IDIMS Newsletter

TRW

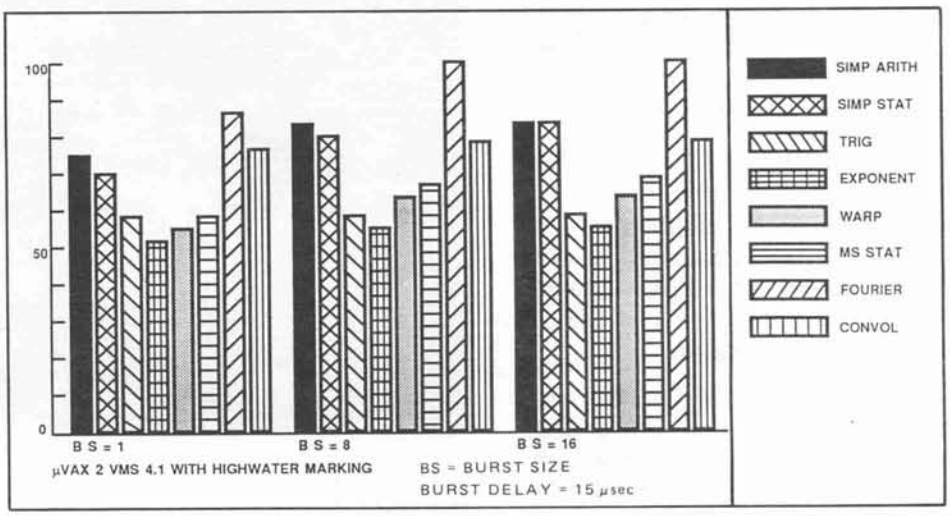
Published by ESL a subsidiary of TRW

December, 1985

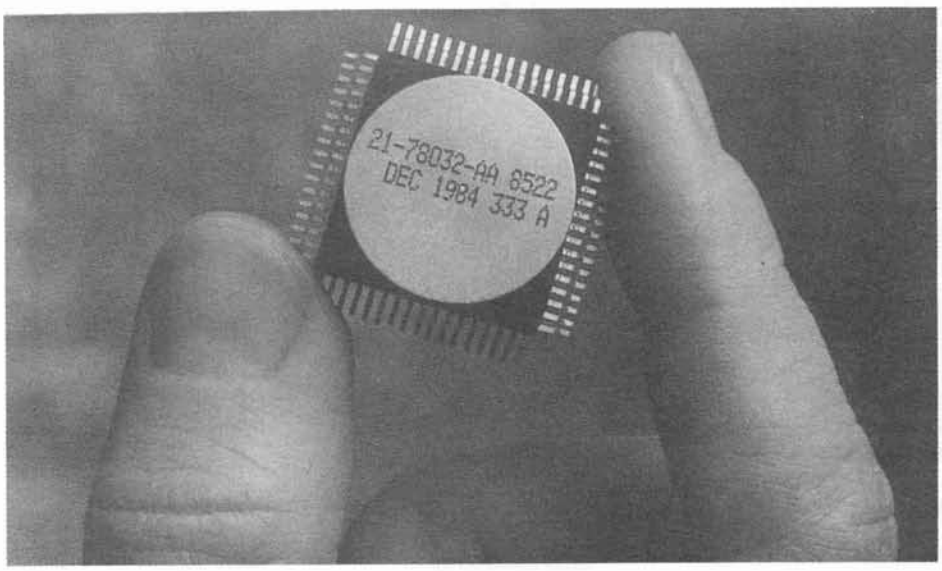
MicroVAX II Takes on IDIMS

A new IDIMS configuration features a dedicated, high-performance, state-of-the-art processor, the MicroVAX II, introduced by DEC last May. The MicroVAX is a 32-bit supermicrocomputer, available with up to 9 Mb of memory. Said Sarah Hathaway, DEC sales representative, "It's VAX on a chip; it can do everything the 11/780 can do, but at a significantly lower cost."

