

UNIXTM BIBLIOGRAPHY

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UNIXTM OPERATING SYSTEMS BIBLIOGRAPHY

This bibliography lists the current documents on the various UNIX operating systems which are available from the Bell Laboratories Computing Information Libraries. The bibliography contains a subject section, a permuted title/author index, and listings by both UNIX and TM numbers.

The subject bibliography is divided into the following MERCURY categories:

UNED	Editing and Document Preparation
UNGI	General Information
UNHA	Hardware
UNOS	Operating System
UNPL	Programming Languages
UNPM	UNIX User's Manuals
UNSA	Special Applications
UNSD	Standard Documentation
UNSU	Service and Utility Programs

Anyone wishing to automatically receive new or updated technical memoranda in any of the above categories should sign up with MERCURY. The complete memorandum or cover sheet for individual categories or for all categories can be requested. These documents are included in the *Computer Program Index*. Each document in the bibliography is given a "1000 number" by the Murray Hill Computing Information Library. Some PWB related documents also have a special alpha-numeric designation. These numbers can be used when requesting copies from the Computing Information Libraries.

Holmdel	6D-106	X4561
Indian Hill	6E-519	X3514
Murray Hill	2F-128	X4373
Piscataway	2H-210	X7679
Whippany	2A-395	X3363

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A limited number of these documents are approved for release outside the Company. Please refer outside requests for such documents to the Murray Hill Computing Information Library.

MINI-SYSTEM NEWSLETTER, issued monthly, is not included in the bibliography. Back issues are available in the Computing Information Libraries. To subscribe to future issues of the *MINI-SYSTEM NEWSLETTER*, contact D. M. Carbone PY X6401.

C. L. Scheiderman MH X6058
March 1980

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TABLE OF CONTENTS

Section I:	SUBJECT BIBLIOGRAPHY
Section II:	PERMUTED TITLE/AUTHOR INDEX
Section III:	UNIXTM NUMBER INDEX
Section IV:	TM NUMBER INDEX

SECTION I

SUBJECT BIBLIOGRAPHY

UNED—Editing and Documentation Preparation

(1000) *A Tutorial Introduction to the UNIX Text Editor*

B. W. Kernighan

February 8, 1979

A good document for first time users.

See also UNED(1108)

(1010) *A TROFF Tutorial*

B. W. Kernighan

August 4, 1978

This document is an introduction to the most basic use of TROFF. It assumes that the reader is familiar with ROFF on UNIX and GCOS.

(1011) *Typesetting Mathematics—User's Guide (Second Edition)*

B. W. Kernighan + L. L. Cherry

August 15, 1978

This is the user's guide for a system for typesetting mathematics, using the phototypesetters on the UNIX and GCOS operating systems.

See also UNED(1029)

(1019) *Computer Detection of Typographical Errors*

R. Morris + L. L. Cherry

TM 73-1271-4 April 3, 1974

(1028) *Typing Documents on the UNIX System: Using the —ms Macros with Troff and Nroff*

M. E. Lesk

November 13, 1978

This document describes a set of easy to use macros for preparing documents on the UNIX system. It includes the "Guide to Preparing Documents with —ms ."

See also UNED(1111)

(1029) *A System for Typesetting Mathematics*

B. W. Kernighan + L. L. Cherry

January, 1979

This paper describes the design and implementation of a system for typesetting mathematics.

See also UNED(1011)

(1042) *UNIX For Beginners—Second Edition*

B. W. Kernighan

February 8, 1979

This paper is meant to help new users get started on UNIX.

(1075) *Typesetting ACS and APS Meeting Abstracts—Issue 2*

D. Edelson

TM 77-1351-1 January 3, 1977

This memo describes how meeting abstracts can now be photocomposed using a convenient package of TROFF commands. This system is implemented on the H6000 and Dept. 127's UNIX.

This memorandum is a revision of MM 75-1352-39.

(1082) *Webster's Second on the Head of a Pin*

R. Morris + K. Thompson

TM 74-1271-13 July 15, 1974

This memo describes a list of words from Webster's Second Unabridged Dictionary (without definitions) as a test case for special purpose text compression techniques.

(1083) *An Algorithm For Differential File Comparison*

J. W. Hunt + M. D. McIlroy

TM 75-1271-11 October 1, 1975

The program diff reports differences between two files expressed as a minimal list of line changes to bring either file into agreement with the other.

(1085) *Numeric Pattern Recognition Data Base for UNIX Systems*

M. E. Greenberg + C. S. Roberts

TM 76-1353-1 January 5, 1976

This memorandum describes the data base contents and format.

(1089) *Computer Typesetting Of Technical Journals On UNIX*

M. E. Lesk + B. W. Kernighan

TM 76-1274-2, TM 76-1273-1 March 29, 1976

(1091) *A Secretarial Typing System Using UNIX*

E. F. Engelbert

February 27, 1976

Memorandum For File

(1098) *PWB/MM—Programmer's Workbench Memorandum Macros (T.2)*

J. R. Mashey + D. W. Smith

TM 77-9144-5, TM 77-8234-23 October 1977

This memorandum is a user's guide and reference manual for PWB/MM, a general purpose package of text formatting macros for use with the UNIX text formatters NROFF and TROFF.

Supersedes TM 76-9144-1

See also UNED(1190) + UNED(1216)

(1104) *The LEARN Program for Computer Instruction: (2nd Edition)*

B. W. Kernighan + M. E. Lesk

TM 79-1274-6, TM 79-1273-5 May 31, 1979

This paper describes the LEARN program for interpreting CAI scripts on UNIX, and a set of scripts which provide a computerized introduction to use of the UNIX operating system.

(1106) *TBL—A Program To Format Tables*

M. E. Lesk

January 16, 1979

TBL is a document formatting preprocessor for TROFF or NROFF which makes even fairly complex tables easy to specify and enter.

(1107) *Programmer's Workbench Papers From The Second International Conference On Software Engineering. (G.4)*

T. A. Dolotta, et al.

TM 76-9141-6, TM 76-9144-3, TM 76-9411-1, TM 76-9421-2 July 30, 1976

Four papers are included in this memo. They consist of four specific PWB facilities and a description of one user group's experience with PWB.

(1108) Advanced Editing On UNIX

B. W. Kernighan

September 28, 1979

This paper is meant to help secretaries, typists and programmers to make effective use of the UNIX facilities for preparing and editing text.

(1109) Programmer's Workbench—Synopsis Of Facilities (G.1)

T. A. Dolotta + R. C. Haight

TM 77-9144-3, TM 77-8234-17

September 15, 1977

This memorandum gives an overview of the Programmer's Workbench, a program development and text processing facility designed and used with the BISP area at BTL.

Supersedes TM 76-9141-7

(1111) A Guide To Preparing Documents On UNIX

M. E. Lesk

April 1977

This card gives some simple examples of document preparation on the UNIX system, emphasizing the use of the —ms macros package. Revision of September 1976

(1112) New Graphic Symbols For EQN And NEQN (T.8)

C. Scrocca

TM 76-7133-1

September 15, 1976

This document displays a set of special characters frequently used in technical typing. It shows how to use them and discusses what is involved in making a special character.

(1115) NROFF/TROFF Formatting Codes For Departmental Organization Directories On PWB/UNIX.

D. W. Smith

September 1, 1976

Memorandum For File

This memo describes a PWB/UNIX documentation facility for departmental directories.

(1117) System For Entering Data Through Computer Displayed Forms

E. W. Stark + H. Lycklama

TM 76-1352-6

October 22, 1976

This document describes two programs which make up a system for managing a data base through the use of computer displayed forms.

(1119) NROFF/TROFF User's Manual

J. F. Ossanna

January 1979

NROFF and TROFF are text processors available on UNIX. TROFF is also available on GCOS. NROFF formats text for a variety of typewriter-like terminals. TROFF formats text for printing on a Graphic System phototypesetter.

(1121) Programmer's Workbench Documentation Roadmap (B.1)

J. R. Mashey

TM 77-8234-18

September 30, 1977

This document attempts to be a terse up-to-date outline of crucial documents and information sources.

(1139) Easy Phototypeset View Graphs on UNIX

G. C. Vogel

MF 77-8234-055

May 18, 1977

A set of TROFF macros has been created to produce phototypeset 7x7 inch view graphs on Dept. 8234 UNIX. A companion set of NROFF macros are also provided. This memorandum is a revision of MF-76-8234-019

(1148) NROFF Macros For Producing Generic Program Documentation.

S. J. Cunningham

TM 77-5222-1 March 18, 1977

A set of NROFF Macros have developed for producing program applications instructions (PAs), Program Specifications (PDs), Input Manuals (IMs) and Output Manuals (OMs) for the No.2 Switching control center.

(1152) PWB/UNIX Manual Page Macros (I.9)

E. M. Piskorik

TM 77-9141-7 March 1, 1977

This memorandum is a reference for all who wish to prepare manual pages like those in the UNIX Programmer's Manual or the PWB/UNIX User's Manual.

(1165) Circuit Design Aids On UNIX

A. G. Fraser + G. G. Riddle

TM 77-1273-5, TM 77-9155-2 March 29, 1977

This memorandum describes programs written in the C language which use a Tektronic 4014 graphic terminal. It also includes summary descriptions and explains strategies employed by the programs.

(1169) An Interactive Computer Controlled Data Acquisition System With A CAMAC Real Time TM-Display

R. A. Boie + M. Robbins + R. Kerr

TM 77-1131-17 May 12, 1977

An interactive computer controlled data acquisition system with a real time cathode ray tube (CRT) display is described. Local data analysis functions are provided as well as 2-way transmission of data to PDP-11/45 running under MERT/UNIX operating system.

(1170) Formatting Program Generic Documents On Unix

G. C. Vogel

MF 77-8234-57 May 24, 1977

This memorandum prescribes simple procedures to produce documents consistent with Bell System Program Documentation format. A procedure for converting a technical memoranda into standard format is given and a procedure for preparing formatted permuted indexes.

(1174) Reference Sheet For PWB/MM Macros

R. F. Rosin

July 1977

(1175) Computerized Office Filing System

R. E. Miller

TM 77-1353-4 May 10, 1977

This memorandum describes an on-line computer system for filing and retrieving documents in an office environment.

(1177) EDTV—A Display-Oriented Text Editor For UNIX

J. F. Reiser

TM 77-1353-6 August 1, 1977

This memorandum is a description of the features and commands of edtv, a display-oriented text editor which runs under the UNIX operating system. It allows the regular expression editing features of ed, the standard UNIX editor.

(1179) New Text Formatting Software For The PWB Systems

D. W. Smith

February 2, 1977

Memorandum For File

A C version of NROFF and TROFF are now available on PWB System A. The latest versions of tbl and eqn/neqn which utilize features of the C version NROFF and TROFF are also available.

(1184) A Computer Assisted Communication System. (CACS)

M. J. Shannon Jr.

TM 77-1352-5 July 22, 1977

CACS has been rewritten to run on a DEC LSI-11. Running LSI-UNIX CACS allows severely handicapped Cerebral Palsy victims to communicate with the outside world via a typewriter-like keyboard text on a television screen. Differences between original implementation and future possible improvements are noted.

(1188) PWB/UNIX Beginner's Course (B.2)

M. E. Pearlman + S. H. Strauss

December 1977

An outline with view graphs.

(1190) Typing Documents With PWB/MM (T.3)

D. W. Smith + E. M. Piskorik

October 1977

(1191) PWB/MM Tutorial (T.4)

N. W. Smith

December 1977

Introduction to PWB/UNIX text processing.

(1192) PWB/UNIX View Graph and Slide Macros (T.9)

T. A. Dolotta + D. W. Smith

December 1977

Greatly eases the task of making transparencies with TROFF.

(1205) Cut and Paste—Two UNIX Word Processing Commands

G. W. R. Luderer

MF 77-8234-086 September 30, 1977

Cut and Paste are two new UNIX word processing commands that complement grep and cat. Cut dissects a file vertically, and Paste is the reverse operation of Cut.

(1213) Some Applications of Inverted Indexes on the UNIX System

M. E. Lesk

January 1979

This memorandum describes a set of programs which make inverted indexes to UNIX text files, and their application to retrieving and formatting citations for documents prepared using TROFF.

(1216) Summary of PWB/MM Macros, Strings, and Registers (T.2)

D. W. Smith + J. R. Mashey

November 1977

This reference card is part of the document UNED(1098) T.2

(1263) New Permuted Index Program on UNIX

J. F. Maranzano

MF 78-8234-59 May 1, 1978

Prompted by requests for enhancements and a need for improved formatting, a new permuted index program, ptx, has been written on UNIX. The memorandum describes the new features of this program as well as the motivation for these improvements.

(1280) *mview—A Set of Macrocommands For The Generation of View Graphs*

J. N. Sturman

TM 78-8231-2 June 21, 1978

This memorandum is a user's reference manual for mview, a general-purpose macrocommand package for the phototypesetting of view graphs.

This memorandum supersedes TM 77-8231-6.

(1292) *Use of Display Editors*

L. C. Ozimek

August 11, 1978

This memorandum discusses advantages and disadvantages of display editing vs. line editing. It also describes features and capabilities of the display editors currently available on UNIX.

(1300) *ATS to PWB/MM Converter*

N. W. Smith

September 29, 1978

This document tells how to run the atsmm converter, describes the PWB/MM macros produced for each ATS command, explains any action required for the small number of ATS features that are not directly supported by PWB/MM, and gives pointers to additional PWB/MM features.

(1301) *A Guide to the of Pseudo-ATS on UNIX*

HO Computer Center

October 1978

This memorandum explains how to move documents from an ATS system onto UNIX system.

(1307) *SED—A Non-interactive Text Editor*

L. E. McMahon

TM 78-1270-1 August 15, 1978

This memorandum constitutes a manual for users of sed.

(1314) *TBL Options Summary*

H. F. Okrent

December 6, 1978

See also UNED(1106)

(1317) *UNIED—A Data File Editor*

J. C. Ward

November 16, 1978

This memo describes the UNIX version and contains a user tutorial and command guide.

(1386) *Final Report: Secretarial Word Processing Facility Enhancement*

J. M. Shanahan

April 30, 1979

This paper discusses the evolution of the word processing operation from the initial configuration having hardcopy terminals at each secretarial station to the current configuration having CRT's at these stations and having high quality printout produced remotely in the computer room.

(1441) *A Tutorial Introduction to the Graphical Editor (GED)*

A. R. Feuer

TM 79-3782-3 July 30, 1979

This memorandum is a tutorial for Ged, an interactive program used to display, edit, and construct line drawings on Tektronix 4010 series display terminals.

(1456) *A Portable Version of the UNIX Text Editor Ed*

M. R. Horton

TM 79-3723-2 September 14, 1979

This paper describes a version of the UNIX text editor, Ed, which has been written to run on UNIX, GCOS, and TSO.

(1479) *An Introduction to the PWB/MM Text Formatter*

K. E. Wendland

August 23, 1979

A tutorial introduction to the PWB/MM text formatter.

(1497) *Writing Tools—The STYLE and DICTION Programs*

L. L. Cherry + W. Vesterman

January 16, 1980

The system of writing tools described in this memo includes programs and a data base to analyze writing style at the word and sentence level.

UNGI—General Information

(1331) READ—C Programs For Analyzing Readability

E. U. Coke + M. E. Koether

TM 78-1222-9 November 22, 1978

This memorandum describes two C programs which are available for analyzing the readability of written materials.

(1337) Report Generation on UNIX

E. Borison

February 1, 1979

This memorandum demonstrates how awk can be used for the same purpose on UNIX as the TSS program, REPORT.

(1340) Minutes, ISCC Common Command Subcommittee

N-P. Nelson

January 25, 1979

(1396) UNIX Users Group Meeting—Toronto, June 19-23, 1979

S. R. Eisen

June 25, 1979

This paper is a TRIP REPORT of the Summer 1979 (East Coast) meeting of the UNIX Users Group which took place at the University of Toronto, Ontario.

(1470) The Evolution of the Unix Time-Sharing System

D. M. Ritchie

This paper presents a brief history of the early development of the Unix operating system.

(1477) Experiences with the UNIX Time-Sharing System

J. Lions

March 1979

(1485) UNIX/TS Documentation Road Map

G. A. Snyder + J. R. Mashey

TM 79-3646-1, TM 79-9322-2 November 9, 1979

The purpose of this document is to provide a guide to UNIX commands and features for new users.

UNHA – Hardware

(1048) A Continuous Service Real Time Clock for Digital Computers

J. R. Vollaro

TM 75-1273-4 March 13, 1975

This paper describes continuous service; meaning the clock continues to function during power blackouts, system failures and shutdowns and can be read whenever the computer is operable.

(1058) C—Language Oriented Microprogram for the HP-21MX

A. G. Fraser + D. M. Ritchie

TM 75-1273-1 February 25, 1975

This paper proposes an instruction-set architecture designed for implementation on the Hewlett-Packard 21MX Micro-programmed processor.

(1107) Programmer's Workbench Papers From The Second International Conference On Software Engineering. (G.4)

T. A. Dolotta, et al.

For complete information, see UNED (G.4)

(1161) MERT Hardware Configuration

E. A. Loikits

MF 77-8234-037 April 20, 1977

This memorandum contains two parts: a description of the minimum MERT hardware configuration for a PDP-11/70 or PDP-11/45 ; and a list, by device type, of all peripheral devices for which drivers exist in Center 135.

(1163) UNIX Error Logging

R. B. Brandt

For Complete Information, see UNOS

(1181) UNIX Link To MBS Line Printer and Computer Center Services

A. L. Shirtz

MF 77-8234-13 August 11, 1977

This memorandum describes the software structures which provide new capabilities to UNIX users in Dept. 3124.

(1182) Some MERT Performance Measurements in Transaction Oriented Processing.

D. F. Hayden

MF 77-3124-12 July 28, 1977

These notes describe some measurements recently taken on an 11/70 based MERT System.

(1196) PWB/UNIX Operations Manual (I.3)

M. E. Pearlman

September 1977

This manual contains a complete description of console operations, as well as step-by-step instructions for normal operator functions.

(1226) Description and Analysis of the DEC KMC11 Microprocessor

L. A. Wehr

TM 77-8234-21 November 15, 1977

This document provides a comprehensive description and analysis of the KMC11 microprocessor, covering the architecture and microinstructions in detail.

(1240) Beta Test of the COMM IOP-DUP Synchronous Communications Controller under UNIX

P. F. Long

TM 78-8234-4 February 23, 1978

This memorandum discusses the implementation of the driver which controls a number of DUP-11's and evaluates the COMM IOP for use as a synchronous controller with UNIX

(1242) A UNIX Device Driver for the PCL11-A—A Parallel Interprocessor Communications Link

D. M. Ungar

TM 78-3124-2 January 25, 1978

The PCL11-A is a new PDP-11 peripheral providing high speed communication among as many as 31 computers. A UNIX device driver has been written for this device.

(1254) An Array and Switching Processor

H. G. Alles

TM 78-1356-4 February 24, 1978

This memo describes the general arithmetic and interconnection module which can be thought of as an array processor or switching processor.

(1255) The Teletype DATASPEED 40 Line Printer as a UNIX Peripheral

P. G. Dowd

TM 77-8234-12 May 13, 1977

The printer may be obtained in an 80 character-per-line model or a 132 character-per-line model. Its print quality is excellent; it has a full ASCII character set (96 characters). Department 8234 has successfully installed this software on a MERT/UNIX system.

(1261) Experience With Hardware Service Contractors on PDP-11's

J. F. Maranzano + R. C. Haight

TM 78-8234-9 April 10, 1978

This memorandum is intended to provide some information to the Operating Companies System Maintenance Groups concerning the Bell Labs experience with maintenance of minicomputers.

(1282) Using a Line Clock to Estimate Mean Disk Access Time

B. W. Stuck

EN 3451 January 18, 1978

(1284) Error Logging in UNIX/TS and UNIX/RT

R. B. Brandt

TM 78-8234 June 26, 1978

This memorandum details the specifications for an improved version of error logging for UNIX/TS and UNIX/RT that provides significantly more compatibility between these systems, especially in the area of the user interface.

(1299) Power Supply Controller Using a MAC 8 Micro Processor

M. F. Robbins + R. Stensgaard

TM 78-1131-36 August 23, 1978

A system has been developed using a MAC 8 micro processor to control a programmable power supply.

(1305) Proposal for a Microprocessor Based Systems Development Laboratory

P. W. Gwozdz

TM 78-4562-2 September 29, 1978

(1330) *The Tandem Computer System—A First Look*

A. M. Usas

TM 78-1352-11 October 23, 1978

This report contains in a greatly digested form information gathered from the extensive Tandem documentation and is presented in the form of a brief survey of the features of the system.

(1347) *Evaluation of Microprocessors Supporting the C Language: LSI-11, MAC-8, Z80*

M. H. Bradley + W. E. Sherbon + J. S. Waldhuter

TM 78-3323-3 June 5, 1978

The purpose of this memorandum is to present a quantitative evaluation of three existing microprocessors which have an available C compiler.

(1365) *Standard UNIX Configurations—Issue 2*

G. C. Vogel

March 27, 1979

This paper lists recommended processors and peripherals for the purpose of expediting computer acquisition reviews for DEC based UNIX systems. Minimum configuration information is also given for UNIX/TS and UNIX/RT systems.

(1380) *PDP-11/70 Design Error: Handling Segmentation Violations Different from PDP-11/45 Implementation*

E. L. Hedrick + T. M. Raleigh

TM 79-4145-3, TM 79-2524-2 April 10, 1979

A difference in the operation of the DEC PDP-11/70 Memory Management unit and that of the PDP-11/45 based processors has been found. This memorandum describes the Memory Management problem and suggests an alternative context switching implementation for MERT in the event that DEC cannot make the PDP-11/70 upward compatible with the PDP-11/45.

(1389) *Formal Specification of X.25 Compatible Link Protocol*

R. Ermann

TM 79-5251-2 June 21, 1979

The purpose of this memorandum is to clearly define a link protocol compatible with the following standard proposals: the latest X.25/LAPB draft, HDLC, and ADCCP. The formal specification presented here completes all those procedural aspects left open by the above candidate standards.

(1392) *Evaluation of the Remote Diagnostic Console for use on Bell System PDP-11/70 Computer Systems*

D. L. Clark

May 11, 1979

This memo is intended, in part, to dispel some of the mythology and misunderstandings surrounding the Remote Diagnostic Console (RDC).

(1394) *A Filesystemless UNIX for the Z80 Microprocessor*

S. M. Rubin

TM 79-1355-5 May 1, 1979

This paper describes the implementation of a UNIX subset on the Z80.

(1417) *An ICE-85 Based 8085 Software Development System*

W. Densmore

TM 79-3231-1 May 31, 1979

An interface between UNIX and an Intel MDS-800 running ISIS-II is described. It includes features for allowing user-to-UNIX communication, MDS-to-UNIX file transfer, and UNIX-to-MDS file transfer.

UNHA

(1418) Battery Backup for PDP 11/70 MOS Memory

J. A. McGuire

May 2, 1979

(1423) PWB Hardware Help

C. A. Brooks

August 1, 1979

(1460) A DATAKIT Network Monitoring System

R. J. Elliott

TM 79-1273-7 October 2, 1979

This paper describes how to use the Network Monitoring System.

UNOS—Operating System

(1005) The UNIX I/O System

D. M. Ritchie

This document describes how to write drivers for the UNIX system. It is an important manual for those contemplating driver writing.

(1008) The UNIX Time-Sharing System

D. M. Ritchie + K. Thompson

Overview of the UNIX time-sharing system.

(1043) UNIX Summary

M. D. McIlroy

(1045) Emulation of UNIX on Peripheral Processors

H. Lycklama + C. Christensen

TM 75-1352-2 January 9, 1975

This document describes UNIX Operating System emulation on a peripheral PDP-11 computer.

(1047) Explanation Of Abnormal Conditions Within The UNIX Operating System.

T. M. Raleigh

MF 75-8234-28 March 17, 1975

Error messages printed by the UNIX operating system on the system console are discussed with their causes, implications and remedies.

(1052) A Structured Operating System for a PDP-11/45

H. Lycklama + D. L. Bayer

TM 75-1352-4 May 6, 1975

This paper provides an overview of the MERT System on which UNIX Time-Sharing has been implemented.

See also UNOS(1062) + UNPM(1070)

(1062) MERT—A Multi-Environment Real-Time Operating System.

D. L. Bayer + H. Lycklama

TM 75-1352-7 July 18, 1975

Memorandum for File

(1065) A Description of the UNIX File System

J. F. Maranzano

MF 75-8234-32 September 16, 1975

This memorandum describes the structure of the file system as well as the applicable control blocks.

(1069) Introduction to Scheduling and Switching under UNIX

T. M. Raleigh

TM 75-8234-7 October 20, 1975

This memorandum discusses process switching and scheduling under UNIX using queuing models as an aid to visualization of the system's operation.

(1073) UNIX Programming—Second Edition

B. W. Kernighan + D. M. Ritchie

October 26, 1979

This paper is an introduction to programming on UNIX. The emphasis is on how to write programs that interface to the operating system.

- (1076) *LKOUT—A New UNIX System Call To Suspend And Resume Input From User Terminals.*
R. C. White, Jr.
TM 75-4145-2 December 17, 1975
- (1077) *UNIX DH-11 Driver To Support Both Teletypewriter And DATASPEED 40 Timesharing Terminals.*
R. C. White, Jr.
TM 75-4145-1 December 17, 1975
- (1087) *Guide to IBM Remote Job Entry for PWB/UNIX Users (B.12)*
A. L. Sabsevitz
February 1978
This document describes the RJE services provided between Programmer's Workbench machines and the IBM Computer Center.
- (1090) *Proposal For UNIX Interprocess Communication*
R. B. Brandt
TM 76-8234-4 March 17, 1976
This memorandum provides functional design specifications for a comprehensive set of interprocess communications enhancements to UNIX OS.
- (1092) *TCMP—A Program For Comparing Program Text After A System Crash.*
T. M. Raleigh
MF 76-8234-29 April 27, 1976
TCMP is a program which compares the original text (instructions) of a program with the text of that program in a system crash dump.
- (1093) *DEAD—A Program For Analyzing UNIX System Crashes*
T. M. Raleigh
MF 76-8234-30 April 30, 1976
DEAD is a program for quickly summarizing the state of a crashed UNIX System.
- (1094) *Cautions On The Use Of The Alarm Signal*
T. G. Lyons
April 26, 1976
Programmer's Notes
Two System calls Alarm (n) and Pause () have been installed on the PWB machines operated by Dept. 9144. They were coded at MH and are likely to filter down to standard UNIX.
- (1107) *Programmer's Workbench Papers From The Second International Conference On Software Engineering. (G.4)*
T. A. Dolotta, et al.
For complete information, see UNED (G.4)
- (1113) *UNIX System Call Measurements*
C. D. Perez + T. M. Raleigh
MF 76-8234-79 September 16, 1976
This memorandum is the first of a series which will deal with fundamental measurements of the UNIX operating system on the PDP-11.
- (1114) *Synthetic Process For UNIX*
D. R. Bernstein
TM 76-8234-17, TM 76-9156-2 September 24, 1976
This memorandum describes the monitor and resource parts of synthetic processing. Some measurements of system calls comparing different hardware and software are presented for illustration.

(1116) LSI-UNIX System

H. Lycklama

TM 76-1352-4 October 6, 1976

A modified version of the UNIX operating system has been written to run on the LSI-11 microcomputer. The main programming language is the structured high level language C.

(1120) DOS-BATCH To UNIX Conversion

E. H. Albrecht

September 1, 1976

This memo describes notes and an attachment for the knowledgeable DOS-BATCH programmer with sufficient background to develop programs in a "stand-alone" PDP-11 processor using the UNIX operating system.

(1122) A Real-Time Time-Shared Operating System For An SEL/86—PDP-11 Configuration

W. A. Burnette

TM 76-8231-9, TM 76-1228-11 October 29, 1976

The primary purpose of the SEL/86—PDP-11 system is to provide real-time interactive computing for research in speech and graphics.

(1123) MINI-UNIX Summary

H. Lycklama

November 1976

(1124) Setting-Up MINI-UNIX—Sixth Edition

H. Lycklama

November 1976

This paper describes the procedure for setting up MINI-UNIX on the PDP-11/10, -11/20 or -11/40.

(1125) MINI-UNIX Regenerating System Software

H. Lycklama

November 1976

This document discusses how to assemble or compile various parts of the MINI-UNIX system software.

(1126) Scheduling and Switching Under UNIX Algorithms and Implementation

T. M. Raleigh

TM 76-8234-18 October 1, 1976

This memorandum is the second of two intended to provide documentation for the Scheduler and Switcher under UNIX OS (USG). A number of changes made by UNIX Research are discussed as a guide to what improvements may be made to the standard system.

(1127) Shared Memory In UNIX

D. S. De Jager

TM 76-5223-1 November 19, 1976

This memorandum presents a proposal for a general set of primitives to be used for the set up and administration of shared memory in the UNIX environment.

(1128) UNIX Initialization and Process Control

C. P. Imagna

TM 76-3412-1 July 23, 1976

This memorandum describes the UNIX initialization program (INIT).

(1129) *LSX Software*

H. Lycklama
May 1977

(1130) *Setting Up LSI-UNIX—First Edition*

H. Lycklama
May 1977

This paper describes the procedure for setting up LSI-UNIX on the LSI-11 Microprocessor with 20K words of memory and floppy disk for secondary storage.

(1131) *Regenerating LSX Software*

H. Lycklama
May 1977

(1135) *The MINI-UNIX System*

H. Lycklama
TM 77-1352-1 January 13, 1977

The MINI-UNIX operating system is basically the UNIX operating system rewritten to run on a PDP-11 processor without a segmentation unit. The system supports all of the standard system calls of UNIX with the exception ptrace, pipe, prog, getgid and setgid. The entire system resides on 12K words of memory and is written in C language.

(1136) *Implementation of Semaphores and Messages in UNIX*

R. B. Brandt
MF 76-8234-76 September 7, 1976

The design specification for a collection of UNIX interprocess communications features are proposed.

(1138) *On The Security Of UNIX*

D. M. Ritchie
January 1979

This paper discusses the degree of security which can be provided under the UNIX system and offers a number of hints on how to improve security.

(1145) *DEC Factory Acceptance Test*

R. B. Brandt + C. D. Perez
MF 77-8234-001 January 19, 1977

This memorandum is a description of a UNIX checkout package made available to DEC on a trial basis.

(1146) *Setting-Up MERT—Second Edition*

H. Lycklama
February, 1977

(1147) *Regenerating MERT Software*

H. Lycklama
February, 1977

(1154) *UNIX On A Micro-Processor*

H. Lycklama
May 1977

A modified version of the UNIX Operating System has been written to run on the LSI-11 micro-computer with 20K words of primary memory and floppy disk for secondary storage. This configuration permits most of the UNIX user programs to run on the LSI-11 micro-computer.

(1155) Programmer's Manual For the SEL-86 PDP-11/45 Operating System.

W. A. Burnette + J. R. Remde

TM 77-8231-2 , TM 77-1228-2

February 7, 1977

This programmer's manual is an introduction to the SEL86—PDP-11/45 system, and a reference manual for the commands, system calls, and important subroutines available on the SEL86.

(1158) LSI-UNIX Summary

H. Lycklama

May 1977

(1159) A New Input-Output Package (B.10)

D. M. Ritchie

May 1977

(1162) The UNIX Operating System—PG-1C300

G. C. Vogel

TM 77-8234-02

April 15, 1977

This memorandum describes the standard version of UNIX that has been issued to Western Electric as the the UNIX Operating System Program Generic—PG-1C300. Dept. 8234 provides support for this version of UNIX.

(1163) UNIX Error Logging

R. B. Brandt

TM 77-8234-10

May 6, 1977

This memorandum describes the error logging scheme that has been implemented for the UNIX Operating System.

(1164) File Integrity And Space Accounting For A UNIX Based System.

A. G. Fraser + R. J. Elliott

TM 77-1273-7

April 4, 1977

This memorandum is concerned primarily with the overall strategy used for file integrity, space accounting and relevant changes to the UNIX Operating System. There is a summary of new commands and an overview of the file dump and recovery programs.

(1167) CM, A UNIX Driver For The MINITAPE System

R. E. Swift

TM 77-8234-13

June 13, 1977

CM, is a UNIX driver, written in C to interface a MINITAPE system.

(1173) Synthesis Of A Half-Duplex Line Control Procedure For UNIX Using State Transition Matrix Techniques

P. F. Long

TM 77-8234-14

July 19, 1977

A new UNIX terminal interface is described which provides 120 cps access over the DDD network using half-duplex Teletype Model 40/1s and 202s data sets.

(1176) On Using The UNIX Error Logger

C. D. Perez

MF 77-8234-82

August 31, 1977

This UNIX error logger is a software tool that collects information from the system about certain block devices at the moment that an I/O error occurs.

(1180) A Description of Automatic Dialing Using the UNIX Operating System

G. B. Foley

August 1, 1977

Memorandum for File

This memo provides background information on automatic dialing, explains how it has been implemented on the UNIX operating system and describes some routines to make automatic calling easier.

(1183) MERT Release 0 From Department 8234

G. W. R. Luderer

MF 77-8234-067 June 30, 1977

This purpose of this paper is to announce the contents and orientation of a preliminary MERT Release 0 and give some early considerations with regard to UNIX/RT.

(1187) The UNIX Time-Sharing System—A Retrospective (G.3)

D. M. Ritchie

A more recent discussion.

(1189) PWB/UNIX Shell Tutorial (B.5)

J. R. Mashey

September 1977

Describes the PWB/UNIX command interpreter.

(1194) Setting Up PWB/UNIX (I.1)

R. C. Haight + W. D. Roome + L. A. Wehr

September 1977

Procedures used to install PWB/UNIX on the PDP-11/45 or -11/70 and the steps necessary to regenerate all the PWB/UNIX programs.

(1195) Administrative Advice for PWB/UNIX (I.2)

R. C. Haight

October 1977

Hints for approaching operational serenity.

(1197) Repairing Damaged PWB/UNIX File Systems (I.4)

P. D. Wandzilak

November 1977

Comes in handy after a power failure, etc.

(1198) PWB/UNIX RJE Administrator's Guide (I.5)

A. L. Sabsewitz

December 1977

What to do when it breaks.

(1201) Notes on the Selection, Procurement, Installation, and Usage of UNIX by Department 5254.

J. F. Majernik

October 21, 1977

5254-771021.01EN

(1202) More Flexible Low Speed I/O for UNIX

J. Feder

TM 77-8234-16 August 15, 1977

Descriptive material on UNIX I/O operation is given in this memo.

(1204) C Language Portability

B. A. Tague + R. C. Haight
September 22, 1977

(1212) DA11B Driver in MERT

J. E. Laur
November 30, 1977
Memorandum for File
The purpose of this memo is to describe the DA driver built to run under the MERT operating system.

(1214) Lecture on UNIX Scheduler and Switcher Given by T. M. Raleigh at Whippany

T. M. Raleigh
MF 77-8234-99 November 21, 1977
This memorandum compiles all of the view graphs used for the lecture and should be useful to other teachers lecturing on the same topic and students reviewing materials in the course.

(1217) Guide to UNIVAC Remote Job Entry for Programmer's Workbench Users

T. G. Lyons
February 16, 1976
Memorandum for File
This document describes the RJE services provided between Programmer's Workbench Machines and the UNIVAC Computer Center at Raritan River.

(1218) Software Support For Satellite Processor

R. J. Elliott
TM 77-1273-16 November 7, 1977
This paper describes how to make free-standing programs for any satellite PDP-11/40 connected to a UNIX system and the interface with the File Store.

(1230) PORT—A New Inter-process Communication Facility under UNIX

D. W. Ting + A. L. Glasser
TM 78-3124-1 January 3, 1978
This memorandum describes a mechanism which allows a single process to communicate with an arbitrary number of other processes.

(1231) Contents of UNIX/RT

G. W. R. Luderer
MF 78-8234-1 January 10, 1978
UNIX/RT is the successor of MERT Release 0, which it will supersede around the fall of 1978. UNIX/RT will be a MERT operating system that is as compatible as possible with UNIX/TS.

(1232) UNIX/TS Release 1.0 Plans

A. S. Cohen + J. F. Maranzano
MF 78-8234-11 January 30, 1978

(1233) Timing Tests of the UNIGRAPHIX Graphics System Running on a DEC PDP-11/70 Under the UNIX Operating System

S. T. Schuyler
TM 77-8254-4 September 14, 1977
The UNIGRAPHIX system is a general purpose graphics system fitted with specialized data-base structures and operators for supporting outside plant engineering tasks. The system was written entirely in the C language.

(1234) Interprocess Communication Mechanisms in CB-UNIX

J. C. Kaufeld Jr.

TM 77-5223-1 June 19, 1978

A discussion of interprocess communication mechanisms in CB-UNIX is presented. In particular files, pipes, named pipes, signals, semaphores, MAUS and messages are discussed.

(1235) Moving System I/O Buffers out of UNIX Data Address Space

D. W. Ting

TM 78-3124-4 February 2, 1978

We describe a method of removing the UNIX in-core system buffers from the operating system's direct addressable space, and "windowing" to them as necessary.

(1236) Optimizing Process Creation and Termination Mechanisms in UNIX

D. W. Ting

TM 78-3124-3 February 4, 1978

In this memorandum we consider the optimization of the UNIX routines which handle process creation and termination.

(1241) Asynchronous I/O Facilities for Raw Block Devices under UNIX

D. W. Ting

TM 78-3124-9 March 1, 1978

In this memo, we describe a way of implementing asynchronous I/O on raw UNIX devices.

(1244) Shcvt—A Tool for Shell Conversion

G. A. Snyder

MF 78-8234-32 April 7, 1978

This document describes the program shcvt, which was developed to aid in the conversion process from the PWB/UNIX Shell to the Bourne Shell. It also describes some of the problems encountered in the conversion process, and possible solutions to these problems.

(1246) The MERT Operating System

H. Lycklama + D. L. Bayer

TM 78-3114-3, TM 78-1352-3 March 22, 1978

This memo discusses some uses of the MERT operating system. A retrospective view of the MERT system is also offered.

(1247) A Minicomputer Satellite Processor System

H. Lycklama + C. Christensen

TM 78-3114-2, TM 78-1359-3 March 22, 1978

This memo describes a software support system for a network of minicomputers and microcomputers. A powerful time-sharing system on a central computer controls the loading, running, debugging and dumping of programs in the satellite processors.

(1253) CNCC UNIX Project Performance Measurements, Projections and Enhancements

E. Arthurs + P. Daily + R. Jakubek + B. W. Stuck

MF 78-8234-10 April 24, 1978

This report summarizes recent work to determine and enhance performance of the Customer Network Control Center UNIX Application Project.

(1256) Standardizing File Types in the Inodes of UNIX Version 7 Descendants

G. W. R. Luderer

MF 78-8234-48 April 28, 1978

(1257) Enlarging PDP-11 UNIX Table Space Using Supervisor Mode

A. L. Glasser + D. W. Ting

TM 78-3111-1 March 20, 1978

This memo describes a mechanism which greatly increases the address space of the UNIX operating system running on a PDP-11/70. Generated after implementation of the mechanism is a UNIX system capable of running 1023 processes. The performance of this system was measured and results are presented.

(1258) Writing a MERT Supervisor

W. A. Burnette

TM 78-9156-1 March 24, 1978

This memo discusses the functions available to supervisor mode programs and describes the basic operating system interactions required to make effective use of the supervisor environment.

(1259) Password Security: A Case History

R. Morris + K. Thompson

TM 78-1271-5 April 3, 1978

The history of the design of the password security scheme on a remotely accessed time-sharing system is described in this paper. The present design was the result of countering observed attempts to penetrate the system. The result is a compromise between extreme security and ease of use.

(1264) A Core-Resident UNIX System for PDP-11's

A. L. Glasser + D. W. Ting

TM 78-3111-2 May 5, 1978

In this memorandum we describe a UNIX system which, together with a fixed number of user programs, is entirely core-resident. The operating system and its resident user programs are generated on a PWB/UNIX system. This system requires no disk drives, either for swapping or to support a file system.

(1265) A Faster Terminal Handler for UNIX

J. Feder

TM 78-8234-7 March 10, 1978

This memo describes a new software package for high-speed character output. The package provides a user interface that is virtually indistinguishable from the standard UNIX terminal handler, but uses different algorithms and internal buffering to run up to 30 times faster.

(1270) A Revised ERRPT Command

C. D. Perez

MF 78-8234-60 June 12, 1978

This document describes the new errpt command, options that are available, and any differences from the original version. Samples of the output are provided for the various reports that are available.

(1274) Pre-Release UNIX/TS

R. C. Haight

MF 78-8234-57 June 4, 1978

The pre-release version of UNIX/TS is meant for a few friendly customers who would otherwise go to Research for Version 7. The only thing we guarantee about the pre-release is the presence of bugs, especially in the documentation and commands (the operating system should be solid). The final TS will contain additional feature; some current features may likewise be dropped.

(1276) File System Structures for Real-Time Applications

H. Lycklama

TM 78-3114-5 April 20, 1978

A new version of the file system structure was done for version 7 UNIX using a 32-bit byte offset pointer to achieve very large files and file systems. The new file system structure has characteristics which make it efficient for both time-sharing and real-time applications.

(1277) UNIX Courses

R. B. Brandt + J. F. Maranzano + G. C. Vogel

MF 78-8234-3 January 9, 1978

Contains syllabuses of courses which cover the majority of the needs of the customers dealt with at Bell Laboratories.

(1278) The MERT/UNIX Supervisor

H. Lycklama

TM 78-3114-4 April 20, 1978

This paper describes the implementation and capabilities of the UNIX-like supervisor which was implemented as an environment in the MERT system.

(1281) A PROM Writer Facility for UNIX Improved Version

H. Marcus

August 15, 1978

Memorandum for File

This memorandum describes a Programmable Read Only Memory (PROM) Writing facility which is currently installed on the Holmdel Computation Center UNIX System. This memo supersedes a previous Memorandum for File dated May 16, 1978, by D. Muir.

(1287) Upgrading MERT Release 0 with Modification 0.1 to MERT Release 0.1

T. M. Raleigh

MF 78-8234-56 May 6, 1978

This memo is intended to correct a few bugs on the Release 0 source and to incorporate a number of bug fixes that were not ready for Release 0 or which have been found since Release 0.

(1288) Interprocess Communication Performance Trade-offs in CB-UNIX and UNIX/RT

D. S. DeJager

TM 78-5223-1 July 18, 1978

A discussion of interprocess communication performance trade-offs is presented.

(1289) A Peripheral Processor Interactive Control and Data Acquisition System

J. S. Kraus

TM 78-1131-22 May 23, 1978

A computer hardware and software system has been developed in support of a Low Energy Atomic Collision Research Laboratory.

(1290) Activity Profile of the PWB/UNIX Operating System

W. W. Everett

TM 78-9441-2 May 15, 1978

An exploratory study of PWX/UNIX performance.

(1297) A UNIX Operating System for the DEC VAX-11/780 Computer

T. B. London + J. F. Reiser

TM 78-1353-4 July 7, 1978

This memorandum describes the VAX-11/780 hardware and the UNIX operating system and C programming language software implementation, records some observations on program portability, and speculates ways in which the operating system overhead can be significantly reduced.

(1302) Exercises in Repairing PWB/UNIX File Systems

P. D. Wandzilak

October 19, 1978

This document describes a tool that generates a series of self- instructional exercises.

See also UNOS (1197)

(1303) Inter-Process Communications Facility for Transaction Oriented UNIX Systems

D. W. Ting

TM 78-3111-4 September 14, 1978

This memorandum presents a philosophy and design of an inter- process communication facility.

(1306) Audio Response Unit (ARU) Subsystem Design for Real-Time Retrieval (RTLRL)/ARU Prototype System

J. W. Hooker

TM 78-9156-4 September 15, 1978

This paper describes an example of a MERT kernel process developed to implement a real-time application with with performance requirements not achievable with user processes.

(1309) KW11-P Clock Driver

R. R. Babu

TM 78-3112-1 September 22, 1978

This document describes the DEC KW11-P programmable clock driver and how use it.

(1310) UNIX/370—A Proposal

B. G. Prieve

September 28, 1978

This paper proposes that an experiment be undertaken to see if UNIX scales when moved to a maxi-computer.

(1312) A New DV-11 Driver for Use With LEAP

M. B. Mueller

TM 78-3112-2 September 22, 1978

This memorandum presents a DV-11 hardware overview, user interface specifications, and the impact of driver usage on PWB/UNIX.

(1316) Terminal Handling Under UNIX and MERT/UNIX

J. Feder

TM 78-8234-11 September 1, 1978

This memorandum gives a tutorial overview of terminal handling for the UNIX and MERT/UNIX operating systems.

