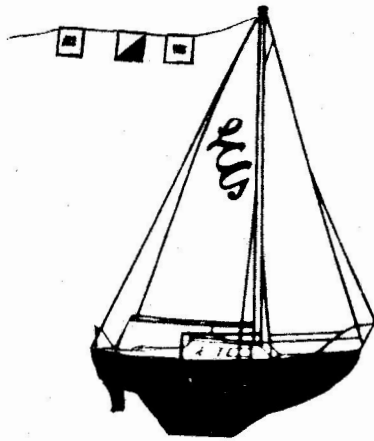


DIGITAL EQUIPMENT COMPUTER USERS SOCIETY

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March 1984

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**AT LARGE**

**This is your first  
Subscription Service Issue**

The Newsletter of the Large Systems SIG

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# CHAIRMAN'S MESSAGE

Last May, at Spring DECUS in St. Louis, Digital announced that the Jupiter project had been cancelled along with future 36 bit processor development. The announcement was made at the Product Panel, although many sites had already been notified during the week prior to the symposium. Users present at the Spring Symposium were asked to defer comments until they had time to clearly evaluate the impact and implications for their installations. At the end of the week these thoughts were expressed at the Town Meeting session. Unfortunately the corporate level representatives from Digital who made the announcement early in the week were not present to hear the user responses.

At the time of the announcement Digital acknowledged that they did not have a plan in place ready to deal with the problems created by the announcement. They stated that they would make an initial response to the installed base in August, with full plans to be presented in October at the Fall Symposium. The Large Systems SIG committed to working with Digital to help identify the issues and to monitor the plans.

The SIG announced that a survey would be distributed to determine the impact of the announcement and to try to identify the specific needs of the existing 36 bit customers. These needs would include areas that should be addressed by Digital in their proposed integration plans. The survey was hurriedly composed, and over 1700 copies were distributed. We received over 250 responses. A SIG advisory committee was established to discuss the survey results. The group was chosen to reflect the representative marketplaces in which DEC-10/20 systems are common (commercial/service bureau, education, engineering, government, research, etc.) with a balance of both 10 and 20 sites. We met for two days in mid July with a large group of Digital employees who were to be part of the planning process. The agenda included a review, the survey results and identification of specific items that must be addressed by Digital as part of their integration strategy. Those of us present felt that we had fulfilled our promise to Digital to interpret and explain the survey results, and were cautiously optimistic about the compilation of a workable plan in the timeframe committed by Digital.

A letter was prepared by Rose Ann Giordano and Bill Johnson as the means of fulfilling the August commitment. However, it did not reach most installations until late October. Their original plan was that the letter would be distributed by the sales force. In most cases, this didn't happen, and eventually it was distributed by mail to the same people who had been sent the SIG survey.

In mid October the user advisory group reconvened to hear a preview of the presentations that would be made at the Fall Symposium. At the conclusion of the meeting we felt that little progress had been made and that the plan was inadequate. Major issues were not being addressed. These feelings were expressed, along with the hope that at least some of these issues could be addressed at the symposium. The Symposium attendees would have to draw their own conclusions.

The integration plans were presented in Las Vegas. The consensus was that the plan contained little that was new, and that it was too little too late. Users expressed their feelings at several integration related sessions as well as at the Town Meeting. Unfortunately, as in St. Louis, the corporate level management who made the announcements early in the week, were not present to hear the comments and responses.

This is the history to-date of our activities regarding Digital's integration plans. The SIG Steering Committee met several times during the symposium to decide how we could best serve the needs of our membership. A letter will be transmitted to Kenneth Olsen, president of Digital, expressing our feelings, and asking for his commitment to addressing the concerns of the installed base. I hope to have this letter to him shortly. I am also attempting to arrange a meeting with him to discuss all the issues and concerns. In the meantime I urge all sites to consider the facts as they relate to your installations and your plans. I further urge you to express your feelings in the form of correspondence to Digital at the highest levels, with copies of your letters, if possible, to our SIG newsletter. Some of you have already done so, but numbers do count. Despite the survey results, Digital seems to feel that the impact of their announcement is not catastrophic, and that the major issues are being addressed by their integration plans. This hardly seems to be the case. They also seem to be shortsighted in their estimate of the impact on the rest of the corporation. They may be willing to lose the revenue in comparison to the VAX. They seem to have lost sight of the fact that most 10/20 sites are customers for other DEC products. The loss of the 36 bit business will have its impact on the rest of our business with Digital as we now are forced to do business with other vendors.

I will keep you posted as to our progress.

WE'RE GRATEFUL!!!!

The Large Systems SIG is most grateful for all the work done by Bill Miller and Vivian Beiswenger as SIG Chairman and Symposium Coordinator over the last few years. Bill and Vivian worked very hard to serve the needs of the SIG's membership. Their efforts should be noted and commended. We would like to express our gratitude to them and to their management for all the time and effort they devoted to their DECUS positions. We hope they will remain active in the SIG. Thanks Vivian and Bill!!!!

# FROM THE EDITOR

## Intent

Putting together a newsletter for the first time has required learning certain new production skills and about three months time. Having mastered (?) these techniques subsequent newsletters should require far less time to produce. To you, the reader, this means that in the future there should be a newsletter about once a quarter. That's the goal. Only time will tell if it is met.

The intent of this newsletter is to keep everyone abreast of what is happening within the Large Systems Group at DEC and how it could affect the current large systems users. As DEC develops (or doesn't develop) further "integration strategy" for the large mainframes this publication will attempt to bring you timely data about how it is viewed by others.