There are no conversions necessary because it can fully implement the VMS operating system and any Q-bus peripherals. Pat Hu, IDIMS operations manager, said, "The same IDIMS software will work on the entire DEC/VAX family: the 11/780, the 8600, and the MicroVAX II."



The benchmark consisted of testing commonly used functions, such as PICSTAT, SCALE, PEXP, ARCTAN, CONVOL, FFT, REGCOEFF, ISOCLS and KLTRANS. The baseline (100%) is a DEC VAX 11/780 with RA-81 disks running VMS 4.1. The table categorizes the benchmark results by varying disk transfer rate configurations. Data is also available for the comparative performance of the VAX 11/780 with an FPS 5210 or the VAX8600.



The MicroVAX 78032 Processor Chip

In the delivered configuration, the processor is directly interfaced to the display workstation, reducing the response time that confronts users when multiple workstations are driven by a single host computer. The following benchmark was run on the VAX 11/780 with RA-81 disks, a VAX 11/780 running a FPS 5210 array processor, a VAX 8600 with RA-781 disks and HSC-50 controller, and the MicroVAX II with System Industries QDA50 and Fujitsu Eagles. It included testing of commonly used functions and took about 8 hours to run on the baseline single-user VAX 11/780 system.

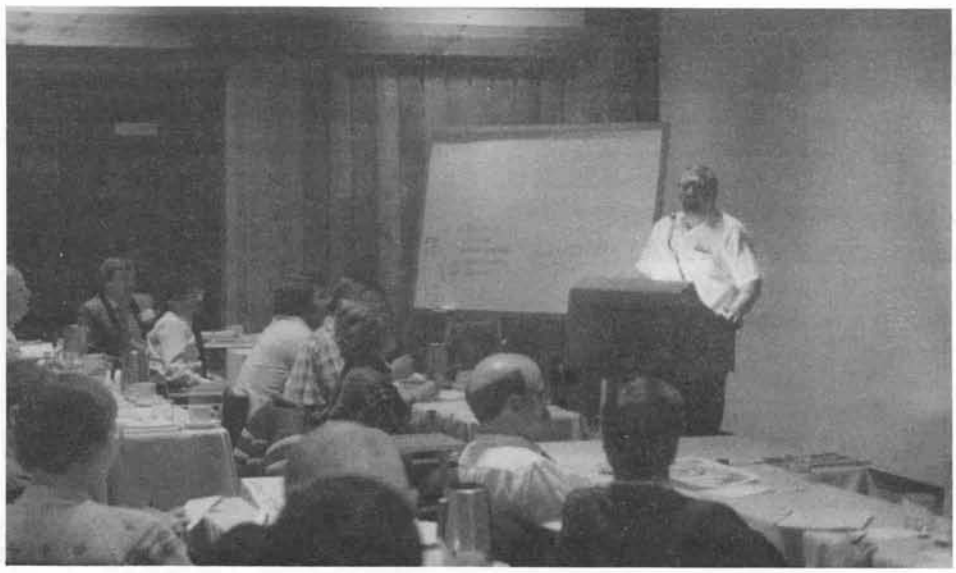
The results of the benchmark are summarized on the accompanying chart.

1986 IUG Meeting Scheduled

The ninth annual IDIMS Users Group meeting has been scheduled the week of March 24, 1986, at the Hyatt Lake Tahoe, Incline Village, Nevada. Registration will begin Monday evening, and the meeting will continue through Friday, March 28th.

The 1986 IUG chairperson, Ben Drake of Amoco Production Company, will lead the meeting. The vice-chairperson is Ed Work of the Bureau of Land Management, and Andy Failla of ESL is the secretary/treasurer.

The specific theme has not yet been chosen, but all users are asked to review their work and start thinking about participation. The chair and vice-chair will begin contacting users later this year about presentations for the meeting. Suggestions or comments for the agenda may be directed to Ben Drake at Amoco Production Co., P.O. Box 3092, Houston, TX 77253, (713) 556-4425.