(1319) UNIX File System Conversion

R. C. Haight

MF 78-8234-83 September 30, 1978

This memorandum describes procedures developed for converting UNIX file systems from the "Version 6" format (includes USG/UNIX, PWB/UNIX, etc.) to the "Version 7" format (Research, UNIX/TS).

(1320) Setting Up UNIX/TS

R. C. Haight + L. A. Wehr

MF 78-8234-98 September 30, 1978

This document describes programming steps for generating a UNIX/TS operating system along with administrative detail on configuration, setting up file systems, and installation/recompilation of command software.

(1321) UNIX/TS Release 1.0

R. C. Haight
MF 78-8234-82 September 30, 1978
This document is an attempt to describe new features of UNIX/TS.

(1325) On the Inconsistencies of UNIX Commands

S. B. Olsson
October 26, 1978
An examination of the source code for some 120 UNIX commands has been made, and various inconsistencies noted.

(1327) Shell Subprogram Facility

J. Lions
December 8, 1978
This paper describes a general shell command that allows a group of shell subprogram files to be packaged as a single file and invoked conveniently.

(1329) Effects On UNIX Host CPU Resources By The Use of Intelligent Terminals

J. F. Maranzano
December 13, 1978
This memorandum shows that with the current UNIX hardware/software terminal interfaces, moving the execution of programs to an intelligent terminal does not significantly offload the host CPU.

(1334) A Fast Software Encryption Algorithm

R. Morris
TM 79-1271-1 January 5, 1979
This paper describes the design of the file encryption scheme on a remotely accessed time-sharing system.

(1335) UNIX File Security

R. Morris
TM 79-1271-3 January 19, 1979
This paper describes the history of the design of the file encryption scheme on the UNIX time-sharing system.

(1336) A Workshop on Rebooting the UNIX Time-Sharing System

B. C. Wonsiewicz + A. R. Storm
TM 78-1523-30 November 29, 1978
This memo documents a two hour workshop on rebooting the UNIX system given to selected users who wished to be able to restart the machine when the system administrators were absent.

(1343) Virtual File Systems on MERT

L. L. Hamilton
TM 78-5522-9 August 22, 1978
This memorandum is meant to be both a user's guide and a brief overview of the workings of the system.

(1345) An Essay in Computer Security: Decrypting A Former UNIX crypt

P. J. Weinberger
TM 78-1271-20 December 29, 1978
See also UNOS(1335)

(1349) UNIX/RT as an Application System for BOS/LMOS Development

C. P. Imagna

February 2, 1979

This memorandum presents some ideas on how to upgrade the BOS-11 operating system to run in the LMOS.NEXT system which is currently being planned.

(1351) Implementation of the Large Argument List Feature in UNIX/RT's Exec. System Call

E. Loikits

2524-790110.01MF January 10, 1979

The MERT/UNIX system call exec has been modified for UNIX/RT. This paper describes these modifications.

(1352) UNIX/370: A Feasibility Study

W. A. Felton

TM 79-8224-1 January 23, 1979

This paper is a feasibility study for UNIX/370, a version of UNIX operating system adapted to the System/370 environment. It also describes the nature and structure of the system, and examines several areas relevant to its feasibility.

(1358) UNIX Command Syntax

A. S. Cohen + S. B. Olsson + G. C. Vogel

February 16, 1979

This paper proposes command-syntax rules and a library routine for achieving consistent syntax.

(1359) UNIX/TS Alarm Facility

G. C. Vogel

March 7, 1979

A general purpose alarm facility for the UNIX/TS operating system is described.

(1360) RCMAS/MERT Performance Study and General Design Guidelines

E. L. Hedrick, et al

TM 79-4145-1, TM 79-2524-1, TM 79-3451-1

February 20, 1979

This document describes the results of a recent effort to improve the performance of the RCMAS system. Based on this experience, a set of guidelines for designers of MERT and UNIX based applications is presented.

(1361) Use of the Revised UNIX-to-UNIX Copy Command for Lab 323

R. B. Lyon

January 17, 1979

The uucp (UNIX-to-UNIX copy) command facilitates communication of data between UNIX machines, much as the copy (cp) command permits transfer of files within a UNIX machine. This memo explains how to use the newly-implemented version of uucp.

(1364) Update Files for the C Standard Library

A. Koenig

March 6, 1979

The C Standard Library definition has been extended to include update files—files that can be both read and written. This memorandum describes that definition and its implementation under the UNIX operating system.

(1367) Source Code Control System User's Guide

L. E. Bonanni + C. A. Salemi

TM 79-9441-4, TM 79-9442-1

April 1, 1979

A description of the Programmer's Workbench Source Code Control System.

(1368) DIRECT II Interprocess Communication

J. P. Linderman

TM 79-9156-3 March 30, 1979

This memo describes a collection of subroutines which were written to facilitate the communication of arbitrary data between two cooperating processes.

(1369) Sdb: A Symbolic Debugger

H. P. Katseff

December 1979

This document describes a symbolic debugger, sdb, as implemented for C programs on the UNIX/32V Operating System. Sdb is useful both for examining core images of aborted programs and for providing an environment in which execution of a program can be monitored and controlled.

(1370) Using UNIX Capabilities More Effectively

W. J. Mayer

January 30, 1979

A new UNIX program is introduced in this memo that allows convenient transfer of data between UNIX and non-UNIX time shared systems.

(1371) DPD: Unix—Honeywell Interface Programs

M. R. Wagner

April 6, 1979

This document describes a set of programs that interface between Unix and the Honeywell 6000 computer at Murray Hill.

(1372) UNIX/RT on a DEC VAX-11/780 Project Contract

R. L. Klein + J. F. Maranzano

March 20, 1979

This memorandum describes the commitments and expectations in this project.

(1375) A 32-Bit Processor Design

S. C. Johnson

TM 79-1273-3 April 2, 1979

This paper describes a user-level instruction set for a 32-bit processor.

(1379) COSNIX File Management (FM) Command-Software Development and Control Facility

R. E. Rogan

TM 79-4552-3 May 15, 1979

This paper describes COSNIX, the operating system that File Management (FM) runs under. FM provides the user with a complete workbench of master file management services.

(1382) UNIX/TS Augmented Task Force Report

R. A. Faulkner + D. S. DeJager + J. A. McGuire + A. L. Sabsevitz

March 19, 1979

This report discusses common needs of current and potential users of UNIX/TS and recommendations for the UNIX/TS support organization.

(1385) Checking File Access Permissions in UNIX Systems

J. Lions

June 28, 1979

This memo discusses some proposed changes to the way file access permissions are checked in the UNIX Time-sharing System.

(1391) Preliminary Considerations for Exploratory UNIX Operating System Work

G. W. R. Luderer

May 11, 1979

This memorandum discusses some preliminary thoughts about the possible course of action for work that would lead towards adapting UNIX to future hardware.

(1395) Department 3621 MAXIUNIX Workplan

J. T. Hall

June 1, 1979

This paper contains the work plan for the MAXIUNIX project which is being undertaken by the "Software and Computing Technology" department of Laboratory 362.

(1403) PWB/UNIX Edition 2.0 Preparation

M. J. Petrella + A. L. Sabsevit

April 1, 1978

This memorandum recommends a plan to facilitate the conversion to PWB/UNIX Edition 2.0.

(1411) A Remote File System Driver for UNIX

A. L. Glasser + D. W. Ting

TM 79-3111-3 May 31, 1979

This memorandum describes the concept of remote file systems. It describes an implementation for a read-only remote file system facility, and proposes some possible applications of this implementation.

(1422) DIRECT II VAX Performance Improvement Estimates

D. J. Huber + W. D. Roome

July 30, 1979

This memo is an evaluation of the potential performance improvement of moving DIRECT II from a PDP-11/70 to a VAX-11/780.

(1424) Character Device Driver Development for CB-UNIX Operating System

S. Michael

TM 79-5252-2 June 15, 1979

This memorandum describes the general characteristics of character device control utilized in the Columbus version of the UNIX operating system (CB-UNIX) and four character device drivers written to support the Hotel Billing Information System (HOBIS).

(1429) Division 56 UNIX Course

K. E. Wendland

November 20, 1979

This paper contains the class notes from an introductory UNIX course. The notes are written in a tutorial format, which is ideal for the novice; they are also thoroughly indexed, which makes them a good index for experienced UNIX users.

(1432) A Database Transaction Backout and Crash Recovery System

W. A. Burnette

TM 79-9457-1 July 16, 1979

This memo describes the system for database backout, backup, and recovery, including a description of the UNIX/RT system level implementation.

(1434) Adding Remote Files to UNIX—A Progress Report on the File Server Project

J. P. Haggerty + P. A. Kirsli

August 7, 1979

It has been proposed that the UNIX operating system be split into two parts: a file server that contains the part of UNIX that does file management, and a stripped UNIX that contains the rest of the code and runs user processes. This paper presents a design for such a partitioning of UNIX which is transparent to the user and allows the same operations on remote files that are presently permitted on local ones.

(1435) *Department 3624's Workplan for Networking in 1979/80*

G. W. R. Luderer

July 16, 1979

(1436) *Load Characterization for SDS/UNIX*

V. P. Holmes + B. J. B. Lax + P. M. Lu + J. L. Pappas

June 27, 1979

This study examines four PDP 11/70's running PWB/UNIX 1.2 in existing SDS environments and characterizes the load on these machines.

(1437) *A Dail-Up Network of UNIX Systems*

D. A. Nowitz + M. E. Lesk

TM 79-3782-2, TM 79-1274-7

June 1, 1979

This memorandum describes a network of over eighty UNIX computer systems using the telephone system as its primary communication medium.

(1439) *Program Testing—Work to be Done*

F. T. Grampp

May 14, 1979

This document describes work in program testing to be done by Department 3624.

(1447) *The UNIX Programming Environment*

B. W. Kernighan + J. R. Mashey

July 1978

This paper presents a variety of examples to illustrate methodology, focusing on those aspects of the system and supporting software which make it possible.

(1449) *Engineering and Data Acquisition System/Network Management (EADAS/NM) Capacity Estimation—Methodology and Data Requirements*

B. W. Stuck

July 17, 1978

An overview of the current status of work on estimating the capacity of the Engineering and Data Acquisition System /Network Management (EADAS/NM) is presented.

(1450) *Performance Assessment of Customer Service and Administrative Control Center System (CSACCS)*

E. Arthurs + J. L. Haase + C. Perea + B. W. Stuck

July 25, 1979

This report summarizes recent work to determine and enhance performance of the Customer Service Administrative Control Center System (CSACCS).

(1451) *A Virtual Terminal Protocol for UNIX*

L. D. Goldsmith

TM 79-5412-1

August 6, 1979

This memorandum describes a Virtual Terminal Protocol for the use in UNIX systems.

(1457) *LSX Performance*

J. N. Sturman

TM 79-9323-2

September 24, 1979

This paper describes a number of experiments which were conducted to measure the operating characteristics of a Digital Equipment Corporation LSI-11, a 16 bit microcomputer under control of LSX, a modified subset of the UNIX operating system.

(1458) An Augmented Version of Make

E. G. Bradford

TM 79-5255-1 July 1, 1979

This paper describes an augmented version of the make command supplied with UNIX/TS. It describes and gives examples only of additional features.

See also UNSU(1078)

(1459) Synchronous Terminals for MERT

J. E. Laur

TM 79-9457-4 July 27, 1979

Describes software which has been developed to allow synchronous terminals to interface with the MERT operating system.

(1462) The DIRECT II Scheduler

H. E. Cato

TM 79-9456-3 August 30, 1979

This document describes the capabilities of the Scheduler and the internal processing that it performs.

(1463) FSCK—The UNIX/TS File System Check Program

T. J. Kowalski

TM 79-3624-4 July 1, 1979

This paper describes the normal updating of the file system, discusses the possible causes of file system corruption, and presents the corrective actions implemented by FSCK.

(1466) Terminal Handling for UNIX/370 Using a Front End Processor

S. J. Buroff

TM 79-3628-2 September 18, 1979

This document describes the terminal support facilities which must be provided by a front end processor for UNIX/370. The description is divided into two parts: required features and optional features.

(1469) SPS Protocol Implemented for DZ11 Under MERT Release 0.1

M. J. Shannon

TM 79-3624-1 June 1, 1979

This document describes the protocol, the DZ11, The implementation of the DZ11 driver, and its relation to the former DH11 driver.

(1472) Multi-Processor DMERT

E. P. Schan

November 8, 1979

This paper outlines a basic plan for a multi-processor DMERT exploratory effort based on a shared memory architecture.

(1473) The Logical File System—A Fast-Access File System Using UNIX Raw I/O

J. R. McSkimin

TM 79-9471-1 September 14, 1979

This memorandum describes LFS (Logical File System) design and implementation, and also serves as a user guide.

(1474) Tools for the Extraction and Reduction of PWB/UNIX Software Monitor Data

L. E. Bonanni

TM 79-3781-7 September 15, 1979

Data reduction functions have been developed into two prototype PWB/UNIX commands, BAY and SLICE. This memorandum serves as a user's guide for BAY and SLICE, and is their general design document.

(1475) A Stand-Alone Input/Output Library

S. R. Eisen

TM 79-3624-3 September 4, 1979

A complete guide to the stand-alone I/O library. The software described will be supported in UNIX/TS Release 1.2 and will be available from the USG Stockroom.

(1476) Guidelines for Converting MERT Software to UNIX/RT

R. S. Kaplan

November 14, 1979

A set of guidelines are presented to assist DMERT developers and DMERT based applications in the conversion of their existing MERT-based software to UNIX/RT.

(1480) Relative CPU Performance on C Language Programs

J. Feder

TM 79-3624-5 September 28, 1979

This memorandum compares a variety of CPUs with respect to execution speed and object code size using seven benchmark programs written in C.

(1481) UNIX Line Discipline for IBM 2740-1 Protocol

D. J. Huber

TM 79-3781-3 August 28, 1979

This memo describes the protocol of a remote console line and the code modifications which were made to USG UNIX to make it support that protocol.

(1482) UNIX Assembler for the Intel 804X Microprocessors

L.E. Miller

TM 79-3231-2 August 1, 1979

This document is a users manual on a UNIX assembler for the 8048/8041 series of microprocessors. It describes the usage, input and output of that assembler.

(1483) UNIX/86: UNIX on the Intel 8086

T. P. Blumer + R. Muha

November 1, 1979

The basic implementation strategies are discussed and changes to the source code (necessitated by differences in hardware) are described.

(1484) UNIX/TS Development Plan

R. C. Haight

December 10, 1979

Major additions and changes to the UNIX/TS operating system for the next three releases are described.

(1487) Preliminary Performance Evaluation of Univac UNIX

D. A. De Graaf + J. Feder

December 4, 1979

This memorandum gives the results obtained in preliminary benchmark testing of the Univac UNIX system.

(1488) A Mechanism of Starting a Program in a UNIX Based Operating System

D. S. Lo

TM 79-3114-1 August 24, 1979

A different mechanism of creating a new process and executing a program has been implemented in a special purpose operating system which evolved from UNIX.

(1490) *UUCP Administrators' File and the UUNAME Command*

H. Che

October 31, 1979

To help administering the Bell Labs UUCP network, a file containing data on the administrator of each UUCP member system has been created on the USG machine.

(1491) *Uustat—A UUCP Status Inquiry Program*

H. Che

October 31, 1979

This paper gives a detailed description and implementation of the uustat command.

(1492) *A Send-only UUCP Facility*

H. Che

October 31, 1979

This paper discusses the usage as well as some design considerations of a send-only uucp mechanism.

(1493) *UNIX Specification—File System Related System Calls*

G. C. Vogel

January 10, 1979

New descriptions for the file system related system calls.

(1494) *A Subroutine Package to do Process Cleanup*

T. J. Dwyer

TM 79-9457-7 December 14, 1979

This memo describes a subroutine package, implemented in C under the UNIX/RT operating system, which provides for the orderly termination of a set of cooperating processes.

(1495) *UNIX Specification—Process Related System Calls*

P. E. Cannata

January 28, 1980

New descriptions for the process related system calls.

(1499) *A Shell Operator for Inter-Machine Communication*

C. A. Witschorik

TM 79-5425-2 August 2, 1979

An inter-shell transfer operator is proposed as a useful extension to the syntax of the Bourne shell. The language of a shell for a utility test system is given as an example application of the extended notation.

(1500) *Some Timing Measurements of Emts, Message Transfers and Context Switches for UNIX/RT*

T. M. Raleigh

January 25, 1980

This memorandum provides some timing measurements of important operating system functions for UNIX/RT.

UNPL—Programming Languages

(1001) *Programming in C—A Tutorial (B.9)*

B. W. Kernighan
TM 74-1273-12 May 5, 1974
See also UNPL(1002)

(1002) *The C Programming Language—Reference Manual*

D. M. Ritchie
January, 1979
See also UNPL(1001)

(1009) *A Manual For the TMG Compiler-Writing Language*

M. D. McIlroy
September 13, 1972
MM 72-1271-8

(1012) *UNIX Assembler Reference Manual*

D. M. Ritchie

(1013) *YACC—Yet Another Compiler Compiler*

S. C. Johnson
TM 78-1273-4 July 31, 1978
Converts a BNF specification of a language and semantic action written in C into a compiler for the language.

(1018) *GRAFPAC/FR80—A C Version Of Deferred GRAFPAC Under the UNIX Time-Sharing System.*

G. K. Swanson
TM 74-1353-6 September 23, 1974

(1053) *BC—An Arbitrary Precision Desk Calculator Language*

L. Cherry + R. Morris
November 12, 1978
BC is a language and a compiler for doing arbitrary precision arithmetic on the PDP-11 under the UNIX Time-Sharing System.

(1056) *DC—An Interactive Desk Calculator*

L. Cherry + R. Morris
November 15, 1978
DC is an interactive desk calculator program implemented on the UNIX Time-Sharing System to do arbitrary-precision integer arithmetic.

(1061) *Lex—A Lexical Analyzer Generator*

M. E. Lesk + E. Schmidt
January 1979
LEX helps write programs whose control flow is directed by instances of regular expressions in the input stream.

(1063) *A Description of How UNIX Fortran Works*

I. A. Winheim
TM 75-8234-3 April 10, 1975
This memorandum describes the main differences between C and Fortran and how to interface Fortran with the operating system.

(1064) AGEN—An Associated Memory Generator

M. E. Lesk

TM 75-1274-18 September 2, 1975

Agen is a program generator for table searches. It also writes programs to store and retrieve information.

(1074) A Library of Reference Standard Mathematical Subroutines

R. Morris

TM 75-1271-6 May 1, 1975

This memo describes a set of mathematical library functions to use arbitrary accuracy. Relevant error analysis and subroutines listings are given.

(1079) BLOSIM—A Discrete Time Block Simulator

G. Roylance (MIT) + M. T. Dolan + J. F. Kaiser

TM 75-1352-6 July 15, 1975

This memorandum describes the language, variable precision, implementation, and general use of BLOSIM.

(1080) UNIX Facilities For The Development Of Programs Written In Macro-11.

P. D. Jensen

TM 75-8234-14 December 5, 1975

This memo describes the initial set of facilities available under UNIX for use in developing programs written in DOS Macro-11, and BOS & BOS application programs in particular.

(1084) Struct—A Program Which Structures Fortran

B. S. Baker

TM 75-1271-12 December 22, 1975

Struct is a program which rewrites Fortran programs using Ratfor control constructs, such as WHILE and IF ELSE statements. These constructs are used by Struct to make loops and branching apparent.

See also UNPL(1103)

(1097) SIM—A Language For Simulating Computers

L. L. Cherry

TM 76-1271-2 May 5, 1976

SIM is a language and compiler for writing computer and microprocessor simulators. SIM currently runs under UNIX and will soon be available under GCOS.

(1101) A Regular Expression Matcher For The C Language

A. L. Sabsevitz

TM 76-9141-5 June 2, 1976

This memorandum describes a primitive regular expression matching facility written for language C. Routines have been provided to compile regular expressions and to apply such compiled expressions to string subjects.

(1102) Some Statistics On The Usage Of The C Language

H. Gajewska + S. C. Johnson

TM 75-1273-13 November 24, 1975

This paper describes a program that analyses programs written in the C language.

(1103) An Algorithm For Structuring Flowgraphs

B. S. Baker

TM 76-1271-3 May 14, 1976

This paper describes an algorithm which transforms a flowgraph into a program containing IF THEN ELSE and REPEAT (DO FOREVER) statements. The algorithm has been implemented in a program called Struct.

See also UNPL(1084)

(1105) An Interactive Control Language For SIM

L. L. Cherry

TM 76-1271-8 June 28, 1976

This paper is intended to be a reference manual and assumes familiarity with SIM.

(1107) Programmer's Workbench Papers From The Second International Conference On Software Engineering. (G.4)

T. A. Dolotta, et al.

For complete information, see UNED (G.4)

(1143) A Style Sheet For C Programming, Issue 1

A. L. Glasser

February 28, 1977

Memorandum For File

The "style sheet" describes the recommended style (physical layout and appearance) for writing C programs in Center 914.

(1149) UNIX Assembler for the Intel 8080 Microprocessor

J. J. Molinelli

TM 77-3233-4 March 17, 1977

This document describes the usage, input, and output of an assembler for the Intel 8000 series microprocessors.

(1150) Reissue No. 1 of MAC-8 Assembler User's Manual

D. B. Kirby

TM 77-2265-2 May 20, 1977

This manual describes the MAC-8 assembly language. It does not describe the MAC-8 machine. It summarizes all of the machine instructions, all addressing modes, and all testable machine conditions.

This is a revision of TM 76-4393-16

(1157) A General-Purpose Subroutine Library for PWB/UNIX (B.11)

A. L. Glasser

TM 77-9144-2 April 27, 1977

This library was designed to be upwardly compatible with two previous libraries and to complement the functions provided by D. Ritchie's "A New Input-Output Package".

(1160) The M4 Macro Processor

B. W. Kernighan + D. M. Ritchie

July 1, 1977

M4 is a macro processor available on UNIX and GCOS. M4 is particularly suited for functional languages like Fortran, PL/1 and C since macros are specified in a functional notation. This paper is a user's manual for M4.

(1166) MAC-8 C For Beginners

H. D. Rovegno

TM 77-4393-2 April 1, 1977

This memorandum will serve as a tutorial for the C Language with emphasis on those features which are most useful to the microprocessor user and special to the MAC-8.

(1185) A Tutorial Introduction to ADB

J. F. Maranzano + S. R. Bourne

TM 77-8234-11, TM 77-1273-10 May 5, 1977

ADB is an indispensable but complex tool for debugging crashed systems and/or programs. This document provides an introduction to ADB with examples of its use.

(1193) RATFOR—A Preprocessor for a Rational Fortran

B. W. Kernighan

January 1979

This paper discusses design criteria for a Fortran preprocessor, the Ratfor language and its implementation, and user experience.

(1199) "Introduction to Software"—A Videotape Course

R. F. Rosin

TM 77-3233-9 October 3, 1977

This memorandum describes the context in which lectures of 32 hours were prepared and suggested ways in which videotapes and associated computer files might be used in future courses.

(1200) Interactive Graphics System for a UNIX Environment

J. H. Jackson

TM 77-5221-2 September 29, 1977

This memorandum describes a system of interactive graphic subroutines which has been implemented under the UNIX time-sharing system.

(1203) Inter-UNIX Portability

T. L. Lyon + D. M. Ritchie

TM 77-1273-13 September 16, 1977

This paper gives details of problems encountered in porting programs, guidelines for writing or rewriting programs to be portable, and some statistics about the advantages and disadvantages of portable programming.

See also UNPL(1204)

(1204) C Language Portability

B. A. Tague + R. C. Haight

September 22, 1977

This paper consists of 3 attachments (I) Library Routines, (II) A Style Sheet for C Programming, Issue 1 UNPL(1143) and (III) Inter- UNIX Portability UNPL(1203).

(1206) Awk—A Pattern Scanning and Processing Language (Second Edition)

A. V. Aho + B. W. Kernighan + P. J. Weinberger

TM 78-1271-12, TM 78-1273-6 September 1, 1978

Awk is a programming language designed to solve some common information retrieval problems.

This memorandum supersedes TM 77-1271-5 dated September 8, 1977.

(1207) The C Language Calling Sequence

S. C. Johnson + D. M. Ritchie + M. E. Lesk

TM 77-1273-15, TM 77-1274-13 September 26, 1977

This document attempts to set forth the major issues, and discusses experience with the PDP-11, GCOS, and IBM C environments. An appendix discusses the calling sequence for the Interdata 8/32 C compiler.

(1208) Character String Manipulation in the C Language

R. G. Carr

October 31, 1977

5161-771031.01EN

This document describes the C language features and the available subroutines. It is intended to complement the C tutorial UNPL(1001) with emphasis on strings.

(1211) *String Manipulation and Conversion Library for Switching Control Center*

B. C. Hoalst

TM 77-5222-2 October 20, 1977

This library provides a number of basic mechanisms for implementation of complex string formatting tasks from C programs.

(1220) *MICA—A General Purpose Microassembler: Functional Specification/User's Manual—Issue II*

S. W. Ng

TM 77-5514-2 November 15, 1977

MICA is a UNIX based program written in C. It combines the salient features of several commercially available microassemblers such as AMDASM and RAPID , and also provides features not available elsewhere.

(1221) *MAC-8 Assembly Language Programming Manual*

J. Angelo

December 8, 1977

Part 1 of this manual gives an introduction to programming MAC-8 in assembly language. Part 2 is written for people who have reached the intermediate ability to program microprocessors.

(1225) *Assembler for the DEC KMC11 Microprocessor*

L. A. Wehr

TM 77-8234-22 November 15, 1977

This document is a reference manual for an assembler for the DEC KMC11 microprocessor. It describes the usage, input syntax, and output format of the assembler.

(1228) *Extended Shell—A Potential Real Time Interpreter*

N. J. Kolettis

TM 77-4145-01 October 25, 1977

The extended shell has the potential of a genuine real time interpreter that can be used to fashion shell procedures in real time environments which perform essentially as fast as C programs and are very simple to write and maintain.

(1229) *Guidelines for C Compiler Distribution*

S. B. Olsson

TM 78-8234-2 January 3, 1978

This memorandum outlines a set of procedures for C compiler distribution that has been developed in order to minimize distribution, installation and transition problems.

(1237) *A C Compiler for the SEL Computer*

J. R. Remde

TM 78-1228-1 January 13, 1978

This memorandum describes the implementation process including the changes made to the portable compiler and the construction of the SEL C library. It also includes a user's guide, explaining the usage and features of the compiler.

(1239) *An Introduction to the UNIX Shell*

S. R. Bourne

November 12, 1978

The shell is a command programming language that provides an interface to the UNIX operating system. Its features include control flow primitives, parameter passing, variables and string substitution.

(1248) A Portable Fortran 77 Compiler

S. I. Feldman + P. J. Weinberger

August 1, 1978

The Fortran language has just been revised, and a new standard for the language, known as "Fortran 77". This paper describes the language compiled, interfaces between procedures, and file formats assumed by the I/O system. An appendix describes the Fortran 77 language.

(1249) A Version of Ratfor for the PDP-11's RT-11 Operating System

R. L. Maybach

TM 78-4392-2 May 10, 1978

This memo describes the input/output routines and the RT-11 version of Ratfor.

(1250) 8080/Z80 Assembler Reference Manual

G. C. Vogel

TM 78-8234-6 March 21, 1978

This document is the reference manual for as80, an assembler for the Intel 8080 and Zilog Z80 microprocessors. It describes the usage, input syntax and output format of as80. This assembler is written in C and runs under the UNIX operating system. This document supersedes previous as80 documentation.

(1260) Comnd -- A Routine to Handle Command Line Parsing

S. A. Uhler

TM 78-3231-1 May 10, 1978

Comnd is designed to provide a uniform method for parsing command lines from the terminal. It frees the programmer from the problems involved in dealing with command input, and allows him to concentrate on the application.

(1267) A C Library Performance Problem

A. Koenig

MF 78-8234-61 June 8, 1978

Most of the commands in UNIX are written as C programs. Most of these programs, in turn, are being rewritten to use Ritchie's input-output library. One characteristic of this library is that it does not normally buffer the standard output of a program when that file is directed to a terminal. We show that this causes a significant performance degradation and point out some ways to alleviate the problem.

(1268) Variable Length Argument Lists in C

A. Koenig

MF 78-8234-64 June 12, 1978

A major problem with the C language is that printf cannot be written in C. This is because different invocations of printf may appear with different numbers of arguments, and the same argument position may be occupied by arguments of different types from one invocation to another. This paper describes an interface to variable length argument lists.

(1269) On Understanding the Support of the Portable C Compiler

J. F. Maranzano

MF 78-8234-49 April 26, 1978

In order to understand how to support the portable C compiler, it is important to know the functions of the various pieces and the process of building a C compiler for some machine. This memorandum tries to explain these pieces in a high level functional way without getting into too much detail.

(1271) Parse()—A C Language Routine to Parse a String into Words

R. B. Freeman

Programmer's Notes

June 15, 1978

These notes document `parse( )`, a C language routine that parses an input string and returns the words and the number of words in the string.

(1323) Changes in the C Environment for UNIX/TS Edition 1.0

A. Koenig

MF 78-8234-84 September 27, 1978

This document describes differences users may encounter when changing to UNIX/TS Edition 1.0 from the last release of the C compiler shipped for Generic 3.

(1348) Support for C on IBM Computers

F. T. Grampp

January 25, 1979

(1353) Semantics of the C Programming Language, Part 0: Prelude

R. Sethi

TM 79-1271-2 January 2, 1979

In this paper, a very simple language with assignments and while loops are used to illustrate the semantic method.

See also UNPL(1376) + UNPL(1427)

(1354) Implementation of a Portable Fortran 77 Compiler Using Modern Tools

S. I. Feldman

TM 79-1273-1 February 1, 1979

This paper discusses the approach taken, the ways in which the tools had to be bent to do the job, the properties of Fortran that seem to cause the most trouble, and the cost of writing a portable compiler.

(1356) Indian Hill C Style and Coding Standards

L. W. Cannon, et al

TM 78-5512-1, TM 78-5514-1, TM 78-5522-3, TM 78-5326-1, TM 78-5521-3 March 29, 1978

This document is a result of a committee formed at Indian Hill to establish a common set of coding standards and recommendations for the Indian Hill community.

(1376) Semantics of the C Programming Language, Part 1: Statements

R. Sethi

TM 79-1271-4 February 2, 1979

This is one of a series of papers defining the semantics of the C programming language. It provides a brief introduction to the semantic method, and semantic statements are given.

See also UNPL(1353) + UNPL(1427)

(1377) An Interactive Interface for C Language Programs

M. K. Radnik

TM 79-8224-2 March 14, 1979

This memorandum describes and illustrates how to use a set of C Language I/O routines and parsing routines which may serve diverse programming systems having the common need for a sophisticated dialogue or user interface.

(1384) *Macros for Analyzing C Program Arguments*

J. Lions

June 28, 1979

This paper describes two sets of macros for use in the analysis of the arguments to C programs. The advantage of their use should be a considerable reduction of programmer effort and improved comprehensibility of programs.

(1388) *C Language Routines for Multi-Thread Computations*

A. G. Fraser

TM 79-1273-4 May 7, 1979

This memorandum describes subroutines which provide the basic mechanisms needed to support multiple tasks within one C language program.

(1408) *A Tour Through the UNIX C Compiler*

D. M. Ritchie

January 1979

(1409) *A Tour Through the Portable C Compiler*

S. C. Johnson

January 1979

(1410) *The Programming Language EFL*

S. I. Feldman

TM 79-1273-6 June 4, 1979

This paper describes EFL, a clean, general purpose computer language intended to encourage portable programming.

(1413) *SDMP—A Debugging Aid for UNIX C Programmers*

A. L. Glasser

MF 79-3116-8 June 28, 1979

This memorandum describes a tool that provides the UNIX C programmer access to structure symbols with adb.

(1426) *cq—A Program for Testing C Compilers*

F. T. Grampp

TM 79-2524-3 May 14, 1979

cq is a C program that performs a coarse check on the quality of a C compiler by comparing the behavior of the compiler to that which is advertised in the C Reference Manual. This memorandum describes cq from a designer's point of view.

(1427) *Semantics of the C Programming Language, Part 2: Declarations*

R. Sethi

TM 79-1271-6 March 2, 1979

See also UNPL(1353) + UNPL(1376)

(1430) *The Second Pass of the Portable C Compiler*

J. Lions

June 1979

This document attempts a detailed examination of the source code for the second pass of the Portable C compiler.

(1446) A Guide to the C Library for UNIX Users

C. D. Perez

August 15, 1979

This paper describes some commonly used functions of the C Library.

(1452) Using a Command Language as the Primary Programming Tool

T. A. Dolotta + J. R. Mashey

TM 79-3624-2, TM 79-9322-1

August 15, 1979

In this paper, a brief discussion of the capabilities and evolution of the shell is followed by an analysis of patterns of shell usage by people who use the "Programmer's Workbench" version of the UNIX system in a variety of work environments.

(1465) A Comparison of the Programming Languages C and Pascal—Part One: Language Concepts

A. R. Feuer + N. H. Gehani

TM 79-3782-7

September 12, 1979

This is the first of two papers comparing the programming languages C and Pascal. It provides a basis on which to make a selection between C and Pascal for a particular application.

(1467) Changes to C and the Portable C Compiler—Issue 1

B. R. Rowland

October 2, 1979

This document is the first in what will become a series of notifications to implementors of a version of the Portable C Compiler in Bell Laboratories.

(1468) SE—A Structure Editor Program for Accessing C Program Structures

P. A. Fargo

TM 79-5354-2

September 17, 1979

This memorandum describes a program which uses the standard UNIX editor to create and modify C program structure data. The Structure Editor (SE) performs various data base management functions on a structure file.

(1486) Thoughts on Debugging C Programs

A. Koenig

December 6, 1979

Some C programs violate language rules in ways that can only be detected during execution. This document gives examples of these errors and discusses design alternatives for a C implementation capable of detecting them.

(1498) Recent Changes to C

B. R. Rowland

TM 79-3621-2

October 2, 1979

This memo describes recent enhancements to the C language that are not currently documented.

UNPM—UNIX User's Manuals

UNPM

(1021) UNIX Reference Card—Second Edition

L. L. Cherry

March 1979

A handy guide to UNIX commands and syntax.

(1073) UNIX Programming—Second Edition

B. W. Kernighan + D. M. Ritchie

October 26, 1979

This paper is an introduction to programming on UNIX. The emphasis is on how to write programs that interface to the operating system.

(1107) Programmer's Workbench Papers From The Second International Conference On Software Engineering. (G.4)

T. A. Dolotta, et al.

For complete information, see UNED (G.4)

(1110) Instructions For GRAPH, TEK, TEKSTARE and GSIP Graphics Packages.

A. R. Storm

TM 76-1527-35 June 30, 1976

(1178) QUEST Administration Handbook

E. H. Albrecht

August 24, 1977

5161-770824.02 MF

The purpose of this memorandum is to provide the background information needed to administer the QUEST System.

(1224) 8080 SIMULATOR (i80sim) USER MANUAL

B. B. Hofmann

TM 77-2265-8 November 1, 1977

This memorandum takes the user thru all commands and features of i80sim, and provides a summary at the end.

(1402) UNIX/32V Time-Sharing System: UNIX Programmer's Manual, Version 1.0, Volume 1

Bell Laboratories

February 1979

Contains descriptions of the use of all commands and calls of the UNIX/32V system.

(1440) UNIX/TS User's Manual—Edition 1.1

Department 3624

January 1979

This manual describes the features of UNIX/TS.

UNPMGS

(1088) UNIX Programmer's Manual—PG-1 C300 Issue 3

Published by the UNIX Support Group (USG) February, 1977

Contains descriptions of the use of all commands and system calls.

UNPMMT

(1070) UNIX/RT User's Manual—Release 1

Bell Laboratories

March 1979

This manual describes the features of UNIX/TS and UNIX/RT. UNIX/RT supersedes MERT Release 0.

PWB/UNIX

(1407) PWB/UNIX User's Manual—Release 2.0

Department 3782

June 1979

Describes all commands, subroutines, and system calls of the PWB (Programmer's Workbench) version of UNIX from Division 37 (PY). Maintenance for this document is distributed by the Computing Information Libraries using specific codes for specific machines.

UNPMRS

(1014) UNIX Programmer's Manual—Sixth Edition

K. Thompson + D. M. Ritchie

May, 1975

Contains descriptions of the use of all commands and calls on the "Research" version of UNIX.

(1400) UNIX Programmer's Manual—Seventh Edition, Volume 1

Bell Laboratories

January 1979

Contains descriptions of the use of all commands and calls on the "Research" version of UNIX.

(1401) UNIX Programmer's Manual—Seventh Edition, Volumes 2A & 2B

Bell Laboratories

January 1979

Contains documents for use with the Seventh Edition of the "Research" version of UNIX.

UNSA—Special Applications

(1283) *Computer Assisted Communication System*

H. N. Dorris + D. W. Hagelbarger + M. J. Shannon
TM 78-1356-7, TM 78-1352-7 May 1, 1978

This memorandum describes a continuing series of experiments aimed at providing improved communications for non-vocal, motion-impaired people.

(1311) *ACS LEAP User's Guide*

J. P. Marione
TM 78-3112-3 September 25, 1978

This is a modified version of LEAP which will be used to system test the Advanced Communication Service.

(1313) *Basic-16 Prospectus*

C. Scussel
TM 78-2522-1 October 6, 1978

Basic-16 is a C language software development system (SDS) being developed by Laboratory 252 for 16-bit microprocessors in controller applications.

(1315) *Application Planning Guide, Release 0 of Basic-16*

J. Arnold
TM 78-2522-2 November 15, 1978

This paper describes Basic-16's hardware and software requirements.

(1318) *Preliminary Report on RCMAS and MERT Performance Problems*

E. L. Hedrick + T. M. Raleigh
October 10, 1978

This memorandum summarizes the performance and reliability problems that the Recent Change Memory Administration System experienced at their Chicago field site.

(1322) *Functional Operation of the Recent Change Memory Administration(RCMAS)*

D. G. Korn + M. A. Pilla + N. M. Scribner + B. W. Stuck
February 1, 1979

This memo describes the hardware and software architecture, as well as the data and control flow associated with processing recent change order transactions, in the Recent Change Memory Administration System (RCMAS) as 1 August 1978.

(1324) *Modifications to the Trouble Reporting System*

J. Dean
MF 78-8234-77 August 30, 1978

This document describes the usage and the internal structure of the new system for trouble reporting.

See also UNSA(1326)

(1326) *New Trouble Reporting Procedures*

J. F. Maranzano
November 2, 1978

This paper describes several changes which have been made to the trouble reporting system.

see also UNSA(1324)

(1333) *A Traffic Generating System*

S. L. Arnold + B. E. Redman

TM 78-4533-1 December 29, 1978

The Traffic Generating System (TGS) provides the environment for multiple channel simulation testing of SLC-96. Users may specify as many independent simulations as real time and memory permit.

(1341) *An Intelligent Fast Color Display*

N. Weste

TM 78-1354-15 December 28, 1978

A color display has been built primarily for use in an integrated circuit design environment. This paper documents the hardware and progress to date.

(1342) *A Software Architecture for Providing a Graphics System Development Workbench*

S. T. Schuyler + M. M. Chodrow

TM 78-8254-5 December 1, 1978

The purpose of this document is to describe the software architecture of the UNIGRAPHIX System, and to discuss the appropriateness of this architecture for a range of interactive graphics applications.

(1344) *REDAS—A Relational Data Access System For Real-Time Applications*

J. R. McSkimin

TM 78-5221-1 October 9, 1978

REDAS is a data retrieval software package designed to provide convenient access to a database containing real-time as well as more static types of data.

(1350) *A Micro-DBMS for a Distributed Data Base*

P. D. Ting + D. C. Tschritzis

TM 79-1712-2 January 29, 1979

This memorandum contains the text, slightly revised and updated, of a paper published in the Proceedings of the Fourth International Conference on Very Large Data Bases, West Berlin, Germany, September 13-15, 1978.

(1355) *Real Time Listing Retrieval (RTLRL)/Audio Response Unit (ARU) Prototype System—Performance Measurements*

J. W. Hooker

TM 79-9156-2 February 10, 1979

This paper describes the mechanized driver capability and the methods used to obtain the measurements, which include CPU and disc utilization, service time, and overall response time.

(1357) *A General Purpose Assembler*

J. S. Thompson

TM 79-1365-1 January 12, 1979

This paper describes a general purpose assembler which has been written to provide a symbolic programming facility for custom built programmable and microprogrammable hardware.

(1362) *A Capacity Study for the Service Evaluation Center—A UNIX-Based Real-Time System*

S-J. Chang

TM 79-5223-1 February 9, 1979

This memorandum presents a report on the capacity study for the Service Evaluation Center (SEC) which is a UNIX-based Real-Time System.

(1366) Craft Access System Software Standards

E. K. Evenson + N. R. Fildes

TM 79-4563-1 March 8, 1979

This memorandum contains the programming standards for the Craft Access project.

(1373) Porting the ADAPT Data Translation System to the IBM 370

M. J. Bach + B. L. Smith

TM 79-9157-1 March 8, 1979

The ADAPT Data Translation System is a high-level user-friendly system intended to meet most file re-structuring requirements, including those involving transfers to different machine configurations. This paper describes the porting of the ADAPT system to the IBM 370/168 computer.

(1374) A Data-base Management System under MERT

A. C. Ting

TM 79-4145-2 April 4, 1979

This paper describes the features of RCDBMS(Recent Change Memory Data Base Management System), a real-time database management system written in C under MERT.

(1378) Implementation of a Boolean Data Analysis Technique for PWB/UNIX

L. E. Bonanni

TM 79-9441-5 March 21, 1979

This memorandum presents the simplified "possibly meaningful relationships" (PMR) technique and serves as a user's guide to its PWB/UNIX implementation.

(1381) The USG UNIX Stockroom

V. H. Rosenthal

April 23, 1979

The USG Stockroom is a facility on the USG UNIX/TS system that allows Bell Labs UNIX users to obtain programs for installation on their systems. This paper describes the organization of the Stockroom and the commands available to Stockroom users.

(1383) An INTEL Compatible 8048-49 Cross Assembler

T. J. Mulrooney

TM 79-2211-10 November 29, 1979

This report describes the implementation of an Intel 8048-49 assembler on the Unix operating system. The usage, advantages, disadvantages, and examples are given.

(1387) SYSTID on F4P-UNIX—User's Guide

B. G. Haskell + O. C. Yue

TM 79-1343-7 April 4, 1979

A user's guide for SYSTID, a set of programs to be used for simulation and transient analysis of linear and non-linear systems.

(1390) Hi—An Interactive Hierarchical Data Management System for UNIX

R. G. Kayel

TM 79-3444-3 April 30, 1979

This memorandum describes a hierarchical data management system that runs under the UNIX operating system. It is designed to be used for managing a small to moderate sized hierarchical data base.

(1397) UNIX Based TSPS Hotel-Motel Traffic Simulator

S. Michael

TM 79-5252-1 May 18, 1979

This memorandum describes a message generator that simulates the messages transmitted from a Traffic Service Position System (TSPS) to the No. 1 Hotel Billing Information System(HOBIS) for sent-paid calls originating from a hotel or motel.

(1398) PWB/Graphics Overview

A. R. Feuer

TM 79-3782-1 June 11, 1979

This memorandum will help you get started using graphics and show you where to find more information.

(1399) Conversion of SICPPR Files From UNIX to RAMIS II

M. B. Ellington

TM 79-2174-1 May 21, 1979

This memorandum documents the transfer of the Silicon Integrated Circuit Project Planning Report (SICPPR) data base from the UNIX file structure to the RAMIS II data base system.

(1406) Computer Buffered Information Exchange User's Guide

B. I. Strom

TM 79-5133-1 June 11, 1979

This paper is the complete user's guide to the Computer Buffered Information Exchange (CBIE) system which facilitates asynchronous communication among a group of individuals.

(1412) DIRECT II In-Core Tables: User's Guide

W. D. Roome

TM 79-9156-5 June 7, 1979

The DIRECT II In-Core Tables (ITBL) package allows user processes to quickly search small subsets, or cross-sections, of tables in the DIRECT II Tables Data Base (TDB).

(1414) Directory Assistance Operator Work Time Exploratory Data Analysis

E. Arthurs + N. Sharko + B. W. Stuck

July 6, 1979

This paper summarizes recent work in characterizing directory assistance operator work times, which is a major component of the total time required to handle one transaction, for current directory assistance operators.

