site Preparation Guide (DHW-009)** provides system and facility managers with information needed to prepare their site for a CONVEX C200 Series supercomputer. Physical and environmental specifications are noted, as are preparation and planning guidelines (with templates for designing a computer room floor plan). Preinstallation checklists are included.

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