Ben Drake, Amoco Production Company, chairman for the 1986 IUG Meeting, shown addressing the 1985 IUG Meeting.

Keystone Conference and Convention Center, site of the 1985 IUG Meeting

High Resolution Displays

A VAX/IDIMS release tentatively scheduled for the second quarter of 1986 will include display function upgrades that will enable sites to run IDIMS with high-resolution (1024 x 1024) images and also to generate hardware histograms. ESL will provide this software as a part of the software maintenance program, but sites will have to purchase additional hardware to implement these new capabilities.

The IDIMS software that is being modified to run with high-resolution images will use a new VOC developed for ESL by Gould Imaging and Graphics (formerly DeAnza). The hardware required is the high-resolution VOC, a high-resolution cursor generator, sixteen 512 x 512 x 8 Model II image memories (current boards may contribute toward this total, but scrolling smoothness will be inhibited), a master sync card, and 1024 x 1024 monitors as needed.

The histogram generation software is being modified so it will use a Gould histogram board to generate histograms each time they are requested. Currently, histograms are generated by software and then stored in a data base for future use. Systems without this board will still be able to generate histograms as they have in the past. Call IDIMS marketing at (408) 743-6156 for more information.

Spotlight on GMIS

One of the largest and most unusual IDIMS installations can be found at Norton Air Force Base in San Bernadino, California, in a joint effort by the TRW Ballistic Missiles Division and the U.S. Air Force Ballistic Missile office. Development at the site has led to the incorporation of many IDIMS-compatible hardware and software components. The site currently runs an HP3000/ Series 48 in tandem with a Series 68, as well as a VAX 11/ 780. Keith Maw, ESL manager for GMIS programs, said the site provides a model example for imagery programs using today's most up-to-date technology. "The HP3000/48 runs GES and ERIS software almost exclusively, and the HP3000/68 runs IDIMS with two displays, one based on a Gould IP6400, the other on a Gould IP8500," said Maw about the current configuration. "The two are connected through an HP product called DSN3000, which will be upgraded to an Ethernet-LAN3000 high-speed link."

Last August, ESL delivered the VAX 11/780 CPU, which is now running IDIMS and GEOMOD (a three-dimensional modelling software program from CA International, a subsidiary of General Electric). Plans include the addition of Dynamic Graphics ISM surface mapping software. A display station, based on a Gould IP8500, with a PDP 11/84, and a RA-81 disk drive, will be installed in early 1986. A Tektronix 4129 display will run GEOMOD, GES, and ERIS, offering sophisticated color graphics for these programs.

The GMIS facility has one of the largest and most comprehensive IDIMS systems in the field today. "Once it is fully dressed out — in March or so — it will include 3 Gould displays, over 30 terminals, 5 plotters, 5 digitizing stations, and another 3 or 4 GES query/GEOMOD stations, everything supporting a staff of over 40 people."

There is an additional IDIMS system based on a MicroVAX II being installed at the U.S. Army Ballistic Missile Defense Command headquarters in Huntsville (see MicroVAX story, page 1). "This system was originally proposed as a satellite GES station," said Maw, "but at the customer's request it 'expanded' into the first MicroVAX/IDIMS installation.