(1415) Preliminary Real Time Listing Retrieval (RTLRL) Field Study Performance Analysis

E. Arthurs + D. W. Cragun + B. W. Stuck

July 9, 1979

This paper summarizes an analytic study plus some experimental data from a field study concerning performance limitations of a prototype of RTLRL.

(1416) The Craft Access Voice Editing System (CAVES)

N. R. Fildes

TM 79-9314-1 June 20, 1979

This memorandum describes the voice editing software tools used to develop and maintain a collection of files containing the digitized speech vocabulary.

(1419) The Nspeak Program

M. O. Harris

TM 79-1227-18 June 3, 1979

(1421) Experimental Office Communications Services—Message System

R. E. Hoffman

June 13, 1979

This memorandum describes an online experimental Office Communication System (OCS) Message System through which users can communicate in a deferred mode.

(1425) *DIRECT II Service Dispatcher*

C. W. Chang + J. P. Linderman
TM 79-9156-6 June 12, 1979

A DIRECT II service dispatcher was developed to manage a number of service processes in the system. This document specifies the functional capabilities of the service dispatcher and the communication channels between it and the customer processes.

(1428) *Documentation of Minicomputer Product Trials*

R. E. Swift
April 27, 1979

This memorandum defines the constituents of a product trial report and the minimum information which the report must convey.

(1433) *An Interface Between a Stand Alone Operating System (ISIS) and a Time Shared Computer System (UNIX)*

T. J. Mulrooney
TM 79-2211-4 May 15, 1979

An interface between a Microcomputer Development System (MDS) and a time shared system (UNIX) is described in detail. A complete description of all operating procedures, complete documentation package for all programs discussed, applications and examples of usage are also given.

(1438) *UNITY—A Small DBMS for a UNIX Environment*

P. D. Ting
TM 79-1712-12 September 4, 1979

This memorandum describes a Data Base Management System called UNITY, which is operational on DEC's PDP-11 minicomputers and LSI-11 microcomputers.

(1445) *INTEL 8048 Simulator (SIM48) User Manual*

T. J. Mulrooney
TM 79-2211-7 August 15, 1979

The 8048-8049 Microprocessor Simulator running under the UNIX Operating System, provides software simulation of the 8048-8049 microcomputer. This report is a detailed user's manual describing the various commands.

(1448) *Spooler and Daemon Software for a Printer Network*

J. E. Laur
TM 79-9457-3 July 27, 1979

Printer and spooler software to handle a single Dataspeed 40 printer has been taken from the MERT support group Dept (3624) and modified to provide support for a network of printers of any type. This paper describes several features which have been added to the software to make more robust.

(1453) *Implementing and Testing New Versions of a Good 48-bit Pseudo-random Number Generator*

C. S. Roberts
TM 79-1353-5 September 4, 1979

This paper describes the design, implementation, testing, and use of drand48—a good pseudo-random number generator based on the linear congruential algorithm and 48-bit integer arithmetic.

(1454) *DIRECT II Sort Utilities*

J. P. Linderman
TM 79-9456-2 August 31, 1979

This memorandum has four main parts. The first describes how a list of multi-valued fields induces an ordering on records. The second section specifies an algorithm for constructing a sort key given a record and a list fields. The third section describes a general purpose sort utility capable of sorting records into lexicographical order on a single key. A final section describes a collection of tools which constituted the DIRECT II sort utilities.

(1455) DIRECT II Data Representation and Manipulation

J. P. Linderman

TM 79-9456-1 August 8, 1979

This memorandum describes the representation used in DIRECT II.

(1461) YADS—Yet Another Database System

M. J. Rochkind

TM 79-9323-1 October 1, 1979

YADS is yet another database that stores data, provides a way to update it, and generates reports.

This memo contains a tutorial on setting up a YADS application and manual pages for reference.

(1464) Version 3 of the GR-Z Graphical System

R. A. Becker

TM 79-1215-12 September 4, 1979

This memorandum describes Version 3 of the GR-Z Graphical System. It assumes familiarity with GR-Z Version 2, and describes the changes from Version 2 to Version 3. It also provides details of the UNIX implementation.

(1471) A Graphics Language for Typesetting

C. J. Van Wyk + B. W. Kernighan

TM 79-1274-10 September 13, 1979

This paper reports some steps toward the design of a language in which a useful class of figures can be expressed.

(1478) Development of a Program for Parts Inventory Control

A. M. Gopin

TM 79-3237-2 October 19, 1979

A program has been developed to aid in the keeping of inventories of parts for prototype model production. This program is written in C and runs under UNIX.

(1489) A UNIX Based System for Automated Testing of Asynchronous Terminals and Hosts

M. B. Mueller

TM 79-3162-1 September 10, 1979

The PATHOS (Programmable Asynchronous Terminal and Host Simulator) facility has recently been implemented to support automated testing of asynchronous terminals and hosts. An overview of PATHOS capabilities and architecture is presented in this paper.

(1496) TERSE—A Technique for Reporting on Small Data Bases

N. H. Petschenik + R. P. Woodall

TM 79-9252-1 August 31, 1979

This memorandum applies TERSE to a specific data base example and then the technique is presented in general. Complete user information is provided as well as a description of the implementation.

UNSD—Standard Documentation

(1037) Referencing Standard UNIX Documentation

G. C. Vogel
August 23, 1974
Memorandum For File

(1046) UNIX Support Classifications For PG-1C300—Issue 2

G. C. Vogel
MF 76-8234-9 January 30, 1976
The purpose of this memorandum is to define levels of support and to assign pidents to these classifications.

(1099) Program Generic Control And Documentation On UNIX

G. C. Vogel
TM 76-8234-13 May 17, 1976
This memorandum describes a general set of program generic control and documentation procedures which has been developed to Bell System format.

(1107) Programmer's Workbench Papers From The Second International Conference On Software Engineering. (G.4)

T. A. Dolotta, et al.
For complete information, see UNED (G.4)

(1162) The UNIX Operating System—PG-1C300

G. C. Vogel
For Complete Information, see UNOS

(1291) Recommendations for A Company-Wide UNIX Education Program

R. M. Coben, et al.
June 6, 1978
This report presents an overview of the use of UNIX at Bell Laboratories, our view of the challenge for UNIX education, and our specific recommendations.

(1296) Title Listings for UNIX Memoranda

T. R. Crowley
MF 78-8234-79 September 7, 1978
A shell program, tlist, has been written to produce high quality listings of the titles and authors of UNIX memoranda for the Computing Information Library.

(1363) A Public Library Facility for the UNIX Time-Sharing System

D. W. Ting + A. L. Glasser
TM 79-3111-1 February 21, 1979
A public library in a computer is an area of memory loaded with frequently used subroutines. This memorandum describes an implementation of this facility for UNIX.

(1420) Supported Structure for Local Modifications to UNIX

A. S. Cohen
July 26, 1979
This paper proposes ways to improve the separation of local and centrally-supported software to promote discussion on this subject.

UNSU—Service and Utility Programs

(1003) Implementation of Large Contiguous Files and Asynchronous I/O in UNIX

H. Lycklama

TM 74-1352-1 January 4, 1974

This document describes physical I/O for the UNIX—A (assembler) based system.

(1025) Synthetic English Speech by Rule

M. D. McIlroy

TM 73-1271-7 December 7, 1973

(1068) UNIXLIST—An IBM/370 Utility Program to List a UNIX File Stored on a 9-Track Magnetic Tape.

C. S. Roberts

January 29, 1975

Memorandum For Record

(1078) Make—A Program For Maintaining Computer Programs

S. I. Feldman

August 15, 1978

This memo describes a program called MAKE that provides a simple mechanism for maintaining up-to-date versions of programs that result from many operations on a number of files.

(1081) A Tape Back-Up System For The Network File Store

R. J. Elliott

TM 75-1273-12 November 24, 1975

This paper describes a system which maintains a complete copy on tape of all files on the file store of the Spider Network.

(1107) Programmer's Workbench Papers From The Second International Conference On Software Engineering. (G.4)

T. A. Dolotta, et al.

For complete information, see UNED (G.4)

(1118) UNIX-INTELLEC MDS Interface

Joseph E. Lencoski + Stuart A. Tartarone

TM 76-3141-1, TM 76-3142-1 September 1, 1976

This memorandum describes the interface including a synopsis of the new UNIX commands to access these features and provides a program listings of the new software developed.

(1140) Description of MKCONF

I. A. Hahner + T. M. Raleigh

MF 77-8234-5 January 17, 1977

The purpose of this document is to describe the program MKCONF, which is an interactive program that generates two configuration dependent files.

(1149) UNIX Assembler For The Intel 8080 Microprocessor

J. J. Molinelli

For Complete Information, see UNPL

(1153) An Integrated System For Microprocessor Support

D. H. Copp + R. J. Council + D. J. Hunsberger + J. J. Mollinelli + J. H. VanOrnum

TM 77-8234-1, TM 77-3233-6, TM 77-3231-1 March 17, 1977

This memorandum describes a set of tools, referred to as the Microprocessor Support (MS) system, designed to reduce firmware development cost through efficient usage of the human resource.

- (1156) *A Generalized Data Entry System*
 M. J. Rochkind
 TM 77-9156-1 April 1, 1977
 The human and programming interfaces to the system are described and instructions are given for building the driving tables.
- (1168) *A Console Controlled Interface Between an INTELLEC MDS And A Time-Shared Computer System.*
 J. E. Lencoski + S. A. Tartarone + J. E. Wilkes Jr.
 TM 77-3141-2, TM 77-3142-2 May 31, 1977
 This memorandum describes two different approaches for modifying INTELLEC hardware , a SMAL2 monitor program and information including command sequences and instruction for local configuration.
- (1171) *A Record Manager For Random Access To Variable Length Records Under UNIX.*
 J. D. Beyer
 TM 77-1353-5 June 1, 1977
 This memorandum describes a Random Record Manager for UNIX disk file. It is meant to be both a user's guide and a brief overview of the workings of the system.
- (1172) *QUEST—A Computer System To Collect Questionnaire Data*
 E. H. Albrecht
 May 16, 1977
 Memorandum For File
 QUEST can be used to issue a questionnaire, collect the answers to the questionnaire and prepare the resulting data for analyzation.
- (1186) *Lint, a C Program Checker*
 S. C. Johnson
 July 26, 1978
 Lint is a comma d which examines C source programs to detect and report about a number of bugs and obscurities. This document discusses the use of lint, gives an overview of the implementation, and gives some hints on the writing of machine independent C code.
- (1209) *A Lexicographic Multikey Sort Program ZSORT*
 H. Zucker
 October 31, 1977
 This memorandum describes the features of an efficient C Language sort program (ZSORT) and the characteristics of the sorting algorithms which were employed.
- (1210) *Examples of Converting USG Shell Command Files for the New Shell*
 M. A. Cszaszar
 MF 77-8234-100 November 22, 1977
 This memorandum describes examples of converting USG shell command files for the new Center 127 shell written by S. R. Bourne. Examples of Center 323 files conversion of shell programs are shown.
- (1215) *RXD-11D: Two Programs to Generate UNIX-Compatible Magnetic Tapes*
 G. K. Swanson
 November 17, 1977
 Two programs to write source files to 9 track, 800 BPI magnetic tapes have been written for the PDP-11/45 and run under the RSX-11D Real-Time operating system.

(1219) *UNIX Microcomputer Control of Apparatus, Machinery, and Experiments*

B. C. Wonsiewicz + A. R. Storm + J. D. Siever

TM 77-1523-28, TM 77-1527-114 October 21, 1977

This paper describes a system for laboratory automation using the UNIX time-sharing system which has permitted experiments to be automated in hours rather than years.

(1222) *Gf—A Graphical Data Analysis Program for the MERT-UNIX Operating System*

E. Shapiro + M. F. Robbins

TM 77-1131-44 October 21, 1977

Gf is written in C language and the interactive terminal is a Tektronix 4014-1. Hard copy prints may be obtained via MH H6070 STARE device.

(1223) *An Interactive LEAP Script Generator (ILSG)*

H. M. Cykiert + B. E. Hess

TM 77-9423-3 December 2, 1977

This memorandum describes a newly developed tool which significantly reduces the cost of LEAP scripts.

(1227) *Gex—An Interactive Graphics Program*

D. J. Jackowski

TM 77-8254-3 December 7, 1977

This memo includes user information and a discussion of the software. Gex is designed to run on the PDP-11 under UNIX with a Tektronix terminal.

(1238) *A System Testing Technique Using a Universal LEAP Script*

N. H. Petschenik + R. P. Woodall

TM 77-9426-2 August 31, 1977

LEAP, a BTL developed test driver written for the PWB/UNIX system, supports the preparation and execution of such repeatable test by sending, receiving and processing the signal between simulated terminals and an interactive system under test.

(1243) *CLIO—A Relational Data Base System*

P. S. Para

TM 78-5522-2 February 9, 1978

This memo describes CLIO which includes general programming language capabilities as well as facilities for use as a data base-driven command language.

(1245) *QUIK: A Novel Approach to Computerized Directory Assistance Services*

J. D. Gabbe + C. N. Judice + T. B. London + J. D. Beyer

December 12, 1977

This paper gives an overview of an experimental directory assistance system, QUIK (Querying Interactively by Keywords), currently being used as a tool for research in information storage, retrieval, and people-computer interactions.

(1251) *Decentralized Transaction Control and Crash Recovery*

P. J. Weinberger

TM 78-3444-3 April 4, 1978

This paper contains algorithms for transaction control and crash recovery in a data base system.

(1252) *STAT: A Tool for Analyzing Data*

A. R. Feuer

TM 78-9442-4 March 21, 1978

Stat is an emerging collection of numerical programs under the UNIX operating system that can be interconnected using shell to form processing networks.

(1262) User's Guide to the SMAL2 Language for the Zilog Z80 Microprocessor

J. W. Farrell

TM 78-8234-8 March 21, 1978

SMAL2 is a structured assembly level language originally developed for the Intel 8080 microprocessor. It has recently been expanded for use with the Zilog Z80 microprocessor. The Language features control structures like those of the C programming language but otherwise has a one-to-one relationship to the Z80 machine instructions.

(1266) Interactive Design Aid For General-Purpose Artwork Production

V. A. Fasciano

TM 78-8254-3 June 1, 1978

This group of computer programs has been prepared for use with PDP-11 computers which are intended to assist in the creation and modification of general-purpose artwork such as flowcharts, illustrations, simple logic diagrams, and office furniture layouts. All programs are written in the C language.

(1273) UNIX/TS File System Backup

R. C. Haight

MF 78-8234-42 May 11, 1978

The dump/restor, Volcopy, Cpio/find backup systems will be distributed with the first release of UNIX/TS.

(1275) 8080/Z80 Simulator SM80 User Manual

K. L. Regelson

TM 78-8234-1 January 15, 1978

The 8080/Z80 Microprocessor Simulator, running under the UNIX operating system, provides software simulation of the Intel 8080 and the Zilog Z80 CPUs. This memo has two main parts: a tutorial and a reference manual.

(1279) UNIX Software Distribution by Communication Link

M. E. Lesk + A. S. Cohen

TM 78-1274-3, TM 78-8234-5 February 24, 1978

This document discusses the operation of the UUCP (UNIX to UNIX copy) and related programs; their usage over the last year; and plans for the future.

(1285) Proposed Structure for UNIX/TS and UNIX/RT Makefiles

A. L. Chellis

MF 78-8234-73 July 26, 1978

This memo illustrates the minimum requirements for future makefiles. It should make file maintenance easier and more efficient.

(1286) Cumulative Program Profiling

J. F. Reiser

TM 78-1353-2 July 1, 1978

An automatic accumulation method is described for programs written in C and run under the UNIX* operating system.

(1293) Uucp—Implementation Description

D. A. Nowitz

October 31, 1978

Uucp is a series of programs designed to permit communication between UNIX systems. This document is for use by an administrator of the system.

(1294) UNIX Standardization Subcommittee Proposed Archiving Facility

G. C. Vogel

MF 78-8234-99 September 27, 1978

UNIX archiving proposals were discussed at several meetings of the USS. This memorandum summarizes the points discussed and outlines the proposal reached.

(1295) Regression Testing for C Compilers

T. R. Crowley

MF 78-8234-78 August 10, 1978

This memorandum discusses the facility for regression testing of a C compiler which has been set up.

(1298) Implementation of GR-Z Graphics on UNIX

B. G. Haskell

September 8, 1978

The purpose of this memorandum is to describe the programs and procedures necessary for the running of GR-Z programs on UNIX.

(1304) The Evolution of a Source Code Control System

A. L. Glasser

TM 78-3111-3 September 12, 1978

This paper describes the facilities provided by SCCS, and the changes that were made to scss.

See also UNPM(1086)

(1308) MRCS and the MRCS 2 Data Base System

H. S. Gellis

TM 78-9442-7 July 26, 1978

This paper discusses both MRCS and the M2 system which has evolved to implement it and other data base systems.

(1328) Sdiff, a Side-by-side Difference Program

J. F. Maranzano

December 13, 1978

The sdiff command has been written to provide a convenient display of the differences of two files and a facility for interactive merging of the two files.

(1332) Monitor terminals under the UNIX operating system

T. B. Muenzer

TM 78-9442-6 July 24, 1978

This memorandum describes a primitive implementation suitable for many uses, and describes several possible extensions of the implementation.

(1338) Enhancements to the USG Trouble Reporting System

L. W. Cannon

January 19, 1979

This paper describes a trouble reporting mechanism which was developed for use by the Processor Applications Group of Department 2512.

(1339) VM/CMS—UNIX File Transfer Facility

R. A. Norden

January 10, 1979

A file transfer facility has been implemented which allows files to be transferred over the DDD network between any UNIX machine with appropriate automatic dialing equipment and AT&T's VM/CMS systems at Piscataway, New Jersey. This memorandum is a brief guide for potential users.

(1346) *NFTS: Tools For Processing Data With Named Fields*

M. J. Rochkind

TM 78-4565-1 December 1, 1978

This memo describes an abstract data type, called a packet, for connecting named-field tools.

(1442) *BANCS Facility for MERT/UNIX*

J. S. Licwinko

TM 79-9156-7 April 11, 1979

This document describes software that supports connection of a MERT/UNIX machine to a BANCS network.

(1443) *Record Handling under MERT/UNIX—The Queue Facility*

J. S. Licwinko

TM 79-9156-4 May 25, 1979

This document describes a record handling facility developed for MERT/UNIX. It describes the need for this facility, the format of Queues, the subroutines, the integrity mechanisms, the checkpoint strategy, and the utilities. User documentation is attached.

SECTION II

PERMUTED TITLE/AUTHOR INDEX

Permuted Index

S. A. Uhler; Comnd	-- A Routine to Handle Command Line Parsing	1260
System for the DEC VAX-11/780 Computer T. B	. London + J. F. Reiser; A UNIX Operating	1297
Semantics of the C Programming Language, Part	0: Prelude R. Sethi;	1353
Implemented for DZ11 Under MERT Release	0.1 M. J. Shannon; SPS Protocol	1469
Release 0 with Modification 0.1 to MERT Release	0.1 T. M. Raleigh; Upgrading MERT	1287
Upgrading MERT Release 0 with Modification	0.1 to MERT Release 0.1 T. M. Raleigh;	1287
Semantics of the C Programming Language, Part	1: Statements R. Sethi;	1376
/System: UNIX Programmer's Manual, Version	1.0, Volume 1 Bell Laboratories;	1402
Battery Backup for PDP	11/70 MOS Memory J. A. McGuire;	1418
UNIX Users Group Meeting—Toronto, June	19-23, 1979 S. R. Eisen;	1396
Department 3624's Workplan for Networking in	1979/80 G. W. R. Luderer;	1435
Semantics of the C Programming Language, Part	2: Declarations R. Sethi;	1427
PWB/UNIX User's Manual—Release	2.0 Department 3782;	1407
L. Sabsevitz; PWB/UNIX Edition	2.0 Preparation M. J. Petrella + A.	1403
UNIX Line Discipline for IBM	2740-1 Protocol D. J. Huber;	1481
Programmer's Manual—Seventh Edition, Volumes	2A & 2B Bell Laboratories; UNIX	1401
Manual—Seventh Edition, Volumes 2A &	2B Bell Laboratories; UNIX Programmer's	1401
UNIX Programmer's Manual—PG-1C300 Issue	3;	1088
the Revised UNIX-to-UNIX Copy Command for Lab	323 R. B. Lyon; Use of	1361
A	32-Bit Processor Design S. C. Johnson;	1375
Department	3621 MAXIUNIX Workplan J. T. Hall;	1395
UNIX/TS User's Manual—Edition 1.1 Department	3624;	1440
G. W. R. Luderer; Department	3624's Workplan for Networking in 1979/80	1435
the ADAPT Data Translation System to the IBM	370 M. J. Bach + B. L. Smith; Porting	1373
User's Manual—Release 2.0 Department	3782; PWB/UNIX	1407
P. G. Dowd; The Teletype DATASPEED	40 Line Printer as a UNIX Peripheral	1255
/To Support Both Teletypewriter And DATASPEED	40 Timesharing Terminals. R. C. White, Jr.;	1077
Implementing and Testing New Versions of a Good	48-bit Pseudo-random Number Generator/	1453
Installation, and Usage of UNIX by Department	5254. J. F. Majernik; /Procurement,	1201
Division	56 UNIX Course K. E. Wendland;	1429
A Portable Fortran	77 Compiler S. I. Feldman + P. J. Weinberger;	1248
Implementation of a Portable Fortran	77 Compiler Using Modern Tools S. I. Feldman;	1354
T. J. Mulrooney; INTEL	8048 Simulator (SIM48) User Manual	1445
An INTEL Compatible	8048-49 Cross Assembler T. J. Mulrooney;	1383
UNIX Assembler for the Intel	804X Microprocessors L. E. Miller;	1482
UNIX Assembler For The Intel	8080 Microprocessor J. J. Molinelli;	1149
UNIX Assembler for the Intel	8080 Microprocessor J. J. Molinelli;	1149
B. B. Hofmann;	8080 SIMULATOR (i80sim) USER MANUAL	1224
G. C. Vogel;	8080/Z80 Assembler Reference Manual	1250
K. L. Regelson;	8080/Z80 Simulator SM80 User Manual	1275
An ICE-85 Based	8085 Software Development System W. Densmore;	1417
UNIX/86: UNIX on the Intel	8086 T. P. Blumer + R. Muha;	1483
MERT Release 0 From Department	8234 G. W. R. Luderer;	1183
/Utility Program to List a UNIX File Stored on a	9-Track Magnetic Tape. C. S. Roberts;	1068
Words R. B. Freeman; Parse(	)—A C Language Routine to Parse a String into	1271
System. T. M. Raleigh; Explanation Of	Abnormal Conditions Within The UNIX Operating	1047
Typesetting ACS and APS Meeting	Abstracts—Issue 2 D. Edelson;	1075
DEC Factory	Acceptance Test R. B. Brandt + C. D. Perez;	1145
Checking File	Access Permissions in UNIX Systems J. Lions;	1385
J. R. McSkimin; REDAS—A Relational Data	Access System For Real-Time Applications	1344
E. K. Evenson + N. R. Fildes; Craft	Access System Software Standards	1366
Using a Line Clock to Estimate Mean Disk	Access Time B. W. Stuck;	1282
J. D. Beyer; A Record Manager For Random	Access To Variable Length Records Under UNIX.	1171
N. R. Fildes; The Craft	Access Voice Editing System (CAVES)	1416
SE—A Structure Editor Program for	Accessing C Program Structures P. A. Fargo;	1468
A. G. Fraser +/ File Integrity And Space	Accounting For A UNIX Based System.	1164
Processor Interactive Control and Data	Acquisition System J. S. Kraus; A Peripheral	1289
(EADAS/NM) Capacity/ Engineering and Data	Acquisition System/Network Management	1449
An Interactive Computer Controlled Data	Acquisition System With A CAMAC Real Time/	1169

D. Edelson; Typesetting	ACS and APS Meeting Abstracts—Issue 2	1075
System W. W. Everett;	ACS LEAP User's Guide J. P. Marione;	1311
M. J. Bach + B. L. Smith; Porting the	Activity Profile of the PWB/UNIX Operating	1290
A Tutorial Introduction to	ADAPT Data Translation System to the IBM 370	1373
on the File Server Project J. P. Haggerty +/	ADB J. F. Maranzano + S. R. Bourne;	1185
Moving System I/O Buffers out of UNIX Data	Adding Remote Files to UNIX—A Progress Report	1434
QUEST	Address Space D. W. Ting;	1235
/Operation of the Recent Change Memory	Administration Handbook E. H. Albrecht;	1178
R. C. Haight;	Administration(RCMAS) D. G. Korn +/	1322
Performance Assessment of Customer Service and	Administrative Advice for PWB/UNIX (I.2)	1195
H. Che; UUCP	Administrative Control Center System (CSACCS)/	1450
PWB/UNIX RJE	Administrators' File and the UUNAME Command	1490
Administrative	Administrator's Guide (I.5) A. L. Sabsevitz;	1198
M. E. Lesk;	Advanced Editing On UNIX B. W. Kernighan;	1108
Processing Language (Second Edition) A. V.	Advice for PWB/UNIX (I.2) R. C. Haight;	1195
V. A. Fasciano; Interactive Design	AGEN—An Associated Memory Generator	1064
SDMP—A Debugging	Aho + B. W. Kernighan + P. J. Weinberger; /and	1206
Circuit Design	Aid For General-Purpose Artwork Production	1266
Software Engineering. (G.4) T. A. Dolotta, et	Aid for UNIX C Programmers A. L. Glasser;	1413
UNIX Education Program R. M. Coben, et	Aids On UNIX A. G. Fraser + G. G. Riddle;	1165
C Style and Coding Standards L. W. Cannon, et	al.; /The Second International Conference On	1107
General Design Guidelines E. L. Hedrick, et	al.; Recommendations for A Company-Wide	1291
UNIX/TS	al; Indian Hill	1356
Cautions On The Use Of The	al; RCMAS/MERT Performance Study and	1360
DOS-BATCH To UNIX Conversion E. H.	Alarm Facility G. C. Vogel;	1359
System To Collect Questionnaire Data E. H.	Alarm Signal T. G. Lyons;	1094
QUEST Administration Handbook E. H.	Albrecht;	1120
A Fast Software Encryption	Albrecht; QUEST—A Computer	1172
J. W. Hunt + M. D. McIlroy; An	Albrecht;	1178
B. S. Baker; An	Algorithm R. Morris;	1334
Scheduling and Switching Under UNIX	Algorithm For Differential File Comparison	1083
An Array and Switching Processor H. G.	Algorithm For Structuring Flowgraphs	1103
Computer System/ An Interface Between a Stand	Algorithms and Implementation T. M. Raleigh;	1126
Retrieval (RTLRL) Field Study Performance	Alles;	1254
Assistance Operator Work Time Exploratory Data	Alone Operating System (ISIS) and a Time Shared	1433
L. A. Wehr; Description and	Analysis E. Arthurs + D. W. Cragun +/ /Listing	1415
System E. Shapiro +/ Gf—A Graphical Data	Analysis E. Arthurs + N. Sharko +/ Directory	1414
Implementation of a Boolean Data	Analysis of the DEC KMC11 Microprocessor	1226
Lex—A Lexical	Analysis Program for the MERT-UNIX Operating	1222
Macros for	Analysis Technique for PWB/UNIX/	1378
STAT: A Tool for	Analyzer Generator M. E. Lesk + E. Schmidt;	1061
M. E. Koether; READ—C Programs For	Analyzing C Program Arguments J. Lions;	1384
DEAD—A Program For	Analyzing Data A. R. Feuer;	1252
Assembly Language Programming Manual J.	Analyzing Readability E. U. Coke +	1331
UNIX Microcomputer Control of	Analyzing UNIX System Crashes T. M. Raleigh;	1093
Basic-16 J. Arnold;	Angelo; MAC-8	1221
C. P. Imagna; UNIX/RT as an	Apparatus, Machinery, and Experiments/	1219
File System Structures for Real-Time	Application Planning Guide, Release 0 of	1315
Relational Data Access System For Real-Time	Application System for BOS/LMOS Development	1349
System M. E. Lesk; Some	Applications H. Lycklama;	1276
Services J. D. Gabbe +/ QUIK: A Novel	Applications J. R. McSkimin; REDAS—A	1344
Typesetting ACS and	Applications of Inverted Indexes on the UNIX	1213
L. Cherry + R. Morris; BC—An	Approach to Computerized Directory Assistance	1245
Development Workbench/ A Software	APS Meeting Abstracts—Issue 2 D. Edelson;	1075
UNIX Standardization Subcommittee Proposed	Arbitrary Precision Desk Calculator Language	1053
Call E. Loikits; Implementation of the Large	Architecture for Providing a Graphics System	1342
Variable Length	Archiving Facility G. C. Vogel;	1294
Macros for Analyzing C Program	Argument List Feature in UNIX/RT's Exec. System	1351
A Traffic Generating System S. L.	Argument Lists in C A. Koenig;	1268
Planning Guide, Release 0 of Basic-16 J.	Arguments J. Lions;	1384
	Arnold + B. E. Redman;	1333
	Arnold; Application	1315

An	Array and Switching Processor	H. G. Alles;	1254
/(RTL) Field Study Performance Analysis	E. Arthurs + D. W. Cragun + B. W. Stuck;	1415	
/Control Center System (CSACCS)	E. Arthurs + J. L. Haase + C. Perea + B. W. Stuck;	1450	
Work Time Exploratory Data Analysis	E. Arthurs + N. Sharko + B. W. Stuck; /Operator	1414	
/Projections and Enhancements	E. Arthurs + P. Daily + R. Jakubek + B. W. Stuck;	1253	
Interactive Design Aid For General-Purpose	Artwork Production	V. A. Fasciano;	1266
Listing Retrieval (RTL) /Audio Response Unit	(ARU) Prototype System—Performance/ Real Time	1355	
(RTL) /ARU Prototype/ Audio Response Unit	(ARU) Subsystem Design for Real-Time Retrieval	1306	
A General Purpose	Assembler	J. S. Thompson;	1357
An INTEL Compatible 8048-49 Cross	Assembler	T. J. Mulrooney;	1383
L. A. Wehr;	Assembler for the DEC KMC11 Microprocessor	1225	
L. E. Miller; UNIX	Assembler for the Intel 804X Microprocessors	1482	
J. J. Molinelli; UNIX	Assembler For The Intel 8080 Microprocessor	1149	
J. J. Molinelli; UNIX	Assembler for the Intel 8080 Microprocessor	1149	
UNIX	Assembler Reference Manual	D. M. Ritchie;	1012
8080/Z80	Assembler Reference Manual	G. C. Vogel;	1250
Reissue No. 1 of MAC-8	Assembler User's Manual	D. B. Kirby;	1150
J. Angelo; MAC-8	Assembly Language Programming Manual	1221	
Administrative Control Center/ Performance	Assessment of Customer Service and	1450	
Analysis	E. Arthurs + N. Sharko +/ Directory	1414	
A Novel Approach to Computerized Directory	Assistance Operator Work Time Exploratory Data	1245	
D. W. Hagelbarger + M. J. Shannon; Computer	Assistance Services	J. D. Gabbe +/ QUIK;	1283
M. J. Shannon Jr.; A Computer	Assisted Communication System	H. N. Dorris +	1184
AGEN—An	Assisted Communication System. (CACS)	1064	
Devices under UNIX	D. W. Ting;	1241	
Implementation of Large Contiguous Files and	Asynchronous I/O Facilities for Raw Block	1003	
A UNIX Based System for Automated Testing of	Asynchronous I/O in UNIX	H. Lycklama;	1489
Real-Time Retrieval (RTL) /ARU Prototype/	Asynchronous Terminals and Hosts/	1300	
D. S. DeJager + J. A. McGuire +/ UNIX/TS	ATS to PWB/MM Converter	N. W. Smith;	1306
An	Audio Response Unit (ARU) Subsystem Design for	1382	
Hosts	M. B. Mueller; A UNIX Based System for	1458	
System	G. B. Foley; A Description of	1489	
(Second Edition)	A. V. Aho + B. W. Kernighan/	1180	
System for the DEC VAX-11/780 Computer	T. Programmer's Workbench Documentation Roadmap	1206	
General-Purpose Subroutine Library for PWB/UNIX	A New Input-Output Package	1297	
to IBM Remote Job Entry for PWB/UNIX Users	PWB/UNIX Beginner's Course	1121	
PWB/UNIX Shell Tutorial	PWB/UNIX Shell Tutorial	1159	
Programming in C—A Tutorial	Programming in C—A Tutorial	1157	
KW11-P Clock Driver	R. R. Data Translation System to the IBM 370	1087	
M. J. W. A. Burnette; A Database Transaction	UNIX/TS File System	1188	
J. A. McGuire; Battery	R. J. Elliott; A Tape	1189	
Program Which Structures Fortran	B. S. Algorithm For Structuring Flowgraphs	1001	
B. S. A Micro-DBMS for a Distributed Data	Numeric Pattern Recognition Data	1309	
MRCS and the MRCS 2 Data	CLIO—A Relational Data	1373	
W. Densmore; An ICE-85	A Mechanism of Starting a Program in a UNIX	1432	
File Integrity And Space Accounting For A UNIX	Asynchronous Terminals and Hosts/ A UNIX	1273	
P. W. Gwozdz; Proposal for a Microprocessor	S. Michael; UNIX	1418	
TERSE—A Technique for Reporting on Small Data		1081	
		1084	
		1103	
		1442	
		1350	
		1085	
		1308	
		1243	
		1417	
		1488	
		1164	
		1489	
		1305	
		1397	
		1496	

Application Planning Guide, Release 0 of	Basic-16 J. Arnold;	1315
J. A. McGuire;	Basic-16 Prospectus C. Scussel;	1313
Real-Time Operating System. D. L.	Battery Backup for PDP 11/70 MOS Memory	1418
System for a PDP-11/45 H. Lycklama + D. L.	Bayer + H. Lycklama; MERT—A Multi-Environment	1062
MERT Operating System H. Lycklama + D. L.	Bayer; A Structured Operating	1052
Language L. Cherry + R. Morris;	Bayer; The	1246
Version 3 of the GR-Z Graphical System R. A.	BC—An Arbitrary Precision Desk Calculator	1053
MAC-8 C For	Becker;	1464
S. H. Strauss; PWB/UNIX	Beginners H. D. Rovegno;	1166
UNIX For	Beginner's Course (B.2) M. E. Pearlman +	1188
UNIX/RT User's Manual—Release 1	Beginners—Second Edition B. W. Kernighan;	1042
Programmer's Manual—Seventh Edition, Volume 1	Bell Laboratories;	1070
Manual—Seventh Edition, Volumes 2A & 2B	Bell Laboratories; UNIX	1400
UNIX Programmer's Manual, Version 1.0, Volume 1	Bell Laboratories; UNIX Programmer's	1401
/of the Remote Diagnostic Console for use on	Bell Laboratories; /Time-Sharing System:	1402
Synthetic Process For UNIX D. R.	Bell System PDP-11/70 Computer Systems/	1392
Communications Controller under UNIX/	Bernstein;	1114
To Variable Length Records Under UNIX. J. D.	Beta Test of the COMM IOP-DUP Synchronous	1240
+ C. N. Judice + T. B. London + J. D.	Beyer; A Record Manager For Random Access	1171
Asynchronous I/O Facilities for Raw	Beyer; /Assistance Services J. D. Gabbe	1245
M. T. Dolan +/ BLOSIM—A Discrete Time	Block Devices under UNIX D. W. Ting;	1241
G. Roylance (MIT) + M. T. Dolan +/	Block Simulator G. Roylance (MIT) +	1079
UNIX/86: UNIX on the Intel 8086 T. P.	BLOSIM—A Discrete Time Block Simulator	1079
With A CAMAC Real Time TM-Display R. A.	Blumer + R. Muha;	1483
Code Control System User's Guide L. E.	Boie + M. Robbins + R. Kerr; /Acquisition System	1169
Data Analysis Technique for PWB/UNIX L. E.	Bonanni + C. A. Salemi; Source	1367
of PWB/UNIX Software Monitor Data L. E.	Bonanni; Implementation of a Boolean	1378
L. E. Bonanni; Implementation of a	Bonanni; /for the Extraction and Reduction	1474
Report Generation on UNIX E.	Boolean Data Analysis Technique for PWB/UNIX	1378
UNIX/RT as an Application System for	Borison;	1337
Introduction to ADB J. F. Maranzano + S. R.	BOS/LMOS Development C. P. Imagna;	1349
An Introduction to the UNIX Shell S. R.	Bourne; A Tutorial	1185
An Augmented Version of Make E. G.	Bourne;	1239
/the C Language: LSI-11, MAC-8, Z80 M. H.	Bradford;	1458
DEC Factory Acceptance Test R. B.	Bradley + W. E. Sherbon + J. S. Waldhuter;	1347
UNIX Courses R. B.	Brandt + C. D. Perez;	1145
For UNIX Interprocess Communication R. B.	Brandt + J. F. Maranzano + G. C. Vogel;	1277
of Semaphores and Messages in UNIX R. B.	Brandt; Proposal	1090
UNIX Error Logging R. B.	Brandt; Implementation	1136
Error Logging in UNIX/TS and UNIX/RT R. B.	Brandt;	1163
PWB Hardware Help C. A.	Brandt;	1284
B. I. Strom; Computer	Brooks;	1423
D. W. Ting; Moving System I/O	Buffered Information Exchange User's Guide	1406
the SEL-86 PDP-11/45 Operating System. W. A.	Buffers out of UNIX Data Address Space	1235
For An SEL/86—PDP-11 Configuration W. A.	Burnette + J. R. Remde; /Manual For	1155
Writing a MERT Supervisor W. A.	Burnette; /Time-Shared Operating System	1122
Backout and Crash Recovery System W. A.	Burnette;	1258
UNIX/370 Using a Front End Processor S. J.	Burnette; A Database Transaction	1432
Variable Length Argument Lists in	Buroff; Terminal Handling for	1466
Recent Changes to	C A. Koenig;	1268
A Comparison of the Programming Languages	C B. R. Rowland;	1498
B. R. Rowland; Changes to	C and Pascal—Part One: Language Concepts/	1465
A Tour Through the UNIX	C and the Portable C Compiler—Issue 1	1467
On Understanding the Support of the Portable	C Compiler D. M. Ritchie;	1408
The Second Pass of the Portable	C Compiler J. F. Maranzano;	1269
A Tour Through the Portable	C Compiler J. Lions;	1430
Guidelines for	C Compiler S. C. Johnson;	1409
A	C Compiler Distribution S. B. Olsson;	1229
Changes to C and the Portable	C Compiler for the SEL Computer J. R. Remde;	1237
cq—A Program for Testing	C Compiler—Issue 1 B. R. Rowland;	1467
Regression Testing for	C Compilers F. T. Grampp;	1426
	C Compilers T. R. Crowley;	1295

A. Koenig; Changes in the	C Environment for UNIX/TS Edition 1.0	1323
MAC-8	C For Beginners H. D. Rovegno;	1166
A Regular Expression Matcher For The	C Language A. L. Sabsevit;	1101
Some Statistics On The Usage Of The	C Language H. Gajewska + S. C. Johnson;	1102
Character String Manipulation in the	C Language R. G. Carr;	1208
D. M. Ritchie + M. E. Lesk; The	C Language Calling Sequence S. C. Johnson +	1207
+/- Evaluation of Microprocessors Supporting the	C Language: LSI-11, MAC-8, Z80 M. H. Bradley	1347
R. C. Haight;	C Language Portability B. A. Tague +	1204
Relative CPU Performance on	C Language Programs J. Feder;	1480
An Interactive Interface for	C Language Programs M. K. Radnik;	1377
R. B. Freeman; Parse()—A	C Language Routine to Parse a String into Words	1271
Computations A. G. Fraser;	C Language Routines for Multi-Thread	1388
A Guide to the	C Library for UNIX Users C. D. Perez;	1446
A	C Library Performance Problem A. Koenig;	1267
Support for	C on IBM Computers F. T. Grampp;	1348
Macros for Analyzing	C Program Arguments J. Lions;	1384
Lint, a	C Program Checker S. C. Johnson;	1186
SE—A Structure Editor Program for Accessing	C Program Structures P. A. Fargo;	1468
SDMP—A Debugging Aid for UNIX	C Programmers A. L. Glasser;	1413
A Style Sheet For	C Programming, Issue 1 A. L. Glasser;	1143
R. Sethi; Semantics of the	C Programming Language, Part 0: Prelude	1353
R. Sethi; Semantics of the	C Programming Language, Part 1: Statements	1376
R. Sethi; Semantics of the	C Programming Language, Part 2: Declarations	1427
D. M. Ritchie; The	C Programming Language—Reference Manual	1002
Thoughts on Debugging	C Programs A. Koenig;	1486
Update Files for the	C Standard Library A. Koenig;	1364
al; Indian Hill	C Style and Coding Standards L. W. Cannon, et	1356
Time-Sharing System./ GRAFPAC/FR80—A	C Version Of Deferred GRAFPAC Under the UNIX	1018
Programming in	C—A Tutorial (B.9) B. W. Kernighan;	1001
A Computer Assisted Communication System.	(CACS) M. J. Shannon Jr.;	1184
DC—An Interactive Desk	Calculator L. Cherry + R. Morris;	1056
BC—An Arbitrary Precision Desk	Calculator Language L. Cherry + R. Morris;	1053
Argument List Feature in UNIX/RT's Exec. System	Call E. Loikits; Implementation of the Large	1351
T. M. Raleigh; UNIX System	Call Measurements C. D. Perez +	1113
Terminals./ LKOUT—A New UNIX System	Call To Suspend And Resume Input From User	1076
D. M. Ritchie + M. E. Lesk; The C Language	Calling Sequence S. C. Johnson +	1207
UNIX Specification—File System Related System	Calls G. C. Vogel;	1493
UNIX Specification—Process Related System	Calls P. E. Cannata;	1495
/Controlled Data Acquisition System With A	CAMAC Real Time TM-Display R. A. Boie +/	1169
Related System Calls P. E.	Cannata; UNIX Specification—Process	1495
to the USG Trouble Reporting System L. W.	Cannon; Enhancements	1338
Hill C Style and Coding Standards L. W.	Cannon, et al; Indian	1356
Using UNIX	Capabilities More Effectively W. J. Mayer;	1370
/System/Network Management (EADAS/NM)	Capacity Estimation—Methodology and Data/	1449
Center—A UNIX-Based Real-Time System/ A	Capacity Study for the Service Evaluation	1362
UNIX Reference	Card—Second Edition L. L. Cherry;	1021
String Manipulation in the C Language R. G.	Carr; Character	1208
The DIRECT II Scheduler H. E.	Cato;	1462
T. G. Lyons;	Cautions On The Use Of The Alarm Signal	1094
The Craft Access Voice Editing System	(CAVES) N. R. Fildes;	1416
Interprocess Communication Mechanisms in	CB-UNIX J. C. Kaufeld Jr.;	1234
/Communication Performance Trade-offs in	CB—UNIX and UNIX/RT D. S. DeJager;	1288
Character Device Driver Development for	CB-UNIX Operating System S. Michael;	1424
and Conversion Library for Switching Control	Center B. C. Hoalst; String Manipulation	1211
to the of Pseudo-ATS on UNIX HO Computer	Center; A Guide	1301
UNIX Link To MBS Line Printer and Computer	Center Services A. L. Shirtz;	1181
/of Customer Service and Administrative Control	Center System (CSACCS) E. Arthurs +/	1450
A Capacity Study for the Service Evaluation	Center—A UNIX-Based Real-Time System/	1362
DIRECT II Service Dispatcher C. W.	Chang + J. P. Linderman;	1425
Center—A UNIX-Based Real-Time System S-J.	Chang; /Study for the Service Evaluation	1362
Edition 1.0 A. Koenig;	Changes in the C Environment for UNIX/TS	1323
Recent	Changes to C B. R. Rowland;	1498