## Content

In order to make this newsletter helpful, informative, and worthwhile we need your help. If you or someone in your organization has written a letter to Digital expressing your feelings about the DEC strategy please send the editor a copy to publish in the next newsletter. When Digital responds to your letter, please send a copy along too. Digital's comments to your concerns should be of interest to everyone as well. If you have experience with integrating a DEC system 10/20 with a VAX or have completely converted to VAX we would appreciate hearing about your challenges and/or triumphs. Any other material that you feel would be of general interest to the AT LARGE audience should be sent to the editor. By your contributions the newsletter will become the joint forum of many sites instead of just the comments of the few SIG officers.

## Spring DECUS help

While I'm on the subject of contributions your SIG can use help at the Spring DECUS in Cincinnati. It won't require much time and will be greatly appreciated! Currently the known needs are for session chairpersons and for panel members. The session chairperson introduces the speakers for a single one-half hour to two hour session, and maintains order during the meeting. Panel members are needed to simply share their experiences in integrating DEC 10's and 20's with VAX's or converting from DEC 10's and 20's to VAX's. If you can help contact the Symposium Coordinator Jerry Weiner.





# DEC'S August 15 Strategy Statement

August 15, 1983

Dear DECSYSTEM-10/20 Customer:

In May 1983, Digital announced its new high-end strategy and how it fits into Digital's Integrated Computing Environment. A change in strategy usually has some impact on current plans. As described in this letter, we see several key benefits for our DECSYSTEM-10/20 customers.

Just as our DECSYSTEM-10/20 customers have pioneered with timesharing/inter-active systems, we now see them taking a leading role in Digital's Integrated Computing Environment. In the integrated VMS and TOPS-10/20 environment, the DECSYSTEM-10/20 customers will be able to continue to use all their existing DECSYSTEM-10/20 software while benefiting from our extensive developments in networks, clusters, personal computers, VAX and communications. Development for existing DECSYSTEM-10/20 products will continue for a minimum of 5 years, including extensive communication capabilities, associated hardware and software support for the TOPS-10 and TOPS-20 operating systems, and a set of mass storage products. Work is under way to enhance the CPU performance and cost effectiveness of KL10 based system. The recently announced HSC/RA81 mass storage offering provides both a significant cost/MB as well as a significant floorspace reduction. These Digital development activities will help to maintain state of the art capabilities at competitive pricing through the 80's.

In order to solicit customer input on what is important in this integrated environment, a questionnaire was developed by the LSG SIG. This questionnaire was mailed to the 1600 DECSYSTEM-10/20 customers who were registered in the DECUS mailing database. Out of the total mailing, we received 250 responses. These responses have been consolidated, tabulated and later reviewed with a representative group of LCG customers, selected by the LSG SIG executive board, in order to get clarification and more information.

The enclosed attachment provides our integration strategy statement and project direction for the Digital Integrated Computing Environment. We have been guided by the responses to the questionnaire and numerous interactions with various customers.

At Fall DECUS (October 24, 1983), we will have further details on integration tools and projects to present to you.

We appreciate the time and effort our customers have taken to communicate with us. We are looking forward to an equally open and fruitful interaction in the future.

Sincerely,

Rose Ann Giordano  
Product Group Manager  
Large Systems Marketing

Bill Johnson  
Vice President  
Systems and Communications Engineering

/sa

DIGITAL EQUIPMENT CORPORATION, ONE IRON WAY, BOX 1002, MARLBORO, MASSACHUSETTS 01752  
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## 1.0 OVERVIEW

Integration is a planned, stepwise growth into a distributed computing environment. It is a way to start using the newest products while protecting your investment and maximizing the effectiveness of your existing equipment. To achieve this potential, however, it is important that we at Digital and our LCG customers have a common understanding of how integration will occur. This document is a tool for that understanding.

Our planning thus far has resulted in some developments that are committed in specific terms, others that are committed in concept and need further detailed planning, and still other areas that are open for further consideration. Thus not all product areas can be discussed to the same level of detail. Digital is in a very competitive industry, and also due to business and legal requirements, we cannot (in this letter) be as specific as either of us might like.

## 2.0 STRATEGY

Overall, we expect current TOPS applications to remain on the systems that they were written for. We will support this by providing continued development of TOPS-10 and TOPS-20 systems while making Digital's product offerings the premier distributed processing environment in the industry. Massive conversion is always a time consuming and wasteful effort. Integration will minimize the need for conversions by making it possible to use current and latest technologies in concert. Where conversion to VAX is desirable, one of the integration goals is to make the transition as easy as possible.

In the short term (less than two years), we expect new applications to be written for VAX/VMS or TOPS-20, whichever is the most cost effective. VAX/VMS will be favored where the large library of VMS software can be used to advantage, and where the TOPS machine can be off-loaded by writing independent applications for VMS. We expect new applications to be written on the TOPS machine when the application fits in tightly with existing applications and where sharing of data at disk speed is necessary.

Over time, the cost effectiveness of developing new applications will favor VAX/VMS solutions. This will be prompted by reduced cost of computing on the VAX, higher capacity VAX processors, and faster distributed file access capabilities.

Our development plan for integration will provide the products necessary to meet these short and long term needs. The products and enhancements needed for the TOPS-10 and TOPS-20 systems are such that we will provide development for these integration products for another five years. Hardware and software maintenance will continue for at least ten years. Other Digital products, notably VAX/VMS, are also addressing LCG integration needs. Some of these enhancements will be delivered in the near term, i.e. operating systems, utility and compiler releases, while others require longer development projects.