Current IDIMS S

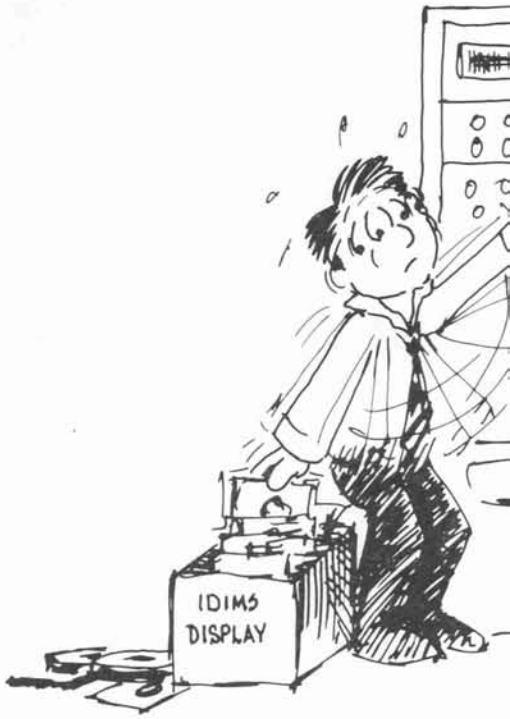
HP/IDIMS Release

Distribution of all HP/IDIMS software releases was completed in November. Each release contained an update to IDIMS version 4.41, which provided compatibility with selected versions of the MPE operating system. The three baseline versions of MPE that are now supported by ESL are

These IDIMS releases are for operating system updates only, and there are no application improvements or enhancements included.

Since the last MPE update several years ago, HP has decentralized their distribution and support of their operating system software so that local offices can better meet their customers' needs. Because of this and the diversity of HP software and hardware at each IDIMS site, it was not possible for ESL to distribute the MPE MIT tapes specific to each site. The sites must have the appropriate operating system version installed by their local HP support center prior to installing the applicable ESL update. More detailed information on the updates is contained in the release package.

The content of the next complete HP3000 IDIMS/ASAP release and schedule will be determined following discussions with the IUG steering committee.



VAX/GES Improvements

GES Release 8.72 will be released in December to subscribers, along with VAX Release 12.00. It will include the major capabilities of a GES-ERIS interface and the optional plotting package.

GES Release 8.7 was distributed last August to all GES subscribers. It represented a significant improvement for GES in the VAX/VMS environment since Release 8.3. Changes included the following:

- Improved I/O error checking
- Restructuring of point and line overlays
- Annotation overlays
- Implementation of the USGS geographic coordinate transformation package (GTCP), permitting support of a variety of standard map projections for registration, plotting, and coordinate conversion
- Keystroke commands, macro commands, batch operation
- Greater flexibility for editing and item copying, both between overlays and between geoblocks.

For more information regarding subscription to GES or ERIS, please contact Andy Failla at ESL, Inc., (408) 743-6152.

VAX/IDIMS Users

A contributed library for VAX/IDIMS users is now available. Jonathan Pershouse, Mobil Exploration and Production Services Inc., has gathered and organized IDIMS software functions written by various IDIMS users. The contributed library is distributed, but not supported, by ESL.

To implement the contributed library, users should first call up the README.NOW for instructions, suggested Pershouse. Before running the programs, users should check that they have the required hardware for a function and whether the output will be usable. Pershouse also warned, "People should check and verify the validity of the programs before they rely on them 100 percent."

oftware Releases

Contributed Library

Thomas Lugaski of the Mackay School of Mines at the University of Nevada at Reno is the VAX Steering Committee chairperson for the users' contributed library. There have not yet been any submissions for the 1985 tape, but Lugaski will be contacting VAX/IDIMS sites looking for helpful programs that can be shared by all users. Those interested in contributing to the library should send their materials to Lugaski at the Mackay School of Mines, University of Nevada, Reno, NV 89557-0047.

The VAX/IDIMS Contributed Library is available from ESL upon request. Contact Bob Ferrie, IDIMS Quality Assurance Manager, Mail Stop 106, 495 Java Drive, P.O. Box 3510, Sunnyvale, CA 94088-3510.

New VAX/IDIMS to be Released

VAX/IDIMS Release 12.10 is scheduled for January 1986 and will consist of a number of bug fixes and new functions, including some developed under ESL's Product Improvement Project (PIP). Brian Oye, VAX/IDIMS product specialist, announced that the following new functions would be provided by the release:

- BGLC – perform interactive band gated-logical classification
- FC – perform a conic fit
- SB – select a subsection of a viewed image
- FILL – display image (required by SB)
- INTENSITY – apply intensity mappings and pseudo-color tables to imagery residing on the host
- SEDIT – allow statistics manipulation (SMART)
- TMENTER – perform LANDSAT-D thematic mapper data tape entry.