1 B. R. Rowland;	Changes to C and the Portable C Compiler—Issue	1467
Operating System S. Michael;	Character Device Driver Development for CB-UNIX	1424
R. G. Carr;	Character String Manipulation in the C Language	1208
B. J. B. Lax + P. M. Lu + J. L. Pappas; Load	Characterization for SDS/UNIX V. P. Holmes +	1436
File and the UUNAME Command H.	Che; UUCP Administrators'	1490
Uustat—A UUCP Status Inquiry Program H.	Che;	1491
A Send-only UUCP Facility H.	Che;	1492
FSCK—The UNIX/TS File System	Check Program T. J. Kowalski;	1463
Lint, a C Program	Checker S. C. Johnson;	1186
Systems J. Lions;	Checking File Access Permissions in UNIX	1385
for UNIX/TS and UNIX/RT Makefiles A. L.	Chellis; Proposed Structure	1285
Precision Desk Calculator Language L.	Cherry + R. Morris; BC—An Arbitrary	1053
DC—An Interactive Desk Calculator L.	Cherry + R. Morris;	1056
Tools—The STYLE and DICTON Programs L. L.	Cherry + W. Vesterman; Writing	1497
(Second Edition) B. W. Kernighan + L. L.	Cherry; Typesetting Mathematics—User's Guide	1011
of Typographical Errors R. Morris + L. L.	Cherry; Computer Detection	1019
UNIX Reference Card—Second Edition L. L.	Cherry;	1021
Mathematics B. W. Kernighan + L. L.	Cherry; A System for Typesetting	1029
Language For Simulating Computers L. L.	Cherry; SIM—A	1097
Interactive Control Language For SIM L. L.	Cherry; An	1105
Development Workbench S. T. Schuyler + M. M.	Chodrow; /for Providing a Graphics System	1342
on Peripheral Processors H. Lycklama + C.	Christensen; Emulation of UNIX	1045
Satellite Processor System H. Lycklama + C.	Christensen; A Minicomputer	1247
G. G. Riddle;	Circuit Design Aids On UNIX A. G. Fraser +	1165
HP-21MX A. G. Fraser + D. M. Ritchie;	C—Language Oriented Microprogram for the	1058
Bell System PDP-11/70 Computer Systems D. L.	Clark; /Remote Diagnostic Console for use on	1392
G. C. Vogel; UNIX Support	Classifications For PG-1C300—Issue 2	1046
A Subroutine Package to do Process	Cleanup T. J. Dwyer;	1494
P. S. Para;	CLIO—A Relational Data Base System	1243
KW11-P	Clock Driver R. R. Babu;	1309
A Continuous Service Real Time	Clock for Digital Computers J. R. Vollaro;	1048
B. W. Stuck; Using a Line	Clock to Estimate Mean Disk Access Time	1282
R. E. Swift;	CM, A UNIX Driver For The MINITAPE System	1167
Projections and Enhancements E. Arthurs +/	CNCC UNIX Project Performance Measurements,	1253
A Company-Wide UNIX Education Program R. M.	Coben, et al.; Recommendations for	1291
The Evolution of a Source	Code Control System A. L. Glasser;	1304
L. E. Bonanni + C. A. Salemi; Source	Code Control System User's Guide	1367
On PWB/UNIX./ NROFF/TROFF Formatting	Codes For Departmental Organization Directories	1115
Indian Hill C Style and	Coding Standards L. W. Cannon, et al;	1356
UNIX/TS Release 1.0 Plans A. S.	Cohen + J. F. Maranzano;	1232
UNIX Command Syntax A. S.	Cohen + S. B. Olsson + G. C. Vogel;	1358
by Communication Link M. E. Lesk + A. S.	Cohen; UNIX Software Distribution	1279
for Local Modifications to UNIX A. S.	Cohen; Supported Structure	1420
Programs For Analyzing Readability E. U.	Coke + M. E. Koether; READ—C	1331
QUEST—A Computer System To	Collect Questionnaire Data E. H. Albrecht;	1172
An Intelligent Fast	Color Display N. Weste;	1341
Controller under UNIX/ Beta Test of the	COMM IOP-DUP Synchronous Communciations	1240
A Revised ERRPT	Command C. D. Perez;	1270
UUCP Administrators' File and the UUNAME	Command H. Che;	1490
Examples of Converting USG Shell	Command Files for the New Shell/	1210
Use of the Revised UNIX-to-UNIX Copy	Command for Lab 323 R. B. Lyon;	1361
Tool T. A. Dolotta + J. R. Mashey; Using a	Command Language as the Primary Programming	1452
Comnd -- A Routine to Handle	Command Line Parsing S. A. Uhler;	1260
Minutes, ISCC Common	Command Subcommittee N-P. Nelson;	1340
G. C. Vogel; UNIX	Command Syntax A. S. Cohen + S. B. Olsson +	1358
Cut and Paste—Two UNIX Word Processing	Commands G. W. R. Luderer;	1205
On the Inconsistencies of UNIX	Commands S. B. Olsson;	1325
Facility/ COSNIX File Management (FM)	Command-Software Development and Control	1379
Minutes, ISCC	Common Command Subcommittee N-P. Nelson;	1340
Beta Test of the COMM IOP-DUP Synchronous	Communciations Controller under UNIX/	1240
A Shell Operator for Inter-Machine	Communication C. A. Witschorik;	1499
DIRECT II Interprocess	Communication J. P. Linderman;	1368

Proposal For UNIX Interprocess	Communication R. B. Brandt;	1090
+ A. L. Glasser; PORT—A New Inter-process	Communication Facility under UNIX D. W. Ting	1230
UNIX Software Distribution by	Communication Link M. E. Lesk + A. S. Cohen;	1279
J. C. Kaufeld Jr.; Interprocess	Communication Mechanisms in CB-UNIX	1234
CB—UNIX and UNIX/RT/ Interprocess	Communication Performance Trade-offs in	1288
D. W. Hagelbarger +/ Computer Assisted	Communication System H. N. Dorris +	1283
Jr.; A Computer Assisted	Communication System. (CACS) M. J. Shannon	1184
R. E. Hoffman; Experimental Office	Communications Services—Message System	1421
Oriented UNIX Systems/ Inter-Process	Communications Facility for Transaction	1303
for the PCL11-A—A Parallel Interprocessor	Communications Link D. M. Ungar; /Driver	1242
Parsing S. A. Uhler;	Commd -- A Routine to Handle Command Line	1260
R. M. Coben, et al.; Recommendations for A	Company-Wide UNIX Education Program	1291
T. M. Raleigh; TCMP—A Program For	Comparing Program Text After A System Crash.	1092
An Algorithm For Differential File	Comparison J. W. Hunt + M. D. McIlroy;	1083
Pascal—Part One: Language Concepts/ A	Comparison of the Programming Languages C and	1465
T. J. Mulrooney; An INTEL	Compatible 8048-49 Cross Assembler	1383
Formal Specification of X.25	Compatible Link Protocol R. Ermann;	1389
YACC—Yet Another Compiler	Compiler S. C. Johnson;	1013
A Tour Through the UNIX C	Compiler D. M. Ritchie;	1408
On Understanding the Support of the Portable C	Compiler J. F. Maranzano;	1269
The Second Pass of the Portable C	Compiler J. Lions;	1430
A Tour Through the Portable C	Compiler S. C. Johnson;	1409
A Portable Fortran 77	Compiler S. I. Feldman + P. J. Weinberger;	1248
YACC—Yet Another	Compiler Compiler S. C. Johnson;	1013
Guidelines for C	Compiler Distribution S. B. Olsson;	1229
A C	Compiler for the SEL Computer J. R. Remde;	1237
Implementation of a Portable Fortran 77	Compiler Using Modern Tools S. I. Feldman;	1354
Changes to C and the Portable C	Compiler—Issue 1 B. R. Rowland;	1467
cq—A Program for Testing C	Compilers F. T. Grampp;	1426
Regression Testing for C	Compilers T. R. Crowley;	1295
A Manual For the TMG	Compiler-Writing Language M. D. McIlroy;	1009
C Language Routines for Multi-Thread	Computations A. G. Fraser;	1388
A C Compiler for the SEL	Computer J. R. Remde;	1237
A UNIX Operating System for the DEC VAX-11/780	Computer T. B. London + J. F. Reiser;	1297
H. N. Dorris + D. W. Hagelbarger +/	Computer Assisted Communication System	1283
M. J. Shannon Jr.; A	Computer Assisted Communication System. (CACS)	1184
Guide B. I. Strom;	Computer Buffered Information Exchange User's	1406
A Guide to the of Pseudo-ATS on UNIX HO	Computer Center;	1301
UNIX Link To MBS Line Printer and	Computer Center Services A. L. Shirtz;	1181
A CAMAC Real Time TM-Display/ An Interactive	Computer Controlled Data Acquisition System With	1169
R. Morris + L. L. Cherry;	Computer Detection of Typographical Errors	1019
H. Lycklama; System For Entering Data Through	Computer Displayed Forms E. W. Stark +	1117
B. W. Kernighan +/ The LEARN Program for	Computer Instruction:(2nd Edition)	1104
Make—A Program For Maintaining	Computer Programs S. I. Feldman;	1078
crypt P. J. Weinberger; An Essay in	Computer Security: Decrypting A Former UNIX	1345
Between an INTELLEC MDS And A Time-Shared	Computer System. J. E. Lencoski +/ /Interface	1168
E. H. Albrecht; QUEST—A	Computer System To Collect Questionnaire Data	1172
/Alone Operating System (ISIS) and a Time Shared	Computer System (UNIX) T. J. Mulrooney;	1433
The Tandem	Computer System—A First Look A. M. Usas;	1330
Console for use on Bell System PDP-11/70	Computer Systems D. L. Clark; /Diagnostic	1392
UNIX M. E. Lesk + B. W. Kernighan;	Computer Typesetting Of Technical Journals On	1089
J. D. Gabbe +/ QUIK: A Novel Approach to	Computerized Directory Assistance Services	1245
R. E. Miller;	Computerized Office Filing System	1175
Support for C on IBM	Computers F. T. Grampp;	1348
Continuous Service Real Time Clock for Digital	Computers J. R. Vollaro; A	1048
SIM—A Language For Simulating	Computers L. L. Cherry;	1097
/Languages C and Pascal—Part One: Language	Concepts A. R. Feuer + N. H. Gehani;	1465
T. M. Raleigh; Explanation Of Abnormal	Conditions Within The UNIX Operating System.	1047
/Workbench Papers From The Second International	Conference On Software Engineering. (G.4)/	1107
MERT Hardware	Configuration E. A. Loikits;	1161
Operating System For An SEL/86—PDP-11	Configuration W. A. Burnette; /Time-Shared	1122
Standard UNIX	Configurations—Issue 2 G. C. Vogel;	1365

System Work G. W. R. Luderer; Preliminary	Considerations for Exploratory UNIX Operating	1391
INTELLEC MDS And A Time-Shared Computer/ A	Console Controlled Interface Between an	1168
Computer/ Evaluation of the Remote Diagnostic	Console for use on Bell System PDP-11/70	1392
	Contents of UNIX/RT G. W. R. Luderer;	1231
/Measurements of Emts, Message Transfers and	Context Switches for UNIX/RT T. M. Raleigh;	1500
H. Lycklama; Implementation of Large	Contiguous Files and Asynchronous I/O in UNIX	1003
Computers J. R. Vollaro; A	Continuous Service Real Time Clock for Digital	1048
UNIX/RT on a DEC VAX-11/780 Project	Contract R. L. Klein + J. F. Maranzano;	1372
R. C. Haight; Experience With Hardware Service	Contractors on PDP-11's J. F. Maranzano +	1261
Development of a Program for Parts Inventory	Control A. M. Gopin;	1478
UNIX Initialization and Process	Control C. P. Imagna;	1128
Decentralized Transaction	Control and Crash Recovery P. J. Weinberger;	1251
A Peripheral Processor Interactive	Control and Data Acquisition System/	1289
G. C. Vogel; Program Generic	Control And Documentation On UNIX	1099
and Conversion Library for Switching	Control Center B. C. Hoalst; /Manipulation	1211
/of Customer Service and Administrative	Control Center System (CSACCS) E. Arthurs +/	1450
(FM) Command-Software Development and	Control Facility R. E. Rogan; /Management	1379
An Interactive	Control Language For SIM L. L. Cherry;	1105
Experiments/ UNIX Microcomputer	Control of Apparatus, Machinery, and	1219
Transition/ Synthesis Of A Half-Duplex Line	Control Procedure For UNIX Using State	1173
The Evolution of a Source Code	Control System A. L. Glasser;	1304
C. A. Salemi; Source Code	Control System User's Guide L. E. Bonanni +	1367
Real Time TM-Display/ An Interactive Computer	Controlled Data Acquisition System With A CAMAC	1169
And A Time-Shared Computer System./ A Console	Controlled Interface Between an INTELLEC MDS	1168
of the COMM IOP-DUP Synchronous Communications	Controller under UNIX P. F. Long; Beta Test	1240
M. F. Robbins + R. Stensgaard; Power Supply	Controller Using a MAC 8 Micro Processor	1299
DOS-BATCH To UNIX	Conversion E. H. Albrecht;	1120
Shcvt—A Tool for Shell	Conversion G. A. Snyder;	1244
UNIX File System	Conversion R. C. Haight;	1319
B. C. Hoalst; String Manipulation and	Conversion Library for Switching Control Center	1211
II M. B. Ellington;	Conversion of SICPPR Files From UNIX to RAMIS	1399
ATS to PWB/MM	Converter N. W. Smith;	1300
R. S. Kaplan; Guidelines for	Converting MERT Software to UNIX/RT	1476
Shell M. A. Cszasz; Examples of	Converting USG Shell Command Files for the New	1210
/System For Microprocessor Support D. H.	Copp + R. J. Council + D. J. Hunsberger +/	1153
Use of the Revised UNIX-to-UNIX	Copy Command for Lab 323 R. B. Lyon;	1361
A. L. Glasser + D. W. Ting; A	Core-Resident UNIX System for PDP-11's	1264
Development and Control Facility/	COSNIX File Management (FM) Command-Software	1379
/Microprocessor Support D. H. Copp + R. J.	Council + D. J. Hunsberger + J. J. Mollinelli +/	1153
G. C. Vogel; UNIX	Courses R. B. Brandt + J. F. Maranzano +	1277
J. Feder; Relative	CPU Performance on C Language Programs	1480
Terminals/ Effects On UNIX Host	CPU Resources By The Use of Intelligent	1329
F. T. Grampp;	cq—A Program for Testing C Compilers	1426
E. K. Evenson + N. R. Fildes;	Craft Access System Software Standards	1366
N. R. Fildes; The	Craft Access Voice Editing System (CAVES)	1416
Performance Analysis E. Arthurs + D. W.	Cragun + B. W. Stuck; /(RTLR) Field Study	1415
For Comparing Program Text After A System	Crash. T. M. Raleigh; TCMP—A Program	1092
Decentralized Transaction Control and	Crash Recovery P. J. Weinberger;	1251
A Database Transaction Backout and	Crash Recovery System W. A. Burnette;	1432
DEAD—A Program For Analyzing UNIX System	Crashes T. M. Raleigh;	1093
D. W. Ting; Optimizing Process	Creation and Termination Mechanisms in UNIX	1236
An INTEL Compatible 8048-49	Cross Assembler T. J. Mulrooney;	1383
Regression Testing for C Compilers T. R.	Crowley;	1295
Title Listings for UNIX Memoranda T. R.	Crowley;	1296
in Computer Security: Decrypting A Former UNIX	crypt P. J. Weinberger; An Essay	1345
+/ /and Administrative Control Center System	(CSACCS) E. Arthurs + J. L. Haase + C. Perea	1450
Shell Command Files for the New Shell M. A.	Cszasz; Examples of Converting USG	1210
Generic Program Documentation. S. J.	Cummingham; NROFF Macros For Producing	1148
	Cumulative Program Profiling J. F. Reiser;	1286
Center System/ Performance Assessment of	Customer Service and Administrative Control	1450
Commands G. W. R. Luderer;	Cut and Paste—Two UNIX Word Processing	1205
LEAP Script Generator (ILSG) H. M.	Cykiert + B. E. Hess; An Interactive	1223

J. E. Laur; Spooler and + M. E. Lesk; A /Projections and Enhancements E. Arthurs + P. P. D. Wandzilak; Repairing STAT: A Tool for Analyzing Computer System To Collect Questionnaire and Reduction of PWB/UNIX Software Monitor J. R. McSkimin; REDAS—A Relational A Peripheral Processor Interactive Control and (EADAS/NM) Capacity/ Engineering and TM-Display/ An Interactive Computer Controlled Moving System I/O Buffers out of UNIX /Assistance Operator Work Time Exploratory Operating System E. Shapiro/ Gf—A Graphical L. E. Bonanni; Implementation of a Boolean A Micro-DBMS for a Distributed C. S. Roberts; Numeric Pattern Recognition MRCS and the MRCS 2 CLIO—A Relational TERSE—A Technique for Reporting on Small A Generalized UNIED—A Hi—An Interactive Hierarchical J. P. Linderman; DIRECT II (EADAS/NM) Capacity Estimation—Methodology and E. W. Stark +/ System For Entering M. J. Bach + B. L. Smith; Porting the ADAPT NFTS: Tools For Processing A. C. Ting; A YADS—Yet Another System W. A. Burnette; A R. J. Elliott; A P. G. Dowd; The Teletype DH-11 Driver To Support Both Teletypewriter And UNITY—A Small + R. Morris; Performance Evaluation of Univac UNIX D. A. Shared Memory In UNIX D. S. Crashes T. M. Raleigh; to the Trouble Reporting System J. Sdb: A Symbolic A. L. Glasser; SDMP—A Thoughts on C. D. Perez; Assembler for the Description and Analysis of the /of the UNIGRAPHIX Graphics System Running on a J. F. Reiser; A UNIX Operating System for the J. F. Maranzano; UNIX/RT on a Recovery P. J. Weinberger; of the C Programming Language, Part 2: An Essay in Computer Security: System./ GRAFPAC/FR80—A C Version Of /Task Force Report R. A. Faulkner + D. S. Trade-offs in CB—UNIX and UNIX/RT D. S. Based 8085 Software Development System W. UNIX/TS User's Manual—Edition 1.1 1979/80 G. W. R. Luderer; PWB/UNIX User's Manual—Release 2.0 Procurement, Installation, and Usage of UNIX by	DA11B Driver in MERT J. E. Laur; 1212 Daemon Software for a Printer Network 1448 Dail-Up Network of UNIX Systems D. A. Nowitz 1437 Daily + R. Jakubek + B. W. Stuck; 1253 Damaged PWB/UNIX File Systems (I.4) 1197 Data A. R. Feuer; 1252 Data E. H. Albrecht; QUEST—A 1172 Data L. E. Bonanni; Tools for the Extraction 1474 Data Access System For Real-Time Applications 1344 Data Acquisition System J. S. Kraus; 1289 Data Acquisition System/Network Management 1449 Data Acquisition System With A CAMAC Real Time 1169 Data Address Space D. W. Ting; 1235 Data Analysis E. Arthurs + N. Sharko +/ 1414 Data Analysis Program for the MERT-UNIX 1222 Data Analysis Technique for PWB/UNIX 1378 Data Base P. D. Ting + D. C. Tsichritsis; 1350 Data Base for UNIX Systems M. E. Greenberg + 1085 Data Base System H. S. Gellis; 1308 Data Base System P. S. Para; 1243 Data Bases N. H. Petschenik + R. P. Woodall; 1496 Data Entry System M. J. Rochkind; 1156 Data File Editor J. C. Ward; 1317 Data Management System for UNIX R. G. Kayel; 1390 Data Representation and Manipulation 1455 Data Requirements B. W. Stuck; /Management 1449 Data Through Computer Displayed Forms 1117 Data Translation System to the IBM 370 1373 Data With Named Fields M. J. Rochkind; 1346 Data-base Management System under MERT 1374 Database System M. J. Rochkind; 1461 Database Transaction Backout and Crash Recovery 1432 DATAKIT Network Monitoring System 1460 DATASPEED 40 Line Printer as a UNIX Peripheral 1255 DATASPEED 40 Timesharing Terminals./ UNIX 1077 DBMS for a UNIX Environment P. D. Ting; 1438 DC—An Interactive Desk Calculator L. Cherry 1056 De Graaf + J. Feder; Preliminary 1487 De Jager; 1127 DEAD—A Program For Analyzing UNIX System 1093 Dean; Modifications 1324 Debugger H. P. Katseff; 1369 Debugging Aid for UNIX C Programmers 1413 Debugging C Programs A. Koenig; 1486 DEC Factory Acceptance Test R. B. Brandt + 1145 DEC KMC11 Microprocessor L. A. Wehr; 1225 DEC KMC11 Microprocessor L. A. Wehr; 1226 DEC PDP-11/70 Under the UNIX Operating System/ 1233 DEC VAX-11/780 Computer T. B. London + 1297 DEC VAX-11/780 Project Contract R. L. Klein + 1372 Decentralized Transaction Control and Crash 1251 Declarations R. Sethi; Semantics 1427 Decrypting A Former UNIX crypt/ 1345 Deferred GRAFPAC Under the UNIX Time-Sharing 1018 DeJager + J. A. McGuire + A. L. Sabsevitz; 1382 DeJager; /Communication Performance 1288 Densmore; An ICE-85 1417 Department 3621 MAXIUNIX Workplan J. T. Hall; 1395 Department 3624; 1440 Department 3624's Workplan for Networking in 1435 Department 3782; 1407 Department 5254. J. F. Majernik; /Selection, 1201
---	--

MERT Release 0 From	Department 8234 G. W. R. Luderer;	1183
PWB/UNIX./ NROFF/TROFF Formatting Codes For	Departmental Organization Directories On	1115
File Types in the Inodes of UNIX Version 7	Descendants G. W. R. Luderer; Standardizing	1256
Uucp—Implementation	Description D. A. Nowitz;	1293
Microprocessor L. A. Wehr;	Description and Analysis of the DEC KMC11	1226
Operating System G. B. Foley; A	Description of Automatic Dialing Using the UNIX	1180
I. A. Winheim; A	Description of How UNIX Fortran Works	1063
T. M. Raleigh;	Description of MKCONF I. A. Hahner +	1140
J. F. Maranzano; A	Description of the UNIX File System	1065
A 32-Bit Processor	Design S. C. Johnson;	1375
Production V. A. Fasciano; Interactive	Design Aid For General-Purpose Artwork	1266
G. G. Riddle; Circuit	Design Aids On UNIX A. G. Fraser +	1165
Different from PDP-11/45/ PDP-11/70	Design Error: Handling Segmentation Violations	1380
Prototype/ Audio Response Unit (ARU) Subsystem	Design for Real-Time Retrieval (RTL)/ARU	1306
RCMAS/MERT Performance Study and General	Design Guidelines E. L. Hedrick, et al;	1360
DC—An Interactive	Desk Calculator L. Cherry + R. Morris;	1056
R. Morris; BC—An Arbitrary Precision	Desk Calculator Language L. Cherry +	1053
L. L. Cherry; Computer	Detection of Typographical Errors R. Morris +	1019
System S. Michael; Character	Device Driver Development for CB-UNIX Operating	1424
Interprocessor Communications Link/ A UNIX	Device Driver for the PCL11-A—A Parallel	1242
Asynchronous I/O Facilities for Raw Block	Devices under UNIX D. W. Ting;	1241
DATASPEED 40 Timesharing Terminals./ UNIX	DH-11 Driver To Support Both Teletypewriter And	1077
PDP-11/70 Computer/ Evaluation of the Remote	Diagnostic Console for use on Bell System	1392
G. B. Foley; A Description of Automatic	Dialing Using the UNIX Operating System	1180
Writing Tools—The STYLE and	DICTION Programs L. L. Cherry + W. Vesterman;	1497
Sdiff, a Side-by-side	Difference Program J. F. Maranzano;	1328
M. D. Mellroy; An Algorithm For	Differential File Comparison J. W. Hunt +	1083
A Continuous Service Real Time Clock for	Digital Computers J. R. Vollaro;	1048
J. P. Linderman;	DIRECT II Data Representation and Manipulation	1455
W. D. Roome;	DIRECT II In-Core Tables: User's Guide	1412
J. P. Linderman;	DIRECT II Interprocess Communication	1368
The	DIRECT II Scheduler H. E. Cato;	1462
J. P. Linderman;	DIRECT II Service Dispatcher C. W. Chang +	1425
	DIRECT II Sort Utilities J. P. Linderman;	1454
D. J. Huber + W. D. Roome;	DIRECT II VAX Performance Improvement Estimates	1422
/Formatting Codes For Departmental Organization	Directories On PWB/UNIX. D. W. Smith;	1115
Exploratory Data Analysis E. Arthurs +/	Directory Assistance Operator Work Time	1414
QUIK: A Novel Approach to Computerized	Directory Assistance Services J. D. Gabbe +/	1245
D. J. Huber; UNIX Line	Discipline for IBM 2740-1 Protocol	1481
(MIT) + M. T. Dolan + J. F. Kaiser; BLOSIM—A	Discrete Time Block Simulator G. Roylance	1079
Using a Line Clock to Estimate Mean	Disk Access Time B. W. Stuck;	1282
DIRECT II Service	Dispatcher C. W. Chang + J. P. Linderman;	1425
An Intelligent Fast Color	Display N. Weste;	1341
Use of	Display Editors L. C. Ozimek;	1292
System For Entering Data Through Computer	Displayed Forms E. W. Stark + H. Lycklama;	1117
J. F. Reiser; EDTV—A	Display-Oriented Text Editor For UNIX	1177
D. C. Tschritzis; A Micro-DBMS for a	Distributed Data Base P. D. Ting +	1350
Guidelines for C Compiler	Distribution S. B. Olsson;	1229
+ A. S. Cohen; UNIX Software	Distribution by Communication Link M. E. Lesk	1279
	Division 56 UNIX Course K. E. Wendland;	1429
Multi-Processor	DMERT E. P. Schan;	1472
Referencing Standard UNIX	Documentation G. C. Vogel;	1037
NROFF Macros For Producing Generic Program	Documentation. S. J. Cummingham;	1148
R. E. Swift;	Documentation of Minicomputer Product Trials	1428
Program Generic Control And	Documentation On UNIX G. C. Vogel;	1099
J. R. Mashey; UNIX/TS	Documentation Road Map G. A. Snyder +	1485
Programmer's Workbench	Documentation Roadmap (B.1) J. R. Mashey;	1121
Macros with Troff and Nroff/ Typing	Documents on the UNIX System: Using the —ms	1028
Formatting Program Generic	Documents On Unix G. C. Vogel;	1170
A Guide To Preparing	Documents On UNIX M. E. Lesk;	1111
E. M. Piskorik; Typing	Documents With PWB/MM (T.3) D. W. Smith +	1190
Block Simulator G. Roylance (MIT) + M. T.	Dolan + J. F. Kaiser; BLOSIM—A Discrete Time	1079

View Graph and Slide Macros (T.9)	T. A.	Dolotta + D. W. Smith; PWB/UNIX	1192
as the Primary Programming Tool	T. A.	Dolotta + J. R. Mashey; /a Command Language	1452
Of Facilities (G.1)	T. A.	Dolotta + R. C. Haight; /Workbench—Synopsis	1109
On Software Engineering. (G.4)	T. A.	Dolotta, et al.; /International Conference	1107
Computer Assisted Communication System	H. N.	Dorris + D. W. Hagelbarger + M. J. Shannon;	1283
		DOS-BATCH To UNIX Conversion E. H. Albrecht;	1120
40 Line Printer as a UNIX Peripheral	P. G.	Dowd; The Teletype DATASPEED	1255
	M. R. Wagner;	DPD: Unix—Honeywell Interface Programs	1371
	KW11-P Clock	Driver R. R. Babu;	1309
S. Michael; Character Device		Driver Development for CB-UNIX Operating System	1424
CM, A UNIX		Driver For The MINTAPE System R. E. Swift;	1167
Interprocessor Communications/ A UNIX Device		Driver for the PCL11-A—A Parallel	1242
A Remote File System		Driver for UNIX A. L. Glasser + D. W. Ting;	1411
A New DV-11		Driver for Use With LEAP M. B. Mueller;	1312
DA11B		Driver in MERT J. E. Laur;	1212
DATASPEED 40 Timesharing Terminals./ UNIX DH-11		Driver To Support Both Teletypewriter And	1077
	A New	DV-11 Driver for Use With LEAP M. B. Mueller;	1312
Package to do Process Cleanup	T. J.	Dwyer; A Subroutine	1494
SPS Protocol Implemented for		DZ11 Under MERT Release 0.1 M. J. Shannon;	1469
/and Data Acquisition System/Network Management		(EADAS/NM) Capacity Estimation—Methodology and/	1449
	G. C. Vogel;	Easy Phototypeset View Graphs on UNIX	1139
A Portable Version of the UNIX Text Editor		Ed M. R. Horton;	1456
ACS and APS Meeting Abstracts—Issue 2	D.	Edelson; Typesetting	1075
	Advanced	Editing On UNIX B. W. Kernighan;	1108
The Craft Access Voice		Editing System (CAVES) N. R. Fildes;	1416
/Scanning and Processing Language (Second		Edition) A. V. Aho + B. W. Kernighan +/	1206
UNIX Programming—Second		Edition B. W. Kernighan + D. M. Ritchie;	1073
Typesetting Mathematics—User's Guide (Second		Edition) B. W. Kernighan + L. L. Cherry;	1011
The LEARN Program for Computer Instruction;(2nd		Edition) B. W. Kernighan + M. E. Lesk;	1104
UNIX For Beginners—Second		Edition B. W. Kernighan;	1042
Setting-Up MINI-UNIX—Sixth		Edition H. Lycklama;	1124
Setting Up LSI-UNIX—First		Edition H. Lycklama;	1130
Setting-Up MERT—Second		Edition H. Lycklama;	1146
UNIX Programmer's Manual—Sixth		Edition K. Thompson + D. M. Ritchie;	1014
UNIX Reference Card—Second		Edition L. L. Cherry;	1021
Changes in the C Environment for UNIX/TS		Edition 1.0 A. Koenig;	1323
	L. Sabsevitz; PWB/UNIX	Edition 2.0 Preparation M. J. Petrella + A.	1403
UNIX Programmer's Manual—Seventh		Edition, Volume 1 Bell Laboratories;	1400
UNIX Programmer's Manual—Seventh		Edition, Volumes 2A & 2B Bell Laboratories;	1401
A Tutorial Introduction to the UNIX Text		Editor B. W. Kernighan;	1000
UNIED—A Data File		Editor J. C. Ward;	1317
SED—A Non-interactive Text		Editor L. E. McMahon;	1307
A Portable Version of the UNIX Text		Editor Ed M. R. Horton;	1456
EDTV—A Display-Oriented Text		Editor For UNIX J. F. Reiser;	1177
A Tutorial Introduction to the Graphical		Editor (GED) A. R. Feuer;	1441
Structures P. A. Fargo; SE—A Structure		Editor Program for Accessing C Program	1468
	Use of Display	Editors L. C. Ozimek;	1292
	J. F. Reiser;	EDTV—A Display-Oriented Text Editor For UNIX	1177
Recommendations for A Company-Wide UNIX		Education Program R. M. Coben, et al.;	1291
Using UNIX Capabilities More		Effectively W. J. Mayer;	1370
of Intelligent Terminals J. F. Maranzano;		Effects On UNIX Host CPU Resources By The Use	1329
The Programming Language		EFL S. I. Feldman;	1410
Group Meeting—Toronto, June 19-23, 1979	S. R.	Eisen; UNIX Users	1396
A Stand-Alone Input/Output Library	S. R.	Eisen;	1475
of SICPPR Files From UNIX to RAMIS II	M. B.	Ellington; Conversion	1399
System For The Network File Store	R. J.	Elliott; A Tape Back-Up	1081
A UNIX Based System. A. G. Fraser + R. J.		Elliott; /Integrity And Space Accounting For	1164
Support For Satellite Processor	R. J.	Elliott; Software	1218
A DATAKIT Network Monitoring System	R. J.	Elliott;	1460
for UNIX/RT/ Some Timing Measurements of		Emts, Message Transfers and Context Switches	1500
H. Lycklama + C. Christensen;		Emulation of UNIX on Peripheral Processors	1045
A Fast Software		Encryption Algorithm R. Morris;	1334

A Secretarial Typing System Using UNIX	E. F. Engelbert;	1091
Management (EADAS/NM) Capacity/	Engineering and Data Acquisition System/Network	1449
/The Second International Conference On Software	Engineering. (G.4) T. A. Dolotta, et al.;	1107
Synthetic	English Speech by Rule M. D. McIlroy;	1025
Report: Secretarial Word Processing Facility	Enhancement J. M. Shanahan; Final	1386
Performance Measurements, Projections and	Enhancements E. Arthurs + P. Daily +/ /Project	1253
System L. W. Cannon;	Enhancements to the USG Trouble Reporting	1338
Supervisor Mode A. L. Glasser + D. W. Ting;	Enlarging PDP-11 UNIX Table Space Using	1257
E. W. Stark + H. Lycklama; System For	Entering Data Through Computer Displayed Forms	1117
T. G. Lyons; Guide to UNIVAC Remote Job	Entry for Programmer's Workbench Users	1217
A. L. Sabsevitz; Guide to IBM Remote Job	Entry for PWB/UNIX Users (B.12)	1087
A Generalized Data	Entry System M. J. Rochkind;	1156
The UNIX Programming	Environment B. W. Kernighan + J. R. Mashey;	1447
Interactive Graphics System for a UNIX	Environment J. H. Jackson;	1200
UNITY—A Small DBMS for a UNIX	Environment P. D. Ting;	1438
A. Koenig; Changes in the C	Environment for UNIX/TS Edition 1.0	1323
New Graphic Symbols For	EQN And NEQN (T.8) C. Scrocca;	1112
of X.25 Compatible Link Protocol R.	Ermann; Formal Specification	1389
Different from PDP-11/45/ PDP-11/70 Design	Error: Handling Segmentation Violations	1380
On Using The UNIX	Error Logger C. D. Perez;	1176
UNIX	Error Logging R. B. Brandt;	1163
R. B. Brandt;	Error Logging in UNIX/TS and UNIX/RT	1284
Computer Detection of Typographical	Errors R. Morris + L. L. Cherry;	1019
A Revised	ERRPT Command C. D. Perez;	1270
UNIX crypt P. J. Weinberger; An	Essay in Computer Security: Decrypting A Former	1345
Using a Line Clock to	Estimate Mean Disk Access Time B. W. Stuck;	1282
DIRECT II VAX Performance Improvement	Estimates D. J. Huber + W. D. Roome;	1422
/System/Network Management (EADAS/NM) Capacity	Estimation—Methodology and Data Requirements/	1449
System/ A Capacity Study for the Service	Evaluation Center—A UNIX-Based Real-Time	1362
J. Feder; Preliminary Performance	Evaluation of Univac UNIX D. A. De Graaf +	1487
Language: LSI-11, MAC-8, Z80 M. H. Bradley +/	Evaluation of Microprocessors Supporting the C	1347
use on Bell System PDP-11/70 Computer Systems/	Evaluation of the Remote Diagnostic Console for	1392
Craft Access System Software Standards E. K.	Evenson + N. R. Fildes;	1366
of the PWB/UNIX Operating System W. W.	Everett; Activity Profile	1290
A. L. Glasser; The	Evolution of a Source Code Control System	1304
D. M. Ritchie; The	Evolution of the Unix Time-Sharing System	1470
for the New Shell M. A. Csaszar;	Examples of Converting USG Shell Command Files	1210
Computer Buffered Information	Exchange User's Guide B. I. Strom;	1406
of the Large Argument List Feature in UNIX/RT's	Exec. System Call E. Loikits; Implementation	1351
P. D. Wandzilak;	Exercises in Repairing PWB/UNIX File Systems	1302
J. Lions;	Experiences with the UNIX Time-Sharing System	1477
Services—Message System R. E. Hoffman;	Experimental Office Communications	1421
/Control of Apparatus, Machinery, and	Experiments B. C. Wonsiewicz + A. R. Storm +/	1219
UNIX Operating System. T. M. Raleigh;	Explanation Of Abnormal Conditions Within The	1047
Directory Assistance Operator Work Time	Exploratory Data Analysis E. Arthurs +/	1414
G. W. R./ Preliminary Considerations for	Exploratory UNIX Operating System Work	1391
A. L. Sabsevitz; A Regular	Expression Matcher For The C Language	1101
Interpreter N. J. Kolettis;	Extended Shell—A Potential Real Time	1228
Monitor Data L. E. Bonanni; Tools for the	Extraction and Reduction of PWB/UNIX Software	1474
O. C. Yue; SYSTID on	F4P-UNIX—User's Guide B. G. Haskell +	1387
D. W. Ting; Asynchronous I/O	Facilities for Raw Block Devices under UNIX	1241
Written In Macro-11. P. D. Jensen; UNIX	Facilities For The Development Of Programs	1080
Programmer's Workbench—Synopsis Of	Facilities (G.1) T. A. Dolotta +/	1109
Standardization Subcommittee Proposed Archiving	Facility G. C. Vogel; UNIX	1294
UNIX/TS Alarm	Facility G. C. Vogel;	1359
A Send-only UUCP	Facility H. Che;	1492
Shell Subprogram	Facility J. Lions;	1327
Record Handling under MERT/UNIX—The Queue	Facility J. S. Licwinko;	1443
VM/CMS—UNIX File Transfer	Facility R. A. Norden;	1339
(FM) Command-Software Development and Control	Facility R. E. Rogan; COSNIX File Management	1379
Final Report: Secretarial Word Processing	Facility Enhancement J. M. Shanahan;	1386
BANCS	Facility for MERT/UNIX J. S. Licwinko;	1442

D. W. Ting + A. L. Glasser; A Public Library	Facility for the UNIX Time-Sharing System	1363
D. W. Ting; Inter-Process Communications	Facility for Transaction Oriented UNIX Systems	1303
A PROM Writer	Facility for UNIX Improved Version H. Marcus;	1281
PORT—A New Inter-process Communication	Facility under UNIX D. W. Ting +/	1230
C. D. Perez; DEC	Factory Acceptance Test R. B. Brandt +	1145
for Accessing C Program Structures P. A.	Fargo; SE—A Structure Editor Program	1468
for the Zilog Z80 Microprocessor J. W.	Farrell; User's Guide to the SMAL2 Language	1262
For General-Purpose Artwork Production V. A.	Fasciano; Interactive Design Aid	1266
An Intelligent	Fast Color Display N. Weste;	1341
A	Fast Software Encryption Algorithm R. Morris;	1334
J. R. McSkimin; The Logical File System—A	Fast-Access File System Using UNIX Raw I/O	1473
A	Faster Terminal Handler for UNIX J. Feder;	1265
UNIX/TS Augmented Task Force Report R. A.	Faulkner + D. S. DeJager + J. A. McGuire +/	1382
UNIX/370: A	Feasibility Study W. A. Felton;	1352
Implementation of the Large Argument List	Feature in UNIX/RT's Exec. System Call/	1351
More Flexible Low Speed I/O for UNIX J.	Feder;	1202
A Faster Terminal Handler for UNIX J.	Feder;	1265
Handling Under UNIX and MERT/UNIX J.	Feder; Terminal	1316
CPU Performance on C Language Programs J.	Feder; Relative	1480
of Univac UNIX D. A. De Graaf + J.	Feder; Preliminary Performance Evaluation	1487
A Portable Fortran 77 Compiler S. I.	Feldman + P. J. Weinberger;	1248
For Maintaining Computer Programs S. I.	Feldman; Make—A Program	1078
Fortran 77 Compiler Using Modern Tools S. I.	Feldman; Implementation of a Portable	1354
The Programming Language EFL S. I.	Feldman;	1410
UNIX/370: A Feasibility Study W. A.	Felton;	1352
Pascal—Part One: Language Concepts A. R.	Feuer + N. H. Gehani; /Languages C and	1465
STAT: A Tool for Analyzing Data A. R.	Feuer;	1252
PWB/Graphics Overview A. R.	Feuer;	1398
to the Graphical Editor (GED) A. R.	Feuer; A Tutorial Introduction	1441
NFTS: Tools For Processing Data With Named	Fields M. J. Rochkind;	1346
Software Standards E. K. Evenson + N. R.	Fildes; Craft Access System	1366
Access Voice Editing System (CAVES) N. R.	Fildes; The Craft	1416
J. Lions; Checking	File Access Permissions in UNIX Systems	1385
UUCP Administrators'	File and the UUNAME Command H. Che;	1490
An Algorithm For Differential	File Comparison J. W. Hunt + M. D. McIlroy;	1083
UNIED—A Data	File Editor J. C. Ward;	1317
Based System. A. G. Fraser + R. J. Elliott;	File Integrity And Space Accounting For A UNIX	1164
Development and Control Facility/ COSNIX	File Management (FM) Command-Software	1379
UNIX	File Security R. Morris;	1335
Remote Files to UNIX—A Progress Report on the	File Server Project J. P. Haggerty +/ Adding	1434
A Tape Back-Up System For The Network	File Store R. J. Elliott;	1081
/IBM/370 Utility Program to List a UNIX	File Stored on a 9-Track Magnetic Tape./	1068
A Description of the UNIX	File System J. F. Maranzano;	1065
UNIX/TS	File System Backup R. C. Haight;	1273
FSCK—The UNIX/TS	File System Check Program T. J. Kowalski;	1463
UNIX	File System Conversion R. C. Haight;	1319
D. W. Ting; A Remote	File System Driver for UNIX A. L. Glasser +	1411
Applications H. Lycklama;	File System Structures for Real-Time	1276
The Logical File System—A Fast-Access	File System Using UNIX Raw I/O/	1473
UNIX Raw I/O J. R. McSkimin; The Logical	File System—A Fast-Access File System Using	1473
Exercises in Repairing PWB/UNIX	File Systems P. D. Wandzilak;	1302
Repairing Damaged PWB/UNIX	File Systems (I.4) P. D. Wandzilak;	1197
Virtual	File Systems on MERT L. L. Hamilton;	1343
VM/CMS—UNIX	File Transfer Facility R. A. Norden;	1339
Descendants G. W. R. Luderer; Standardizing	File Types in the Inodes of UNIX Version 7	1256
Implementation of Large Contiguous	Files and Asynchronous I/O in UNIX/	1003
Update	Files for the C Standard Library A. Koenig;	1364
Examples of Converting USG Shell Command	Files for the New Shell M. A. Csaszar;	1210
Conversion of SICPPR	Files From UNIX to RAMIS II M. B. Ellington;	1399
Server Project J. P. Haggerty/ Adding Remote	Files to UNIX—A Progress Report on the File	1434
S. M. Rubin; A	Filesystemless UNIX for the Z80 Microprocessor	1394
Computerized Office	Filing System R. E. Miller;	1175