### 3.0 PRODUCT DIRECTION

In order to meet the strategy outlined above, we have established an integration charter for each major work area. This indicates how development in that area will contribute to the integration strategy.

#### 3.1 DECSYSTEM-10/20 DOCUMENTATION, LANGUAGES, OPERATING SYSTEMS DEVELOPMENT

Development for KL10 based TOPS-10/20 systems will continue for a minimum of five years.

The primary focus areas will be ensuring that TOPS-10/20 will participate in the current and future Digital Integrated Computing Environment in such a way that customers can add incremental compute power from a personal computer up to a mainframe. The TOPS-20 based languages will focus on VMS compatible RMS-implementation and syntax compatibility with VMS languages as well as the current standards. Hardware enhancements will ensure that new CI/HSC based mass storage devices will be supported.

##### 3.1.1 DECSYSTEM-10/20 OPERATING SYSTEMS, NETWORKING

Digital's basic network strategy is to develop and maintain a link independent architecture and to support all proven communication technologies within that architecture.

Currently the Digital Network Architecture is capable of supporting X.25 and Ethernet networks and coexisting with SNA via gateways and access routines. It is our direction to make such gateways accessible from 10's and 20's. We are considering adding X.25 support for TOPS-10, and SNA support for TOPS-20.

TOPS-10 and TOPS-20 will be upgraded to support the CI and Ethernet (NI). This includes support for the HSC-50, the RA81, the RA60 and DECnet Phase IV. Our strategy also includes support for multi-CPU systems by both TOPS-10 and TOPS-20. The TOPS-10 strategy is to support the SMP and TRI-SMP configurations. This will be upgraded so that the CI/HSC-50 and its disks are accessible from any CPU in the SMP or TRI-SMP configuration. The TOPS-20 strategy is to support a CI based Common File System configuration. This configuration will also include support for DECnet-20 over the CI to provide communications between the DEC-20 systems in the cluster. Following this both TOPS-10 and TOPS-20 will have further development and maintenance releases.

### 3.1.2 LANGUAGES

We expect to concentrate on providing DECSYSTEM-10/20 compilers that meet today's standards. Fortran-10/20 meets the current subset ANSI-77 standard and also supports most of the additional features of the full ANSI-77 standard. Cobol-10/20 fully meets the ANSI-74 standard. In addition to these already existing products, we plan another Cobol-20 release that contains some new features expected to be included in the Cobol-8x standard and a Fortran-20 release that supports both extended addressing and support for the full ANSI-77 standard. These efforts have both been underway for over a year and are nearing completion of the development phase. Maintenance support for all of our other language products will continue.

In order to guarantee continued compatibility between the DECSYSTEM-10/20 languages and the VAX languages, the VAX development group will incorporate the DECSYSTEM-10/20 compiler syntax test programs in their own test procedures.

### 3.1.3 DATA MANAGEMENT

The ability to access data across systems is critical in an integrated environment. This includes the ability to manipulate records or files, and the ability to convert between the internal data formats of the individual machines.

The Data Interchange Library (DIL-10/20) is our first integration product in this area. This currently available product supplies subroutines for data conversion and remote file access. We are using the DIL as the basis for a Data Interchange Utility (DIU-10/20). The DIU will make DIL features available from command level. We are also considering extending the DIU to operate with tape to provide a tape interchange facility.

On the DECSYSTEM-20, we are planning further RMS releases with DAP support for file access to the PC300/350, VAX, and PDP-11 families. This version of RMS-20 would be capable of handling all file types supported by the FAL on the remote system.

Development is also underway on a distributed Datatrieve product for TOPS-20 to permit inter-system database access in a heterogeneous environment.

Distributed data access for DECSYSTEM-10/20 is planned to be coupled with the Ethernet product for high speed operation. Our focus for the CI is to first understand and support homogeneous systems -- TOPS-10-TOPS-20 and VMS. When we have solid working systems in these areas, we will explore the possibility and possible advantages of TOPS-10/20 and VMS sharing a common HSC controller on the CI with dedicated system disks. Our goal still remains to provide price competitive mass storage solutions in the integrated environment.

### 3.1.4 DOCUMENTATION

We will provide documentation to show our customers how to function in a multi-system environment. This information will address concerns of system operators, system managers, and other operation staff members. It will include configuration guidelines, installation details, management of system procedures, differences of system philosophies and concepts, integration decisions concerning users, program development, and similar topics.

We have identified the following key areas to be addressed by the integration documentation:

1. Language Compatibility and Comparison

Languages for which comparison information will be done are: FORTRAN, COBOL, PASCAL, APL-SF, BASIC-PLUS-II, and system calls.

2. Networks, Communications, Data Management

3. Operating Systems and Utilities

### 3.2 KL10 ENHANCEMENTS

To enhance the KL10 used in current DECSYSTEM-10/20 systems, we are developing a larger cache, larger pager translation buffer and we are rewriting areas of the CPU microcode to improve CPU performance in the area of complex instructions. In addition, development is underway to both cost reduce the memory subsystem and eliminate the need for external MOS memory expansion cabinetry, helping footprint reduction.

The KL10 peripheral hardware developments will continue to be a priority. Hence, Digital's future disk products offering both price/performance and footprint advantages will be available for DECSYSTEM-10/20 systems.

We have just completed the engineering necessary to ensure that the KL10-E complies with the U.S. FCC regulations. This way, we will continue the manufacturing of KL10 based systems and ensure its long term availability.