Enhancements to the present system will include:

- Increased flexibility allowed for function launching (see story on production of an integrated product).
- New display subsystem data base monitor will improve display command performance.

The following high-priority problems will be addressed:

- Incorporate multi-reel capability for tape entry functions ENTER, TRANSFER, etc.
- Incorporate tape handling for image-related files.
- Increased consistency of statistics file functions ISOCLS, CLASFY, etc.

There are no changes to the VMS or RSX-11M operating system scheduled for this release.

The Product Improvement Project is a new effort by ESL for further software improvement. This concept was introduced to the users by Oye at the 1985 IUG meeting and is currently being implemented. The PIP is an internally funded project, headed by Karl Pingle, Principal Engineer, to provide product continuity with new or improved functions, new capabilities, and reviews of function requirements.

Four Generations of IDIMS

At a luncheon last May, four generations of IDIMS software engineers reunited. Pictured, left to right, are Jim Burke, Director, Spatial Data Systems, John Adams, Larry Hubble, Bob Putnam, Mark Salute, and Brian Oye. Each individual has played an important part in making IDIMS the advanced image processing system it is today.

IDIMS ancestry, left to right, Jim Burke, Director, Spatial Data Systems, John Adams, Larry Hubble, Bob Putnam, Mark Salute, and Brian Oye.

Former programmer, now computer systems engineer, John Adams recalled earlier times at ESL when he worked with Glen Peterson. "ESL started in image processing in late 1969, when we acquired a copy of an imagery program from JPL called VICAR. It ran on an IBM 360/44 under 44PS, but ESL wanted it converted to O/S. Our boss told us just to rewrite it, but we ignored him and instead wrote the whole thing from scratch. We wrote the entire batch program in 4 months, working from 4 in the afternoon to 8 in the morning, 6 days a week. We called it PECOS, for Picture Enhancement Computer Operating System. It had the same basic capabilities as IDIMS today."

Several years later, ESL began negotiating to make batch-PECOS interactive on an IBM system with a government customer, but "We realized that the HP3000 would be better suited to the program," Adams recalled. "We swore we'd never repeat the PECOS crunch, but when ESL decided to write an interactive version, we locked up the PECOS cards and started all over again. The birth of IDIMS was in 1973, with the program we called FLASH. The first IDIMS system was delivered to the customer in 1974."

At this point, both Peterson and Adams left the Imagery Data Systems Group, and Larry Hubble and Bob Putnam took more important roles in the development of IDIMS. Putnam, IDIMS software engineer, remembers, "The group consisted of Linda Thisted, Larry Hubble, Pat Ross, Jan Fabini, and myself. The image processing system was called FLASH; it had already moved to the HP. In 1976 we changed the name to IDIMS." IDIMS went through a lot of changes in those years. In addition to an interactive image display, many specialized, non-HP peripherals were interfaced to the HP/IDIMS system, including large disks, high-speed/high-density tapes, electrostatic printer/plotters, and array processors.

"In 1979 we started work on a VAX-based IDIMS system," Putnam recalled. "I took the HP effort, and Larry went on to the VAX side. Larry Hubble was 'Mr. IDIMS' until he left ESL in 1982. Since then, I've taken more of a role in the VAX software programs." Now Mark Salute and Brian Oye are responsible for the HP and VAX software, respectively. "Both Mark and Brian have made significant contributions to IDIMS," said Putnam. "The IDIMS teams have always worked together well, the product has benefited, and it's been a lot of fun." Since 1969, ESL has sold 54 IDIMS systems, which run on a variety of HP and DEC mainframes.

John Adams is now a vice president at International Imaging Systems (I^2S), Larry Hubble has been withTektronix/CAE since 1982, and Bob Putnam recently left ESL to start his own company, Imagineering Systems, Inc.

Installations and Upgrades

ARCO Exploration and Technology

ARCO Exploration and Technology will take delivery of the latest VAX/IDIMS system early next year. It is the first VAX 8600-based system sold by ESL, and it is composed of high-performance, state-of-the-art equipment.