Facility Enhancement	J. M. Shanahan;	Final Report: Secretarial Word Processing	1386	
	More	Flexible Low Speed I/O for UNIX	J. Feder;	1202
	An Algorithm For Structuring	Flowgraphs	B. S. Baker;	1103
Facility	R. E. Rogan; COSNIX File Management	(FM) Command-Software Development and Control		1379
	Using the UNIX Operating System	Foley; A Description of Automatic Dialing		1180
	G. B. Protocol	R. Ermann;	Formal Specification of X.25 Compatible Link	1389
	TBL—A Program To	Format Tables	M. E. Lesk;	1106
	An Introduction to the PWB/MM Text	Formatter	K. E. Wendland;	1479
Directories On PWB/UNIX./	NROFF/TROFF	Formatting Codes For Departmental Organization		1115
	G. C. Vogel;	Formatting Program Generic Documents On Unix		1170
	D. W. Smith; New Text	Formatting Software For The PWB Systems		1179
An Essay in Computer Security: Decrypting A		Former UNIX crypt	P. J. Weinberger;	1345
For Entering Data Through Computer Displayed		Forms	E. W. Stark + H. Lycklama; System	1117
RATFOR—A Preprocessor for a Rational		Fortran	B. W. Kernighan;	1193
Struct—A Program Which Structures		Fortran	B. S. Baker;	1084
	P. J. Weinberger; A Portable	Fortran 77 Compiler	S. I. Feldman +	1248
S. I. Feldman; Implementation of a Portable		Fortran 77 Compiler Using Modern Tools		1354
A Description of How UNIX		Fortran Works	I. A. Winheim;	1063
Oriented Microprogram for the HP-21MX	A. G.	Fraser + D. M. Ritchie; C—Language		1058
Circuit Design Aids On UNIX	A. G.	Fraser + G. G. Riddle;		1165
Accounting For A UNIX Based System.	A. G.	Fraser + R. J. Elliott; /Integrity And Space		1164
Routines for Multi-Thread Computations	A. G.	Fraser; C Language		1388
Routine to Parse a String into Words	R. B.	Freeman; Parse()—A C Language		1271
Terminal Handling for UNIX/370 Using a		Front End Processor	S. J. Buroff;	1466
	T. J. Kowalski;	FSCK—The UNIX/TS File System Check Program		1463
Memory Administration(RCMAS)	D. G. Korn +/	Functional Operation of the Recent Change		1322
II/ MICA—A General Purpose Microassembler:		Functional Specification/User's Manual—Issue		1220
Programmer's Workbench—Synopsis Of Facilities		(G.1) T. A. Dolotta + R. C. Haight;		1109
The UNIX Time-Sharing System—A Retrospective		(G.3) D. M. Ritchie;		1187
Conference On Software Engineering.		(G.4) T. A. Dolotta, et al.; /International		1107
/Directory Assistance Services	J. D.	Gabbe + C. N. Judice + T. B. London +/		1245
Statistics On The Usage Of The C Language	H.	Gajewska + S. C. Johnson; Some		1102
A Tutorial Introduction to the Graphical Editor		(GED) A. R. Feuer;		1441
One: Language Concepts	A. R. Feuer + N. H.	Gehani; /Languages C and Pascal—Part		1465
MRCS and the MRCS 2 Data Base System	H. S.	Gellis;		1308
	A	Generalized Data Entry System	M. J. Rochkind;	1156
V. A. Fasciano; Interactive Design Aid For		General-Purpose Artwork Production		1266
(B.11)	A. L. Glasser; A	General-Purpose Subroutine Library for PWB/UNIX		1157
G. K. Swanson; RXD-11D: Two Programs to		Generate UNIX-Compatible Magnetic Tapes		1215
	B. E. Redman; A Traffic	Generating System	S. L. Arnold +	1333
mview—A Set of Macrocommands For The		Generation of View Graphs	J. N. Sturman;	1280
Report		Generation on UNIX	E. Borison;	1337
Lex—A Lexical Analyzer		Generator	M. E. Lesk + E. Schmidt;	1061
Versions of a Good 48-bit Pseudo-random Number		Generator	C. S. Roberts; /and Testing New	1453
AGEN—An Associated Memory		Generator	M. E. Lesk;	1064
An Interactive LEAP Script		Generator (ILSG)	H. M. Cykiert + B. E. Hess;	1223
G. C. Vogel; Program		Generic Control And Documentation On UNIX		1099
Formatting Program		Generic Documents On Unix	G. C. Vogel;	1170
NROFF Macros For Producing		Generic Program Documentation./		1148
	D. J. Jackowski;	Gex—An Interactive Graphics Program		1227
MERT-UNIX Operating System	E. Shapiro +/	Gf—A Graphical Data Analysis Program for the		1222
UNIX Table Space Using Supervisor Mode	A. L.	Glasser + D. W. Ting; Enlarging PDP-11		1257
Core-Resident UNIX System for PDP-11's	A. L.	Glasser + D. W. Ting; A		1264
A Remote File System Driver for UNIX	A. L.	Glasser + D. W. Ting;		1411
Style Sheet For C Programming, Issue 1	A. L.	Glasser; A		1143
Subroutine Library for PWB/UNIX (B.11)	A. L.	Glasser; A General-Purpose		1157
Facility under UNIX	D. W. Ting + A. L.	Glasser; /New Inter-process Communication		1230
of a Source Code Control System	A. L.	Glasser; The Evolution		1304
UNIX Time-Sharing System	D. W. Ting + A. L.	Glasser; A Public Library Facility for the		1363
Debugging Aid for UNIX C Programmers	A. L.	Glasser; SDMP—A		1413
A Virtual Terminal Protocol for UNIX	L. D.	Goldsmith;		1451
a Program for Parts Inventory Control	A. M.	Gopin; Development of		1478

Evaluation of Univac UNIX D. A. De	1487
GRAFPAC/FR80—A C Version Of Deferred	1018
Under the UNIX Time-Sharing System./	1018
Support for C on IBM Computers F. T.	1348
sq—A Program for Testing C Compilers F. T.	1426
Program Testing—Work to be Done F. T.	1439
D. W. Smith; PWB/UNIX View	1192
Packages. A. R. Storm; Instructions For	1110
C. Scrocca; New	1112
MERT-UNIX Operating System E. Shapiro/ Gf—A	1222
A Tutorial Introduction to the	1441
Version 3 of the GR-Z	1464
Wyk + B. W. Kernighan; A	1471
Implementation of GR-Z	1298
Instructions For GRAPH, TEK, TEKSTARE and GSI	1110
Packages. A. R. Storm;	1227
Gex—An Interactive	1342
A Software Architecture for Providing a	1200
J. H. Jackson; Interactive	1233
Under the UNIX/ Timing Tests of the UNIGRAPHIX	1280
Set of Macrocommands For The Generation of View	1139
Easy Phototypeset View	1085
Recognition Data Base for UNIX Systems M. E.	1464
Version 3 of the	1298
Implementation of	1110
Instructions For GRAPH, TEK, TEKSTARE and	1387
SYSTID on F4P-UNIX—User's	1406
Computer Buffered Information Exchange User's	1311
ACS LEAP User's	1367
Source Code Control System User's	1412
DIRECT II In-Core Tables: User's	1011
L. L. Cherry; Typesetting Mathematics—User's	1198
PWB/UNIX RJE Administrator's	1315
Application Planning	1087
Users (B.12) A. L. Sabsevit;	1111
M. E. Lesk; A	1446
C. D. Perez; A	1301
Computer Center; A	1262
Microprocessor J. W. Farrell; User's	1217
Programmer's Workbench Users T. G. Lyons;	1360
RCMAS/MERT Performance Study and General Design	1229
S. B. Olsson;	1476
UNIX/RT R. S. Kaplan;	1305
Based Systems Development Laboratory P. W.	1450
Center System (CSACCS) E. Arthurs + J. L.	1283
Communication System H. N. Dorris + D. W.	1434
Report on the File Server Project J. P.	1140
Description of MKCONF I. A.	1320
Setting Up UNIX/TS R. C.	1194
Setting Up PWB/UNIX (I.1) R. C.	1109
Of Facilities (G.1) T. A. Dolotta + R. C.	1195
Advice for PWB/UNIX (I.2) R. C.	1204
C Language Portability B. A. Tague + R. C.	1261
on PDP-11's J. F. Maranzano + R. C.	1273
UNIX/TS File System Backup R. C.	1274
Pre-Release UNIX/TS R. C.	1319
UNIX File System Conversion R. C.	1321
UNIX/TS Release 1.0 R. C.	1484
UNIX/TS Development Plan R. C.	1173
Using State Transition Matrix/ Synthesis Of A	1395
Department 3621 MAXIUNIX Workplan J. T.	1343
Virtual File Systems on MERT L. L.	1178
QUEST Administration	
Graaf + J. Feder; Preliminary Performance	1487
GRAFPAC Under the UNIX Time-Sharing System./	1018
GRAFPAC/FR80—A C Version Of Deferred GRAFPAC	1018
Grampp;	1348
Grampp;	1426
Grampp;	1439
Graph and Slide Macros (T.9) T. A. Dolotta +	1192
GRAPH, TEK, TEKSTARE and GSI Graphics	1110
Graphic Symbols For EQN And NEQN (T.8)	1112
Graphical Data Analysis Program for the	1222
Graphical Editor (GED) A. R. Feuer;	1441
Graphical System R. A. Becker;	1464
Graphics Language for Typesetting C. J. Van	1471
Graphics on UNIX B. G. Haskell;	1298
Graphics Packages. A. R. Storm;	1110
Graphics Program D. J. Jackowski;	1227
Graphics System Development Workbench/	1342
Graphics System for a UNIX Environment	1200
Graphics System Running on a DEC PDP-11/70	1233
Graphs J. N. Sturman; mview—A	1280
Graphs on UNIX G. C. Vogel;	1139
Greenberg + C. S. Roberts; Numeric Pattern	1085
GR-Z Graphical System R. A. Becker;	1464
GR-Z Graphics on UNIX B. G. Haskell;	1298
GSI Graphics Packages. A. R. Storm;	1110
Guide B. G. Haskell + O. C. Yue;	1387
Guide B. I. Strom;	1406
Guide J. P. Marione;	1311
Guide L. E. Bonanni + C. A. Salemi;	1367
Guide W. D. Roome;	1412
Guide (Second Edition) B. W. Kernighan +	1011
Guide (I.5) A. L. Sabsevit;	1198
Guide, Release 0 of Basic-16 J. Arnold;	1315
Guide to IBM Remote Job Entry for PWB/UNIX	1087
Guide To Preparing Documents On UNIX	1111
Guide to the C Library for UNIX Users	1446
Guide to the of Pseudo-ATS on UNIX HO	1301
Guide to the SMAL2 Language for the Zilog Z80	1262
Guide to UNIVAC Remote Job Entry for	1217
Guidelines E. L. Hedrick, et al;	1360
Guidelines for C Compiler Distribution	1229
Guidelines for Converting MERT Software to	1476
Gwozdz; Proposal for a Microprocessor	1305
Haase + C. Perea + B. W. Stuck; /Control	1450
Hagelbarger + M. J. Shannon; Computer Assisted	1283
Haggerty + P. A. Kirsli; /to UNIX—A Progress	1434
Hahner + T. M. Raleigh;	1140
Haight + L. A. Wehr;	1320
Haight + W. D. Roome + L. A. Wehr;	1194
Haight; Programmer's Workbench—Synopsis	1109
Haight; Administrative	1195
Haight;	1204
Haight; /With Hardware Service Contractors	1261
Haight;	1273
Haight;	1274
Haight;	1319
Haight;	1321
Haight;	1484
Half-Duplex Line Control Procedure For UNIX	1173
Hall;	1395
Hamilton;	1343
Handbook E. H. Albrecht;	1178

Comnd -- A Routine to	Handle Command Line Parsing	S. A. Uhler;	1260
A Faster Terminal	Handler for UNIX	J. Feder;	1265
Processor S. J. Buroff; Terminal	Handling for UNIX/370 Using a Front End		1466
PDP-11/45/ PDP-11/70 Design Error:	Handling Segmentation Violations Different from		1380
J. S. Licwinko; Record	Handling under MERT/UNIX—The Queue Facility		1443
Terminal	Handling Under UNIX and MERT/UNIX	J. Feder;	1316
MERT	Hardware Configuration	E. A. Loikits;	1161
PWB	Hardware Help	C. A. Brooks;	1423
J. F. Maranzano +/ Experience With	Hardware Service Contractors on PDP-11's		1261
The Nspeak Program	Harris;		1419
SYSTID on F4P-UNIX—User's Guide	Haskell + O. C. Yue;		1387
of GR-Z Graphics on UNIX	Haskell; Implementation		1298
in Transaction Oriented Processing.	Hayden; Some MERT Performance Measurements		1182
on RCMAS and MERT Performance Problems	Hedrick + T. M. Raleigh; Preliminary Report		1318
from PDP-11/45 Implementation	Hedrick + T. M. Raleigh; /Violations Different		1380
Study and General Design Guidelines	Hedrick, et al; RCMAS/MERT Performance		1360
Generator (ILSG) H. M. Cykiert + B. E.	Hess; An Interactive LEAP Script		1223
System for UNIX	Hi—An Interactive Hierarchical Data Management		1390
R. G. Kayel; Hi—An Interactive	Hierarchical Data Management System for UNIX		1390
L. W. Cannon, et al; Indian	Hill C Style and Coding Standards		1356
A Guide to the of Pseudo-ATS on UNIX	HO Computer Center;		1301
Library for Switching Control Center	Hoalst; String Manipulation and Conversion		1211
Services—Message System	Hoffman; Experimental Office Communications		1421
8080 SIMULATOR (i80sim) USER MANUAL	Hofmann;		1224
Load Characterization for SDS/UNIX	Holmes + B. J. B. Lax + P. M. Lu +/		1436
Retrieval (RTLRL)/ARU Prototype System	Hooker; /(ARU) Subsystem Design for Real-Time		1306
System—Performance Measurements	Hooker; /Response Unit (ARU) Prototype		1355
Version of the UNIX Text Editor Ed	Horton; A Portable		1456
Terminals J. F. Maranzano; Effects On UNIX	Host CPU Resources By The Use of Intelligent		1329
Automated Testing of Asynchronous Terminals and	Hosts M. B. Mueller; A UNIX Based System for		1489
UNIX Based TSPS	Hotel-Motel Traffic Simulator	S. Michael;	1397
C—Language Oriented Microprogram for the	HP-21MX A. G. Fraser + D. M. Ritchie;		1058
VAX Performance Improvement Estimates	Huber + W. D. Roome; DIRECT II		1422
Discipline for IBM 2740-1 Protocol	Huber; UNIX Line		1481
/Support D. H. Copp + R. J. Council + D. J.	Hunsberger + J. J. Mollinelli + J. H. VanOrnum;		1153
For Differential File Comparison	Hunt + M. D. McIlroy; An Algorithm		1083
J. W.	(I.1) R. C. Haight + W. D. Roome +		1194
L. A. Wehr; Setting Up PWB/UNIX	(I.2) R. C. Haight;		1195
Administrative Advice for PWB/UNIX	(I.3) M. E. Pearlman;		1196
PWB/UNIX Operations Manual	(I.4) P. D. Wandzilak;		1197
Repairing Damaged PWB/UNIX File Systems	(I.5) A. L. Sabsevit;		1198
PWB/UNIX RJE Administrator's Guide	(i80sim) USER MANUAL	B. B. Hofmann;	1224
8080 SIMULATOR	(I.9) E. M. Piskorik;		1152
PWB/UNIX Manual Page Macros	IBM 2740-1 Protocol	D. J. Huber;	1481
UNIX Line Discipline for	IBM 370	M. J. Bach + B. L. Smith; Porting	1373
the ADAPT Data Translation System to the	IBM Computers	F. T. Grampp;	1348
Support for C on	IBM Remote Job Entry for PWB/UNIX Users (B.12)		1087
A. L. Sabsevit; Guide to	IBM/370 Utility Program to List a UNIX File		1068
Stored on a 9-Track Magnetic/ UNIXLIST—An	ICE-85 Based 8085 Software Development System		1417
W. Densmore; An	(ILSG) H. M. Cykiert + B. E. Hess;		1223
An Interactive LEAP Script Generator	Imagna; UNIX		1128
Initialization and Process Control	Imagna; UNIX/RT as an Application		1349
System for BOS/LMOS Development	Implementation	E. L. Hedrick + T. M. Raleigh;	1380
/Violations Different from PDP-11/45	Implementation	T. M. Raleigh; Scheduling	1126
and Switching Under UNIX Algorithms and	Implementation of a Boolean Data Analysis		1378
Technique for PWB/UNIX	Implementation of a Portable Fortran 77		1354
Compiler Using Modern Tools	Implementation of GR-Z Graphics on UNIX		1298
S. I. Feldman;	Implementation of Large Contiguous Files and		1003
B. G. Haskell;	Implementation of Semaphores and Messages in		1136
Asynchronous I/O in UNIX	Implementation of the Large Argument List		1351
H. Lycklama;	Implemented for DZ11 Under MERT Release 0.1		1469
UNIX	Implementing and Testing New Versions of a Good		1453
R. B. Brandt;			
Feature in UNIX/RT's Exec. System Call/			
M. J. Shannon; SPS Protocol			
48-bit Pseudo-random Number Generator/			

A PROM Writer Facility for UNIX	Improved Version H. Marcus;	1281
W. D. Roome; DIRECT II VAX Performance	Improvement Estimates D. J. Huber +	1422
S. B. Olsson; On the	Inconsistencies of UNIX Commands	1325
DIRECT II	In-Core Tables: User's Guide W. D. Roome;	1412
New Permuted	Index Program on UNIX J. F. Maranzano;	1263
Some Applications of Inverted	Indexes on the UNIX System M. E. Lesk;	1213
L. W. Cannon, et al;	Indian Hill C Style and Coding Standards	1356
C. P. Imagna; UNIX	Initialization and Process Control	1128
Standardizing File Types in the	Inodes of UNIX Version 7 Descendants/	1256
/New UNIX System Call To Suspend And Resume	Input From User Terminals. R. C. White, Jr.;	1076
A Stand-Alone	Input/Output Library S. R. Eisen;	1475
A New	Input-Output Package (B.10) D. M. Ritchie;	1159
Uustat—A UUCP Status	Inquiry Program H. Che;	1491
5254./ Notes on the Selection, Procurement,	Installation, and Usage of UNIX by Department	1201
M. E. Lesk; The LEARN Program for Computer	Instruction;(2nd Edition) B. W. Kernighan +	1104
Graphics Packages. A. R. Storm;	Instructions For GRAPH, TEK, TEKSTARE and GSIP	1110
D. H. Copp + R. J. Council +/ An	Integrated System For Microprocessor Support	1153
System. A. G. Fraser + R. J. Elliott; File	Integrity And Space Accounting For A UNIX Based	1164
T. J. Mulrooney;	INTEL 8048 Simulator (SIM48) User Manual	1445
UNIX Assembler for the	Intel 804X Microprocessors L.E. Miller;	1482
UNIX Assembler For The	Intel 8080 Microprocessor J. J. Molinelli;	1149
UNIX Assembler for the	Intel 8080 Microprocessor J. J. Molinelli;	1149
UNIX/86: UNIX on the	Intel 8086 T. P. Blumer + R. Muha;	1483
T. J. Mulrooney; An	INTEL Compatible 8048-49 Cross Assembler	1383
A Console Controlled Interface Between an	INTELLEC MDS And A Time-Shared Computer System./	1168
An	Intelligent Fast Color Display N. Weste;	1341
/On UNIX Host CPU Resources By The Use of	Intelligent Terminals J. F. Maranzano;	1329
System With A CAMAC Real Time TM-Display/ An	Interactive Computer Controlled Data Acquisition	1169
J. S. Kraus; A Peripheral Processor	Interactive Control and Data Acquisition System	1289
L. L. Cherry; An	Interactive Control Language For SIM	1105
Artwork Production V. A. Fasciano;	Interactive Design Aid For General-Purpose	1266
R. Morris; DC—An	Interactive Desk Calculator L. Cherry +	1056
Gex—An	Interactive Graphics Program D. J. Jackowski;	1227
Environment J. H. Jackson;	Interactive Graphics System for a UNIX	1200
for UNIX R. G. Kayel; Hi—An	Interactive Hierarchical Data Management System	1390
M. K. Radnik; An	Interactive Interface for C Language Programs	1377
H. M. Cykiert + B. E. Hess; An	Interactive LEAP Script Generator (ILSG)	1223
A. Tartarone; UNIX-INTELLEC MDS	Interface Joseph E. Lencoski + Stuart	1118
System (ISIS) and a Time Shared Computer/ An	Interface Between a Stand Alone Operating	1433
Time-Shared Computer/ A Console Controlled	Interface Between an INTELLEC MDS And A	1168
M. K. Radnik; An Interactive	Interface for C Language Programs	1377
DPD: Unix—Honeywell	Interface Programs M. R. Wagner;	1371
A Shell Operator for	Inter-Machine Communication C. A. Witschorik;	1499
Programmer's Workbench Papers From The Second	International Conference On Software/	1107
Extended Shell—A Potential Real Time	Interpreter N. J. Kolettis;	1228
DIRECT II	Interprocess Communication J. P. Linderman;	1368
Proposal For UNIX	Interprocess Communication R. B. Brandt;	1090
D. W. Ting + A. L. Glasser; PORT—A New	Inter-process Communication Facility under UNIX	1230
CB-UNIX J. C. Kaufeld Jr.;	Interprocess Communication Mechanisms in	1234
Trade-offs in CB—UNIX and UNIX/RT/	Interprocess Communication Performance	1288
Transaction Oriented UNIX Systems/	Inter-Process Communications Facility for	1303
UNIX Device Driver for the PCL11-A—A Parallel	Interprocessor Communications Link/ A	1242
D. M. Ritchie;	Inter-UNIX Portability T. L. Lyon +	1203
S. R. Bourne; A Tutorial	Introduction to ADB J. F. Maranzano +	1185
UNIX T. M. Raleigh;	Introduction to Scheduling and Switching under	1069
Course R. F. Rosin;	“Introduction to Software”—A Videotape	1199
A. R. Feuer; A Tutorial	Introduction to the Graphical Editor (GED)	1441
K. E. Wendland; An	Introduction to the PWB/MM Text Formatter	1479
An	Introduction to the UNIX Shell S. R. Bourne;	1239
B. W. Kernighan; A Tutorial	Introduction to the UNIX Text Editor	1000
Development of a Program for Parts	Inventory Control A. M. Gopin;	1478
M. E. Lesk; Some Applications of	Inverted Indexes on the UNIX System	1213

Fast-Access File System Using UNIX Raw	I/O J. R. McSkimin; /Logical File System—A	1473
D. W. Ting; Moving System	I/O Buffers out of UNIX Data Address Space	1235
D. W. Ting; Asynchronous	I/O Facilities for Raw Block Devices under UNIX	1241
More Flexible Low Speed	I/O for UNIX J. Feder;	1202
of Large Contiguous Files and Asynchronous	I/O in UNIX H. Lycklama; Implementation	1003
The UNIX	I/O System D. M. Ritchie;	1005
under UNIX P. F. Long; Beta Test of the COMM	IOP-DUP Synchronous Communications Controller	1240
Minutes,	ISCC Common Command Subcommittee N-P. Nelson;	1340
/Between a Stand Alone Operating System	(ISIS) and a Time Shared Computer System (UNIX)/	1433
A Style Sheet For C Programming,	Issue 1 A. L. Glasser;	1143
UNIX Programmer's Manual—PG-1C300	Issue 3;	1088
Gex—An Interactive Graphics Program D. J.	Jackowski;	1227
Graphics System for a UNIX Environment J. H.	Jackson; Interactive	1200
Shared Memory In UNIX D. S. De	Jager;	1127
and Enhancements E. Arthurs + P. Daily + R.	Jakubek + B. W. Stuck; /Projections	1253
Of Programs Written In Macro-11. P. D.	Jensen; UNIX Facilities For The Development	1080
The C Language Calling Sequence S. C.	Johnson + D. M. Ritchie + M. E. Lesk;	1207
YACC—Yet Another Compiler Compiler S. C.	Johnson;	1013
Usage Of The C Language H. Gajewska + S. C.	Johnson; Some Statistics On The	1102
Lint, a C Program Checker S. C.	Johnson;	1186
A 32-Bit Processor Design S. C.	Johnson;	1375
A Tour Through the Portable C Compiler S. C.	Johnson;	1409
UNIX-INTELLEC MDS Interface	Joseph E. Lencoski + Stuart A. Tartarone;	1118
Computer Typesetting Of Technical	Journals On UNIX M. E. Lesk +/	1089
Input From User Terminals. R. C. White,	Jr.; /UNIX System Call To Suspend And Resume	1076
40 Timesharing Terminals. R. C. White,	Jr.; /Support Both Teletypewriter And DATASPEED	1077
J. E. Lencoski + S. A. Tartarone + J. E. Wilkes	Jr.; /MDS And A Time-Shared Computer System.	1168
Communication System. (CACS) M. J. Shannon	Jr.; A Computer Assisted	1184
Mechanisms in CB-UNIX J. C. Kaufeld	Jr.; Interprocess Communication	1234
Assistance Services J. D. Gabbe + C. N.	Judice + T. B. London + J. D. Beyer; /Directory	1245
G. Roylance (MIT) + M. T. Dolan + J. F.	Kaiser; /Discrete Time Block Simulator	1079
Converting MERT Software to UNIX/RT R. S.	Kaplan; Guidelines for	1476
Sdb: A Symbolic Debugger H. P.	Katseff;	1369
Communication Mechanisms in CB-UNIX J. C.	Kaufeld Jr.; Interprocess	1234
Data Management System for UNIX R. G.	Kayel; Hi—An Interactive Hierarchical	1390
UNIX Programming—Second Edition B. W.	Kernighan + D. M. Ritchie;	1073
The M4 Macro Processor B. W.	Kernighan + D. M. Ritchie;	1160
The UNIX Programming Environment B. W.	Kernighan + J. R. Mashey;	1447
Guide (Second Edition) B. W.	Kernighan + L. L. Cherry; /Mathematics—User's	1011
A System for Typesetting Mathematics B. W.	Kernighan + L. L. Cherry;	1029
for Computer Instruction:(2nd Edition) B. W.	Kernighan + M. E. Lesk; The LEARN Program	1104
Language (Second Edition) A. V. Aho + B. W.	Kernighan + P. J. Weinberger; /and Processing	1206
Introduction to the UNIX Text Editor B. W.	Kernighan; A Tutorial	1000
Programming in C—A Tutorial (B.9) B. W.	Kernighan;	1001
A TROFF Tutorial B. W.	Kernighan;	1010
UNIX For Beginners—Second Edition B. W.	Kernighan;	1042
Journals On UNIX M. E. Lesk + B. W.	Kernighan; Computer Typesetting Of Technical	1089
Advanced Editing On UNIX B. W.	Kernighan;	1108
Preprocessor for a Rational Fortran B. W.	Kernighan; RATFOR—A	1193
for Typesetting C. J. Van Wyk + B. W.	Kernighan; A Graphics Language	1471
Time TM-Display R. A. Boie + M. Robbins + R.	Kerr; /Data Acquisition System With A CAMAC Real	1169
No. 1 of MAC-8 Assembler User's Manual D. B.	Kirby; Reissue	1150
File Server Project J. P. Haggerty + P. A.	Kirslis; /to UNIX—A Progress Report on the	1434
on a DEC VAX-11/780 Project Contract R. L.	Klein + J. F. Maranzano; UNIX/RT	1372
Assembler for the DEC	KMC11 Microprocessor L. A. Wehr;	1225
Description and Analysis of the DEC	KMC11 Microprocessor L. A. Wehr;	1226
A C Library Performance Problem A.	Koenig;	1267
Variable Length Argument Lists in C A.	Koenig;	1268
the C Environment for UNIX/TS Edition 1.0 A.	Koenig; Changes in	1323
Update Files for the C Standard Library A.	Koenig;	1364
Thoughts on Debugging C Programs A.	Koenig;	1486
For Analyzing Readability E. U. Coke + M. E.	Koether; READ—C Programs	1331

Potential Real Time Interpreter	N. J.	Kolettis; Extended Shell—A	1228
Change Memory Administration(RCMAS)	D. G.	Korn + M. A. Pilla + N. M. Scribner +/ /Recent	1322
UNIX/TS File System Check Program	T. J.	Kowalski; FSCK—The	1463
Control and Data Acquisition System	J. S.	Kraus; A Peripheral Processor Interactive	1289
of the Revised UNIX-to-UNIX Copy Command for		KW11-P Clock Driver R. R. Babu;	1309
UNIX/RT User's Manual—Release 1	Bell	Lab 323 R. B. Lyon; Use	1361
Manual—Seventh Edition, Volume 1	Bell	Laboratories;	1070
Manual—Seventh Edition, Volumes 2A & 2B	Bell	Laboratories; UNIX Programmer's	1400
Manual, Version 1.0, Volume 1	Bell	Laboratories; UNIX Programmer's	1401
for a Microprocessor Based Systems Development		Laboratories; /System: UNIX Programmer's	1402
BC—An Arbitrary Precision Desk Calculator		Laboratory P. W. Gwozdz; Proposal	1305
A Regular Expression Matcher For The C		Language L. Cherry + R. Morris;	1053
Some Statistics On The Usage Of The C		Language A. L. Sabsevitz;	1101
A Manual For the TMG Compiler-Writing		Language H. Gajewska + S. C. Johnson;	1102
Character String Manipulation in the C		Language M. D. McIlroy;	1009
T. A. Dolotta +/ Using a Command		Language R. G. Carr;	1208
D. M. Ritchie + M. E. Lesk; The C		Language as the Primary Programming Tool	1452
/Programming Languages C and Pascal—Part One:		Language Calling Sequence S. C. Johnson +	1207
The Programming		Language Concepts A. R. Feuer + N. H. Gehani;	1465
An Interactive Control		Language EFL S. I. Feldman;	1410
L. L. Cherry; SIM—A		Language For SIM L. L. Cherry;	1105
J. W. Farrell; User's Guide to the SMAL2		Language For Simulating Computers	1097
B. W. Kernighan; A Graphics		Language for the Zilog Z80 Microprocessor	1262
Evaluation of Microprocessors Supporting the C		Language for Typesetting C. J. Van Wyk +	1471
Semantics of the C Programming		Language: LSI-11, MAC-8, Z80 M. H. Bradley +/	1347
Semantics of the C Programming		Language, Part 0: Prelude R. Sethi;	1353
Semantics of the C Programming		Language, Part 1: Statements R. Sethi;	1376
R. C. Haight; C		Language, Part 2: Declarations R. Sethi;	1427
MAC-8 Assembly		Language Portability B. A. Tague +	1204
Relative CPU Performance on C		Language Programming Manual J. Angelo;	1221
An Interactive Interface for C		Language Programs J. Feder;	1480
R. B. Freeman; Parse()—A C		Language Programs M. K. Radnik;	1377
A. G. Fraser; C		Language Routine to Parse a String into Words	1271
Awk—A Pattern Scanning and Processing		Language Routines for Multi-Thread Computations	1388
The C Programming		Language (Second Edition) A. V. Aho +/	1206
Concepts/ A Comparison of the Programming		Language—Reference Manual D. M. Ritchie;	1002
DA11B Driver in MERT	J. E.	Languages C and Pascal—Part One: Language	1465
Daemon Software for a Printer Network	J. E.	Laur;	1212
Synchronous Terminals for MERT	J. E.	Laur; Spooler and	1448
/for SDS/UNIX V. P. Holmes + B. J. B.		Laur;	1459
A New DV-11 Driver for Use With		Lax + P. M. Lu + J. L. Pappas;	1436
A System Testing Technique Using a Universal		LEAP M. B. Mueller;	1312
B. E. Hess; An Interactive		LEAP Script N. H. Petschenik + R. P. Woodall;	1238
ACS		LEAP Script Generator (ILSG) H. M. Cykiert +	1223
Edition) B. W. Kernighan + M. E. Lesk; The		LEAP User's Guide J. P. Marione;	1311
T. M. Raleigh at Whippany T. M. Raleigh;		LEARN Program for Computer Instruction:(2nd	1104
Assembler for the Intel 804X Microprocessors		Lecture on UNIX Scheduler and Switcher Given by	1214
/MDS And A Time-Shared Computer System. J. E.		L.E. Miller; UNIX	1482
UNIX-INTELLEC MDS Interface Joseph E.		Lencoski + S. A. Tartarone + J. E. Wilkes Jr.;	1168
Variable		Lencoski + Stuart A. Tartarone;	1118
A Record Manager For Random Access To Variable		Length Argument Lists in C A. Koenig;	1268
Distribution by Communication Link	M. E.	Length Records Under UNIX. J. D. Beyer;	1171
Of Technical Journals On UNIX	M. E.	Lesk + A. S. Cohen; UNIX Software	1279
Lex—A Lexical Analyzer Generator	M. E.	Lesk + B. W. Kernighan; Computer Typesetting	1089
the —ms Macros with Troff and Nroff	M. E.	Lesk + E. Schmidt;	1061
AGEN—An Associated Memory Generator	M. E.	Lesk; /Documents on the UNIX System: Using	1028
Edition) B. W. Kernighan + M. E.		Lesk;	1064
TBL—A Program To Format Tables	M. E.	Lesk; /Program for Computer Instruction:(2nd	1104
A Guide To Preparing Documents On UNIX	M. E.	Lesk;	1106
S. C. Johnson + D. M. Ritchie + M. E.		Lesk;	1111
of Inverted Indexes on the UNIX System	M. E.	Lesk; The C Language Calling Sequence	1207
		Lesk; Some Applications	1213

Network of UNIX Systems	D. A. Nowitz + M. E. Lesk; A Dail-Up	1437	
	+ E. Schmidt; Lex—A Lexical Analyzer Generator	M. E. Lesk	1061
	E. Schmidt; Lex—A Lexical Analyzer Generator	M. E. Lesk +	1061
	H. Zucker; A Lexicographic Multikey Sort Program	ZSORT	1209
Update Files for the C Standard	Library	A. Koenig;	1364
A Stand-Alone Input/Output	Library	S. R. Eisen;	1475
System	D. W. Ting + A. L. Glasser; A Public Library Facility for the UNIX Time-Sharing		1363
	A General-Purpose Subroutine Library for PWB/UNIX (B.11)	A. L. Glasser;	1157
String Manipulation and Conversion	Library for Switching Control Center/		1211
	A Guide to the C Library for UNIX Users	C. D. Perez;	1446
Subroutines	R. Morris; A Library of Reference Standard Mathematical		1074
	A C Library Performance Problem	A. Koenig;	1267
BANCS Facility for MERT/UNIX	J. S. Licwinko;		1442
under MERT/UNIX—The Queue Facility	J. S. Licwinko; Record Handling		1443
DIRECT II Interprocess Communication	J. P. Linderman;		1368
II Service Dispatcher	C. W. Chang + J. P. Linderman; DIRECT		1425
DIRECT II Sort Utilities	J. P. Linderman;		1454
Data Representation and Manipulation	J. P. Linderman; DIRECT II		1455
Parallel Interprocessor Communications	Link	D. M. Ungar; /Driver for the PCL11-A—A	1242
UNIX Software Distribution by Communication	Link	M. E. Lesk + A. S. Cohen;	1279
Formal Specification of X.25 Compatible	Link Protocol	R. Ermann;	1389
Services	A. L. Shirtz; UNIX Link To MBS Line Printer and Computer Center		1181
	Lint, a C Program Checker	S. C. Johnson;	1186
Shell Subprogram Facility	J. Lions;		1327
Macros for Analyzing C Program Arguments	J. Lions;		1384
File Access Permissions in UNIX Systems	J. Lions; Checking		1385
Second Pass of the Portable C Compiler	J. Lions; The		1430
with the UNIX Time-Sharing System	J. Lions; Experiences		1477
Tape./ UNIXLIST—An IBM/370 Utility Program to	List a UNIX File Stored on a 9-Track Magnetic		1068
Implementation of the Large Argument	List Feature in UNIX/RT's Exec. System Call/		1351
Performance Analysis/ Preliminary Real Time	Listing Retrieval (RTLr) Field Study		1415
(ARU) Prototype System—Performance/ Real Time	Listing Retrieval (RTLr)/Audio Response Unit		1355
	Title Listings for UNIX Memoranda	T. R. Crowley;	1296
Variable Length Argument	Lists in C	A. Koenig;	1268
Resume Input From User Terminals./	LKOUT—A New UNIX System Call To Suspend And		1076
in a UNIX Based Operating System	D. S. Lo; A Mechanism of Starting a Program		1488
V. P. Holmes + B. J. B. Lax + P. M. Lu +/	Load Characterization for SDS/UNIX		1436
On Using The UNIX Error	Logger	C. D. Perez;	1176
UNIX Error	Logging	R. B. Brandt;	1163
Error	Logging in UNIX/TS and UNIX/RT	R. B. Brandt;	1284
Using UNIX Raw I/O	J. R. McSkimin; The Logical File System—A Fast-Access File System		1473
MERT Hardware Configuration	E. A. Loikits;		1161
Feature in UNIX/RT's Exec. System Call	E. Loikits; /of the Large Argument List		1351
Services	J. D. Gabbe + C. N. Judice + T. B. London + J. D. Beyer; /Directory Assistance		1245
for the DEC VAX-11/780 Computer	T. B. London + J. F. Reiser; A UNIX Operating System		1297
State Transition Matrix Techniques	P. F. Long; /Line Control Procedure For UNIX Using		1173
Communications Controller under UNIX	P. F. Long; /Test of the COMM IOP-DUP Synchronous		1240
More Flexible	Low Speed I/O for UNIX	J. Feder;	1202
/of Microprocessors Supporting the C Language:	LSI-11, MAC-8, Z80	M. H. Bradley +/	1347
	LSI-UNIX Summary	H. Lycklama;	1158
	LSI-UNIX System	H. Lycklama;	1116
	LSI-UNIX—First Edition	H. Lycklama;	1130
	LSX Performance	J. N. Sturman;	1457
	LSX Software	H. Lycklama;	1129
	LSX Software	H. Lycklama;	1131
SDS/UNIX	V. P. Holmes + B. J. B. Lax + P. M. Lu + J. L. Pappas; Load Characterization for		1436
MERT Release 0 From Department 8234	G. W. R. Luderer;		1183
UNIX Word Processing Commands	G. W. R. Luderer; Cut and Paste—Two		1205
Contents of UNIX/RT	G. W. R. Luderer;		1231
of UNIX Version 7 Descendants	G. W. R. Luderer; /File Types in the Inodes		1256
UNIX Operating System Work	G. W. R. Luderer; /Considerations for Exploratory		1391
Workplan for Networking in 1979/80	G. W. R. Luderer; Department 3624's		1435

of UNIX on Peripheral Processors	H.	Lycklama + C. Christensen; Emulation	1045
A Minicomputer Satellite Processor System	H.	Lycklama + C. Christensen;	1247
Operating System for a PDP-11/45	H.	Lycklama + D. L. Bayer; A Structured	1052
The MERT Operating System	H.	Lycklama + D. L. Bayer;	1246
Files and Asynchronous I/O in UNIX	H.	Lycklama; Implementation of Large Contiguous	1003
Real-Time Operating System. D. L. Bayer +	H.	Lycklama; MERT—A Multi-Environment	1062
LSI-UNIX System	H.	Lycklama;	1116
Computer Displayed Forms E. W. Stark +	H.	Lycklama; System For Entering Data Through	1117
MINI-UNIX Summary	H.	Lycklama;	1123
Setting-Up MINI-UNIX—Sixth Edition	H.	Lycklama;	1124
MINI-UNIX Regenerating System Software	H.	Lycklama;	1125
LSX Software	H.	Lycklama;	1129
Setting Up LSI-UNIX—First Edition	H.	Lycklama;	1130
Regenerating LSX Software	H.	Lycklama;	1131
The MINI-UNIX System	H.	Lycklama;	1135
Setting-Up MERT—Second Edition	H.	Lycklama;	1146
Regenerating MERT Software	H.	Lycklama;	1147
UNIX On A Micro-Processor	H.	Lycklama;	1154
LSI-UNIX Summary	H.	Lycklama;	1158
Structures for Real-Time Applications	H.	Lycklama; File System	1276
The MERT/UNIX Supervisor	H.	Lycklama;	1278
Inter-UNIX Portability T. L.	Lyon + D. M. Ritchie;		1203
UNIX-to-UNIX Copy Command for Lab 323	R. B.	Lyon; Use of the Revised	1361
On The Use Of The Alarm Signal T. G.	Lyons; Cautions		1094
Entry for Programmer's Workbench Users T. G.	Lyons; Guide to UNIVAC Remote Job		1217
D. M. Ritchie; The	M4 Macro Processor B. W. Kernighan +		1160
R. Stensgaard; Power Supply Controller Using a	MAC 8 Micro Processor M. F. Robbins +		1299
Reissue No. 1 of	MAC-8 Assembler User's Manual D. B. Kirby;		1150
J. Angelo;	MAC-8 Assembly Language Programming Manual		1221
/Supporting the C Language: LSI-11,	MAC-8 C For Beginners H. D. Rovegno;		1166
UNIX Microcomputer Control of Apparatus,	MAC-8, Z80 M. H. Bradley + W. E. Sherbon +/		1347
D. M. Ritchie; The M4	Machinery, and Experiments B. C. Wonsiewicz +/		1219
For The Development Of Programs Written In	Macro Processor B. W. Kernighan +		1160
J. N. Sturman; mview—A Set of	Macro-11. P. D. Jensen; UNIX Facilities		1080
Reference Sheet For PWB/MM	Macrocommands For The Generation of View Graphs		1280
J. Lions;	Macros R. F. Rosin;		1174
Documentation. S. J. Cummingham; NROFF	Macros for Analyzing C Program Arguments		1384
PWB/UNIX Manual Page	Macros For Producing Generic Program		1148
D. W. Smith +/ Summary of PWB/MM	Macros (I.9) E. M. Piskorik;		1152
PWB/MM—Programmer's Workbench Memorandum	Macros, Strings, and Registers (T.2)		1216
PWB/UNIX View Graph and Slide	Macros (T.2) J. R. Mashey + D. W. Smith;		1098
/Documents on the UNIX System: Using the —ms	Macros (T.9) T. A. Dolotta + D. W. Smith;		1192
Program to List a UNIX File Stored on a 9-Track	Macros with Troff and Nroff M. E. Lesk;		1028
Two Programs to Generate UNIX-Compatible	Magnetic Tape. C. S. Roberts; /Utility		1068
Make—A Program For	Magnetic Tapes G. K. Swanson; RXD-11D:		1215
and Usage of UNIX by Department 5254. J. F.	Maintaining Computer Programs S. I. Feldman;		1078
Programs S. I. Feldman;	Majernik; /Procurement, Installation,		1201
Proposed Structure for UNIX/TS and UNIX/RT	Make—A Program For Maintaining Computer		1078
Engineering and Data Acquisition System/Network	Makefiles A. L. Chellis;		1285
and Control Facility/ COSNIX File	Management (EADAS/NM) Capacity/		1449
Hi—An Interactive Hierarchical Data	Management (FM) Command-Software Development		1379
A Data-base	Management System for UNIX R. G. Kayel;		1390
Records Under UNIX. J. D. Beyer; A Record	Management System under MERT A. C. Ting;		1374
DIRECT II Data Representation and	Manager For Random Access To Variable Length		1171
Switching Control Center/ String	Manipulation J. P. Linderman;		1455
Character String	Manipulation and Conversion Library for		1211
UNIX Assembler Reference	Manipulation in the C Language R. G. Carr;		1208
NROFF/TROFF User's	Manual D. M. Ritchie;		1012
8080 SIMULATOR (i80sim) USER	Manual J. F. Ossanna;		1119
Reissue No. 1 of MAC-8 Assembler User's	MANUAL B. B. Hofmann;		1224
The C Programming Language—Reference	Manual D. B. Kirby;		1150
	Manual D. M. Ritchie;		1002

8080/Z80 Assembler Reference	Manual G. C. Vogel;	1250
MAC-8 Assembly Language Programming	Manual J. Angelo;	1221
8080/Z80 Simulator SM80 User	Manual K. L. Regelson;	1275
INTEL 8048 Simulator (SIM48) User	Manual T. J. Mulrooney;	1445
System. W. A. Burnette +/- Programmer's	Manual For the SEL-86 PDP-11/45 Operating	1155
M. D. McIlroy; A	Manual For the TMG Compiler-Writing Language	1009
PWB/UNIX Operations	Manual (I.3) M. E. Pearlman;	1196
PWB/UNIX	Manual Page Macros (I.9) E. M. Piskorik;	1152
UNIX/32V Time-Sharing System: UNIX Programmer's	Manual, Version 1.0, Volume 1 Bell/	1402
UNIX/TS User's	Manual—Edition 1.1 Department 3624;	1440
Functional Specification/User's	Manual—Issue II S. W. Ng; /Microassembler;	1220
UNIX Programmer's	Manual—PG-1C300 Issue 3;	1088
UNIX/RT User's	Manual—Release 1 Bell Laboratories;	1070
PWB/UNIX User's	Manual—Release 2.0 Department 3782;	1407
Laboratories; UNIX Programmer's	Manual—Seventh Edition, Volume 1 Bell	1400
Laboratories; UNIX Programmer's	Manual—Seventh Edition, Volumes 2A & 2B Bell	1401
D. M. Ritchie; UNIX Programmer's	Manual—Sixth Edition K. Thompson +	1014
UNIX/TS Documentation Road	Map G. A. Snyder + J. R. Mashey;	1485
UNIX Courses R. B. Brandt + J. F.	Maranzano + G. C. Vogel;	1277
Service Contractors on PDP-11's J. F.	Maranzano + R. C. Haight; /With Hardware	1261
A Tutorial Introduction to ADB J. F.	Maranzano + S. R. Bourne;	1185
A Description of the UNIX File System J. F.	Maranzano;	1065
Release 1.0 Plans A. S. Cohen + J. F.	Maranzano; UNIX/TS	1232
New Permuted Index Program on UNIX J. F.	Maranzano;	1263
the Support of the Portable C Compiler J. F.	Maranzano; On Understanding	1269
New Trouble Reporting Procedures J. F.	Maranzano;	1326
a Side-by-side Difference Program J. F.	Maranzano; Sdiff,	1328
By The Use of Intelligent Terminals J. F.	Maranzano; Effects On UNIX Host CPU Resources	1329
Project Contract R. L. Klein + J. F.	Maranzano; UNIX/RT on a DEC VAX-11/780	1372
Writer Facility for UNIX Improved Version H.	Marcus; A PROM	1281
ACS LEAP User's Guide J. P.	Marione;	1311
Workbench Memorandum Macros (T.2) J. R.	Mashey + D. W. Smith; PWB/MM—Programmer's	1098
Workbench Documentation Roadmap (B.1) J. R.	Mashey; Programmer's	1121
PWB/UNIX Shell Tutorial (B.5) J. R.	Mashey;	1189
and Registers (T.2) D. W. Smith + J. R.	Mashey; Summary of PWB/MM Macros, Strings,	1216
Environment B. W. Kernighan + J. R.	Mashey; The UNIX Programming	1447
Programming Tool T. A. Dolotta + J. R.	Mashey; /a Command Language as the Primary	1452
Documentation Road Map G. A. Snyder + J. R.	Mashey; UNIX/TS	1485
A Regular Expression	Matcher For The C Language A. L. Sabsevitz;	1101
A Library of Reference Standard	Mathematical Subroutines R. Morris;	1074
A System for Typesetting	Mathematics B. W. Kernighan + L. L. Cherry;	1029
B. W. Kernighan + L. L. Cherry; Typesetting	Mathematics—User's Guide (Second Edition)	1011
Procedure For UNIX Using State Transition	Matrix Techniques P. F. Long; /Line Control	1173
Department 3621	MAXIUNIX Workplan J. T. Hall;	1395
the PDP-11's RT-11 Operating System R. L.	Maybach; A Version of Ratfor for	1249
UNIX Capabilities More Effectively W. J.	Mayer; Using	1370
A. L. Shirtz; UNIX Link To	MBS Line Printer and Computer Center Services	1181
R. A. Faulkner + D. S. DeJager + J. A.	McGuire + A. L. Sabsevitz; /Task Force Report	1382
Backup for PDP 11/70 MOS Memory J. A.	McGuire; Battery	1418
For the TMG Compiler-Writing Language M. D.	McIlroy; A Manual	1009
Synthetic English Speech by Rule M. D.	McIlroy;	1025
UNIX Summary M. D.	McIlroy;	1043
File Comparison J. W. Hunt + M. D.	McIlroy; An Algorithm For Differential	1083
SED—A Non-interactive Text Editor L. E.	McMahon;	1307
System For Real-Time Applications J. R.	McSkimin; REDAS—A Relational Data Access	1344
File System Using UNIX Raw I/O J. R.	McSkimin; /Logical File System—A Fast-Access	1473
Controlled Interface Between an INTELLEC	MDS And A Time-Shared Computer System./ /Console	1168
A. Tartarone; UNIX-INTELLEC	MDS Interface Joseph E. Lencoski + Stuart	1118
Using a Line Clock to Estimate	Mean Disk Access Time B. W. Stuck;	1282
UNIX System Call	Measurements C. D. Perez + T. M. Raleigh;	1113
Unit (ARU) Prototype System—Performance	Measurements J. W. Hooker; /Response	1355
Processing./ Some MERT Performance	Measurements in Transaction Oriented	1182

