DECUS NO. 8-336 (Continued)

features as is, but MODIND and OCTDMP will have to be modified to accommodate the different directory format.

Minimum Hardware:	4K PDP-8, 1TCØ1 DECtape Unit, EAE
Other Programs Needed:	DEC-Ø8-SUA1-LA or Digital-8-7-S Rev. 7/25/66
Source Language:	PAL III

DECUS NO. 8-337

DIBOL II Software System

Submitted by: Digital Equipment Corporation, Maynard, Massachusetts

Withdrawn

Contact DEC Business Products group for further information

DECUS NO. 8-338

BIN and CBL Loader

Brian E. Wood, Weston High School, Weston, Connecticut

The combination BIN and CBL loader is used to load paper tapes in either BIN or CBL format. The program features automatic selection of the format in use so no switch register setting is needed. The program currently operates with the PR-8 high speed paper tape reader but it can be modified to use the ASR-33 reader.

Minimum Hardware:	PDP-8, PR8 reader or ASR33 reader (with modifications)
Storage Requirement:	One page (7600-7777)
Source Language:	PAL III

DECUS NO. 8-339A

PST (Post Stimulus Time) and Latency Histogram for the LAB-8

Charles P. Merrill, Digital Equipment Corporation, Maynard, Massachusetts

This program records all signals crossing a set threshold after a given event. The program is used most frequently in experiments dealing with the response of a single nerve cell to a stimulus. Either Post stimulus time or latency histograms may be formed.

Minimum Hardware:	PDP-8/I or 8/L with AXØ8 and RM503
Storage Requirement:	4K
Source Language:	PAL III (PAL-10, PDP-10 formatted DECtape)

DECUS NO. 8-339B

Time Interval Histogram Program

Charles P. Merrill, Digital Equipment Corporation, Maynard, Massachusetts

Records the time between events occurring on Schmitt trigger 2 of the AXØ8. The display is a frequency distribution showing the duration of the interval vs. its frequency of occurrence.

Minimum Hardware:	LAB-8 (PDP-8/I or 8/L with AXØ8)
Other Programs Needed:	Write-up - DECUS NO. 8-339A
Storage Requirement:	4K
Source Language:	PAL III

DECUS NO. 8-340

The Auto and Cross-Correlation Program for the LAB-8

Richard Rothman
Submitted by: Charles Merrill, Digital Equipment Corporation, Maynard, Massachusetts

This program will perform auto or cross-correlation on analog signals in real time. There are two versions, one for use with EAE and one for use without EAE. The delay between points is variable from 100 usec. to 204.7 msec. Number of points in correlogram can be varied down from 4 to 513.

Minimum Hardware:	PDP-8/L or 8/I, AXØ8, RM503, EAE if available
Storage Requirement:	4K
Source Language:	PAL 1Ø

DECUS NO. 8-341

LISP-8

William Leal
Submitted by: Ernest Hayden, Speech Communications Research Laboratory, Santa Barbara, California

LISP-8 is a semi-interpretative LISP-like list processing package. Problem programs are "compiled" by the assembler, and the object code is interpreted by the package. Its structure makes it incompatible with LISP 1.5, but many of the same problems may be solved. It is recursive, permits subroutines.

Minimum Hardware:	4K PDP-8, EAE
Storage Requirement:	12 pages
Source Language:	PAL III

DECUS NO. 8-342

STAP-8; Spike Train Analysis Program

Urs R. Wyss
Submitted by: Charles Merrill, Digital Equipment Corporation, Maynard, Massachusetts

STAP-8 is a subroutine package for basic statistical analysis of stochastic point processes, written in PDP-8's PAL symbolic assembler language and available as a machine language perforated tape in binary format. Main effort was not made on sophisticated statistical techniques, but rather on a easy to control, variable program library, including CRT-display, paper tape output and teletype listings.

Minimum Hardware:	PDP-8/I with AXØ8
Other Programs Needed:	Floating point package DEC-8-25-E/A
Storage Requirement:	4K
Source Language:	PAL III

DECUS NO. 8-343

Radial Interface Including Interrupt Mask for the PDP-8 or LINC-8

Paul F. Sullivan, Cornell Aeronautical Laboratory, Inc., Buffalo, New York

This document describes a hardware modification to the PDP-8 or LINC-8 which protects software from obsolescence caused by the addition of new devices to the interrupt and/or data break facilities and allows significant savings of money and effort in interfacing further devices to the computer. The hardware also provides the computer with a dynamic priority interrupt facility.