### 3.3 VMS DIRECTION

With the introduction of larger VAX computers, we have specific plans, both short term and long term, to extend VMS's widespread acceptance into the mainframe markets. In addition, Digital has chartered a team of marketing and advanced development engineering personnel to identify the unique needs of mainframe users and ensure that these requirements are factored into future VAX hardware and software products.

Building from our long experience with our 10/20 installed base, we will continue to improve all areas of the VAX/VMS software offering, including additional enhancements to VMS in the areas of:

- Ease of Use, Human Interface
- System Management Tools, Operator Interface
- System Security and Protection
- Job Control, Print Control, and Batch Facilities
- Commercially Oriented Features (e.g. tape control, SORT)

We will continue to make improvements in VMS and DECnet-VAX to extend our industry leadership in the areas of communications, networking, and clusters. We will also continue to improve existing, as well as add many new, layered VMS system software products, such that VAX/VMS continues to be one of the richest and most integrated software environments in the industry.

A key focus area for VMS development is information/data base management. We already have a very extensive integrated product set -- DATATRIEVE, FMS, DBMS-32, ACMS, CDD, RMS -- and we will continue development for future state-of-the-art database tools and products.

Both now and in the future, we see VMS based systems playing a key role as the Information Resource Manager, both in the cluster environment and local area network environment.

### 3.4 VAX DIRECTION

Digital has specific plans to address the mainframe needs of its customers, through a series of significantly more powerful VAX systems. Digital recently signed an agreement with TRILOGY to use high-speed state-of-the-art VLSI technology for future high-end product development. In addition, these systems will be incorporated within the VAXcluster concept to give shared concurrent access to support even larger applications and more users.

Digital is particularly aware of the requirements of high-end customers. We are taking steps to provide solutions for large numbers of terminals being connected to our processors, and continued enhancement of our leadership products in disk storage. We are also planning further enhancements for future Tape Storage products to better respond to our customers needs.

Digital will continue to increase its VAX product offerings to offer a broader range of fully interconnected cost effective computing resources, from large Central and Departmental systems, to Personal Computers and Workstations.

### 3.5 CUSTOMER SERVICES SUPPORT

Digital believes Customer support is an integral part of our customer commitment. We see our support as an ongoing effort, available for not less than 10 years for the 36-bit systems. This includes hardware and software maintenance support and educational training support.

Field Service is committed to continue to provide the same high quality service to its DECSYSTEM-10/20 users.

This high level of service will also be provided for our high-end VAX systems. We are doing this by continuing our dedicated DECSYSTEM-10/20 branches, and integrating our high-end VAX products with these branches. Digital is planning enhanced field service offerings for the integrated environment.

For software, Software Services will continue to provide the high level of quality services now offered. Further, we will enhance, package, and develop services in a fashion so as to meet our Large Systems customer's needs, regardless of the Digital architecture.

Educational Services will continue the development and delivery of training programs for DECSYSTEM-10/20 users in Digital's Integrated Computing Environment. These programs comprise a mix of lecture/lab and packaged instruction. Educational Services is committed to insuring that these courses will continue to be made available at selected Digital Training Centers or customers' premises.

### 3.6 DECSYSTEM-10/20 PRICING

In order to maintain a competitive price/performance for the DECSYSTEM-10/20, we announced the availability of the corporate RA81, RA60 disk products. These mass storage products now provide industry competitive cost/MB as well as industry leadership in reduced floor-space requirement. By participating in the corporate mass-storage program, we will be able to continue to provide industry leadership mass storage products.

In addition, we recently announced several price reductions for DECSYSTEM-10/20 based systems, in the areas of base system prices, add-on memory pricing, as well as the common file system pricing for TOPS-20. We significantly reduced the price of buying a DN20-based synchronous front end, to run DECnet. For further information about the latest pricing, please contact your sales representative.

#### 4.0 ELECTRONIC MAIL SYSTEM

Large Systems Marketing has installed a TOPS-20 system in Marlboro whose sole purpose is to act as a mail system, which will provide the mechanism for continued communication among and between the groups involved in the Integration effort.

There will be accounts generated on this system for:

1. Customers
2. US area Software Services districts
3. All individual Software Specialists (worldwide) who submit requests
4. All individuals on Integration Support Teams
5. Various individuals from the Product Group & Engineering

User groups and mailing lists will be created to facilitate mail communications between the various groups on the system. In addition, lists will be created for the system as requested by any user (all customers interested in magtape compatibility, for instance).

This system is currently installed, and fully operational. The general account for sending mail to is <INTEGRATION>, whose mail will be read daily, and whose messages will be passed along to the appropriate persons. Requests for forwarding mail to specific persons (in terms of name or function) will be honored whenever possible.

In order to receive an account on this system, please send the following information to Reed Powell, Digital Equipment Corp., MRO2-2/D13, 1 Iron Way, Marlboro, Mass. 01752.

Name of Requestor  
Name of Company  
Address of Company & Requestor  
Telephone Number  
Account Name desired (6 characters minimum)  
Password desired  
Mailing List topics you might be interested in

Please plan on a 7-10 day turnaround time before your account is created.