Context Switches for UNIX/RT/ Some Timing	Measurements of Emts, Message Transfers and	1500
E. Arthurs +/ CNCC UNIX Project Performance	Measurements, Projections and Enhancements	1253
Operating System D. S. Lo; A	Mechanism of Starting a Program in a UNIX Based	1488
Interprocess Communication	Mechanisms in CB-UNIX J. C. Kaufeld Jr.;	1234
Optimizing Process Creation and Termination	Mechanisms in UNIX D. W. Ting;	1236
Typesetting ACS and APS	Meeting Abstracts—Issue 2 D. Edelson;	1075
UNIX Users Group	Meeting—Toronto, June 19-23, 1979 S. R. Eisen;	1396
Title Listings for UNIX	Memoranda T. R. Crowley;	1296
D. W. Smith; PWB/MM—Programmer's Workbench	Memorandum Macros (T.2) J. R. Mashey +	1098
Battery Backup for PDP 11/70 MOS	Memory J. A. McGuire;	1418
Functional Operation of the Recent Change	Memory Administration(RCMAS) D. G. Korn +/	1322
AGEN—An Associated	Memory Generator M. E. Lesk;	1064
Shared	Memory In UNIX D. S. De Jager;	1127
System. D. L. Bayer + H. Lycklama;	MERT—A Multi-Environment Real-Time Operating	1062
Setting-Up	MERT—Second Edition H. Lycklama;	1146
Terminal Handling Under UNIX and	MERT/UNIX J. Feder;	1316
BANCS Facility for	MERT/UNIX J. S. Licwinko;	1442
Gf—A Graphical Data Analysis Program for the	MERT-UNIX Operating System E. Shapiro +/	1222
The	MERT/UNIX Supervisor H. Lycklama;	1278
Record Handling under	MERT/UNIX—The Queue Facility J. S. Licwinko;	1443
UNIX/RT/ Some Timing Measurements of Emts,	Message Transfers and Context Switches for	1500
Implementation of Semaphores and	Messages in UNIX R. B. Brandt;	1136
Functional Specification/User's/	MICA—A General Purpose Microassembler:	1220
Based TSPS Hotel-Motel Traffic Simulator S.	Michael; UNIX	1397
Development for CB-UNIX Operating System S.	Michael; Character Device Driver	1424
Power Supply Controller Using a MAC 8	Micro Processor M. F. Robbins +/	1299
Specification/User's/ MICA—A General Purpose	Microassembler: Functional	1220
and Experiments B. C. Wonsiewicz +/ UNIX	Microcomputer Control of Apparatus, Machinery,	1219
P. D. Ting + D. C. Tsichritzis; A	Micro-DBMS for a Distributed Data Base	1350
UNIX On A	Micro-Processor H. Lycklama;	1154
UNIX Assembler For The Intel 8080	Microprocessor J. J. Molinelli;	1149
UNIX Assembler for the Intel 8080	Microprocessor J. J. Molinelli;	1149
Guide to the SMAL2 Language for the Zilog Z80	Microprocessor J. W. Farrell; User's	1262
Assembler for the DEC KMC11	Microprocessor L. A. Wehr;	1225
Description and Analysis of the DEC KMC11	Microprocessor L. A. Wehr;	1226
A Filesystemless UNIX for the Z80	Microprocessor S. M. Rubin;	1394
Laboratory P. W. Gwozdz; Proposal for a	Microprocessor Based Systems Development	1305
R. J. Council +/ An Integrated System For	Microprocessor Support D. H. Copp +	1153
UNIX Assembler for the Intel 804X	Microprocessors L.E. Miller;	1482
LSI-11, MAC-8, Z80/ Evaluation of	Microprocessors Supporting the C Language:	1347
D. M. Ritchie; C—Language Oriented	Microprogram for the HP-21MX A. G. Fraser +	1058
Computerized Office Filing System R. E.	Miller;	1175
for the Intel 804X Microprocessors L.E.	Miller; UNIX Assembler	1482
Documentation of	Minicomputer Product Trials R. E. Swift;	1428
H. Lycklama + C. Christensen; A	Minicomputer Satellite Processor System	1247
CM, A UNIX Driver For The	MINITAPE System R. E. Swift;	1167
H. Lycklama;	MINI-UNIX Regenerating System Software	1125
The	MINI-UNIX Summary H. Lycklama;	1123
Setting-Up	MINI-UNIX System H. Lycklama;	1135
N-P. Nelson;	MINI-UNIX—Sixth Edition H. Lycklama;	1124
Discrete Time Block Simulator G. Roylance	Minutes, ISCC Common Command Subcommittee	1340
Description of	(MIT) + M. T. Dolan + J. F. Kaiser; BLOSIM—A	1079
PDP-11 UNIX Table Space Using Supervisor	MKCONF I. A. Hahner + T. M. Raleigh;	1140
of a Portable Fortran 77 Compiler Using	Mode A. L. Glasser + D. W. Ting; Enlarging	1257
Upgrading MERT Release 0 with	Modern Tools S. I. Feldman; Implementation	1354
J. Dean;	Modification 0.1 to MERT Release 0.1/	1287
Supported Structure for Local	Modifications to the Trouble Reporting System	1324
For The Intel 8080 Microprocessor J. J.	Modifications to UNIX A. S. Cohen;	1420
for the Intel 8080 Microprocessor J. J.	Molinelli; UNIX Assembler	1149
+ R. J. Council + D. J. Hunsberger + J. J.	Molinelli; UNIX Assembler	1149
Extraction and Reduction of PWB/UNIX Software	Mollinelli + J. H. VanOrnum; /D. H. Copp	1153
	Monitor Data L. E. Bonanni; Tools for the	1474

system	T. B. Muenzer;	Monitor terminals under the UNIX operating	1332
A DATAKIT Network		Monitoring System	R. J. Elliott; 1460
Webster's Second on the Head of a Pin	R.	Morris + K. Thompson;	1082
Password Security: A Case History	R.	Morris + K. Thompson;	1259
Detection of Typographical Errors	R.	Morris + L. L. Cherry; Computer	1019
Desk Calculator Language	L. Cherry + R.	Morris; BC—An Arbitrary Precision	1053
Interactive Desk Calculator	L. Cherry + R.	Morris; DC—An	1056
Standard Mathematical Subroutines	R.	Morris; A Library of Reference	1074
A Fast Software Encryption Algorithm	R.	Morris;	1334
UNIX File Security	R.	Morris;	1335
Battery Backup for PDP 11/70		MOS Memory	J. A. McGuire; 1418
Address Space	D. W. Ting;	Moving System I/O Buffers out of UNIX Data	1235
MRCS and the		MRCS 2 Data Base System	H. S. Gellis; 1308
H. S. Gellis;		MRCS and the MRCS 2 Data Base System	1308
Typing Documents on the UNIX System: Using the		—ms Macros with Troff and Nroff	M. E. Lesk; 1028
A New DV-11 Driver for Use With LEAP	M. B.	Mueller;	1312
of Asynchronous Terminals and Hosts	M. B.	Mueller; /Based System for Automated Testing	1489
under the UNIX operating system	T. B.	Muenzer; Monitor terminals	1332
UNIX on the Intel 8086	T. P. Blumer + R.	Muha; UNIX/86;	1483
Compatible 8048-49 Cross Assembler	T. J.	Mulrooney; An INTEL	1383
a Time Shared Computer System (UNIX)	T. J.	Mulrooney; /Alone Operating System (ISIS) and	1433
8048 Simulator (SIM48) User Manual	T. J.	Mulrooney; INTEL	1445
D. L. Bayer + H. Lycklama; MERT—A		Multi-Environment Real-Time Operating System.	1062
A Lexicographic		Multikey Sort Program ZSORT	H. Zucker; 1209
C Language Routines for		Multi-Processor DMERT	E. P. Schan; 1472
Generation of View Graphs	J. N. Sturman;	Multi-Thread Computations	A. G. Fraser; 1388
NFTS: Tools For Processing Data With		mview—A Set of Macrocommands For The	1280
ISCC Common Command Subcommittee	N-P.	Named Fields	M. J. Rochkind; 1346
New Graphic Symbols For EQN And		Nelson; Minutes,	1340
Spooler and Daemon Software for a Printer		NEQN (T.8)	C. Scrocca; 1112
A Tape Back-Up System For The		Network	J. E. Laur; 1448
A DATAKIT		Network File Store	R. J. Elliott; 1081
M. E. Lesk; A Dail-Up		Network Monitoring System	R. J. Elliott; 1460
Department 3624's Workplan for		Network of UNIX Systems	D. A. Nowitz + 1437
Fields	M. J. Rochkind;	Networking in 1979/80	G. W. R. Luderer; 1435
Specification/User's Manual—Issue II	S. W.	NFTS: Tools For Processing Data With Named	1346
D. B. Kirby; Reissue		Ng; /Purpose Microassembler: Functional	1220
SED—A		No. 1 of MAC-8 Assembler User's Manual	1150
VM/CMS—UNIX File Transfer Facility	R. A.	Non-interactive Text Editor	L. E. McMahon; 1307
Installation, and Usage of UNIX by Department/		Norden;	1339
Assistance Services	J. D. Gabbe +/ QUIK: A	Notes on the Selection, Procurement,	1201
A Dail-Up Network of UNIX Systems	D. A.	Novel Approach to Computerized Directory	1245
Uucp—Implementation Description	D. A.	Nowitz + M. E. Lesk;	1437
Minutes, ISCC Common Command Subcommittee		Nowitz;	1293
System: Using the —ms Macros with Troff and		N-P. Nelson;	1340
Documentation.	S. J. Cunningham;	Nroff	M. E. Lesk; /Documents on the UNIX 1028
Organization Directories On PWB/UNIX./		NROFF Macros For Producing Generic Program	1148
The		NROFF/TROFF Formatting Codes For Departmental	1115
Systems	M. E. Greenberg + C. S. Roberts;	NROFF/TROFF User's Manual	J. F. Ossanna; 1119
TBL Options Summary	H. F.	Nspeak Program	M. O. Harris; 1419
UNIX Command Syntax	A. S. Cohen + S. B.	Numeric Pattern Recognition Data Base for UNIX	1085
Guidelines for C Compiler Distribution	S. B.	Okrent;	1314
the Inconsistencies of UNIX Commands	S. B.	Olsson + G. C. Vogel;	1358
/of the Programming Languages C and Pascal—Part		Olsson;	1229
MERT—A Multi-Environment Real-Time		Olsson; On	1325
Mechanism of Starting a Program in a UNIX Based		One: Language Concepts	A. R. Feuer +/ 1465
/Data Analysis Program for the MERT-UNIX		Operating System.	D. L. Bayer + H. Lycklama; 1062
Description of Automatic Dialing Using the UNIX		Operating System	D. S. Lo; A 1488
The MERT		Operating System	E. Shapiro + M. F. Robbins; 1222
A Version of Ratfor for the PDP-11's RT-11		Operating System	G. B. Foley; A 1180
		Operating System	H. Lycklama + D. L. Bayer; 1246
		Operating System	R. L. Maybach; 1249

Character Device Driver Development for CB-UNIX	Operating System S. Michael;	1424
Running on a DEC PDP-11/70 Under the UNIX	Operating System S. T. Schuyler; /System	1233
Monitor terminals under the UNIX	operating system T. B. Muenzer;	1332
Of Abnormal Conditions Within The UNIX	Operating System. T. M. Raleigh; Explanation	1047
Programmer's Manual For the SEL-86 PDP-11/45	Operating System. W. A. Burnette +/	1155
Activity Profile of the PWB/UNIX	Operating System W. W. Everett;	1290
+ D. L. Bayer; A Structured	Operating System for a PDP-11/45 H. Lycklama	1052
Configuration/ A Real-Time Time-Shared	Operating System For An SEL/86-PDP-11	1122
Computer T. B. London +/ A UNIX	Operating System for the DEC VAX-11/780	1297
Computer/ An Interface Between a Stand Alone	Operating System (ISIS) and a Time Shared	1433
Preliminary Considerations for Exploratory UNIX	Operating System Work G. W. R. Luderer;	1391
The UNIX	Operating System-PG-1C300 G. C. Vogel;	1162
Administration(RCMAS) D. G. Korn/ Functional	Operation of the Recent Change Memory	1322
PWB/UNIX	Operations Manual (I.3) M. E. Pearlman;	1196
C. A. Witschorik; A Shell	Operator for Inter-Machine Communication	1499
E. Arthurs + N. Sharko/ Directory Assistance	Operator Work Time Exploratory Data Analysis	1414
Mechanisms in UNIX D. W. Ting;	Optimizing Process Creation and Termination	1236
TBL	Options Summary H. F. Okrent;	1314
NROFF/TROFF Formatting Codes For Departmental	Organization Directories On PWB/UNIX./	1115
A. G. Fraser + D. M. Ritchie; C-Language	Oriented Micropogram for the HP-21MX	1058
MERT Performance Measurements in Transaction	Oriented Processing. D. F. Hayden; Some	1182
/Communications Facility for Transaction	Oriented UNIX Systems D. W. Ting;	1303
NROFF/TROFF User's Manual J. F.	Ossanna;	1119
PWB/Graphics	Overview A. R. Feuer;	1398
Use of Display Editors L. C.	Ozimek;	1292
A New Input-Output	Package (B.10) D. M. Ritchie;	1159
A Subroutine	Package to do Process Cleanup T. J. Dwyer;	1494
For GRAPH, TEK, TEKSTARE and GSIP Graphics	Packages. A. R. Storm; Instructions	1110
PWB/UNIX Manual	Page Macros (I.9) E. M. Piskorik;	1152
On Software/ Programmer's Workbench	Papers From The Second International Conference	1107
V. P. Holmes + B. J. B. Lax + P. M. Lu + J. L.	Pappas; Load Characterization for SDS/UNIX	1436
CLIO-A Relational Data Base System P. S.	Para;	1243
A UNIX Device Driver for the PCL11-A-A	Parallel Interprocessor Communications Link/	1242
String into Words R. B. Freeman;	Parse()-A C Language Routine to Parse a	1271
Parse()-A C Language Routine to	Parse a String into Words R. B. Freeman;	1271
Comnd -- A Routine to Handle Command Line	Parsing S. A. Uhlig;	1260
Development of a Program for	Parts Inventory Control A. M. Gopin;	1478
A Comparison of the Programming Languages C and	Pascal-Part One: Language Concepts/	1465
The Second	Pass of the Portable C Compiler J. Lions;	1430
K. Thompson;	Password Security: A Case History R. Morris +	1259
G. W. R. Luderer; Cut and	Paste-Two UNIX Word Processing Commands	1205
M. E. Greenberg + C. S. Roberts; Numeric	Pattern Recognition Data Base for UNIX Systems	1085
(Second Edition) A. V. Aho +/ Awk-A	Pattern Scanning and Processing Language	1206
Communications/ A UNIX Device Driver for the	PCL11-A-A Parallel Interprocessor	1242
Battery Backup for	PDP 11/70 MOS Memory J. A. McGuire;	1418
A. L. Glasser + D. W. Ting; Enlarging	PDP-11 UNIX Table Space Using Supervisor Mode	1257
A Structured Operating System for a	PDP-11/45 H. Lycklama + D. L. Bayer;	1052
/Handling Segmentation Violations Different from	PDP-11/45 Implementation E. L. Hedrick +/	1380
Programmer's Manual For the SEL-86	PDP-11/45 Operating System. W. A. Burnette +/	1155
/Diagnostic Console for use on Bell System	PDP-11/70 Computer Systems D. L. Clark;	1392
Violations Different from PDP-11/45/	PDP-11/70 Design Error: Handling Segmentation	1380
the UNIGRAPHIX Graphics System Running on a DEC	PDP-11/70 Under the UNIX Operating System/ /of	1233
A Core-Resident UNIX System for	PDP-11's A. L. Glasser + D. W. Ting;	1264
Experience With Hardware Service Contractors on	PDP-11's J. F. Maranzano + R. C. Haight;	1261
R. L. Maybach; A Version of Ratfor for the	PDP-11's RT-11 Operating System	1249
PWB/UNIX Beginner's Course (B.2) M. E.	Pearlman + S. H. Strauss;	1188
PWB/UNIX Operations Manual (I.3) M. E.	Pearlman;	1196
(CSACCS) E. Arthurs + J. L. Haase + C.	Perea + B. W. Stuck; /Control Center System	1450
UNIX System Call Measurements C. D.	Perez + T. M. Raleigh;	1113
Factory Acceptance Test R. B. Brandt + C. D.	Perez; DEC	1145
On Using The UNIX Error Logger C. D.	Perez;	1176
A Revised ERRPT Command C. D.	Perez;	1270

Guide to the C Library for UNIX Users	C. D. LSX	Perez; A	1446
/Real Time Listing Retrieval (RTL) Field Study		Performance J. N. Sturman;	1457
Administrative Control Center System (CSACCS)/		Performance Analysis E. Arthurs +/	1415
D. A. De Graaf + J. Feder; Preliminary		Performance Assessment of Customer Service and	1450
+ W. D. Roome; DIRECT II VAX		Performance Evaluation of Univac UNIX	1487
Oriented Processing. D. F. Hayden; Some MERT		Performance Improvement Estimates D. J. Huber	1422
Enhancements E. Arthurs +/ CNCC UNIX Project		Performance Measurements in Transaction	1182
Relative CPU		Performance Measurements, Projections and	1253
A C Library		Performance on C Language Programs J. Feder;	1480
Preliminary Report on RCMAS and MERT		Performance Problem A. Koenig;	1267
E. L. Hedrick, et al; RCMAS/MERT		Performance Problems E. L. Hedrick +/	1318
D. S. DeJager; Interprocess Communication		Performance Study and General Design Guidelines	1360
Teletype DATASPEED 40 Line Printer as a UNIX		Performance Trade-offs in CB-UNIX and UNIX/RT	1288
Data Acquisition System J. S. Kraus; A		Peripheral P. G. Dowd; The	1255
C. Christensen; Emulation of UNIX on		Peripheral Processor Interactive Control and	1289
Checking File Access		Peripheral Processors H. Lycklama +	1045
J. F. Maranzano; New		Permissions in UNIX Systems J. Lions;	1385
PWB/UNIX Edition 2.0 Preparation M. J.		Permuted Index Program on UNIX	1263
Using a Universal LEAP Script N. H.		Petrella + A. L. Sabsevit;	1403
for Reporting on Small Data Bases N. H.		Petschenik + R. P. Woodall; /Testing Technique	1238
UNIX Support Classifications For		Petschenik + R. P. Woodall; TERSE-A Technique	1496
Easy		PG-1C300-Issue 2 G. C. Vogel;	1046
Administration(RCMAS) D. G. Korn + M. A.		Phototypeset View Graphs on UNIX G. C. Vogel;	1139
Webster's Second on the Head of a		Pilla + N. M. Scribner + B. W. Stuck; /Memory	1322
PWB/UNIX Manual Page Macros (I.9) E. M.		Pin R. Morris + K. Thompson;	1082
With PWB/MM (T.3) D. W. Smith + E. M.		Piskorik;	1152
UNIX/TS Development		Piskorik; Typing Documents	1190
J. Arnold; Application		Plan R. C. Haight;	1484
UNIX/TS Release 1.0		Planning Guide, Release 0 of Basic-16	1315
Facility under UNIX D. W. Ting +/		Plans A. S. Cohen + J. F. Maranzano;	1232
C Language		PORT-A New Inter-process Communication	1230
Inter-UNIX		Portability B. A. Tague + R. C. Haight;	1204
On Understanding the Support of the		Portability T. L. Lyon + D. M. Ritchie;	1203
The Second Pass of the		Portable C Compiler J. F. Maranzano;	1269
A Tour Through the		Portable C Compiler J. Lions;	1430
Changes to C and the		Portable C Compiler S. C. Johnson;	1409
P. J. Weinberger; A		Portable C Compiler-Issue 1 B. R. Rowland;	1467
S. I. Feldman; Implementation of a		Portable Fortran 77 Compiler S. I. Feldman +	1248
M. R. Horton; A		Portable Fortran 77 Compiler Using Modern Tools	1354
the IBM 370 M. J. Bach + B. L. Smith;		Portable Version of the UNIX Text Editor Ed	1456
N. J. Kolettis; Extended Shell-A		Porting the ADAPT Data Translation System to	1373
+ R. Morris; BC-An Arbitrary		Potential Real Time Interpreter	1228
Operating System Work G. W. R. Luderer;		Precision Desk Calculator Language L. Cherry	1053
UNIX D. A. De Graaf + J. Feder;		Preliminary Considerations for Exploratory UNIX	1391
Field Study Performance Analysis E. Arthurs/		Preliminary Performance Evaluation of Univac	1487
Performance Problems E. L. Hedrick +/		Preliminary Real Time Listing Retrieval (RTL)	1415
of the C Programming Language, Part 0:		Preliminary Report on RCMAS and MERT	1318
L. Sabsevit;		Prelude R. Sethi; Semantics	1353
PWB/UNIX Edition 2.0		Preparation M. J. Petrella + A.	1403
A Guide To		Preparing Documents On UNIX M. E. Lesk;	1111
B. W. Kernighan; RATFOR-A		Preprocessor for a Rational Fortran	1193
UNIX/370-A Proposal B. G.		Pre-Release UNIX/TS R. C. Haight;	1274
J. R. Mashey; Using a Command Language as the		Prieve;	1310
A. L. Shirtz; UNIX Link To MBS Line		Primary Programming Tool T. A. Dolotta +	1452
The Teletype DATASPEED 40 Line		Printer and Computer Center Services	1181
Spooler and Daemon Software for a		Printer as a UNIX Peripheral P. G. Dowd;	1255
Matrix/ Synthesis Of A Half-Duplex Line Control		Printer Network J. E. Laur;	1448
New Trouble Reporting		Procedure For UNIX Using State Transition	1173
A Subroutine Package to do		Procedures J. F. Maranzano;	1326
UNIX Initialization and		Process Cleanup T. J. Dwyer;	1494
UNIX D. W. Ting; Optimizing		Process Control C. P. Imagna;	1128
		Process Creation and Termination Mechanisms in	1236

Synthetic	Process For UNIX D. R. Bernstein;	1114
Measurements in Transaction Oriented	Processing. D. F. Hayden; /MERT Performance	1182
Cut and Paste—Two UNIX Word	Processing Commands G. W. R. Luderer;	1205
M. J. Rochkind; NFTS: Tools For	Processing Data With Named Fields	1346
Final Report: Secretarial Word	Processing Facility Enhancement/	1386
A. V. Aho +/ Awk—A Pattern Scanning and	Processing Language (Second Edition)	1206
The M4 Macro	Processor B. W. Kernighan + D. M. Ritchie;	1160
An Array and Switching	Processor H. G. Alles;	1254
Power Supply Controller Using a MAC 8 Micro	Processor M. F. Robbins + R. Stensgaard;	1299
Software Support For Satellite	Processor R. J. Elliott;	1218
Handling for UNIX/370 Using a Front End	Processor S. J. Buroff; Terminal	1466
A 32-Bit	Processor Design S. C. Johnson;	1375
Acquisition System J. S. Kraus; A Peripheral	Processor Interactive Control and Data	1289
C. Christensen; A Minicomputer Satellite	Processor System H. Lycklama +	1247
Emulation of UNIX on Peripheral	Processors H. Lycklama + C. Christensen;	1045
Department 5254./ Notes on the Selection,	Procurement, Installation, and Usage of UNIX by	1201
S. J. Cunningham; NROFF Macros For	Producing Generic Program Documentation.	1148
Documentation of Minicomputer	Product Trials R. E. Swift;	1428
Design Aid For General-Purpose Artwork	Production V. A. Fasciano; Interactive	1266
W. W. Everett; Activity	Profile of the PWB/UNIX Operating System	1290
Cumulative Program	Profiling J. F. Reiser;	1286
SDMP—A Debugging Aid for UNIX C	Programmers A. L. Glasser;	1413
Operating System. W. A. Burnette +/	Programmer's Manual For the SEL-86 PDP-11/45	1155
Bell/ UNIX/32V Time-Sharing System: UNIX	Programmer's Manual, Version 1.0, Volume 1	1402
UNIX	Programmer's Manual—PG-1C300 Issue 3;	1088
Bell Laboratories; UNIX	Programmer's Manual—Seventh Edition, Volume 1	1400
2A & 2B Bell Laboratories; UNIX	Programmer's Manual—Seventh Edition, Volumes	1401
K. Thompson + D. M. Ritchie; UNIX	Programmer's Manual—Sixth Edition	1014
(B.1) J. R. Mashey;	Programmer's Workbench Documentation Roadmap	1121
International Conference On Software/	Programmer's Workbench Papers From The Second	1107
Guide to UNIVAC Remote Job Entry for	Programmer's Workbench Users T. G. Lyons;	1217
(G.1) T. A. Dolotta + R. C. Haight;	Programmer's Workbench—Synopsis Of Facilities	1109
J. R. Mashey; The UNIX	Programming Environment B. W. Kernighan +	1447
B. W. Kernighan;	Programming in C—A Tutorial (B.9)	1001
A Style Sheet For C	Programming, Issue 1 A. L. Glasser;	1143
The	Programming Language EFL S. I. Feldman;	1410
R. Sethi; Semantics of the C	Programming Language, Part 0: Prelude	1353
R. Sethi; Semantics of the C	Programming Language, Part 1: Statements	1376
R. Sethi; Semantics of the C	Programming Language, Part 2: Declarations	1427
D. M. Ritchie; The C	Programming Language—Reference Manual	1002
Language Concepts/ A Comparison of the	Programming Languages C and Pascal—Part One:	1465
MAC-8 Assembly Language	Programming Manual J. Angelo;	1221
Using a Command Language as the Primary	Programming Tool T. A. Dolotta +/	1452
D. M. Ritchie; UNIX	Programming—Second Edition B. W. Kernighan +	1073
Thoughts on Debugging C	Programs A. Koenig;	1486
Relative CPU Performance on C Language	Programs J. Feder;	1480
Writing Tools—The STYLE and DICTION	Programs L. L. Cherry + W. Vesterman;	1497
An Interactive Interface for C Language	Programs M. K. Radnik;	1377
DPD: Unix—Honeywell Interface	Programs M. R. Wagner;	1371
Make—A Program For Maintaining Computer	Programs S. I. Feldman;	1078
+ M. E. Koether; READ—C	Programs For Analyzing Readability E. U. Coke	1331
Tapes G. K. Swanson; RXD-11D: Two	Programs to Generate UNIX-Compatible Magnetic	1215
UNIX Facilities For The Development Of	Programs Written In Macro-11. P. D. Jensen;	1080
Adding Remote Files to UNIX—A	Progress Report on the File Server Project/	1434
/to UNIX—A Progress Report on the File Server	Project J. P. Haggerty + P. A. Kirsli;	1434
J. F. Maranzano; UNIX/RT on a DEC VAX-11/780	Project Contract R. L. Klein +	1372
and Enhancements E. Arthurs +/ CNCC UNIX	Project Performance Measurements, Projections	1253
CNCC UNIX Project Performance Measurements,	Projections and Enhancements E. Arthurs +/	1253
H. Marcus; A	PROM Writer Facility for UNIX Improved Version	1281
UNIX/370—A	Proposal B. G. Prieve;	1310
Development Laboratory P. W. Gwozdz;	Proposal for a Microprocessor Based Systems	1305
R. B. Brandt;	Proposal For UNIX Interprocess Communication	1090

UNIX Standardization Subcommittee	Proposed Archiving Facility G. C. Vogel;	1294
Makefiles A. L. Chellis;	Proposed Structure for UNIX/TS and UNIX/RT	1285
Basic-16	Prospectus C. Scussel;	1313
UNIX Line Discipline for IBM 2740-1	Protocol D. J. Huber;	1481
Formal Specification of X.25 Compatible Link	Protocol R. Ermann;	1389
A Virtual Terminal	Protocol for UNIX L. D. Goldsmith;	1451
Release 0.1 M. J. Shannon; SPS	Protocol Implemented for DZ11 Under MERT	1469
Design for Real-Time Retrieval (RTLRL)/ARU	Prototype System J. W. Hooker; /Subsystem	1306
/Retrieval (RTLRL)/Audio Response Unit (ARU)	Prototype System—Performance Measurements/	1355
Workbench/ A Software Architecture for	Providing a Graphics System Development	1342
A Guide to the of	Pseudo-ATS on UNIX HO Computer Center;	1301
/and Testing New Versions of a Good 48-bit	Pseudo-random Number Generator C. S. Roberts;	1453
A General	Purpose Assembler J. S. Thompson;	1357
Specification/User's/ MICA—A General	Purpose Microassembler: Functional	1220
New Text Formatting Software For The	PWB Hardware Help C. A. Brooks;	1423
ATS to	PWB Systems D. W. Smith;	1179
Reference Sheet For	PWB/Graphics Overview A. R. Feuer;	1398
D. W. Smith + J. R. Mashey; Summary of	PWB/MM Converter N. W. Smith;	1300
Typing Documents With	PWB/MM Macros R. F. Rosin;	1174
An Introduction to the	PWB/MM Macros, Strings, and Registers (T.2)	1216
Macros (T.2) J. R. Mashey + D. W. Smith;	PWB/MM (T.3) D. W. Smith + E. M. Piskorik;	1190
For Departmental Organization Directories On	PWB/MM Text Formatter K. E. Wendland;	1479
of a Boolean Data Analysis Technique for	PWB/MM Tutorial (T.4) N. W. Smith;	1191
A General-Purpose Subroutine Library for	PWB/MM—Programmer's Workbench Memorandum	1098
M. E. Pearlman + S. H. Strauss;	PWB/UNIX. D. W. Smith; /Formatting Codes	1115
M. J. Petrella + A. L. Sabsevit;	PWB/UNIX L. E. Bonanni; Implementation	1378
Exercises in Repairing	PWB/UNIX (B.11) A. L. Glasser;	1157
Repairing Damaged	PWB/UNIX Beginner's Course (B.2)	1188
L. A. Wehr; Setting Up	PWB/UNIX Edition 2.0 Preparation	1403
Administrative Advice for	PWB/UNIX File Systems P. D. Wandzilak;	1302
E. M. Piskorik;	PWB/UNIX File Systems (I.4) P. D. Wandzilak;	1197
Activity Profile of the	PWB/UNIX (I.1) R. C. Haight + W. D. Roome +	1194
M. E. Pearlman;	PWB/UNIX (I.2) R. C. Haight;	1195
A. L. Sabsevit;	PWB/UNIX Manual Page Macros (I.9)	1152
Tools for the Extraction and Reduction of	PWB/UNIX Operating System W. W. Everett;	1290
Guide to IBM Remote Job Entry for	PWB/UNIX Operations Manual (I.3)	1196
Department 3782;	PWB/UNIX RJE Administrator's Guide (I.5)	1198
T. A. Dolotta + D. W. Smith;	PWB/UNIX Shell Tutorial (B.5) J. R. Mashey;	1189
Questionnaire Data E. H. Albrecht;	PWB/UNIX Software Monitor Data L. E. Bonanni;	1474
QUEST—A Computer System To Collect	PWB/UNIX Users (B.12) A. L. Sabsevit;	1087
Record Handling under MERT/UNIX—The	PWB/UNIX User's Manual—Release 2.0	1407
Directory Assistance Services J. D. Gabbe +/	PWB/UNIX View Graph and Slide Macros (T.9)	1192
Interface for C Language Programs M. K.	QUEST Administration Handbook E. H. Albrecht;	1178
Within The UNIX Operating System. T. M.	QUEST—A Computer System To Collect	1172
to Scheduling and Switching under UNIX T. M.	Questionnaire Data E. H. Albrecht;	1172
Program Text After A System Crash. T. M.	Queue Facility J. S. Licwinko;	1443
For Analyzing UNIX System Crashes T. M.	QUIK: A Novel Approach to Computerized	1245
System Call Measurements C. D. Perez + T. M.	Radnik; An Interactive	1377
UNIX Algorithms and Implementation T. M.	Raleigh; Explanation Of Abnormal Conditions	1047
Description of MKCONF I. A. Hahner + T. M.	Raleigh; Introduction	1069
Given by T. M. Raleigh at Whippany T. M.	Raleigh; TCMP—A Program For Comparing	1092
Modification 0.1 to MERT Release 0.1 T. M.	Raleigh; DEAD—A Program	1093
Performance Problems E. L. Hedrick + T. M.	Raleigh; UNIX	1113
Implementation E. L. Hedrick + T. M.	Raleigh; Scheduling and Switching Under	1126
and Context Switches for UNIX/RT T. M.	Raleigh;	1140
on UNIX Scheduler and Switcher Given by T. M.	Raleigh; /on UNIX Scheduler and Switcher	1214
Conversion of SICPPR Files From UNIX to	Raleigh; Upgrading MERT Release 0 with	1287
	Raleigh; Preliminary Report on RCMAS and MERT	1318
	Raleigh; /Violations Different from PDP-11/45	1380
	Raleigh; /of Emts, Message Transfers	1500
	Raleigh at Whippany T. M. Raleigh; Lecture	1214
	RAMIS II M. B. Ellington;	1399

UNIX. J. D. Beyer; A Record Manager For	Random Access To Variable Length Records Under	1171
R. L. Maybach; A Version of	Ratfor for the PDP-11's RT-11 Operating System	1249
B. W. Kernighan;	RATFOR—A Preprocessor for a Rational Fortran	1193
RATFOR—A Preprocessor for a	Rational Fortran B. W. Kernighan;	1193
Asynchronous I/O Facilities for	Raw Block Devices under UNIX D. W. Ting;	1241
System—A Fast-Access File System Using UNIX	Raw I/O J. R. McSkimin; The Logical File	1473
E. L. Hedrick +/ Preliminary Report on	RCMAS and MERT Performance Problems	1318
Guidelines E. L. Hedrick, et al;	RCMAS/MERT Performance Study and General Design	1360
READ—C Programs For Analyzing	Readability E. U. Coke + M. E. Koether;	1331
E. U. Coke + M. E. Koether;	READ—C Programs For Analyzing Readability	1331
File System Structures for	Real-Time Applications H. Lycklama;	1276
REDAS—A Relational Data Access System For	Real-Time Applications J. R. McSkimin;	1344
H. Lycklama; MERT—A Multi-Environment	Real-Time Operating System. D. L. Bayer +	1062
Audio Response Unit (ARU) Subsystem Design for	Real-Time Retrieval (RTLRL)/ARU Prototype System/	1306
for the Service Evaluation Center—A UNIX-Based	Real-Time System S-J. Chang; /Capacity Study	1362
SEL/86—PDP-11 Configuration/ A	Real-Time Time-Shared Operating System For An	1122
B. C. Wonsiewicz +/ A Workshop on	Rebooting the UNIX Time-Sharing System	1336
D. G. Korn +/ Functional Operation of the	Recent Change Memory Administration(RCMAS)	1322
	Recent Changes to C B. R. Rowland;	1498
M. E. Greenberg +/ Numeric Pattern	Recognition Data Base for UNIX Systems	1085
Education Program R. M. Coben, et al;	Recommendations for A Company-Wide UNIX	1291
Facility J. S. Licwinko;	Record Handling under MERT/UNIX—The Queue	1443
Length Records Under UNIX. J. D. Beyer; A	Record Manager For Random Access To Variable	1171
Manager For Random Access To Variable Length	Records Under UNIX. J. D. Beyer; A Record	1171
Decentralized Transaction Control and Crash	Recovery P. J. Weinberger;	1251
A Database Transaction Backout and Crash	Recovery System W. A. Burnette;	1432
Real-Time Applications J. R. McSkimin;	REDAS—A Relational Data Access System For	1344
Generating System S. L. Arnold + B. E.	Redman; A Traffic	1333
L. E. Bonanni; Tools for the Extraction and	Reduction of PWB/UNIX Software Monitor Data	1474
UNIX	Reference Card—Second Edition L. L. Cherry;	1021
UNIX Assembler	Reference Manual D. M. Ritchie;	1012
8080/Z80 Assembler	Reference Manual G. C. Vogel;	1250
R. F. Rosin;	Reference Sheet For PWB/MM Macros	1174
R. Morris; A Library of	Reference Standard Mathematical Subroutines	1074
G. C. Vogel;	Referencing Standard UNIX Documentation	1037
8080/Z80 Simulator SM80 User Manual K. L.	Regelson;	1275
	Regenerating LSX Software H. Lycklama;	1131
MINI-UNIX	Regenerating MERT Software H. Lycklama;	1147
Summary of PWB/MM Macros, Strings, and	Regenerating System Software H. Lycklama;	1125
T. R. Crowley;	Registers (T.2) D. W. Smith + J. R. Mashey;	1216
A. L. Sabsevit; A	Regression Testing for C Compilers	1295
Display-Oriented Text Editor For UNIX J. F.	Regular Expression Matcher For The C Language	1101
Cumulative Program Profiling J. F.	Reiser; EDTV—A	1177
VAX-11/780 Computer T. B. London + J. F.	Reiser;	1286
D. B. Kirby;	Reiser; A UNIX Operating System for the DEC	1297
UNIX Specification—File System	Reissue No. 1 of MAC-8 Assembler User's Manual	1150
UNIX Specification—Process	Related System Calls G. C. Vogel;	1493
Applications J. R. McSkimin; REDAS—A	Related System Calls P. E. Cannata;	1495
CLIO—A	Relational Data Access System For Real-Time	1344
J. Feder;	Relational Data Base System P. S. Para;	1243
G. W. R. Luderer; MERT	Relative CPU Performance on C Language Programs	1480
Application Planning Guide,	Release 0 From Department 8234	1183
0.1 T. M. Raleigh; Upgrading MERT	Release 0 of Basic-16 J. Arnold;	1315
SPS Protocol Implemented for DZ11 Under MERT	Release 0 with Modification 0.1 to MERT Release	1287
MERT Release 0 with Modification 0.1 to MERT	Release 0.1 M. J. Shannon;	1469
UNIX/TS	Release 0.1 T. M. Raleigh; Upgrading	1287
J. F. Maranzano; UNIX/TS	Release 1.0 R. C. Haight;	1321
Operating System. W. A. Burnette + J. R.	Release 1.0 Plans A. S. Cohen +	1232
A C Compiler for the SEL Computer J. R.	Remde; /Manual For the SEL-86 PDP-11/45	1155
System PDP-11/70 Computer/ Evaluation of the	Remde;	1237
A. L. Glasser + D. W. Ting; A	Remote Diagnostic Console for use on Bell	1392
	Remote File System Driver for UNIX	1411

File Server Project J. P. Haggerty +/ Adding Users T. G. Lyons; Guide to UNIVAC A. L. Sabsevit; Guide to IBM P. D. Wandzilak; Exercises in P. D. Wandzilak; J. A. McGuire +/ UNIX/TS Augmented Task Force	Remote Files to UNIX—A Progress Report on the Remote Job Entry for Programmer's Workbench Remote Job Entry for PWB/UNIX Users (B.12) Repairing Damaged PWB/UNIX File Systems (I.4) Repairing PWB/UNIX File Systems Report R. A. Faulkner + D. S. DeJager + Report Generation on UNIX E. Borison; Report on RCMAS and MERT Performance Problems Report on the File Server Project/ Report: Secretarial Word Processing Facility Reporting on Small Data Bases Reporting Procedures J. F. Maranzano; Reporting System J. Dean; Reporting System L. W. Cannon; Representation and Manipulation Requirements B. W. Stuck; /(EADAS/NM) Resources By The Use of Intelligent Terminals Response Unit (ARU) Prototype/ Response Unit (ARU) Subsystem Design for Resume Input From User Terminals./ Retrieval (RTL) Field Study Performance Retrieval (RTL)/ARU Prototype System/ /Response Retrieval (RTL)/Audio Response Unit (ARU) Retrospective (G.3) D. M. Ritchie; Revised ERRPT Command C. D. Perez; Revised UNIX-to-UNIX Copy Command for Lab 323 Riddle; Circuit Ritchie + K. Thompson; Ritchie + M. E. Lesk; The C Language Ritchie; The C Ritchie; Ritchie; Ritchie; UNIX Programmer's Ritchie; C—Language Oriented Microprogram Ritchie; UNIX Programming—Second Ritchie; Ritchie; Ritchie; The Ritchie; The UNIX Time-Sharing Ritchie; Ritchie; Ritchie; The Evolution RJE Administrator's Guide (I.5) Road Map G. A. Snyder + J. R. Mashey; Roadmap (B.1) J. R. Mashey; Robbins + R. Kerr; /Data Acquisition System With Robbins + R. Stensgaard; /Supply Controller Robbins; /Analysis Program for the MERT-UNIX Roberts; /Utility Program to List a UNIX File Roberts; Numeric Pattern Recognition Data Base Roberts; /and Testing New Versions of a Good Rochkind; Rochkind; NFTS: Tools Rochkind; Rogan; /File Management (FM) Command-Software Roome + L. A. Wehr; Setting Roome; Roome; DIRECT II VAX Performance Rosenthal; Rosin; Rosin; "Introduction Routine to Handle Command Line Parsing	1434 1217 1087 1197 1302 1382 1337 1318 1434 1386 1496 1326 1324 1338 1455 1449 1329 1355 1306 1076 1415 1306 1355 1187 1270 1361 1165 1008 1207 1002 1005 1012 1014 1058 1073 1138 1159 1160 1187 1203 1408 1470 1198 1485 1121 1169 1299 1222 1068 1085 1453 1156 1346 1461 1379 1194 1412 1422 1381 1174 1199 1260
E. L. Hedrick + T. M. Raleigh; Preliminary Adding Remote Files to UNIX—A Progress Enhancement J. M. Shanahan; Final N. H. Petschenik +/ TERSE—A Technique for New Trouble Modifications to the Trouble Enhancements to the USG Trouble J. P. Linderman; DIRECT II Data Capacity Estimation—Methodology and Data J. F. Maranzano; Effects On UNIX Host CPU Real Time Listing Retrieval (RTL)/Audio Real-Time Retrieval (RTL)/ARU Prototype/ Audio LKOUT—A New UNIX System Call To Suspend And Analysis/ Preliminary Real Time Listing Unit (ARU) Subsystem Design for Real-Time Prototype/ Real Time Listing The UNIX Time-Sharing System—A A R. B. Lyon; Use of the Design Aids On UNIX A. G. Fraser + G. G. The UNIX Time-Sharing System D. M. Calling Sequence S. C. Johnson + D. M. Programming Language—Reference Manual D. M. The UNIX I/O System D. M. UNIX Assembler Reference Manual D. M. Manual—Sixth Edition K. Thompson + D. M. for the HP-21MX A. G. Fraser + D. M. Edition B. W. Kernighan + D. M. On The Security Of UNIX D. M. A New Input-Output Package (B.10) D. M. M4 Macro Processor B. W. Kernighan + D. M. System—A Retrospective (G.3) D. M. Inter-UNIX Portability T. L. Lyon + D. M. A Tour Through the UNIX C Compiler D. M. of the Unix Time-Sharing System D. M. A. L. Sabsevit; PWB/UNIX UNIX/TS Documentation Programmer's Workbench Documentation A CAMAC Real Time TM-Display R. A. Boie + M. Using a MAC 8 Micro Processor M. F. Operating System E. Shapiro + M. F. Stored on a 9-Track Magnetic Tape. C. S. for UNIX Systems M. E. Greenberg + C. S. 48-bit Pseudo-random Number Generator C. S. A Generalized Data Entry System M. J. For Processing Data With Named Fields M. J. YADS—Yet Another Database System M. J. Development and Control Facility R. E. Up PWB/UNIX (I.1) R. C. Haight + W. D. DIRECT II In-Core Tables: User's Guide W. D. Improvement Estimates D. J. Huber + W. D. The USG UNIX Stockroom V. H. Reference Sheet For PWB/MM Macros R. F. to Software"—A Videotape Course R. F. S. A. Uhlir; Comnd -- A		