Source Language:	Document only

DECUS NO. 8-344

Toledo Extended Memory Binary Punch

H. Bradford Thompson, University of Toledo, Toledo, Ohio

This program operates in exactly the same manner as does the DEC binary punch (DEC-8-5-U) when field designations are not desired on the binary tape. However, provision for changing the field from which data is taken, and for inserting a field designation on the punched tape are included.

Minimum Hardware:	8K PDP-8
Storage Requirement:	One page
Source Language:	PAL III

DECUS NO. 8-345

EDIT-PAL

F. C. Owen, General Railway Signal Company, Rochester, New York

EDIT-PAL is an overlay and addition to provide a coupling between Editor (DEC-Ø8-ESAB) and PAL III Assembler (DEC-Ø8-ASB1) plus listing line numbers and reporting the vacant buffer balance.

Minimum Hardware:	8K PDP-8, ASR33
Other Programs Needed:	Editor (DEC-Ø8-ESAB) and PAL III (DEC-Ø8-ASB1)
Storage Requirement:	Field Ø, ØØØØ-1627 and buffer Field 1, PAL III
Source Language:	PAL III

DECUS NO. 8-346

Pollution Game

James E. Storer, Lexington High School, Lexington, Massachusetts

The player is elected (?) premier of a small communist island and asked to administer it for several years.

Minimum Hardware:	TSS-8
Source Language:	BASIC

DECUS NO. 8-347

DUBAVG

Eugene E. Wells, Jr., U. S. Army Electronics, Fort Monmouth, New Jersey

DUBAVG is a subroutine which collects high speed data, smooths via two word arithmetic averaging, and scales the result to millivolts. As many as 4096 runs of 2048 points each may be averaged, limited only by the word length of the runs counter and size of the core field which contains the double word length sum, respectively.

The program has been optimized to allow both the minimum (adjustable) point spacing and the maximum run repetition rate. Minimum point spacing is about 35 microseconds. DUBAVG is core field relocatable, and allows its buffer and sum storage to occupy any core fields whatever.

Minimum Hardware:	PDP-8 with AXØ8
Other Programs Needed:	Signed Single Precision Divide (DEC-Ø8-FMCA)
Storage Requirement:	One page, plus 50_8 locations, exclusive of auxiliary subroutines
Source Language:	PAL-D

DECUS NO. 8-348

Mini Binary Punch

Frank Melchior, Jr., National Center for Atmospheric Research, Boulder, Colorado

This program accumulates patches onto a binary tape so that they can be reloaded if core gets wiped out.

Minimum Hardware:	PDP-8, ASR33
Storage Requirement:	12 decimal locations
Source Language:	Machine Language

DECUS NO. 8-349

Octal Debugging Technique with View

Larry McGimsey, Western Kentucky University, Bowling Green, Kentucky

This program permits the display of 20_8 consecutive core locations on a LAB-8 system from field Ø or field 1. The program is a modification of ODT that uses 4 pages instead of 3, and allows operations on both field Ø and field 1. The word search and punch routines have been deleted.

Minimum Hardware:	4K PDP-8, ASR33, AXØ8 with scope
Storage Requirement:	1000_8 locations, plus 4 and 5 in field Ø and 4, 5 and 6 in field 1
Source Language:	PAL-D

DECUS NO. 8-350

Wilcoxon-White Two Sample Rank Test

Jens G. Rosenkrantz, M. D., Childrens Hospital of Los Angeles, Los Angeles, California

This nonparametric statistical test may be used in comparing unpaired samples and assigns ranks to the pooled measurements, comparing the ranks as ordinal numbers in two groups.

Minimum Hardware:	8K PDP-8, High Speed reader and punch
Other Programs Needed:	8K FORTRAN System
Source Language:	8K FORTRAN

DECUS NO. 8-351

ComBIN Loader

Peter Goodeve, University of California, Berkeley, California

An extended utility loader for BIN and RIM tapes, with all standard BIN load features, switch-controlled autostart in any memory field and automatic selection of input device. It may be located on any page of any field, and always protects its own page from accidental overwriting during loading. ComBIN is supplied as a punched tape in a special format read by a 9-instruction initial loader. The same tape can be used to place ComBIN on any page in core.

Minimum Hardware:	4K PDP-8, teletype or high speed reader
Storage Requirement:	120_{10} locations on any page in any field
Source Language:	PAL

DECUS NO. 8-352

Parity Hi-Lo Loader

Ronald Zane, University of Hawaii, Honolulu, Hawaii

Loads parity format punched paper tapes from either a high speed reader or the ASR33 teletype. It must be started on leader (8-level punch) and will halt on trailer (8-level punch). If a parity error is encountered the loader will halt with the erroneous character in the reader. SRØ (Ø) ⇒ High speed reader and SRØ(1) ⇒ ASR33.