Telephone numbers for access to this system are:  
(617) 467-7020, -7021, -7024, -7025, -7046, -7047,  
-7048, -7049, -7051, -7054



SUMMARY

DECSYSTEM-10/20 INTEGRATION DIRECTIONS

	<u>TOPS-20</u>	<u>TOPS-10</u>
<u>OPERATING SYSTEMS</u>		
CI/HSC/RA81	X	X
MULTI-CPU SYSTEM	CFS	SMP
NI/ETHERNET	X	X
DECnet PHASE IV	X	X
ANF		X
<u>GATEWAYS</u>		
ROUTER	X	X
IBM	2780,3780,HASP, SNA	2780,3780,HASP
X.25	X	X
<u>LANGUAGES</u>		
COBOL	-74,-8X (Subset)	-74
FORTRAN-77	Full	Subset
PASCAL	X	
APLSF	X	X
BLISS-36	X	X
<u>DATA MANAGEMENT</u>		
DIL	X	X
DIU	X	X
DATATRIEVE	X	
RMS	V2, V3	COBOL/ISAM
DBMS	V6, V7	V5
<u>DOCUMENTATION</u>		
LANGUAGE COMPATIBILITY	X	X
NETWORK FACILITIES	X	X
O/S AND UTILITIES DIFFERENCES	X	X
SYSTEM MANAGEMENT DIFFERENCES	X	X

# Summary of Questionnaire Results

On June 13, 1983 Digital Equipment Corporation sent out a questionnaire to all identified DECSYSTEM-10 and/or DECSYSTEM-20 sites. The questionnaire consisted of 55 questions prepared by several LCG SIG members. Of the 1604 mailed out, 196 were returned by the due date. The following pages provide summary information from the survey results.

## SUMMARY SITE INFORMATION

### Site Classification:

Commercial	29%
Education	28%
Research	20%
Government	13%
Technical	10%

### Languages:

FORTRAN	82%
COBOL	62%
BASIC	47%
LISP	42%
PASCAL	37%
APL	15%
MACRO	10%

50% have over 200 system users

77% want to expand their system within the next two years

47% feel software conversion costs will be \$2M or less

43% spend between \$100K and \$500K per year with DEC

78% do not expect they can convert all their software

The two most important hardware offerings desired were an interconnect and an increase in front end speed.

OVERVIEW  
HARDWARE SECTION

- 0 QUESTION DEC'S ABILITY TO BUILD A LARGE MAINFRAME.
- 0 WANT TO SEE A HIGH END STRATEGY THAT DEMONSTRATES CONTINUITY AND GROWTH.
- 0 IF THERE WILL NOT BE A HIGH END FOLLOW ON 36 BIT PRODUCT THEN A CLEAR MIGRATION/CONVERSION STRATEGY WITH TOOLS TO CARRY OUT THE STRATEGY IS REQUIRED.
- 0 THE CANCELLATION OF THE JUPITER CAUSED A LARGE GAP IN CREDIBILITY.
- 0 LOWER HW/SW AND SERVICE COSTS ARE NECESSARY TO KEEP THE BASE.
- 0 CUSTOMERS CLEARLY WANT TOPS, EITHER THROUGH CONTINUED SUPPORT AND GROWTH OR TOPS ON A VAX.
- 0 CUSTOMERS ARE UNHAPPY WITH THE PRESENT STATE OF DIGITAL'S HIGH END AND IT'S LACK OF A STRATEGY.

## SUMMARY OF SOFTWARE RESPONSES

### MAJOR CONCERNS:

COMPATIBILITY BETWEEN VAX AND TOPS-10/20

LANGUAGES (COMMON SYNTAX)

DATA

COMMAND LANGUAGE

CONTINUED SUPPORT FOR TOPS-10/20 SYSTEMS ON AN  
EQUAL BASIS

APPLICATION CONVERSION TOOLS

## SUMMARY OF SOFTWARE RESPONSES

### OVERVIEW:

THOSE WHO HAVE DBMS SEE THE MAJOR NEED TO BE COMPATIBILITY WITH VAX INFORMATION ARCHITECTURE.

THOSE WHO HAVE MIGRATED APPLICATIONS HAVE THEIR MAJOR PROBLEM TO BE SYSTEM DIFFERENCES.

THOSE WHO HAVE CHOSEN NOT TO MIGRATE STATE THE MAJOR REASONS AS COST (TIME AND MONEY) AND SYSTEM DIFFERENCES.

THE MAJOR DEC-10/20 PRODUCTS THAT HINDER MIGRATION AND INTEGRATION ARE THE TOPS OPERATING SYSTEM, DATA MANAGEMENT SOFTWARE, USER SOFTWARE, AND TOPS UTILITIES/TOOLS.

WHEN ASKED TO CHOOSE A PREFERRED OPERATING SYSTEMS ON VAX, 50% CHOSE VMS OR UNIX AND THE OTHER 50% CHOSE TOPS STYLE.

THE MAJOR NEED SEEN IS FOR CONVERSION TOOLS.

CUSTOMERS SHOWED A MAJOR INTEREST IN PERSONAL COMPUTERS WITH FOCUS OF CONCERNS ON DATA/FILE TRANSFERS, DISTRIBUTED PROCESSING, INTEGRATION/COMPATIBILITY, AND COMMUNICATIONS/NETWORKING.

## SUPPORT AND BUSINESS CONCERNS OVERVIEW

### MAJOR CONCERNS:

- 0 QUESTION THE COMMITMENT OF DIGITAL TO THE 36 BIT HW AND SW
- 0 WANT A DEFINITE COURSE OF ACTION ON CONVERSION/MIGRATION
- 0 WOULD LIKE TO BE MORE INVOLVED IN CORPORATE PRODUCT PLANS

