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FORUM NEWS

West Coast User Group?

Dr. Hartley Jensen at the University of California-Davis has volunteered to begin organizing an IMLAC User Group. Dr. Jensen will be writing directly to all current PDS-1 users outlining the goals of the User Group and soliciting comments and suggestions. Tentative plans are being made for the first formal user meeting to be held in California this coming January.

Dr. Hartley Jensen

University of California
Dept. of E. E.
Davis, California 95616
Phone (916) 752-0583

East Coast User Group?

(Anyone interested in organizing one?)

Mid-West User Group?

(Anyone interested in organizing one?)

NEW PAPERS

REMOTE GRAPHICS RADIOTHERAPY

This is a report of one project at the UCLA Health Science Center to make computer-aided clinical techniques of radio-therapy available to practical therapists throughout the country, via data lines to low-cost interactive CRT terminals. The success of this project will have far reaching implications for other treatment planning techniques in similar fields.

Investigator: Dr. Carol M. Newton

UCLA Health Sciences Computing Facility
Los Angeles, California

POOR MAN'S GRAPHICS: LIBERATING A LINE

The above study is a discussion of the state-of-the-art development of low cost computer graphic equipment that will enable the generation of a creative environment for studying biomechanical problems.

The study was presented at:

Third International Biomechanics Symposium
Rome, Italy
Sept. 27 - Oct. 1, 1971

By:

Richard Garrett
Thomas Boardman
Gladys Garrett

Of:

Purdue University
Layafette, IND.

NEW OPTIONS

INTERACTIVE INPUT DEVICES

(Tablet, Mouse, Joystick)

The addition of these peripherals to IMLAC'S regular line of options, rounds out the offering of interactive input devices available to the PDS-1 user. The selective addition of one of these devices will significantly augment an operator's ease of interaction with the PDS-1 in a particular application. IMLAC offers each device with interface as a complete package, the price for which includes test and demonstration software.

STORAGE TUBE

The storage tube option permits the user to display large quantities of data on the storage tube while dynamically editing portions of that data on the refresh display.

Software for this option is a patch which permits use of the storage tube with the PDS-1 EDIT program. Previously unassigned function keys on the PDS-1 keyboard are used to address the various storage tube control functions, such as View, Erase, Store, etc.

USER INTERFACES

PARALLEL

Nova

The PDS-1 has been interfaced to a Nova by engineers at the Data General Corporation. Prior to a word transfer, the PDS-1 requests a Nova D-MAC cycle by executing an appropriate IOT. The Nova effects a transfer to the PDS-1 via a program interrupt.

Tom Dillman
Data General Corporation
Southboro, Mass.

PDP-11

The interface system in the following description is being offered for sale by Cybernex Corporation. In addition to the hardware, all of which is housed in the PDS-1, a comprehensive graphics software package is also available.

Memory Interface:

Allows PDP-11 to annex the PDS-1 memory and make it appear simply like more main memory to the PDP-11 program.

Normal access by PDS-1 Mini and Display processors is preserved.

Allows the PDP-11 program to generate PDS-1 display code directly in core, with the PDS-1 handling the display refresh control.

Control Interface:

Allows the PDP-11 program to have complete control over both the PDS-1 Mini and Display processors. In general this interface duplicates IMLAC Control Panel functions, and, in addition provides start/stop control over the display processor.

Robert Simmons

Cybernex Corporation
P.O. Box B
Stanford, California 94305

IBM 1800

This interface permits two-way parallel 16-bit transfers at word rates of 50K Hz. Provision is also made to force a PDS-1 ROM re-start if the IBM 1800 operating system detects an error in the PDS-1 EXEC program. This ROM re-start in turn interrupts the 1800 to request a program reload. A remote PDS-1 assembler runs in the 1800 under MPX (See USER DEVELOPED SOFTWARE)

B. Carpenter

CERN
European Organization for Nuclear Research
1211 Geneva 23
Switzerland

HIGH SPEED SERIAL INTERFACE

PDP-10

Serial data rates of 50K baud are possible with this user modified asynchronous interface, direct coupled via coax cable running 500 ft.

A ready line, whose state is sensed by the PDP-10, was added to inhibit high speed transfers to the PDS-1 when the PDS-1 is displaying data or is otherwise unable to service this interface.

Steve Peltan

M.I.T. Project MAC
545 Tech Square
Cambridge, Mass.

USER DEVELOPED SOFTWARE

2250 Emulator

This package was written to permit PDS-1's to replace 2250 displays, while making use of existing 2250 application software.

The PDS-1 receives the same data in the same format as would be sent to the IBM 2840 buffered display controller. The PDS-1 mini-processor converts the 2250 display commands to the PDS-1 display processor format and presents equivalent images on the CRT. User/CRT interaction via the 2250 function keyboard is simulated using the programmable keyboard of the PDS-1.

James Hart

NASA - Ames Research Center
Moffett Field, California 94035

VITAL (Versatile Imlac Translator, Assembler, and Loader)
(for sale by Dean-Hall Associates)

The VITAL system is a cross-assembler written in FORTRAN which generates object programs for the PDS-1 using the facilities of a larger, time-shared computer. Principal benefit of the system is that it permits modular programming of the PDS-1 mini computer for any size core memory. Program modules may be written, assembled, debugged, reduced to relocatable form and stored on the central computer files. Several relocatable modules may be combined and translated into an absolute loadable form.

Robert D. Hall

Dean-Hall Associates, Inc.
200 Third Street
Los Altos, California 94022

Cross Assembler for IBM 1800

Source programs are written in a language based on the PDS-1 assembler and are punched on cards. These programs are assembled in the 1800 as background processing jobs under MPX. The assembler makes two passes, producing a listing on the 1443 line printer during the second pass, if requested. The object code produced is stored on the disc during pass 2.

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NEW PRODUCT

IMLAC offers DOS with Iomec Disc Drive

The PDS-1D, a PDS-1 with higher packaging densities incorporating extensive use of MSI circuitry is now available.

The PDS-1D has been designed so that it can be expanded to a full blown Disc Operating System with an Iomec moving head Disc Drive via DMA (Direct Memory Access) channel. The Iomec drive comes in either single or double disc configurations with one IBM 2315 type replaceable cartridge. An optional dual disc configuration which includes utility software to transfer contents of the fixed disc (on the same spindle as the cartridge) to the replaceable cartridge disc, is available. Each disc stores approximately 22 megabits or more than 2-1/2 megabytes or characters.

An easy to use, Disc Operating System has been implemented with a full complement of utilities, including Assembler, Debugger, Symbol Form (Trademark) and Edit programs. The Monitor and Directory features of the system have been implemented to the point of Login, Logout and security password checks, so that users creating or deleting files do not destroy or tamper with each other's programs or data.

The replaceable cartridge feature (each cartridge costs about \$100) makes the system ideal for storing relatively large data bases or programs requiring relatively fast random access either on-line or off-line. Researchers or programmers using the same machine could have their own personal cartridges.

The DOS overlay features allow segmenting of large programs for selective call and the File Management features provide the necessary linkages to insure proper sequencing.

A minimum of 8K core is required for the DOS and it has been running for some time under heavy use.

It has been calculated that all of the engineering drawings at IMLAC Corporation and all active documentation can be stored on one replaceable cartridge disc using character graphics subroutine techniques.