Minimum Hardware:	4K PDP-8, ASR33 or High Speed reader
Storage Requirement:	70 locations (7400-7505)
Source Language:	PAL III

DECUS NO. 8-353

Disk Monitor Patch for BLACKJACK (DECUS NO. 8-94A)

Carl Kishline, University of Wisconsin, Parkside Computing Center, Kenosha, Wisconsin

The Disk Monitor Patch allows the BLACKJACK user to decide whether he wishes to start over after a Ø wager. An "N" response to "another victim?" returns control to 76ØØ, the head of the monitor. Any other response returns control to Ø2ØØ, the start of BLACKJACK. A system without a monitor could use this by changing location 3762 (the JMP I MON) to 74Ø2 (HLT).

Minimum Hardware:	4K PDP-8, DF32 Disk
Other Programs Needed:	Disk Monitor System, BLACKJACK (DECUS NO. 8-94A)
Storage Requirement:	41_{10} or 50_8
Source Language:	PAL-D

DECUS NO. 8-354

Pass 3 ASR33 Format Overlay

Frank Melchior, Jr., National Center for Atmospheric Research, Boulder, Colorado

This overlay will automatically format the output from Pass 3 on the ASR33 teletype into page size blocks.

Minimum Hardware:	PDP-8, ASR33
Other Programs Needed:	PAL III (Digital-8-3L-5)
Storage Requirement:	33 locations
Restrictions:	High speed punch will NOT work with this program
Miscellaneous:	Symbol table will have to be punched on Pass 1
Source Language:	PAL III

DECUS NO. 8-355

PAL III.75

E. D. Huthnance, Newberry College, Newberry, South Carolina

This overlay to PAL III will enable it to generate links for off page references automatically, in a manner similar to MACRO-8.

Minimum Hardware:	4K PDP-8, ASR33
Storage Requirement:	71ØØ to 7447
Restrictions:	Only low speed input and output may be used
Source Language:	PAL III

DECUS NO. 8-356

Page Printer

G. Kermez and W. Peters, Texas Instruments Limited, Bedford, England

This program is designed to produce pages of a required length from ASCII paper tape fed from either the low speed or high speed readers.

Minimum Hardware:	4K PDP-8/L, ASR33
Restrictions:	Tape to be read must be set at first character
Miscellaneous:	Set switch register to 1 to run program

DECUS NO. 8-357

ISOMER - Interactive Study of Organic Molecules by Educational Reinforcement

Dr. James W. Cooper, Digital Equipment Corporation, Maynard, Massachusetts

ISOMER was written to establish the utility of the LAB-8 as a tool for computer-assisted instruction. It is designed to assist students in learning organic nomenclature by asking them to identify all 21 isomers of $C_5H_{10}Br_2$. Carbon skeletons are drawn on the scope by typing C's and the positions of the BR's are controlled by the LAB-8 knobs. After the bromines are adjusted to represent a legitimate isomer, typing N produces the IUPAC name on the Teletype. The program also informs the student if he has entered this compound before, and when he is done, lists any isomers that he omitted.

Minimum Hardware:	LAB-8/L or 8/I with 4K of core and Teletype, LAB-8 Scope
Storage Requirement:	0-5377
Source Language:	Can be assembled by MACRO-8, PAL-D, PAL-8 or PAL-10

DECUS NO. 8-358

Card Reader Patch

Peter Lincoln Barnett, Dubner Computer Systems, New York, New York

This patch may be used to modify a program which uses the teletype or paper tape to use a card reader. It is used as a subroutine which supplies a character each time it is called. The card is buffered and the BCD codes are converted to ASCII.

Minimum Hardware:	PDP-8/I with CR03 card reader
Storage Requirement:	260_8 locations
Source Language:	PAL

DECUS NO. 8-359

Hi-Q Game Playing Program

M. L. Fichtenbaum and R. E. Peterson, General Radio Company, Concord, Massachusetts

Hi-Q is a game played with pegs on a board. This program plays Hi-Q and finds solutions by means of a tree of possible move patterns. Several different printouts are available, selected by the switch register.

Minimum Hardware:	4K PDP-8 and Teletype
Source Language:	GR's PDP-8/1130 Assembly, similar to PAL III

DECUS NO. 8-360

ASCII to Friden (EIA)

Arnold V. Fish, Digital Equipment Corporation, Parsippany, New Jersey

This program converts from ASCII to Friden (EIA) using a restricted character list. It provides for operation with or without illegal character halts, but in either case output can continue with illegal character ignored. High or low speed paper tape equipment can be used.