R. B. Freeman; Parse()—A C Language	1271
A. G. Fraser; C Language	1388
MAC-8 C For Beginners H. D.	1166
C and the Portable C Compiler—Issue 1 B. R.	1467
Recent Changes to C B. R.	1498
BLOSIM—A Discrete Time Block-Simulator G.	1079
A Version of Ratfor for the PDP-11's	1249
Preliminary Real Time Listing Retrieval	1415
/(ARU) Subsystem Design for Real-Time Retrieval	1306
Real Time Listing Retrieval	1355
UNIX for the Z80 Microprocessor S. M.	1394
Synthetic English Speech by	1025
Timing Tests of the UNIGRAPHIX Graphics System	1233
UNIX-Compatible Magnetic Tapes/	1215
Job Entry for PWB/UNIX Users (B.12) A. L.	1087
Expression Matcher For The C Language A. L.	1101
RJE Administrator's Guide (I.5) A. L.	1198
+ D. S. DeJager + J. A. McGuire + A. L.	1382
2.0 Preparation M. J. Petrella + A. L.	1403
System User's Guide L. E. Bonanni + C. A.	1367
Software Support For	1218
C. Christensen; A Minicomputer	1247
Edition) A. V. Aho +/ Awk—A Pattern	1206
Multi-Processor DMERT E. P.	1472
The DIRECT II	1462
at Whippany T. M. Raleigh; Lecture on UNIX	1214
T. M. Raleigh; Introduction to	1069
and Implementation T. M. Raleigh;	1126
Lexical Analyzer Generator M. E. Lesk + E.	1061
Graphics System Development Workbench S. T.	1342
Under the UNIX Operating System S. T.	1233
/D. G. Korn + M. A. Pilla + N. M.	1322
System Testing Technique Using a Universal LEAP	1238
B. E. Hess; An Interactive LEAP	1223
Graphic Symbols For EQN And NEQN (T.8) C.	1112
Basic-16 Prospectus C.	1313
J. F. Maranzano;	1369
A. L. Glasser;	1328
P. M. Lu +/ Load Characterization for	1413
Program Structures P. A. Fargo;	1436
Awk—A Pattern Scanning and Processing Language	1468
Typesetting Mathematics—User's Guide	1206
E. F. Engelbert; A	1011
Enhancement J. M. Shanahan; Final Report:	1091
UNIX File	1386
K. Thompson; Password	1335
P. J. Weinberger; An Essay in Computer	1259
On The	1345
L. E. McMahon;	1138
PDP-11/45/ PDP-11/70 Design Error: Handling	1307
A C Compiler for the	1380
W. A. Burnette +/ Programmer's Manual For the	1237
A Real-Time Time-Shared Operating System For An	1155
of UNIX by Department 5254./ Notes on the	1122
0: Prelude R. Sethi;	1201
1: Statements R. Sethi;	1353
2: Declarations R. Sethi;	1376
Implementation of	1427
A	1136
M. E. Lesk; The C Language Calling	1492
Files to UNIX—A Progress Report on the File	1207
Routine to Parse a String into Words	1434
Routines for Multi-Thread Computations	
Rovegno;	
Rowland; Changes to	
Rowland;	
Roylance (MIT) + M. T. Dolan + J. F. Kaiser;	
RT-11 Operating System R. L. Maybach;	
(RTL) Field Study Performance Analysis/	
(RTL)/ARU Prototype System J. W. Hooker;	
(RTL)/Audio Response Unit (ARU) Prototype/	
Rubin; A Filesystemless	
Rule M. D. McIlroy;	
Running on a DEC PDP-11/70 Under the UNIX/	
RXD-11D: Two Programs to Generate	
Sabsevitz; Guide to IBM Remote	
Sabsevitz; A Regular	
Sabsevitz; PWB/UNIX	
Sabsevitz; /Task Force Report R. A. Faulkner	
Sabsevitz; PWB/UNIX Edition	
Salemi; Source Code Control	
Satellite Processor R. J. Elliott;	
Satellite Processor System H. Lycklama +	
Scanning and Processing Language (Second	
Schan;	
Scheduler H. E. Cato;	
Scheduler and Switcher Given by T. M. Raleigh	
Scheduling and Switching under UNIX	
Scheduling and Switching Under UNIX Algorithms	
Schmidt; Lex—A	
Schuyler + M. M. Chodrow; /for Providing a	
Schuyler; /System Running on a DEC PDP-11/70	
Scribner + B. W. Stuck;	
Script N. H. Petschenik + R. P. Woodall; A	
Script Generator (ILSG) H. M. Cykiert +	
Scrocca; New	
Scussel;	
Sdb: A Symbolic Debugger H. P. Katseff;	
Sdiff, a Side-by-side Difference Program	
SDMP—A Debugging Aid for UNIX C Programmers	
SDS/UNIX V. P. Holmes + B. J. B. Lax +	
SE—A Structure Editor Program for Accessing C	
(Second Edition) A. V. Aho + B. W. Kernighan/	
(Second Edition) B. W. Kernighan +/	
Secretarial Typing System Using UNIX	
Secretarial Word Processing Facility	
Security R. Morris;	
Security: A Case History R. Morris +	
Security: Decrypting A Former UNIX crypt	
Security Of UNIX D. M. Ritchie;	
SED—A Non-interactive Text Editor	
Segmentation Violations Different from	
SEL Computer J. R. Remde;	
SEL-86 PDP-11/45 Operating System.	
SEL/86—PDP-11 Configuration W. A. Burnette;	
Selection, Procurement, Installation, and Usage	
Semantics of the C Programming Language, Part	
Semantics of the C Programming Language, Part	
Semantics of the C Programming Language, Part	
Semaphores and Messages in UNIX R. B. Brandt;	
Send-only UUCP Facility H. Che;	
Sequence S. C. Johnson + D. M. Ritchie +	
Server Project J. P. Haggerty +/ /Remote	

Link To MBS Line Printer and Computer Center	Services A. L. Shirtz; UNIX	1181
Approach to Computerized Directory Assistance	Services J. D. Gabbe + C. N. Judice +/ /Novel	1245
Experimental Office Communications	Services—Message System R. E. Hoffman;	1421
C Programming Language, Part 0: Prelude R.	Sethi; Semantics of the	1353
Programming Language, Part 1: Statements R.	Sethi; Semantics of the C	1376
Language, Part 2: Declarations R.	Sethi; Semantics of the C Programming	1427
H. Lycklama;	Setting Up LSI-UNIX—First Edition	1130
W. D. Roome + L. A. Wehr;	Setting Up PWB/UNIX (I.1) R. C. Haight +	1194
	Setting Up UNIX/TS R. C. Haight + L. A. Wehr;	1320
	Setting-Up MERT—Second Edition H. Lycklama;	1146
H. Lycklama;	Setting-Up MINI-UNIX—Sixth Edition	1124
Word Processing Facility Enhancement J. M.	Shanahan; Final Report: Secretarial	1386
H. N. Dorris + D. W. Hagelbarger + M. J.	Shannon; /Assisted Communication System	1283
for DZ11 Under MERT Release 0.1 M. J.	Shannon; SPS Protocol Implemented	1469
Assisted Communication System. (CACS) M. J.	Shannon Jr.; A Computer	1184
for the MERT-UNIX Operating System E.	Shapiro + M. F. Robbins; /Data Analysis Program	1222
Stand Alone Operating System (ISIS) and a Time	Shared Computer System (UNIX)/ /Between a	1433
	Shared Memory In UNIX D. S. De Jager;	1127
Exploratory Data Analysis E. Arthurs + N.	Sharko + B. W. Stuck; /Operator Work Time	1414
G. A. Snyder;	Shcvt—A Tool for Shell Conversion	1244
A. L. Glasser; A Style	Sheet For C Programming, Issue 1	1143
Reference	Sheet For PWB/MM Macros R. F. Rosin;	1174
Converting USG Shell Command Files for the New	Shell M. A. Csaszar; Examples of	1210
An Introduction to the UNIX	Shell S. R. Bourne;	1239
M. A. Csaszar; Examples of Converting USG	Shell Command Files for the New Shell	1210
Shcvt—A Tool for	Shell Conversion G. A. Snyder;	1244
C. A. Witschorik; A	Shell Operator for Inter-Machine Communication	1499
	Shell Subprogram Facility J. Lions;	1327
PWB/UNIX	Shell Tutorial (B.5) J. R. Mashey;	1189
N. J. Kolettis; Extended	Shell—A Potential Real Time Interpreter	1228
LSI-11, MAC-8, Z80 M. H. Bradley + W. E.	Sherbon + J. S. Waldhuter; /the C Language:	1347
Printer and Computer Center Services A. L.	Shirtz; UNIX Link To MBS Line	1181
M. B. Ellington; Conversion of	SICPPR Files From UNIX to RAMIS II	1399
J. F. Maranzano; Sdiff, a	Side-by-side Difference Program	1328
B. C. Wonsiewicz + A. R. Storm + J. D.	Siever; /Machinery, and Experiments	1219
Cautions On The Use Of The Alarm	Signal T. G. Lyons;	1094
An Interactive Control Language For	SIM L. L. Cherry;	1105
INTEL 8048 Simulator	(SIM48) User Manual T. J. Mulrooney;	1445
L. L. Cherry;	SIM—A Language For Simulating Computers	1097
SIM—A Language For	Simulating Computers L. L. Cherry;	1097
J. F. Kaiser; BLOSIM—A Discrete Time Block	Simulator G. Roylance (MIT) + M. T. Dolan +	1079
UNIX Based TSPS Hotel-Motel Traffic	Simulator S. Michael;	1397
8080	SIMULATOR (i80sim) USER MANUAL B. B. Hofmann;	1224
T. J. Mulrooney; INTEL 8048	Simulator (SIM48) User Manual	1445
8080/Z80	Simulator SM80 User Manual K. L. Regelson;	1275
Center—A UNIX-Based Real-Time System	S-J. Chang; /Study for the Service Evaluation	1362
D. W. Smith; PWB/UNIX View Graph and	Slide Macros (T.9) T. A. Dolotta +	1192
8080/Z80 Simulator	SM80 User Manual K. L. Regelson;	1275
J. W. Farrell; User's Guide to the	SMAL2 Language for the Zilog Z80 Microprocessor	1262
Typing Documents With PWB/MM (T.3) D. W.	Smith + E. M. Piskorik;	1190
Macros, Strings, and Registers (T.2) D. W.	Smith + J. R. Mashey; Summary of PWB/MM	1216
Memorandum Macros (T.2) J. R. Mashey + D. W.	Smith; PWB/MM—Programmer's Workbench	1098
Organization Directories On PWB/UNIX. D. W.	Smith; /Formatting Codes For Departmental	1115
Software For The PWB Systems D. W.	Smith; New Text Formatting	1179
PWB/MM Tutorial (T.4) N. W.	Smith;	1191
and Slide Macros (T.9) T. A. Dolotta + D. W.	Smith; PWB/UNIX View Graph	1192
ATS to PWB/MM Converter N. W.	Smith;	1300
System to the IBM 370 M. J. Bach + B. L.	Smith; Porting the ADAPT Data Translation	1373
UNIX/TS Documentation Road Map G. A.	Snyder + J. R. Mashey;	1485
Shcvt—A Tool for Shell Conversion G. A.	Snyder;	1244
MINI-UNIX Regenerating System	Software H. Lycklama;	1125
LSX	Software H. Lycklama;	1129

Regenerating LSX	Software H. Lycklama;	1131
Regenerating MERT	Software H. Lycklama;	1147
System Development Workbench/ A	Software Architecture for Providing a Graphics	1342
An ICE-85 Based 8085	Software Development System W. Densmore;	1417
M. E. Lesk + A. S. Cohen; UNIX	Software Distribution by Communication Link	1279
A Fast	Software Encryption Algorithm R. Morris;	1334
/From The Second International Conference On	Software Engineering. (G.4) T. A. Dolotta, et/	1107
Spooler and Daemon	Software for a Printer Network J. E. Laur;	1448
New Text Formatting	Software For The PWB Systems D. W. Smith;	1179
for the Extraction and Reduction of PWB/UNIX	Software Monitor Data L. E. Bonanni; Tools	1474
N. R. Fildes; Craft Access System	Software Standards E. K. Evenson +	1366
R. J. Elliott;	Software Support For Satellite Processor	1218
Guidelines for Converting MERT	Software to UNIX/RT R. S. Kaplan;	1476
"Introduction to	Software"—A Videotape Course R. F. Rosin;	1199
A Lexicographic Multikey	Sort Program ZSORT H. Zucker;	1209
DIRECT II	Sort Utilities J. P. Linderman;	1454
The Evolution of a	Source Code Control System A. L. Glasser;	1304
L. E. Bonanni + C. A. Salemi;	Source Code Control System User's Guide	1367
System I/O Buffers out of UNIX Data Address	Space D. W. Ting; Moving	1235
A. G. Fraser +/ File Integrity And	Space Accounting For A UNIX Based System.	1164
D. W. Ting; Enlarging PDP-11 UNIX Table	Space Using Supervisor Mode A. L. Glasser +	1257
R. Ermann; Formal	Specification of X.25 Compatible Link Protocol	1389
G. C. Vogel; UNIX	Specification—File System Related System Calls	1493
P. E. Cannata; UNIX	Specification—Process Related System Calls	1495
General Purpose Microassembler: Functional	Specification/User's Manual—Issue II/ MICA—A	1220
Synthetic English	Speech by Rule M. D. McIlroy;	1025
More Flexible Low	Speed I/O for UNIX J. Feder;	1202
Network J. E. Laur;	Spooler and Daemon Software for a Printer	1448
Release 0.1 M. J. Shannon;	SPS Protocol Implemented for DZ11 Under MERT	1469
Shared Computer System/ An Interface Between a	Stand Alone Operating System (ISIS) and a Time	1433
A	Stand-Alone Input/Output Library S. R. Eisen;	1475
Update Files for the C	Standard Library A. Koenig;	1364
A Library of Reference	Standard Mathematical Subroutines R. Morris;	1074
G. C. Vogel;	Standard UNIX Configurations—Issue 2	1365
Referencing	Standard UNIX Documentation G. C. Vogel;	1037
Facility G. C. Vogel; UNIX	Standardization Subcommittee Proposed Archiving	1294
Version 7 Descendants G. W. R. Luderer;	Standardizing File Types in the Inodes of UNIX	1256
Craft Access System Software	Standards E. K. Evenson + N. R. Fildes;	1366
Indian Hill C Style and Coding	Standards L. W. Cannon, et al;	1356
Data Through Computer Displayed Forms E. W.	Stark + H. Lycklama; System For Entering	1117
System D. S. Lo; A Mechanism of	Starting a Program in a UNIX Based Operating	1488
of the C Programming Language, Part 1:	STAT: A Tool for Analyzing Data A. R. Feuer;	1252
H. Gajewska + S. C. Johnson; Some	Statements R. Sethi; Semantics	1376
Uustat—A UUCP	Statistics On The Usage Of The C Language	1102
a MAC 8 Micro Processor M. F. Robbins + R.	Status Inquiry Program H. Che;	1491
The USG UNIX	Stensgaard; Power Supply Controller Using	1299
A Tape Back-Up System For The Network File	Stockroom V. H. Rosenthal;	1381
/IBM/370 Utility Program to List a UNIX File	Store R. J. Elliott;	1081
and Experiments B. C. Wonsiewicz + A. R.	Stored on a 9-Track Magnetic Tape./	1068
TEKSTARE and GSIP Graphics Packages. A. R.	Storm + J. D. Siever; /of Apparatus, Machinery,	1219
Time-Sharing System B. C. Wonsiewicz + A. R.	Storm; Instructions For GRAPH, TEK,	1110
Course (B.2) M. E. Pearlman + S. H.	Storm; A Workshop on Rebooting the UNIX	1336
Parse()—A C Language Routine to Parse a	Strauss; PWB/UNIX Beginner's	1188
Switching Control Center B. C. Hoalst;	String into Words R. B. Freeman;	1271
R. G. Carr; Character	String Manipulation and Conversion Library for	1211
J. R. Mashey; Summary of PWB/MM Macros,	String Manipulation in the C Language	1208
Information Exchange User's Guide B. I.	Strings, and Registers (T.2) D. W. Smith +	1216
B. S. Baker;	Strom; Computer Buffered	1406
Program Structures P. A. Fargo; SE—A	Struct—A Program Which Structures Fortran	1084
A. S. Cohen; Supported	Structure Editor Program for Accessing C	1468
A. L. Chellis; Proposed	Structure for Local Modifications to UNIX	1420
	Structure for UNIX/TS and UNIX/RT Makefiles	1285

H. Lycklama + D. L. Bayer; A Editor Program for Accessing C Program H. Lycklama; File System Struct-A Program Which An Algorithm For MDS Interface Joseph E. Lencoski + E. Arthurs + P. Daily + R. Jakubek + B. W. to Estimate Mean Disk Access Time B. W. + M. A. Pilla + N. M. Scribner + B. W. Data Analysis E. Arthurs + N. Sharko + B. W. Analysis E. Arthurs + D. W. Cragun + B. W. and Data Requirements B. W. E. Arthurs + J. L. Haase + C. Perea + B. W. For The Generation of View Graphs J. N. LSX Performance J. N. al; Indian Hill C W. Vesterman; Writing Tools-The A. L. Glasser; A Minutes, ISCC Common Command G. C. Vogel; UNIX Standardization Shell A. L. Glasser; A General-Purpose T. J. Dwyer; A A Library of Reference Standard Mathematical (RTLRL)/ARU Prototype/ Audio Response Unit (ARU) TBL Options MINI-UNIX LSI-UNIX UNIX Registers (T.2) D. W. Smith + J. R. Mashey; The MERT/UNIX Writing a MERT Enlarging PDP-11 UNIX Table Space Using M. F. Robbins + R. Stensgaard; Power An Integrated System For Microprocessor Timesharing Terminals./ UNIX DH-11 Driver To G. C. Vogel; UNIX R. J. Elliott; Software J. F. Maranzano; On Understanding the UNIX A. S. Cohen; M. H. Bradley/ Evaluation of Microprocessors LKOUT-A New UNIX System Call To Under the UNIX Time-Sharing System. G. K. UNIX-Compatible Magnetic Tapes G. K. A UNIX Driver For The MINITAPE System R. E. of Minicomputer Product Trials R. E. T. M. Raleigh; Lecture on UNIX Scheduler and /of Emts, Message Transfers and Context String Manipulation and Conversion Library for An Array and Introduction to Scheduling and Implementation T. M. Raleigh; Scheduling and Sdb: A New Graphic UNIX/ Beta Test of the COMM IOP-DUP G. C. Vogel; UNIX Command Procedure For UNIX Using State Transition/ M. D. McIlroy; Integrity And Space Accounting For A UNIX Based Structured Operating System for a PDP-11/45 1052 Structures P. A. Fargo; SE-A Structure 1468 Structures for Real-Time Applications 1276 Structures Fortran B. S. Baker; 1084 Structuring Flowgraphs B. S. Baker; 1103 Stuart A. Tartarone; UNIX-INTELLEC 1118 Stuck; /Projections and Enhancements 1253 Stuck; Using a Line Clock 1282 Stuck; /Administration(RCMAS) D. G. Korn 1322 Stuck; /Operator Work Time Exploratory 1414 Stuck; /(RTLRL) Field Study Performance 1415 Stuck; /Capacity Estimation-Methodology 1449 Stuck; /Control Center System (CSACCS) 1450 Sturman; mview-A Set of Macrocommands 1280 Sturman; 1457 Style and Coding Standards L. W. Cannon, et 1356 STYLE and DICTION Programs L. L. Cherry + 1497 Style Sheet For C Programming, Issue 1 1143 Subcommittee N-P. Nelson; 1340 Subcommittee Proposed Archiving Facility 1294 Subprogram Facility J. Lions; 1327 Subroutine Library for PWB/UNIX (B.11) 1157 Subroutine Package to do Process Cleanup 1494 Subroutines R. Morris; 1074 Subsystem Design for Real-Time Retrieval 1306 Summary H. F. Okrent; 1314 Summary H. Lycklama; 1123 Summary H. Lycklama; 1158 Summary M. D. McIlroy; 1043 Summary of PWB/MM Macros, Strings, and 1216 Supervisor H. Lycklama; 1278 Supervisor W. A. Burnette; 1258 Supervisor Mode A. L. Glasser + D. W. Ting; 1257 Supply Controller Using a MAC 8 Micro Processor 1299 Support D. H. Copp + R. J. Council +/ 1153 Support Both Teletypewriter And DATASPEED 40 1077 Support Classifications For PG-1C300-Issue 2 1046 Support for C on IBM Computers F. T. Grampp; 1348 Support For Satellite Processor 1218 Support of the Portable C Compiler 1269 Supported Structure for Local Modifications to 1420 Supporting the C Language: LSI-11, MAC-8, Z80 1347 Suspend And Resume Input From User Terminals./ 1076 Swanson; /C Version Of Deferred GRAFPAC 1018 Swanson; RXD-11D: Two Programs to Generate 1215 Swift; CM, 1167 Swift; Documentation 1428 Switcher Given by T. M. Raleigh at Whippany 1214 Switches for UNIX/RT T. M. Raleigh; 1500 Switching Control Center B. C. Hoalst; 1211 Switching Processor H. G. Alles; 1254 Switching under UNIX T. M. Raleigh; 1069 Switching Under UNIX Algorithms and 1126 Symbolic Debugger H. P. Katseff; 1369 Symbols For EQN And NEQN (T.8) C. Scrocca; 1112 Synchronous Communciations Controller under 1240 Synchronous Terminals for MERT J. E. Laur; 1459 Syntax A. S. Cohen + S. B. Olsson + 1358 Synthesis Of A Half-Duplex Line Control 1173 Synthetic English Speech by Rule 1025 Synthetic Process For UNIX D. R. Bernstein; 1114 System. A. G. Fraser + R. J. Elliott; File 1164

MERT—A Multi-Environment Real-Time Operating Of Deferred GRAFPAC Under the UNIX Time-Sharing /an INTELLEC MDS And A Time-Shared Computer Abnormal Conditions Within The UNIX Operating /Manual For the SEL-86 PDP-11/45 Operating A Computer Assisted Communication Volume 1 Bell/ UNIX/32V Time-Sharing Nroff/ Typing Documents on the UNIX Raw I/O J. R. McSkimin; The Logical File The Tandem Computer The UNIX Time-Sharing Engineering and Data Acquisition (RTLRL)/Audio Response Unit (ARU) Prototype The UNIX Operating A Dail-Up Network of UNIX for use on Bell System PDP-11/70 Computer New Text Formatting Software For The PWB Facility for Transaction Oriented UNIX Checking File Access Permissions in UNIX Numeric Pattern Recognition Data Base for UNIX Exercises in Repairing PWB/UNIX File Proposal for a Microprocessor Based Repairing Damaged PWB/UNIX File Virtual File B. G. Haskell + O. C. Yue; of PWB/MM Macros, Strings, and Registers /Workbench Memorandum Macros Typing Documents With PWB/MM PWB/MM Tutorial New Graphic Symbols For EQN And NEQN PWB/UNIX View Graph and Slide Macros A. L. Glasser +/ Enlarging PDP-11 UNIX TBL—A Program To Format DIRECT II In-Core C Language Portability B. A. A. M. Usas; The List a UNIX File Stored on a 9-Track Magnetic R. J. Elliott; A Programs to Generate UNIX-Compatible Magnetic Computer System. J. E. Lencoski + S. A. MDS Interface Joseph E. Lencoski + Stuart A. D. S. DeJager +/ UNIX/TS Augmented After A System Crash. T. M. Raleigh; B. W. Kernighan; Computer Typesetting Of Implementation of a Boolean Data Analysis N. H. Petschenik + R. P. Woodall; TERSE—A N. H. Petschenik +/ A System Testing For UNIX Using State Transition Matrix A. R. Storm; Instructions For GRAPH, A. R. Storm; Instructions For GRAPH, TEK, Peripheral P. G. Dowd; The Terminals./ UNIX DH-11 Driver To Support Both A Faster End Processor S. J. Buroff; J. Feder; A Virtual Host CPU Resources By The Use of Intelligent Call To Suspend And Resume Input From User Teletypewriter And DATASPEED 40 Timesharing System for Automated Testing of Asynchronous	System. D. L. Bayer + H. Lycklama; 1062 System. G. K. Swanson; /C Version 1018 System. J. E. Lencoski + S. A. Tartarone +/ 1168 System. T. M. Raleigh; Explanation Of 1047 System. W. A. Burnette + J. R. Remde; 1155 System. (CACS) M. J. Shannon Jr.; 1184 System: UNIX Programmer's Manual, Version 1.0, 1402 System: Using the —ms Macros with Troff and 1028 System—A Fast-Access File System Using UNIX 1473 System—A First Look A. M. Usas; 1330 System—A Retrospective (G.3) D. M. Ritchie; 1187 System/Network Management (EADAS/NM) Capacity/ 1449 System—Performance Measurements/ /Retrieval 1355 System—PG-1C300 G. C. Vogel; 1162 Systems D. A. Nowitz + M. E. Lesk; 1437 Systems D. L. Clark; /Diagnostic Console 1392 Systems D. W. Smith; 1179 Systems D. W. Ting; /Communications 1303 Systems J. Lions; 1385 Systems M. E. Greenberg + C. S. Roberts; 1085 Systems P. D. Wandzilak; 1302 Systems Development Laboratory P. W. Gwozdz; 1305 Systems (I.4) P. D. Wandzilak; 1197 Systems on MERT L. L. Hamilton; 1343 SYSTID on F4P-UNIX—User's Guide 1387 (T.2) D. W. Smith + J. R. Mashey; Summary 1216 (T.2) J. R. Mashey + D. W. Smith; 1098 (T.3) D. W. Smith + E. M. Piskorik; 1190 (T.4) N. W. Smith; 1191 (T.8) C. Scrocca; 1112 (T.9) T. A. Dolotta + D. W. Smith; 1192 Table Space Using Supervisor Mode 1257 Tables M. E. Lesk; 1106 Tables: User's Guide W. D. Roome; 1412 Tague + R. C. Haight; 1204 Tandem Computer System—A First Look 1330 Tape. C. S. Roberts; /Utility Program to 1068 Tape Back-Up System For The Network File Store 1081 Tapes G. K. Swanson; RXD-11D: Two 1215 Tartarone + J. E. Wilkes Jr.; /A Time-Shared 1168 Tartarone; UNIX-INTELLEC 1118 Task Force Report R. A. Faulkner + 1382 TBL Options Summary H. F. Okrent; 1314 TBL—A Program To Format Tables M. E. Lesk; 1106 TCMP—A Program For Comparing Program Text 1092 Technical Journals On UNIX M. E. Lesk + 1089 Technique for PWB/UNIX L. E. Bonanni; 1378 Technique for Reporting on Small Data Bases 1496 Technique Using a Universal LEAP Script 1238 Techniques P. F. Long; /Control Procedure 1173 TEK, TEKSTARE and GSIP Graphics Packages. 1110 TEKSTARE and GSIP Graphics Packages. 1110 Teletype DATASPEED 40 Line Printer as a UNIX 1255 Teletypewriter And DATASPEED 40 Timesharing 1077 Terminal Handler for UNIX J. Feder; 1265 Terminal Handling for UNIX/370 Using a Front 1466 Terminal Handling Under UNIX and MERT/UNIX 1316 Terminal Protocol for UNIX L. D. Goldsmith; 1451 Terminals J. F. Maranzano; Effects On UNIX 1329 Terminals. R. C. White, Jr.; /New UNIX System 1076 Terminals. R. C. White, Jr.; /To Support Both 1077 Terminals and Hosts M. B. Mueller; /Based 1489
---	---

Synchronous	Terminals for MERT J. E. Laur;	1459
T. B. Muenzer; Monitor	terminals under the UNIX operating system	1332
Optimizing Process Creation and	Termination Mechanisms in UNIX D. W. Ting;	1236
Bases N. H. Petschenik + R. P. Woodall;	TERSE—A Technique for Reporting on Small Data	1496
DEC Factory Acceptance	Test R. B. Brandt + C. D. Perez;	1145
Communications Controller under UNIX/ Beta	Test of the COMM IOP-DUP Synchronous	1240
cq—A Program for	Testing C Compilers F. T. Grampp;	1426
Regression	Testing for C Compilers T. R. Crowley;	1295
Pseudo-random Number/ Implementing and	Testing New Versions of a Good 48-bit	1453
A UNIX Based System for Automated	Testing of Asynchronous Terminals and Hosts/	1489
N. H. Petschenik + R. P. Woodall; A System	Testing Technique Using a Universal LEAP Script	1238
Program	Testing—Work to be Done F. T. Grampp;	1439
on a DEC PDP-11/70 Under the UNIX/ Timing	Tests of the UNIGRAPHIX Graphics System Running	1233
TCMP—A Program For Comparing Program	Text After A System Crash. T. M. Raleigh;	1092
A Tutorial Introduction to the UNIX	Text Editor B. W. Kernighan;	1000
SED—A Non-interactive	Text Editor L. E. McMahon;	1307
A Portable Version of the UNIX	Text Editor Ed M. R. Horton;	1456
EDTV—A Display-Oriented	Text Editor For UNIX J. F. Reiser;	1177
An Introduction to the PWB/MM	Text Formatter K. E. Wendland;	1479
D. W. Smith; New	Text Formatting Software For The PWB Systems	1179
UNIX Programmer's Manual—Sixth Edition K.	Thompson + D. M. Ritchie;	1014
UNIX Time-Sharing System D. M. Ritchie + K.	Thompson; The	1008
Second on the Head of a Pin R. Morris + K.	Thompson; Webster's	1082
Security: A Case History R. Morris + K.	Thompson; Password	1259
A General Purpose Assembler J. S.	Thompson;	1357
	Thoughts on Debugging C Programs A. Koenig;	1486
/Interface Between an INTELLEC MDS And A	Time-Shared Computer System. J. E. Lencoski +/	1168
SEL/86—PDP-11 Configuration/ A Real-Time	Time-Shared Operating System For An	1122
K. Thompson; The UNIX	Time-Sharing System D. M. Ritchie +	1008
A. R. Storm; A Workshop on Rebooting the UNIX	Time-Sharing System B. C. Wonsiewicz +	1336
The Evolution of the Unix	Time-Sharing System D. M. Ritchie;	1470
A Public Library Facility for the UNIX	Time-Sharing System D. W. Ting +/	1363
/C Version Of Deferred GRAFPAC Under the UNIX	Time-Sharing System. G. K. Swanson;	1018
Experiences with the UNIX	Time-Sharing System J. Lions;	1477
Version 1.0, Volume 1 Bell/ UNIX/32V	Time-Sharing System: UNIX Programmer's Manual,	1402
D. M. Ritchie; The UNIX	Time-Sharing System—A Retrospective (G.3)	1187
/To Support Both Teletypewriter And DATASPEED 40	Timesharing Terminals. R. C. White, Jr.;	1077
and Context Switches for UNIX/RT/ Some	Timing Measurements of Emits, Message Transfers	1500
Running on a DEC PDP-11/70 Under the UNIX/	Timing Tests of the UNIGRAPHIX Graphics System	1233
Communication Facility under UNIX D. W.	Ting + A. L. Glasser; /New Inter-process	1230
for the UNIX Time-Sharing System D. W.	Ting + A. L. Glasser; /Public Library Facility	1363
Micro-DBMS for a Distributed Data Base P. D.	Ting + D. C. Tsichritzis; A	1350
Buffers out of UNIX Data Address Space D. W.	Ting; Moving System I/O	1235
and Termination Mechanisms in UNIX D. W.	Ting; Optimizing Process Creation	1236
for Raw Block Devices under UNIX D. W.	Ting; Asynchronous I/O Facilities	1241
Using Supervisor Mode A. L. Glasser + D. W.	Ting; Enlarging PDP-11 UNIX Table Space	1257
System for PDP-11's A. L. Glasser + D. W.	Ting; A Core-Resident UNIX	1264
for Transaction Oriented UNIX Systems D. W.	Ting; Inter-Process Communications Facility	1303
Data-base Management System under MERT A. C.	Ting; A	1374
System Driver for UNIX A. L. Glasser + D. W.	Ting; A Remote File	1411
Small DBMS for a UNIX Environment P. D.	Ting; UNITY—A	1438
T. R. Crowley;	Title Listings for UNIX Memoranda	1296
/Data Acquisition System With A CAMAC Real Time	TM-Display R. A. Boie + M. Robbins + R. Kerr;	1169
A Manual For the	TMG Compiler-Writing Language M. D. McIlroy;	1009
a Command Language as the Primary Programming	Tool T. A. Dolotta + J. R. Mashey; Using	1452
STAT: A	Tool for Analyzing Data A. R. Feuer;	1252
Shcvt—A	Tool for Shell Conversion G. A. Snyder;	1244
of a Portable Fortran 77 Compiler Using Modern	Tools S. I. Feldman; Implementation	1354
M. J. Rochkind; NFTS:	Tools For Processing Data With Named Fields	1346
PWB/UNIX Software Monitor Data/	Tools for the Extraction and Reduction of	1474
L. L. Cherry + W. Vesterman; Writing	Tools—The STYLE and DICTION Programs	1497
S. C. Johnson; A	Tour Through the Portable C Compiler	1409

D. M. Ritchie; A	Tour Through the UNIX C Compiler	1408
Interprocess Communication Performance	Trade-offs in CB-UNIX and UNIX/RT/	1288
B. E. Redman; A	Traffic Generating System S. L. Arnold +	1333
UNIX Based TSPS Hotel-Motel	Traffic Simulator S. Michael;	1397
W. A. Burnette; A Database	Transaction Backout and Crash Recovery System	1432
P. J. Weinberger; Decentralized	Transaction Control and Crash Recovery	1251
Some MERT Performance Measurements in	Transaction Oriented Processing./	1182
Inter-Process Communications Facility for	Transaction Oriented UNIX Systems D. W. Ting;	1303
VM/CMS-UNIX File	Transfer Facility R. A. Norden;	1339
Some Timing Measurements of Emits, Message	Transfers and Context Switches for UNIX/RT/	1500
/Line Control Procedure For UNIX Using State	Transition Matrix Techniques P. F. Long;	1173
+ B. L. Smith; Porting the ADAPT Data	Translation System to the IBM 370 M. J. Bach	1373
Documentation of Minicomputer Product	Trials R. E. Swift;	1428
on the UNIX System: Using the -ms Macros with	Troff and Nroff M. E. Lesk; Typing Documents	1028
A	TROFF Tutorial B. W. Kernighan;	1010
New	Trouble Reporting Procedures J. F. Maranzano;	1326
Modifications to the	Trouble Reporting System J. Dean;	1324
Enhancements to the USG	Trouble Reporting System L. W. Cannon;	1338
a Distributed Data Base P. D. Ting + D. C.	Tsichritzis; A Micro-DBMS for	1350
S. Michael; UNIX Based	TSPS Hotel-Motel Traffic Simulator	1397
A TROFF	Tutorial B. W. Kernighan;	1010
PWB/UNIX Shell	Tutorial (B.5) J. R. Mashey;	1189
Programming in C-A	Tutorial (B.9) B. W. Kernighan;	1001
+ S. R. Bourne; A	Tutorial Introduction to ADB J. F. Maranzano	1185
(GED) A. R. Feuer; A	Tutorial Introduction to the Graphical Editor	1441
B. W. Kernighan; A	Tutorial Introduction to the UNIX Text Editor	1000
PWB/MM	Tutorial (T.4) N. W. Smith;	1191
Descendants/ Standardizing File	Types in the Inodes of UNIX Version 7	1256
A Graphics Language for	Typesetting C. J. Van Wyk + B. W. Kernighan;	1471
Abstracts-Issue 2 D. Edelson;	Typesetting ACS and APS Meeting	1075
L. L. Cherry; A System for	Typesetting Mathematics B. W. Kernighan +	1029
Edition) B. W. Kernighan + L. L. Cherry;	Typesetting Mathematics-User's Guide (Second	1011
M. E. Lesk + B. W. Kernighan; Computer	Typesetting Of Technical Journals On UNIX	1089
-ms Macros with Troff and Nroff M. E. Lesk;	Typing Documents on the UNIX System: Using the	1028
D. W. Smith + E. M. Piskorik;	Typing Documents With PWB/MM (T.3)	1190
A Secretarial	Typing System Using UNIX E. F. Engelbert;	1091
L. L. Cherry; Computer Detection of	Typographical Errors R. Morris +	1019
Routine to Handle Command Line Parsing S. A.	Uhlin; Comnd -- A	1260
Compiler J. F. Maranzano; On	Understanding the Support of the Portable C	1269
Interprocessor Communications Link D. M.	Ungar; /Driver for the PCL11-A-A Parallel	1242
PDP-11/70 Under the UNIX/ Timing Tests of the	UNIED-A Data File Editor J. C. Ward;	1317
Time Listing Retrieval (RTL)/Audio Response	UNIGRAPHIX Graphics System Running on a DEC	1233
Retrieval (RTL)/ARU Prototype/ Audio Response	Unit (ARU) Prototype System-Performance/ Real	1355
P. D. Ting;	Unit (ARU) Subsystem Design for Real-Time	1306
Workbench Users T. G. Lyons; Guide to	UNITY-A Small DBMS for a UNIX Environment	1438
Preliminary Performance Evaluation of	UNIVAC Remote Job Entry for Programmer's	1217
A System Testing Technique Using a	Univac UNIX D. A. De Graaf + J. Feder;	1487
Random Access To Variable Length Records Under	Universal LEAP Script N. H. Petschenik +/	1238
System (ISIS) and a Time Shared Computer System	UNIX. J. D. Beyer; A Record Manager For	1171
Manual, Version 1.0, Volume 1 Bell/	(UNIX) T. J. Mulrooney; /Alone Operating	1433
S. J. Buroff; Terminal Handling for	UNIX/32V Time-Sharing System: UNIX Programmer's	1402
+ R. Muha;	UNIX/370: A Feasibility Study W. A. Felton;	1352
Project/ Adding Remote Files to	UNIX/370 Using a Front End Processor	1466
/Study for the Service Evaluation Center-A	UNIX/370-A Proposal B. G. Prieve;	1310
RXD-11D: Two Programs to Generate	UNIX/86: UNIX on the Intel 8086 T. P. Blumer	1483
M. R. Wagner; DPD:	UNIX-A Progress Report on the File Server	1434
E. Lencoski + Stuart A. Tartarone;	UNIX-Based Real-Time System S-J. Chang;	1362
UNIX File Stored on a 9-Track Magnetic Tape./	UNIX-Compatible Magnetic Tapes G. K. Swanson;	1215
/of the Large Argument List Feature in	Unix-Honeywell Interface Programs	1371
	UNIX-INTELLEC MDS Interface Joseph	1118
	UNIXLIST-An IBM/370 Utility Program to List a	1068
	UNIX/RT's Exec. System Call E. Loikits;	1351

R. B. Lyon; Use of the Revised	UNIX-to-UNIX Copy Command for Lab 323	1361
A. Koenig;	Update Files for the C Standard Library	1364
to MERT Release 0.1 T. M. Raleigh;	Upgrading MERT Release 0 with Modification 0.1	1287
S. C. Johnson; Some Statistics On The	Usage Of The C Language H. Gajewska +	1102
the Selection, Procurement, Installation, and	Usage of UNIX by Department 5254./ Notes on	1201
Tandem Computer System—A First Look A. M.	Usas; The	1330
8080 SIMULATOR (i80sim)	USER MANUAL B. B. Hofmann;	1224
8080/Z80 Simulator SM80	User Manual K. L. Regelson;	1275
INTEL 8048 Simulator (SIM48)	User Manual T. J. Mulrooney;	1445
System Call To Suspend And Resume Input From	User Terminals. R. C. White, Jr.; /New UNIX	1076
A Guide to the C Library for UNIX	Users C. D. Perez;	1446
Remote Job Entry for Programmer's Workbench	Users T. G. Lyons; Guide to UNIVAC	1217
Guide to IBM Remote Job Entry for PWB/UNIX	Users (B.12) A. L. Sabsevtz;	1087
S. R. Eisen; UNIX	Users Group Meeting—Toronto, June 19-23, 1979	1396
Computer Buffered Information Exchange	User's Guide B. I. Strom;	1406
ACS LEAP	User's Guide J. P. Marione;	1311
Source Code Control System	User's Guide L. E. Bonanni + C. A. Salemi;	1367
DIRECT II In-Core Tables:	User's Guide W. D. Roome;	1412
Zilog Z80 Microprocessor J. W. Farrell;	User's Guide to the SMAL2 Language for the	1262
NROFF/TROFF	User's Manual J. F. Ossanna;	1119
Reissue No. 1 of MAC-8 Assembler	User's Manual D. B. Kirby;	1150
UNIX/TS	User's Manual—Edition 1.1 Department 3624;	1440
UNIX/RT	User's Manual—Release 1 Bell Laboratories;	1070
PWB/UNIX	User's Manual—Release 2.0 Department 3782;	1407
M. A. Csaszar; Examples of Converting	USG Shell Command Files for the New Shell	1210
Enhancements to the	USG Trouble Reporting System L. W. Cannon;	1338
The	USG UNIX Stockroom V. H. Rosenthal;	1381
Programming Tool T. A. Dolotta +/	Using a Command Language as the Primary	1452
Terminal Handling for UNIX/370	Using a Front End Processor S. J. Buroff;	1466
Time B. W. Stuck;	Using a Line Clock to Estimate Mean Disk Access	1282
R. Stensgaard; Power Supply Controller	Using a MAC 8 Micro Processor M. F. Robbins +	1299
N. H. Petschenik/ A System Testing Technique	Using a Universal LEAP Script	1238
/of a Portable Fortran 77 Compiler	Using Modern Tools S. I. Feldman;	1354
A Half-Duplex Line Control Procedure For UNIX	Using State Transition Matrix Techniques/ /Of	1173
D. W. Ting; Enlarging PDP-11 UNIX Table Space	Using Supervisor Mode A. L. Glasser +	1257
Typing Documents on the UNIX System:	Using the —ms Macros with Troff and Nroff/	1028
On	Using The UNIX Error Logger C. D. Perez;	1176
A Description of Automatic Dialing	Using the UNIX Operating System G. B. Foley;	1180
A Secretarial Typing System	Using UNIX E. F. Engelbert;	1091
W. J. Mayer;	Using UNIX Capabilities More Effectively	1370
Logical File System—A Fast-Access File System	Using UNIX Raw I/O J. R. McSkimin; The	1473
DIRECT II Sort	Utilities J. P. Linderman;	1454
9-Track Magnetic Tape./ UNIXLIST—An IBM/370	Utility Program to List a UNIX File Stored on a	1068
Command H. Che;	UUCP Administrators' File and the UUNAME	1490
A Send-only	UUCP Facility H. Che;	1492
Uustat—A	UUCP Status Inquiry Program H. Che;	1491
D. A. Nowitz;	Uucp—Implementation Description	1293
UUCP Administrators' File and the	UUNAME Command H. Che;	1490
	Uustat—A UUCP Status Inquiry Program H. Che;	1491
A Graphics Language for Typesetting C. J.	Van Wyk + B. W. Kernighan;	1471
+ D. J. Hunsberger + J. J. Mollinelli + J. H.	VanOrnum; /D. H. Copp + R. J. Council	1153
A. Koenig;	Variable Length Argument Lists in C	1268
A Record Manager For Random Access To	Variable Length Records Under UNIX./	1171
D. J. Huber + W. D. Roome; DIRECT II	VAX Performance Improvement Estimates	1422
A UNIX Operating System for the DEC	VAX-11/780 Computer T. B. London +/	1297
J. F. Maranzano; UNIX/RT on a DEC	VAX-11/780 Project Contract R. L. Klein +	1372
A PROM Writer Facility for UNIX Improved	Version H. Marcus;	1281
/Time-Sharing System: UNIX Programmer's Manual,	Version 1.0, Volume 1 Bell Laboratories;	1402
R. A. Becker;	Version 3 of the GR-Z Graphical System	1464
Standardizing File Types in the Inodes of UNIX	Version 7 Descendants G. W. R. Luderer;	1256
Time-Sharing System./ GRAFPAC/FR80—A C	Version Of Deferred GRAFPAC Under the UNIX	1018
An Augmented	Version of Make E. G. Bradford;	1458