The configuration will include an APTEC I/O computer, 1024 x 1024 image displays connected by a high-speed interface to the PDP 11/84 subsystems, with real-time 1.2 gigabyte disks. Len Zuras, ARCO program manager, said, "The ARCO system is the most powerful VAX/IDIMS we've developed. The 8600 offers increased processing throughput that is four to six times faster than a VAX 11/780." The HSC-50 controller will provide the processing power needed to address production analysis of TM data.

Factory acceptance testing will begin in early December, and the system is scheduled for delivery in early January 1986. ARCO will be using the system for satellite and aircraft remote sensing analysis and image processing for oil exploration-related activities. Responsible for the system will be Kenneth Meehan, principal research geologist at ARCO.

Sun Exploration and Production Company

A new VAX/IDIMS system has been installed at Sun Exploration and Production Company in Dallas, Texas. Delivered last month, Sun's HP3000 mainframe was replaced with a VAX 11/780 configuration. Sun was able to retain all major subsystems, minimizing the cost of a VAX system. Said Vern Mastin, program manager, "We've upgraded the majority of the hardware to operate in a VAX environment." In addition to the existing Gould IP8500 display subsystems, Sun will retain their Telex tape drives, all using a different interface to the VAX. The configuration also includes four Systems Industries 456 Mb disk drives, two DEC PDP 11/24s, and two DEC RA-81 disk drives for the display subsystems.

The new system will have more processing power then its predecessor. Said Dave Freeman, system manager, "We are anticipating a four-fold increase in the amount of data we are able to process as a result of this upgrade."

Sun's IDIMS is used for image processing in support of oil and gas exploration.

IDIMS Steering Committee News

The IDIMS Users Group Steering Committee met with ESL representatives at ESL in Sunnyvale, California, on November 11. Jonathan Pershouse, John Dwyer, Chris Stitt, Kelly Luetkemeyer, Laura Hall, Charlotte Carson-Henry, and Chuck Nelson attended for discussion on the status of the HP/IDIMS and VAX/IDIMS contributed libraries, quality assurance test files, documentation for VAX/IDIMS, and GES software. Chuck Nelson at the GMIS facility at Norton AFB is preparing an IDIMS Users News with more details on the meeting. The newsletter will be mailed to users in January.

Production of an Integrated Product

Since last spring, ESL has been heading an effort toward the production of an integrated product. Bob Putnam, senior software engineer, described it thus: "The idea is to be able to tie together disjoint software packages to be able to access GES or ERIS from a session within IDIMS." A three-pronged approach has been designed to achieve the total integration of GEOMIPS. The first phase of the effort involved the ability to execute other software packages from within IDIMS. This capability includes the accommodation of other vendor software, such as DGI's mapping software and access to statistics packages. Implementation of the second phase involves the generation of a set of intrinsics at the system level that will permit the utilities and other programs to communicate with a master process and the Data Catalog. The general philosophy of these modifications is to add a class of utility program functions, subdivided into IDIMS, GES, and ERIS utilities, and other functions.

Phase Three would provide a totally integrated package with Data Catalog embedded within each software subsystem. Putnam wants to start the users thinking about using the system as an integrated product, not as separate software packages. "We are currently soliciting input regarding the design of the integrated product from the users," said Pat Hu, IDIMS operations manager. "Would you like to see these software packages integrated into a single system?" Comments and suggestions should be directed to Pat Hu, M/S 101, ESL, Incorporated, 495 Java Drive, P.O. Box 3510, Sunnyvale, CA 94088-3510.

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Published by ESL Incorporated, a subsidiary of TRW Inc., for members of the IDIMS Users Group.

Do you have news about your system, site, or application that you would like to share with other IDIMS users? If so, please contact Andy Failla at ESL, 408. 743.6152.

ESL
A Subsidiary of TRW
495 Java Drive
P.O. Box 3510
Sunnyvale, CA 94088-3510

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