Minimum Hardware:	4K PDP-8
Restrictions:	Converts only unique EIA characters
Source Language:	PAL-D

DECUS NO. 8-361

Game of Chance

Randall S. Battat, San Francisco, California

Similar to a dice game, but a little harder to win. Written in BASIC for use on the PDP-8

Minimum Hardware:	PDP-8, ASR33
Other Programs Needed:	POLY-BASIC (DECUS NO. 8-195)
Source Language:	BASIC

DECUS NO. 8-362

IOFMAG

Giles Peterson
Submitted by: Ernest Hayden, Speech Communications Research Laboratory, Santa Barbara, California

Four subroutines are provided which access DECtapes on TC-01 drives. In contrast to the routines provided by DEC, these routines do not use the interrupt. If the user does not require the use of the interrupt while doing DECtape I/O, the use of these routines has several advantages:

1) They occupy less storage (106 [10] vs. 128 [10] words); 2) The user need not establish page Ø linkages to service the interrupt; 3) Other devices (such as the teletype) will not interrupt the DECtape I/O. When, for instance, transferring from paper tape to DECtape, one need not buffer those characters which would have been read during DECtape output.

Minimum Hardware:	4K PDP-8, TCØ1 DECtape Drive
Storage Requirement:	106_{10} words
Source Language:	PAL III

DECUS NO. 8-363

DATOUT: A Simple Routine for Printing Sequential Data as an Array

Barry Millman, University of Calgary, Calgary, Alberta, Canada

DATOUT is a routine which enables octal numbers stored sequentially in the PDP-8 to be output as single precision positive decimal integers with up to 14 numbers per line and up to 4096 lines. Provision is made for automatic numbering of typed lines. Digital's Unsigned Decimal Print is required to convert and print the numbers.

Minimum Hardware:	PDP-8, ASR33
Other Programs Needed:	Digital's Unsigned Decimal Print 8-22-U
Source Language:	PAL III

DECUS NO. 8-364

Extended Memory Patch to the 3-Word Floating Point Arithmetic Interpreter

Herbert Poppe, Lamont Geological Observatory of Columbia University, Palisades, New York

This patch allows the 3-word Floating Point Arithmetic Interpreter (DEC-Ø8-YQYB) to reside in any memory field and to be entered from that field or any other memory field.

Minimum Hardware:	PDP-8, extended memory, memory extension control
Other Programs Needed:	DEC-Ø8-YQYB
Restrictions:	Does not work with previous version (DEC-Ø8-YQYA)
Source Language:	PAL-D

DECUS NO. 8-365

CARD

Herbert Poppe, Lamont Geological Observatory of Columbia University, Palisades, New York

Reads cards from a card reader and transfers the characters to DECtape as an ASCII file compatible with Disk/DECtape Monitor System. The program runs with the interrupt enabled. CARD, in effect, allows card input to the PAL-D Assembler, for example.

Minimum Hardware:	4K PDP-8, 1 DECtape Drive and Control, Card Reader (CR01, 2, 3 or CR8I/L) and Control
Other Programs Needed:	Disk/DECtape Monitor System (DEC-D8-SDAB)
Storage Requirement:	Program: ØØØØ-1577; Buffers: 2ØØØ-3ØØ1, 4ØØØ-54Ø5
Restrictions:	Ignores card columns 61-80
Source Language:	PAL-D

DECUS NO. 8-366

Modified Readable Punch

Andres T. Siy, Capitol Institute of Technology, Kensington, Maryland

This program is similar in many respects to DECUS NOs. 8-68a and 8-106. It allows the user to type any characters whose ASCII code is 240 to 337, and produce an 8 X 6 matrix readable outline of the character on tape. The added features are: (a) new 6 words per character tags, and (b) there are provisions for output devices selection.

Minimum Hardware:	4K PDP-8, ASR33, HSP
Storage Requirement:	Locations 20-43; 200-310 (SA=200); and 400-1177 for Tags
Source Language:	PAL III

DECUS NO. 8-367

Digital 8-12-U Modified

Judson Gilbert, Florida State University, Tallahassee, Florida

The changes indicated allow the routine to recognize numbers in the range of ± 2047 instead of from 0 to 4095. As is usual with all software, making it more powerful takes a little more core or, eliminates some features or both. In this instance, the calling program will have to decide about initializing or plotting, and when plotting the pen will have to be raised or lowered, or commanded so, regardless of its up or down status of entry. The storage required is still 1 PDP-8 page.

This version of Digital-8-12-U is now serving us as an FNEW addition to FOCAL. It does a very nice job.

Minimum Hardware:	PDP-8, LINC-8 and incremental plotter
Other Programs Needed:	Calling program
Source Language:	LAP6-DIAL