Operating System R. L. Maybach; A	Version of Ratfor for the PDP-11's RT-11	1249
M. R. Horton; A Portable	Version of the UNIX Text Editor Ed	1456
Generator/ Implementing and Testing New	Versions of a Good 48-bit Pseudo-random Number	1453
STYLE and DICTION Programs L. L. Cherry + W.	Vesterman; Writing Tools—The	1497
“Introduction to Software”—A	Videotape Course R. F. Rosin;	1199
T. A. Dolotta + D. W. Smith; PWB/UNIX	View Graph and Slide Macros (T.9)	1192
Set of Macrocommands For The Generation of	View Graphs J. N. Sturman; mview—A	1280
Easy Phototypeset	View Graphs on UNIX G. C. Vogel;	1139
PDP-11/70 Design Error: Handling Segmentation	Violations Different from PDP-11/45/	1380
	Virtual File Systems on MERT L. L. Hamilton;	1343
L. D. Goldsmith; A	Virtual Terminal Protocol for UNIX	1451
R. A. Norden;	VM/CMS—UNIX File Transfer Facility	1339
Standard UNIX Documentation G. C.	Vogel; Referencing	1037
Classifications For PG-1C300—Issue 2 G. C.	Vogel; UNIX Support	1046
Control And Documentation On UNIX G. C.	Vogel; Program Generic	1099
Easy Phototypeset View Graphs on UNIX G. C.	Vogel;	1139
The UNIX Operating System—PG-1C300 G. C.	Vogel;	1162
Program Generic Documents On Unix G. C.	Vogel; Formatting	1170
8080/Z80 Assembler Reference Manual G. C.	Vogel;	1250
R. B. Brandt + J. F. Maranzano + G. C.	Vogel; UNIX Courses	1277
Proposed Archiving Facility G. C.	Vogel; UNIX Standardization Subcommittee	1294
Syntax A. S. Cohen + S. B. Olsson + G. C.	Vogel; UNIX Command	1358
UNIX/TS Alarm Facility G. C.	Vogel;	1359
Standard UNIX Configurations—Issue 2 G. C.	Vogel;	1365
System Related System Calls G. C.	Vogel; UNIX Specification—File	1493
The Craft Access	Voice Editing System (CAVES) N. R. Fildes;	1416
Real Time Clock for Digital Computers J. R.	Vollaro; A Continuous Service	1048
UNIX Programmer's Manual—Seventh Edition,	Volume 1 Bell Laboratories;	1400
System: UNIX Programmer's Manual, Version 1.0,	Volume 1 Bell Laboratories; /Time-Sharing	1402
UNIX Programmer's Manual—Seventh Edition,	Volumes 2A & 2B Bell Laboratories;	1401
Unix—Honeywell Interface Programs M. R.	Wagner; DPD:	1371
Z80 M. H. Bradley + W. E. Sherbon + J. S.	Waldhuter; /the C Language: LSI-11, MAC-8,	1347
Damaged PWB/UNIX File Systems (I.4) P. D.	Wandzilak; Repairing	1197
in Repairing PWB/UNIX File Systems P. D.	Wandzilak; Exercises	1302
UNIED—A Data File Editor J. C.	Ward;	1317
(I.1) R. C. Haight + W. D. Roome + L. A.	Wehr; Setting Up PWB/UNIX	1194
for the DEC KMC11 Microprocessor L. A.	Wehr; Assembler	1225
of the DEC KMC11 Microprocessor L. A.	Wehr; Description and Analysis	1226
Setting Up UNIX/TS R. C. Haight + L. A.	Wehr;	1320
Edition) A. V. Aho + B. W. Kernighan + P. J.	Weinberger; /and Processing Language (Second	1206
Fortran 77 Compiler S. I. Feldman + P. J.	Weinberger; A Portable	1248
Transaction Control and Crash Recovery P. J.	Weinberger; Decentralized	1251
Decrypting A Former UNIX crypt P. J.	Weinberger; An Essay in Computer Security:	1345
Division 56 UNIX Course K. E.	Wendland;	1429
to the PWB/MM Text Formatter K. E.	Wendland; An Introduction	1479
R. Morris + K. Thompson;	Webster's Second on the Head of a Pin	1082
An Intelligent Fast Color Display N.	Weste;	1341
and Switcher Given by T. M. Raleigh at	Whippany T. M. Raleigh; /on UNIX Scheduler	1214
And Resume Input From User Terminals. R. C.	White, Jr.; /New UNIX System Call To Suspend	1076
DATASPEED 40 Timesharing Terminals. R. C.	White, Jr.; /To Support Both Teletypewriter And	1077
J. E. Lencoski + S. A. Tartarone + J. E.	Wilkes Jr.; /A Time-Shared Computer System.	1168
Description of How UNIX Fortran Works I. A.	Winheim; A	1063
for Inter-Machine Communication C. A.	Witschorik; A Shell Operator	1499
Apparatus, Machinery, and Experiments B. C.	Wonsiewicz + A. R. Storm + J. D. Siever; /of	1219
Rebooting the UNIX Time-Sharing System B. C.	Wonsiewicz + A. R. Storm; A Workshop on	1336
LEAP Script N. H. Petschenik + R. P.	Woodall; /Testing Technique Using a Universal	1238
on Small Data Bases N. H. Petschenik + R. P.	Woodall; TERSE—A Technique for Reporting	1496
/for Providing a Graphics System Development	Workbench S. T. Schuyler + M. M. Chodrow;	1342
J. R. Mashey; Programmer's	Workbench Documentation Roadmap (B.1)	1121
J. R. Mashey +/ PWB/MM—Programmer's	Workbench Memorandum Macros (T.2)	1098
Conference On Software/ Programmer's	Workbench Papers From The Second International	1107
to UNIVAC Remote Job Entry for Programmer's	Workbench Users T. G. Lyons; Guide	1217

T. A. Dolotta + R. C. Haight; Programmer's Department 3621 MAXIUNIX	Workbench—Synopsis Of Facilities (G.1)	1109
G. W. R. Luderer; Department 3624's A Description of How UNIX Fortran System B. C. Wonsiewicz + A. R. Storm; A H. Marcus; A PROM	Workplan J. T. Hall;	1395
L. L. Cherry + W. Vesterman;	Workplan for Networking in 1979/80	1435
UNIX Facilities For The Development Of Programs	Works I. A. Winheim;	1063
A Graphics Language for Typesetting C. J. Van Formal Specification of	Workshop on Rebooting the UNIX Time-Sharing	1336
S. C. Johnson;	Writer Facility for UNIX Improved Version	1281
M. J. Rochkind;	Writing a MERT Supervisor W. A. Burnette;	1258
F4P-UNIX—User's Guide B. G. Haskell + O. C. /Supporting the C Language: LSI-11, MAC-8, Guide to the SMAL2 Language for the Zilog A Filesystemless UNIX for the User's Guide to the SMAL2 Language for the A Lexicographic Multikey Sort Program Multikey Sort Program ZSORT H.	Writing Tools—The STYLE and DICTION Programs	1497
	Written In Macro-11. P. D. Jensen;	1080
	Wyk + B. W. Kernighan;	1471
	X.25 Compatible Link Protocol R. Ermann;	1389
	YACC—Yet Another Compiler Compiler	1013
	YADS—Yet Another Database System	1461
	Yue; SYSTID on	1387
	Z80 M. H. Bradley + W. E. Sherbon +/	1347
	Z80 Microprocessor J. W. Farrell; User's	1262
	Z80 Microprocessor S. M. Rubin;	1394
	Zilog Z80 Microprocessor J. W. Farrell;	1262
	ZSORT H. Zucker;	1209
	Zucker; A Lexicographic	1209

SECTION III

UNIXTM NUMBER INDEX

Listing by UNIX Number

- ✓ UNED 1000 *A Tutorial Introduction to the UNIX Text Editor* B. W. Kernighan
- UNPL 1001 *Programming in C—A Tutorial (B.9)* B. W. Kernighan
- ✓ UNPL 1002 *The C Programming Language—Reference Manual* D. M. Ritchie
- UNSU 1003 *Implementation of Large Contiguous Files and Asynchronous I/O in UNIX* H. Lycklama
- ✓ UNOS 1005 *The UNIX I/O System* D. M. Ritchie
- ✓ UNOS 1008 *The UNIX Time-Sharing System* D. M. Ritchie + K. Thompson
- UNPL 1009 *A Manual For the TMG Compiler-Writing Language* M. D. McIlroy
- ✓ UNED 1010 *A TROFF Tutorial* B. W. Kernighan
- UNED 1011 *Typesetting Mathematics—User's Guide (Second Edition)* B. W. Kernighan + L. L. Cherry
- ✓ UNPL 1012 *UNIX Assembler Reference Manual* D. M. Ritchie
- ✓ UNPL 1013 *YACC—Yet Another Compiler Compiler* S. C. Johnson
- UNPM 1014 *UNIX Programmer's Manual—Sixth Edition* K. Thompson + D. M. Ritchie
- UNPL 1018 *GRAFPAC/FR80—A C Version Of Deferred GRAFPAC Under the UNIX Time-Sharing System.* G. K. Swanson
- UNED 1019 *Computer Detection of Typographical Errors* R. Morris + L. L. Cherry
- ✓ UNPM 1021 *UNIX Reference Card—Second Edition* L. L. Cherry
- UNSU 1025 *Synthetic English Speech by Rule* M. D. McIlroy
- ✓ UNED 1028 *Typing Documents on the UNIX System: Using the -ms Macros with Troff and Nroff* M. E. Lesk
- ✓ UNED 1029 *A System for Typesetting Mathematics* B. W. Kernighan + L. L. Cherry
- UNSD 1037 *Referencing Standard UNIX Documentation* G. C. Vogel
- ✓ UNED 1042 *UNIX For Beginners—Second Edition* B. W. Kernighan
- ✓ UNOS 1043 *UNIX Summary* M. D. McIlroy
- UNOS 1045 *Emulation of UNIX on Peripheral Processors* H. Lycklama + C. Christensen
- UNSD 1046 *UNIX Support Classifications For PG-1C300—Issue 2* G. C. Vogel
- UNOS 1047 *Explanation Of Abnormal Conditions Within The UNIX Operating System.* T. M. Raleigh
- UNHA 1048 *A Continuous Service Real Time Clock for Digital Computers* J. R. Vollaro
- ✓ UNOS 1052 *A Structured Operating System for a PDP-11/45* H. Lycklama + D. L. Bayer
- ✓ UNPL 1053 *BC—An Arbitrary Precision Desk Calculator Language* L. Cherry + R. Morris
- ✓ UNPL 1056 *DC—An Interactive Desk Calculator* L. Cherry + R. Morris
- UNHA 1058 *C—Language Oriented Microprogram for the HP-21MX* A. G. Fraser + D. M. Ritchie
- ✓ UNPL 1061 *Lex—A Lexical Analyzer Generator* M. E. Lesk + E. Schmidt
- UNOS 1062 *MERT—A Multi-Environment Real-Time Operating System.* D. L. Bayer + H. Lycklama
- UNPL 1063 *A Description of How UNIX Fortran Works* I. A. Winheim
- UNPL 1064 *AGEN—An Associated Memory Generator* M. E. Lesk
- ✓ UNOS 1065 *A Description of the UNIX File System* J. F. Maranzano
- UNSU 1068 *UNIXLIST—An IBM/370 Utility Program to List a UNIX File Stored on a 9-Track Magnetic Tape.* C. S. Roberts
- UNOS 1069 *Introduction to Scheduling and Switching under UNIX* T. M. Raleigh
- ✓ UNPM 1070 *UNIX/RT User's Manual—Release 1* Bell Laboratories
- ✓ UNOS 1073 *UNIX Programming—Second Edition* B. W. Kernighan + D. M. Ritchie
- UNPL 1074 *A Library of Reference Standard Mathematical Subroutines* R. Morris
- UNED 1075 *Typesetting ACS and APS Meeting Abstracts—Issue 2* D. Edelson
- UNOS 1076 *LKOUT—A New UNIX System Call To Suspend And Resume Input From User Terminals.* R. C. White, Jr.
- UNOS 1077 *UNIX DH-11 Driver To Support Both Teletypewriter And DATASPEED 40 Timesharing Terminals.* R. C. White, Jr.
- ✓ UNSU 1078 *Make—A Program For Maintaining Computer Programs* S. I. Feldman

- UNPL 1079 *BLOSIM—A Discrete Time Block Simulator* G. Roylance (MIT) + M. T. Dolan + J. F. Kaiser
- UNPL 1080 *UNIX Facilities For The Development Of Programs Written In Macro-11.* P. D. Jensen
- UNSU 1081 *A Tape Back-Up System For The Network File Store* R. J. Elliott
- ✓ UNED 1082 *Webster's Second on the Head of a Pin* R. Morris + K. Thompson
- UNED 1083 *An Algorithm For Differential File Comparison* J. W. Hunt + M. D. McIlroy
- UNPL 1084 *Struct—A Program Which Structures Fortran* B. S. Baker
- UNED 1085 *Numeric Pattern Recognition Data Base for UNIX Systems* M. E. Greenberg + C. S. Roberts
- UNOS 1087 *Guide to IBM Remote Job Entry for PWB/UNIX Users (B.12)* A. L. Sabsevitz
- UNPM 1088 *UNIX Programmer's Manual—PG-1C300 Issue 3*
- UNED 1089 *Computer Typesetting Of Technical Journals On UNIX* M. E. Lesk + B. W. Kernighan
- UNOS 1090 *Proposal For UNIX Interprocess Communication* R. B. Brandt
- UNED 1091 *A Secretarial Typing System Using UNIX* E. F. Engelbert
- UNOS 1092 *TCMP—A Program For Comparing Program Text After A System Crash.* T. M. Raleigh
- UNOS 1093 *DEAD—A Program For Analyzing UNIX System Crashes* T. M. Raleigh
- UNOS 1094 *Cautions On The Use Of The Alarm Signal* T. G. Lyons
- UNPL 1097 *SIM—A Language For Simulating Computers* L. L. Cherry
- ✓ UNED 1098 *PWB/MM—Programmer's Workbench Memorandum Macros (T.2)* J. R. Mashey + D. W. Smith
- UNSD 1099 *Program Generic Control And Documentation On UNIX* G. C. Vogel
- ✓ UNPL 1101 *A Regular Expression Matcher For The C Language* A. L. Sabsevitz
- ✓ UNPL 1102 *Some Statistics On The Usage Of The C Language* H. Gajewska + S. C. Johnson
- UNPL 1103 *An Algorithm For Structuring Flowgraphs* B. S. Baker
- ✓ UNED 1104 *The LEARN Program for Computer Instruction:(2nd Edition)* B. W. Kernighan + M. E. Lesk
- UNPL 1105 *An Interactive Control Language For SIM* L. L. Cherry
- ✓ UNED 1106 *TBL—A Program To Format Tables* M. E. Lesk
- UNED 1107 *Programmer's Workbench Papers From The Second International Conference On Software Engineering. (G.4)* T. A. Dolotta, et al.
- ✓ UNED 1108 *Advanced Editing On UNIX* B. W. Kernighan
- UNED 1109 *Programmer's Workbench—Synopsis Of Facilities (G.1)* T. A. Dolotta + R. C. Haight
- UNPM 1110 *Instructions For GRAPH, TEK, TEKSTARE and GSIP Graphics Packages.* A. R. Storm
- UNED 1111 *A Guide To Preparing Documents On UNIX* M. E. Lesk
- UNED 1112 *New Graphic Symbols For EQN And NEQN (T.8)* C. Scrocca
- UNOS 1113 *UNIX System Call Measurements* C. D. Perez + T. M. Raleigh
- UNOS 1114 *Synthetic Process For UNIX* D. R. Bernstein
- UNED 1115 *NROFF/TROFF Formatting Codes For Departmental Organization Directories On PWB/UNIX.* D. W. Smith
- UNOS 1116 *LSI-UNIX System* H. Lycklama
- UNED 1117 *System For Entering Data Through Computer Displayed Forms* E. W. Stark + H. Lycklama
- UNSU 1118 *UNIX-INTELLEC MDS Interface* Joseph E. Lencoski + Stuart A. Tartarone
- ✓ UNED 1119 *NROFF/TROFF User's Manual* J. F. Ossanna
- UNOS 1120 *DOS-BATCH To UNIX Conversion* E. H. Albrecht
- UNED 1121 *Programmer's Workbench Documentation Roadmap (B.1)* J. R. Mashey
- UNOS 1122 *A Real-Time Time-Shared Operating System For An SEL/86—PDP-11 Configuration* W. A. Burnette
- UNOS 1123 *MINI-UNIX Summary* H. Lycklama
- UNOS 1124 *Setting-Up MINI-UNIX—Sixth Edition* H. Lycklama
- UNOS 1125 *MINI-UNIX Regenerating System Software* H. Lycklama

UNOS	1126	<i>Scheduling and Switching Under UNIX Algorithms and Implementation</i>	T. M. Raleigh
UNOS	1127	<i>Shared Memory In UNIX</i>	D. S. De Jager
UNOS	1128	<i>UNIX Initialization and Process Control</i>	C. P. Imagna
UNOS	1129	<i>LSX Software</i>	H. Lycklama
UNOS	1130	<i>Setting Up LSI-UNIX—First Edition</i>	H. Lycklama
UNOS	1131	<i>Regenerating LSX Software</i>	H. Lycklama
UNOS	1135	<i>The MINI-UNIX System</i>	H. Lycklama
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- UNSA 1416 *The Craft Access Voice Editing System (CAVES)* N. R. Fildes
- UNHA 1417 *An ICE-85 Based 8085 Software Development System* W. Densmore
- UNHA 1418 *Battery Backup for PDP 11/70 MOS Memory* J. A. McGuire
- UNSA 1419 *The Nspeak Program* M. O. Harris
- UNSD 1420 *Supported Structure for Local Modifications to UNIX* A. S. Cohen
- UNSA 1421 *Experimental Office Communications Services—Message System* R. E. Hoffman
- UNOS 1422 *DIRECT II VAX Performance Improvement Estimates* D. J. Huber + W. D. Roome
- UNHA 1423 *PWB Hardware Help* C. A. Brooks
- UNOS 1424 *Character Device Driver Development for CB-UNIX Operating System* S. Michael
- UNSA 1425 *DIRECT II Service Dispatcher* C. W. Chang + J. P. Linderman
- ✓UNPL 1426 *cq—A Program for Testing C Compilers* F. T. Grampp
- ✓UNPL 1427 *Semantics of the C Programming Language, Part 2: Declarations* R. Sethi
- UNSA 1428 *Documentation of Minicomputer Product Trials* R. E. Swift
- ✓UNOS 1429 *Division 56 UNIX Course* K. E. Wendland
- ✓UNPL 1430 *The Second Pass of the Portable C Compiler* J. Lions
- UNOS 1432 *A Database Transaction Backout and Crash Recovery System* W. A. Burnette
- UNSA 1433 *An Interface Between a Stand Alone Operating System (ISIS) and a Time Shared Computer System (UNIX)* T. J. Mulrooney
- UNOS 1434 *Adding Remote Files to UNIX—A Progress Report on the File Server Project* J. P. Haggerty + P. A. Kirsli
- UNOS 1435 *Department 3624's Workplan for Networking in 1979/80* G. W. R. Luderer
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- ✓UNPM 1440 *UNIX/TS User's Manual—Edition 1.1* Department 3624
- UNED 1441 *A Tutorial Introduction to the Graphical Editor (GED)* A. R. Feuer
- UNSU 1442 *BANCS Facility for MERT/UNIX* J. S. Licwinko
- UNSU 1443 *Record Handling under MERT/UNIX—The Queue Facility* J. S. Licwinko
- UNSA 1445 *INTEL 8048 Simulator (SIM48) User Manual* T. J. Mulrooney
- ✓UNPL 1446 *A Guide to the C Library for UNIX Users* C. D. Perez

- ✓UNOS 1447 *The UNIX Programming Environment* B. W. Kernighan + J. R. Mashey
- UNSA 1448 *Spooler and Daemon Software for a Printer Network* J. E. Laur
- UNOS 1449 *Engineering and Data Acquisition System/Network Management (EADAS/NM) Capacity Estimation—Methodology and Data Requirements* B. W. Stuck
- UNOS 1450 *Performance Assessment of Customer Service and Administrative Control Center System (CSACCS)* E. Arthurs + J. L. Haase + C. Perea + B. W. Stuck
- UNOS 1451 *A Virtual Terminal Protocol for UNIX* L. D. Goldsmith
- ✓UNPL 1452 *Using a Command Language as the Primary Programming Tool* T. A. Dolotta + J. R. Mashey
- UNSA 1453 *Implementing and Testing New Versions of a Good 48-bit Pseudo-random Number Generator* C. S. Roberts
- UNSA 1454 *DIRECT II Sort Utilities* J. P. Linderman
- UNSA 1455 *DIRECT II Data Representation and Manipulation* J. P. Linderman
- UNED 1456 *A Portable Version of the UNIX Text Editor* Ed M. R. Horton
- UNOS 1457 *LSX Performance* J. N. Sturman
- UNOS 1458 *An Augmented Version of Make* E. G. Bradford
- UNOS 1459 *Synchronous Terminals for MERT* J. E. Laur
- UNHA 1460 *A DATAKIT Network Monitoring System* R. J. Elliott
- UNSA 1461 *YADS—Yet Another Database System* M. J. Rochkind
- UNOS 1462 *The DIRECT II Scheduler* H. E. Cato
- UNOS 1463 *FSCK—The UNIX/TS File System Check Program* T. J. Kowalski
- UNSA 1464 *Version 3 of the GR-Z Graphical System* R. A. Becker
- UNPL 1465 *A Comparison of the Programming Languages C and Pascal—Part One: Language Concepts* A. R. Feuer + N. H. Gehani
- UNOS 1466 *Terminal Handling for UNIX/370 Using a Front End Processor* S. J. Buroff
- ✓UNPL 1467 *Changes to C and the Portable C Compiler—Issue 1* B. R. Rowland
- UNPL 1468 *SE—A Structure Editor Program for Accessing C Program Structures* P. A. Fargo
- UNOS 1469 *SPS Protocol Implemented for DZ11 Under MERT Release 0.1* M. J. Shannon
- ✓UNGI 1470 *The Evolution of the Unix Time-Sharing System* D. M. Ritchie
- UNSA 1471 *A Graphics Language for Typesetting* C. J. Van Wyk + B. W. Kernighan
- UNOS 1472 *Multi-Processor DMERT* E. P. Schan
- UNOS 1473 *The Logical File System—A Fast-Access File System Using UNIX Raw I/O* J. R. McSkimin
- UNOS 1474 *Tools for the Extraction and Reduction of PWB/UNIX Software Monitor Data* L. E. Bonanni
- UNOS 1475 *A Stand-Alone Input/Output Library* S. R. Eisen
- UNOS 1476 *Guidelines for Converting MERT Software to UNIX/RT* R. S. Kaplan
- ✓UNGI 1477 *Experiences with the UNIX Time-Sharing System* J. Lions
- UNSA 1478 *Development of a Program for Parts Inventory Control* A. M. Gopin
- UNED 1479 *An Introduction to the PWB/MM Text Formatter* K. E. Wendland
- UNOS 1480 *Relative CPU Performance on C Language Programs* J. Feder
- UNOS 1481 *UNIX Line Discipline for IBM 2740-1 Protocol* D. J. Huber
- UNOS 1482 *UNIX Assembler for the Intel 804X Microprocessors* L.E. Miller
- UNOS 1483 *UNIX/86: UNIX on the Intel 8086* T. P. Blumer + R. Muha
- UNOS 1484 *UNIX/TS Development Plan* R. C. Haight
- UNGI 1485 *UNIX/TS Documentation Road Map* G. A. Snyder + J. R. Mashey
- UNPL 1486 *Thoughts on Debugging C Programs* A. Koenig
- UNOS 1487 *Preliminary Performance Evaluation of Univac UNIX* D. A. De Graaf + J. Feder
- UNOS 1488 *A Mechanism of Starting a Program in a UNIX Based Operating System* D. S. Lo
- UNSA 1489 *A UNIX Based System for Automated Testing of Asynchronous Terminals and Hosts* M. B. Mueller

- UNOS 1490 *UUCP Administrators' File and the UUNAME Command* H. Che
- UNOS 1491 *Uustat—A UUCP Status Inquiry Program* H. Che
- UNOS 1492 *A Send-only UUCP Facility* H. Che
- UNOS 1493 *UNIX Specification—File System Related System Calls* G. C. Vogel
- UNOS 1494 *A Subroutine Package to do Process Cleanup* T. J. Dwyer
- UNOS 1495 *UNIX Specification—Process Related System Calls* P. E. Cannata
- UNSA 1496 *TERSE—A Technique for Reporting on Small Data Bases* N. H. Petschenik + R. P. Woodall
- ✓UNED 1497 *Writing Tools—The STYLE and DICTION Programs* L. L. Cherry + W. Vesterman
- ✓UNPL 1498 *Recent Changes to C* B. R. Rowland
- UNOS 1499 *A Shell Operator for Inter-Machine Communication* C. A. Witschorik
- UNOS 1500 *Some Timing Measurements of Emits, Message Transfers and Context Switches for UNIX/RT*
T. M. Raleigh

SECTION IV

TM NUMBER INDEX

Listing by TM Number

TM 73-1271-4	1019	Computer Detection of Typographical Errors R. Morris + L. L. Cherry
TM 73-1271-7	1025	Synthetic English Speech by Rule M. D. McIlroy
TM 74-1271-13	1082	Webster's Second on the Head of a Pin R. Morris + K. Thompson
TM 74-1273-12	1001	Programming in C—A Tutorial (B.9) B. W. Kernighan
TM 74-1352-1	1003	Implementation of Large Contiguous Files and Asynchronous I/O in UNIX H. Lycklama
TM 74-1353-6	1018	GRAFPAC/FR80—A C Version Of Deferred GRAFPAC Under the UNIX Time-Sharing System. G. K. Swanson
TM 75-1271-11	1083	An Algorithm For Differential File Comparison J. W. Hunt + M. D. McIlroy
TM 75-1271-12	1084	Struct—A Program Which Structures Fortran B. S. Baker
TM 75-1271-6	1074	A Library of Reference Standard Mathematical Subroutines R. Morris
TM 75-1273-1	1058	C—Language Oriented Microprogram for the HP-21MX A. G. Fraser + D. M. Ritchie
TM 75-1273-12	1081	A Tape Back-Up System For The Network File Store R. J. Elliott
TM 75-1273-13	1102	Some Statistics On The Usage Of The C Language H. Gajewska + S. C. Johnson
TM 75-1273-4	1048	A Continuous Service Real Time Clock for Digital Computers J. R. Vollaro
TM 75-1274-18	1064	AGEN—An Associated Memory Generator M. E. Lesk
TM 75-1352-2	1045	Emulation of UNIX on Peripheral Processors H. Lycklama + C. Christensen
TM 75-1352-4	1052	A Structured Operating System for a PDP-11/45 H. Lycklama + D. L. Bayer
TM 75-1352-6	1079	BLOSIM—A Discrete Time Block Simulator G. Roylance (MIT) + M. T. Dolan + J. F. Kaiser
TM 75-1352-7	1062	MERT—A Multi-Environment Real-Time Operating System. D. L. Bayer + H. Lycklama
TM 75-4145-1	1077	UNIX DH-11 Driver To Support Both Teletypewriter And DATASPEED 40 Timesharing Terminals. R. C. White, Jr.
TM 75-4145-2	1076	LKOUT—A New UNIX System Call To Suspend And Resume Input From User Terminals. R. C. White, Jr.
TM 75-8234-14	1080	UNIX Facilities For The Development Of Programs Written In Macro-11. P. D. Jensen
TM 75-8234-3	1063	A Description of How UNIX Fortran Works I. A. Winheim
TM 75-8234-7	1069	Introduction to Scheduling and Switching under UNIX T. M. Raleigh
TM 76-1228-11		See TM 76-8231-9
TM 76-1271-2	1097	SIM—A Language For Simulating Computers L. L. Cherry
TM 76-1271-3	1103	An Algorithm For Structuring Flowgraphs B. S. Baker
TM 76-1271-8	1105	An Interactive Control Language For SIM L. L. Cherry
TM 76-1273-1		See TM 76-1274-2
TM 76-1274-2	1089	Computer Typesetting Of Technical Journals On UNIX M. E. Lesk + B. W. Kernighan
TM 76-1352-4	1116	LSI-UNIX System H. Lycklama
TM 76-1352-6	1117	System For Entering Data Through Computer Displayed Forms E. W. Stark + H. Lycklama
TM 76-1353-1	1085	Numeric Pattern Recognition Data Base for UNIX Systems M. E. Greenberg + C. S. Roberts
TM 76-1527-35	1110	Instructions For GRAPH, TEK, TEKSTARE and GSIP Graphics Packages. A. R. Storm

TM 76-3141-1	1118	UNIX-INTELLEC MDS Interface Joseph E. Lencoski + Stuart A. Tartarone
TM 76-3142-1		See TM 76-3141-1
TM 76-3412-1	1128	UNIX Initialization and Process Control C. P. Imagna
TM 76-5223-1	1127	Shared Memory In UNIX D. S. De Jager
TM 76-7133-1	1112	New Graphic Symbols For EQN And NEQN (T.8) C. Scrocca
TM 76-8231-9	1122	A Real-Time Time-Shared Operating System For An SEL/86—PDP-11 Configuration W. A. Burnette
TM 76-8234-13	1099	Program Generic Control And Documentation On UNIX G. C. Vogel
TM 76-8234-17	1114	Synthetic Process For UNIX D. R. Bernstein
TM 76-8234-18	1126	Scheduling and Switching Under UNIX Algorithms and Implementation T. M. Raleigh
TM 76-8234-4	1090	Proposal For UNIX Interprocess Communication R. B. Brandt
TM 76-9141-5	1101	A Regular Expression Matcher For The C Language A. L. Sabsevit
TM 76-9141-6	1107	Programmer's Workbench Papers From The Second International Conference On Software Engineering. (G.4) T. A. Dolotta, et al.
TM 76-9144-3		See TM 76-9141-6
TM 76-9156-2		See TM 76-8234-17
TM 76-9411-1		See TM 76-9141-6
TM 76-9421-2		See TM 76-9141-6
TM 77-1131-17	1169	An Interactive Computer Controlled Data Acquisition System With A CAMAC Real Time TM-Display R. A. Boie + M. Robbins + R. Kerr
TM 77-1131-44	1222	Gf—A Graphical Data Analysis Program for the MERT-UNIX Operating System E. Shapiro + M. F. Robbins
TM 77-1228-2		See TM 77-8231-2
TM 77-1273-10		See TM 77-8234-11
TM 77-1273-13	1203	Inter-UNIX Portability T. L. Lyon + D. M. Ritchie
TM 77-1273-15	1207	The C Language Calling Sequence S. C. Johnson + D. M. Ritchie + M. E. Lesk
TM 77-1273-16	1218	Software Support For Satellite Processor R. J. Elliott
TM 77-1273-5	1165	Circuit Design Aids On UNIX A. G. Fraser + G. G. Riddle
TM 77-1273-7	1164	File Integrity And Space Accounting For A UNIX Based System. A. G. Fraser + R. J. Elliott
TM 77-1274-13		See TM 77-1273-15
TM 77-1351-1	1075	Typesetting ACS and APS Meeting Abstracts—Issue 2 D. Edelson
TM 77-1352-1	1135	The MINI-UNIX System H. Lycklama
TM 77-1352-5	1184	A Computer Assisted Communication System. (CACS) M. J. Shannon Jr.
TM 77-1353-4	1175	Computerized Office Filing System R. E. Miller
TM 77-1353-5	1171	A Record Manager For Random Access To Variable Length Records Under UNIX. J. D. Beyer
TM 77-1353-6	1177	EDTV—A Display-Oriented Text Editor For UNIX J. F. Reiser
TM 77-1523-28	1219	UNIX Microcomputer Control of Apparatus, Machinery, and Experiments B. C. Wonsiewicz + A. R. Storm + J. D. Siever
TM 77-1527-114		See TM 77-1523-28
TM 77-2265-2	1150	Reissue No. 1 of MAC-8 Assembler User's Manual D. B. Kirby
TM 77-2265-8	1224	8080 SIMULATOR (i80sim) USER MANUAL B. B. Hofmann
TM 77-3141-2	1168	A Console Controlled Interface Between an INTELLEC MDS And A Time-Shared Computer System. J. E. Lencoski + S. A. Tartarone + J. E. Wilkes Jr.
TM 77-3142-2		See TM 77-3141-2
TM 77-3231-1		See TM 77-8234-1

TM 77-3233-4	1149	UNIX Assembler for the Intel 8080 Microprocessor J. J. Molinelli
TM 77-3233-6		See TM 77-8234-1
TM 77-3233-9	1199	"Introduction to Software"—A Videotape Course R. F. Rosin
TM 77-4145-01	1228	Extended Shell—A Potential Real Time Interpreter N. J. Kolettis
TM 77-4393-2	1166	MAC-8 C For Beginners H. D. Rovegno
TM 77-5221-2	1200	Interactive Graphics System for a UNIX Environment J. H. Jackson
TM 77-5222-1	1148	NROFF Macros For Producing Generic Program Documentation. S. J. Cunningham
TM 77-5222-2	1211	String Manipulation and Conversion Library for Switching Control Center B. C. Hoalst
TM 77-5223-1	1234	Interprocess Communication Mechanisms in CB-UNIX J. C. Kaufeld Jr.
TM 77-5514-2	1220	MICA—A General Purpose Microassembler: Functional Specification/User's Manual—Issue II S. W. Ng
TM 77-8231-2	1155	Programmer's Manual For the SEL-86 PDP-11/45 Operating System. W. A. Burnette + J. R. Remde
TM 77-8234-02	1162	The UNIX Operating System—PG-1C300 G. C. Vogel
TM 77-8234-1	1153	An Integrated System For Microprocessor Support D. H. Copp + R. J. Council + D. J. Hunsberger + J. J. Mollinelli + J. H. VanOrnum
TM 77-8234-10	1163	UNIX Error Logging R. B. Brandt
TM 77-8234-11	1185	A Tutorial Introduction to ADB J. F. Maranzano + S. R. Bourne
TM 77-8234-12	1255	The Teletype DATASPEED 40 Line Printer as a UNIX Peripheral P. G. Dowd
TM 77-8234-13	1167	CM, A UNIX Driver For The MINITAPE System R. E. Swift
TM 77-8234-14	1173	Synthesis Of A Half-Duplex Line Control Procedure For UNIX Using State Transition Matrix Techniques P. F. Long
TM 77-8234-16	1202	More Flexible Low Speed I/O for UNIX J. Feder
TM 77-8234-17		See TM 77-9144-3
TM 77-8234-18	1121	Programmer's Workbench Documentation Roadmap (B.1) J. R. Mashey
TM 77-8234-21	1226	Description and Analysis of the DEC KMC11 Microprocessor L. A. Wehr
TM 77-8234-22	1225	Assembler for the DEC KMC11 Microprocessor L. A. Wehr
TM 77-8234-23		See TM 77-9144-5
TM 77-8254-3	1227	Gex—An Interactive Graphics Program D. J. Jackowski
TM 77-8254-4	1233	Timing Tests of the UNIGRAPHIX Graphics System Running on a DEC PDP-11/70 Under the UNIX Operating System S. T. Schuyler
TM 77-9141-7	1152	PWB/UNIX Manual Page Macros (I.9) E. M. Piskorik
TM 77-9144-2	1157	A General-Purpose Subroutine Library for PWB/UNIX (B.11) A. L. Glasser
TM 77-9144-3	1109	Programmer's Workbench—Synopsis Of Facilities (G.1) T. A. Dolotta + R. C. Haight
TM 77-9144-5	1098	PWB/MM—Programmer's Workbench Memorandum Macros (T.2) J. R. Mashey + D. W. Smith
TM 77-9155-2		See TM 77-1273-5
TM 77-9156-1	1156	A Generalized Data Entry System M. J. Rochkind
TM 77-9423-3	1223	An Interactive LEAP Script Generator (ILSG) H. M. Cykiert + B. E. Hess
TM 77-9426-2	1238	A System Testing Technique Using a Universal LEAP Script N. H. Petschenik + R. P. Woodall
TM 78-1131-22	1289	A Peripheral Processor Interactive Control and Data Acquisition System J. S. Kraus
TM 78-1131-36	1299	Power Supply Controller Using a MAC 8 Micro Processor M. F. Robbins + R. Stensgaard
TM 78-1222-9	1331	READ—C Programs For Analyzing Readability E. U. Coke + M. E. Koether

TM 78-1228-1	1237	A C Compiler for the SEL Computer J. R. Remde
TM 78-1270-1	1307	SED—A Non-interactive Text Editor L. E. McMahon
TM 78-1271-12	1206	Awk—A Pattern Scanning and Processing Language (Second Edition) A. V. Aho + B. W. Kernighan + P. J. Weinberger
TM 78-1271-20	1345	An Essay in Computer Security: Decrypting A Former UNIX crypt P. J. Weinberger
TM 78-1271-5	1259	Password Security: A Case History R. Morris + K. Thompson
TM 78-1273-4	1013	YACC—Yet Another Compiler Compiler S. C. Johnson
TM 78-1273-6		See TM 78-1271-12
TM 78-1274-3	1279	UNIX Software Distribution by Communication Link M. E. Lesk + A. S. Cohen
TM 78-1352-11	1330	The Tandem Computer System—A First Look A. M. Usas
TM 78-1352-3		See TM 78-3114-3
TM 78-1352-7		See TM 78-1356-7
TM 78-1353-2	1286	Cumulative Program Profiling J. F. Reiser
TM 78-1353-4	1297	A UNIX Operating System for the DEC VAX-11/780 Computer T. B. London + J. F. Reiser
TM 78-1354-15	1341	An Intelligent Fast Color Display N. Weste
TM 78-1356-4	1254	An Array and Switching Processor H. G. Alles
TM 78-1356-7	1283	Computer Assisted Communication System H. N. Dorris + D. W. Hagelbarger + M. J. Shannon
TM 78-1359-3		See TM 78-3114-2
TM 78-1523-30	1336	A Workshop on Rebooting the UNIX Time-Sharing System B. C. Wonsiewicz + A. R. Storm
TM 78-2522-1	1313	Basic-16 Prospectus C. Scussel
TM 78-2522-2	1315	Application Planning Guide, Release 0 of Basic-16 J. Arnold
TM 78-3111-1	1257	Enlarging PDP-11 UNIX Table Space Using Supervisor Mode A. L. Glasser + D. W. Ting
TM 78-3111-2	1264	A Core-Resident UNIX System for PDP-11's A. L. Glasser + D. W. Ting
TM 78-3111-3	1304	The Evolution of a Source Code Control System A. L. Glasser
TM 78-3111-4	1303	Inter-Process Communications Facility for Transaction Oriented UNIX Systems D. W. Ting
TM 78-3112-1	1309	KW11-P Clock Driver R. R. Babu
TM 78-3112-2	1312	A New DV-11 Driver for Use With LEAP M. B. Mueller
TM 78-3112-3	1311	ACS LEAP User's Guide J. P. Marione
TM 78-3114-2	1247	A Minicomputer Satellite Processor System H. Lycklama + C. Christensen
TM 78-3114-3	1246	The MERT Operating System H. Lycklama + D. L. Bayer
TM 78-3114-4	1278	The MERT/UNIX Supervisor H. Lycklama
TM 78-3114-5	1276	File System Structures for Real-Time Applications H. Lycklama
TM 78-3124-1	1230	PORT—A New Inter-process Communication Facility under UNIX D. W. Ting + A. L. Glasser
TM 78-3124-2	1242	A UNIX Device Driver for the PCL11-A—A Parallel Interprocessor Communications Link D. M. Ungar
TM 78-3124-3	1236	Optimizing Process Creation and Termination Mechanisms in UNIX D. W. Ting
TM 78-3124-4	1235	Moving System I/O Buffers out of UNIX Data Address Space D. W. Ting
TM 78-3124-9	1241	Asynchronous I/O Facilities for Raw Block Devices under UNIX D. W. Ting
TM 78-3231-1	1260	Comnd -- A Routine to Handle Command Line Parsing S. A. Uhler
TM 78-3323-3	1347	Evaluation of Microprocessors Supporting the C Language: LSI-11, MAC-8, Z80 M. H. Bradley + W. E. Sherbon + J. S. Waldhuter
TM 78-3444-3	1251	Decentralized Transaction Control and Crash Recovery P. J. Weinberger

TM 78-4392-2	1249	A Version of Ratfor for the PDP-11's RT-11 Operating System	R. L. Maybach
TM 78-4533-1	1333	A Traffic Generating System	S. L. Arnold + B. E. Redman
TM 78-4562-2	1305	Proposal for a Microprocessor Based Systems Development Laboratory	P. W. Gwozdz
TM 78-4565-1	1346	NFTS: Tools For Processing Data With Named Fields	M. J. Rochkind
TM 78-5221-1	1344	REDAS—A Relational Data Access System For Real-Time Applications	J. R. McSkimin
TM 78-5223-1	1288	Interprocess Communication Performance Trade-offs in CB—UNIX and UNIX/RT	D. S. DeJager
TM 78-5326-1		See TM 78-5512-1	
TM 78-5512-1	1356	Indian Hill C Style and Coding Standards	L. W. Cannon, et al
TM 78-5514-1		See TM 78-5512-1	
TM 78-5521-3		See TM 78-5512-1	
TM 78-5522-2	1243	CLIO—A Relational Data Base System	P. S. Para
TM 78-5522-3		See TM 78-5512-1	
TM 78-5522-9	1343	Virtual File Systems on MERT	L. L. Hamilton
TM 78-8231-2	1280	mview—A Set of Macrocommands For The Generation of View Graphs	J. N. Sturman
TM 78-8234	1284	Error Logging in UNIX/TS and UNIX/RT	R. B. Brandt
TM 78-8234-1	1275	8080/Z80 Simulator SM80 User Manual	K. L. Regelson
TM 78-8234-11	1316	Terminal Handling Under UNIX and MERT/UNIX	J. Feder
TM 78-8234-2	1229	Guidelines for C Compiler Distribution	S. B. Olsson
TM 78-8234-4	1240	Beta Test of the COMM IOP-DUP Synchronous Communications Controller under UNIX	P. F. Long
TM 78-8234-5		See TM 78-1274-3	
TM 78-8234-6	1250	8080/Z80 Assembler Reference Manual	G. C. Vogel
TM 78-8234-7	1265	A Faster Terminal Handler for UNIX	J. Feder
TM 78-8234-8	1262	User's Guide to the SMAL2 Language for the Zilog Z80 Microprocessor	J. W. Farrell
TM 78-8234-9	1261	Experience With Hardware Service Contractors on PDP-11's	J. F. Maranzano + R. C. Haight
TM 78-8254-3	1266	Interactive Design Aid For General-Purpose Artwork Production	V. A. Fasciano
TM 78-8254-5	1342	A Software Architecture for Providing a Graphics System Development Workbench	S. T. Schuyler + M. M. Chodrow
TM 78-9156-1	1258	Writing a MERT Supervisor	W. A. Burnette
TM 78-9156-4	1306	Audio Response Unit (ARU) Subsystem Design for Real-Time Retrieval (RTLRL)/ARU Prototype System	J. W. Hooker
TM 78-9441-2	1290	Activity Profile of the PWB/UNIX Operating System	W. W. Everett
TM 78-9442-4	1252	STAT: A Tool for Analyzing Data	A. R. Feuer
TM 78-9442-6	1332	Monitor terminals under the UNIX operating system	T. B. Muenzer
TM 78-9442-7	1308	MRCS and the MRCS 2 Data Base System	H. S. Gellis
TM 79-1215-12	1464	Version 3 of the GR-Z Graphical System	R. A. Becker
TM 79-1227-18	1419	The Nspeak Program	M. O. Harris
TM 79-1271-1	1334	A Fast Software Encryption Algorithm	R. Morris
TM 79-1271-2	1353	Semantics of the C Programming Language, Part 0: Prelude	R. Sethi
TM 79-1271-3	1335	UNIX File Security	R. Morris
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