### OVERVIEW:

- 0 PERCEPTION THAT 36 BIT WAS/IS A "STEPCHILD" TO THE VAX
- 0 HELP IS SOUGHT IN HELPING IN THE MIGRATION/CONVERSION PROCESS
- 0 CONVERSION ACTION PLANS AND COMMITMENT ARE NEEDED IMMEDIATELY
- 0 DIGITAL'S CREDIBILITY HAS BEEN BADLY HURT BY JUPITER CANCELLATION
- 0 LOWER HW/SW/SVC PRICES WOULD LESSEN SOME OF THE IMPACT
- 0 SOME CUSTOMERS WILL STAY ON TOPS GIVEN HW AND SW SUPPORT AND GROWTH
- 0 CORPORATE AND PG PLANS WILL HELP THE CUSTOMER STRATEGIC PLANS
- 0 A LACK OF CREDIBILITY BY DIGITAL IS SEEN AS A MAJOR PROBLEM

# Letters From Sites

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May 26, 1983

Ms. Rose Anne Giordano  
-Product Group Manager -  
Large Computer Group  
Digital Equipment Corporation  
One Iron Way  
MR2-2/C2  
Marlboro, MA 01752

Dear Ms. Giordano:

As stated in our recent mailgram, we were quite dismayed to learn of Digital's decision to abandon further extension of your 36-bit machine product line, especially having just purchased a 2060 in reliance of your representations that this would not happen!

I enclose for your information the following relative to this transaction:

- (1) Letter to you dated March 8, 1982
- (2) Agenda for meeting between Tillinghast and Digital
- (3) April 26, 1982 letter from Jack Naegele following meeting
- (4) Memo to file relative to meeting in Marlboro dated April 27, 1982
- (5) Letter from Jack Naegele relative to order for DEC2060 which includes minimum "trade-in" allowance for Jupiter
- (6) Letter canceling order for CFS following your announcement.

Our concerns are numerous, but fall into three main categories, including

- The price we paid for the 2060 last December
- The cost of software conversion from the 2060 to a 32-bit VAX
- The useful life of future hardware purchase (mainly disks) for the 2060

With respect to the first of these, it is impossible to say whether or not we would have purchased the second 2060 had your announcement been made a year earlier. Of this, we cannot be sure. We are sure, however, that had your announcement been made 12 months earlier, our cost of the second 2060 would have been substantially less than the price we paid Digital. In the next three to six months we expect to see very substantial decreases in

May 26, 1983

prices of used 2060's, and had your announcement been made earlier (or had we known Digital was not committed to future 36-bit machines as was represented to us) we would have delayed our purchase to take advantage of the lower prices for used 2060's that are sure to come.

We currently have no feel for the exact extent of damages done to Tillinghast in this area of price, but believe an appropriate measure might be

\$617,970 times (PCT-83 minus PCT-82)

where PCT-83 represents the decrease in used DEC-2060 prices from May 1, 1983 thru October 31, 1983 and PCT-82 represents the percentage decline over a comparable period in 1982.

Our major concern is, however, in the area of software. The following is a list of immediate concerns. I know that there are likely an equal number of problems that we won't think of initially, but this list should serve as a start.

- We are largely a FORTRAN shop, and as ANSI-1977 FORTRAN just became available on the 2060, what help can DEC offer us in expediting conversion of the FORTRAN programs so that they will run on your new machine. At latest count we had 8826 FORTRAN program modules (including subroutines and functions).
- Will DEC have a data base for the VAX compatible with DBMS-20? We are one of your few customers who is a major user of DBMS-20 with FORTRAN, and are concerned that this might have a very low priority from DEC. Over the past four years, our major development effort has been a data base system tied to a computation system for certain actuarial work. Response to DBMS problems (which have been numerous) has been very slow in the past, and without commitment to future 36-bit hardware, we are concerned even more as to the quality and responsiveness of future DEC support.
- What policy for software licensing charges will DEC adopt for users who move from a 2060 to a VAX? It will be a bad enough job to go through the conversion, and having to repurchase all of our software would add insult to injury.
- Following our meeting in Marlboro, we looked at relational data bases available on the 2060 and purchased 1022. Had we known what your plans were, we would have put machine independence very high on our priority list and would likely not have purchased this package. Do you expect DEC to give aid to vendors of packages such as this to aid conversion from 1022 (2060) to 1032 (VAX). Considering the time of our purchase and our reliance on DEC's plans for the 2080, do you have any other suggestions in this area?
- What general assistance will DEC provide to its customers to ease conversion from 36-bit to 32-bit machines? From a user viewpoint,



May 26, 1983

especially in the development area, we have found the 2060 to be a highly productive environment. With 8826 FORTRAN program modules, and a considerable number of modules (probably 2000+) in other languages, our development staff totals only 8 people. Unless DEC can substantially ease our conversion pains, we estimate that it will take our entire development staff from 18 to 24 months to complete a conversion. Like most installations, we have a very long list of pending projects, and abandonment of this project list for an extended period would cause a major uproar from our professional staff.

With respect to hardware, our main concern is whether or not any disks we purchase in the future (e.g., RP-81's) will be useable on the VAX as well as the 2060. Also, if we do purchase RP-81's for the 2060, how much will DEC charge for any modifications required to make them useable on the VAX, and will DEC be willing to guarantee a maximum changeover cost at date of purchase?

Ms. Giordano, we are very concerned about the problems your announcement has "dumped in our lap". As we read the announcement, the bottom line is that we should plan on replacing our 2060's with other equipment. This raises the questions of

- When?

likely in 3-4 years (in this respect we are probably luckier than most 2060 users)

- With what?

what is DEC's answer, or does this mean a change in vendors?

- With how much pain and suffering?

obviously, the easier DEC can make conversion for 2060 users, the more likely you are to retain your current LCG customer base.

- How soon can we get answers, and how credible will they be?

until we know what our future hardware will look like, it will be quite difficult to ensure portability of software, and until we see the product actually delivered and running, your assurances have very low credibility based on past performance.


Lastly, until we get some definitive answers relative to future direction, it is quite hard to plan for the future. We signed an order this week for word processing equipment, and a major factor in our selection was our desire to use the DEC-2060 communication network. We are in the process of trying to select personal computers for the use of our technical staff, and again a key consideration is how these will interface with our main computer. Last week the problem was simple, as we knew our main frame would be a DEC-20 series machine. Suddenly, life has become much more complex and our discomfort index is very high.

Rose Anne Giordano  
Digital Equipment Corp.

May 26, 1983

Last March I sent you a copy of one of DEC's advertisements offering relief from "computer anxiety". We still need relief, and I only hope that this year's solution offers more long lasting relief than did the 1982 solution.

Sincerely,



Henry K. Knowlton

HKK:gm  
Enclosures

cc: Mr. Ken Olsen, President, DEC, Marlboro  
Mr. Per Hjerpe, LCG Marketing Manager, DEC, Marlboro  
Mr. Charles King, DEC, Atlanta  
Mr. Charles A. Scheibe, Regional Sales Manager, DEC, Atlanta  
Mr. Albert R. Tetrault, District Sales Manager, DEC, Atlanta  
Mr. Jack Naegele, Senior Sales Representative, DEC, Atlanta

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Mr. Ken Olsen  
Chairman of the Board  
Digital Equipment Corporation  
146 Main Street  
Maynard, MA 01754

Dear Mr. Olson;

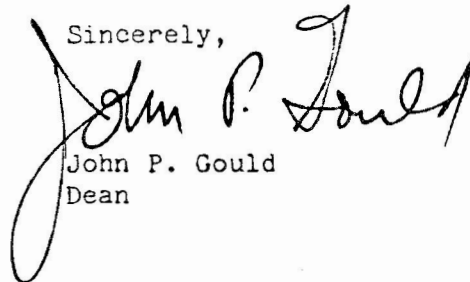
The major graduate schools of business in America compete intensively for faculty and students. If they are to succeed in this competition, institutions like the one I head must plan things like faculty recruitment, curricular changes and investments in computing equipment years in advance. This necessity to anticipate has spared us any shock or embarrassment in the wake of Digital's recent announcement that a successor processor to the DECSYSTEM-10/20 will not be produced. However, we depend and will continue to depend for some years on our large DEC computers and we cannot afford to be indifferent to Digital's future large system business plans. These new plans, as far as we are aware of them, strike us as conflicting with our future needs, and I felt this to be an appropriate time to make you aware that Digital may be misunderstanding the computer-related requirements of an important market.

These last several years, Digital Equipment Corporation should have prided itself on the fact that the preeminent business schools in America were all customers of the Large Systems Group. This remarkable convergence may be attributed to their common requirements and the intense competition among them-- each school has been compelled to offer the best interactive computing available and affordable. Here at Chicago we believe that our DECSYSTEM-20's have made important contributions to the quality of our research, instruction and administration. We also believe that there is not a close substitute for this system marketed by Digital or anyone else. The VAX line is an obvious alternative but not a completely compelling one for those who must offer sophisticated yet straightforward timesharing to as many users, naive and expert, as we must. We have over two thousand users who share and update large common databases; we have high-priced faculty who have gotten used to doing their own programming; we expect several hundred new users a year to learn to use our systems themselves and we have integrated our classroom, research and applications computing to a surprising degree. We believe that our efficient and imaginative exploitation of our large computers and their software is typical of DEC's customers among the large professional schools. Digital is running the risk of losing at least a part of this small but disproportionately important market-- the major business schools-- as the institutions in it turn to other vendors and solutions for their computing needs.

Naturally, we respect Digital's determination that the Jupiter computer will not be marketable, and we do not believe that DEC's responsibilities to its large system customers include the development of products of questionable profitability. We do think that, in the case of certain customers, Digital has not adequately understood how different the operating environment afforded by their big machines, TOPS20, is from those supported by your other products. It is our view that integrating our computing activities into some other part of your product line will involve such a large change in the way we do things that it behooves us to study industry alternatives which more closely approach our current and future needs. We certainly hope that Digital will be sympathetic to this reasoning and that you will seriously consider supporting TOPS20 elsewhere in your product line or licensing the software and relevant hardware technology to another firm.

Through the major business schools Digital's products are each year used by thousands of students who graduate to become America's top business professionals. DEC has earned this exposure by offering and supporting superior large scale computing systems. The School of Business at the University of Chicago plans to operate its large DEC machines for only a few years longer-- soon they will be, comparatively, too uneconomic to use in our business. We are planning now how we will replace or supplant these machines. I hope that Digital will make special efforts to keep our school particularly well informed about its business plans for our segment of the market and that you will not hesitate to solicit advice from us about our requirements.

Sincerely,



John P. Gould  
Dean

Cc: Large System Newsletter Editor  
DECUS  
1 Iron Way  
Maraboro, MA 01752

Hazel Wagner  
Chicago District Education Accounts Manager  
Digital Equipment Corporation  
5600 Apollo Drive  
Rolling Meadows, IL 60008

Thursday, November 3, 1983

Mr. Kenneth H. Olsen, President  
Digital Equipment Corporation MLO10-2/A50  
146 Main Street  
Maynard, Massachusetts 01754

Dear Mr. Olsen,

I write to caution that Digital's credibility and the loyalty of many stalwart customers are at risk as never before. I have been your customer since 1968. During these fifteen years, I have created many successes with your products. Many friendships have been developed as I have worked with Digital personnel in partnership to improve and promote your products. Although the opinion I express here is personal (I do not purport to represent Stanford University in this communication), it does represent my professional opinion; I expect you have many other customers who share this opinion.

I am thoroughly disappointed by Digital's strategy for the "integration" of the 36-bit computer systems with the VAX. The plans presented at fall DECUS are notably incomplete; they are based entirely on hardware and software configurations that are not now deliverable, with some parts not deliverable for 24 months. Among the non-deliverable cornerstones of the integration plan are the Venus, and the CI and NI support in TOPS. In addition to several outright technical failures, Digital has had recent difficulty in the timely performance of its undertakings. I must question when the components needed for the integration strategy will be completed.

Digital is poised to alienate its large systems customers (as did another vendor some twenty years ago, who only just now is returning to our favor). The cancellation of future developments of 36-bit processors, the incomplete nature of the integration plan, and other actions of Digital Equipment suggest that the corporation has forgotten the importance of listening to your customers. Lately it seems that at Digital, you pursue the sale of what *you* make instead of what *we* want.

The anger and frustration among your large systems customers is manifest. We did everything that customers are supposed to do. First, we bought the product. Then we made the product successful in our organizations. We worked with Digital to enhance and promote the product. Then we bought more. Our only mistake was to make plans and direct significant capital and manpower investments in reliance on presentations of Digital's development efforts. We have not gone away; we have not wavered in our loyalty to this product. Digital has abandoned us: Digital demonstrates its lack of interest in our problems by dropping new processor development and wandering off to make incoherent and incredible plans for integration.

The integration plan does not address the most important problem faced in my organization. We have some 2 million to 4 million lines of MACRO code, plus code in LISP and its dialects, code in SAIL, and code in several other languages none of which can be executed on anything but the 36-bit instruction set processors. What we need is modern, compact, high-performance, cost-effective (both in purchase and in operation) systems that execute these programs.

What we need from Digital is simple: either provide such systems to execute these programs, or license the software base to any third-party vendors who wish to provide such systems.

Should you revisit the decision that terminated 36-bit processor development, you might consider the following points in favor of Digital's continued involvement in these processors and systems:

- TOPS-20 and its associated software is an intellectually superior product, far better than anything else in the marketplace. (You may never have heard this because TOPS has been Digital's best kept secret.) TOPS-20 has been exceptionally well-received in communities as disparate as commercial, educational, and scientific.
- The performance of the Venus processor is not viewed by TOPS customers as a sufficient increment to motivate the selection of Venus as the successor to the KL10<sup>1,2</sup>. Moreover, the present VMS is viewed as an environment inferior to TOPS; thus, TOPS customers will examine all vendors and all environments when choosing a successor to their present systems.
- The large scale systems provide Digital entree to large organizations whose needs cannot exclusively be met by smaller systems; these organizations are the ones where you might expect to target sales of PCs and mid-sized systems. It is within such organizations that a true integration strategy that provides for the long-term interaction between heterogeneous systems makes sense. It must be noted that if parts of such a customer become alienated, the ill-will may spread throughout the organization and preclude most sales of PCs and other systems.
- The existence of various competing product lines within Digital provides for a useful interchange of ideas akin to hybrid vigor. If your implementation teams work to outdo each other instead of do in each other, I'm sure the customers would notice the benefit.
- Consolidation of product is often a failure because consolidation forces on one product organization the goal of being all things to all people. In the present instance, the integration plan calls for significant augmentations to VMS. These are not trivial; their implementation will take great time and expense. The new direction thus defined for VMS may alienate existing customers who were satisfied with a simpler, more compact system. With multiple product lines, you are free to market products in their areas of inherent strength. Consolidation should be avoided: it puts all the eggs in one basket.
- Finally, perhaps the most hopeful note that I can share with you, among your customers are many clever people who would applaud the continuation of this product and who would work with Digital in myriad useful ways to contribute to its success.

I repeat: my organization needs modern computer systems that execute our existing programs. We would be happy to buy them from Digital. If at Digital, you choose to delete this aspect of our product needs from your business, we request that you license the software base to any third-party manufacturers who solicit our business. Of course, it may occur to you to do neither; such a decision may well earn for Digital the enduring enmity of all those who have made plans and directed investments in reliance on Digital's reputation and our prior, productive, experiences with Digital.

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<sup>1</sup>VAX clusters are not a complete solution: the speed of the single processor has a strong influence in selecting which problems to attempt and which techniques to employ in their solution. In a research environment, we need the flexibility of high speed execution so that various approaches can be tried.

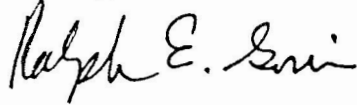
<sup>2</sup>Our work in artificial intelligence research and expert systems may be significantly damaged by the difficulties that the VAX architecture presents in implementing LISP and its dialects.

Thursday, November 3, 1983

Some components of the integration plan may be worthwhile after the present uncertainties are resolved. However, plans that fail to address our need for modern 36-bit instruction set processors will cause us severe damage that will not soon be repaired.

Digital's decision in this matter must be made soon and it must be communicated. Customer loyalty corrodes rapidly in the present atmosphere of uncertainty.

Sincerely,

A handwritten signature in cursive script that reads "Ralph E. Gorin".

Ralph E. Gorin

CC: Win Hindle Jr.  
William R. Johnson Jr.  
C.W. Goldsmith, DECUS U.S. President  
Leslie Maltz, Large Systems SIG

November 4, 1983  
MFE/TC/83-3622u/0274u

Ken Olsen  
Digital Equipment Corporation  
146 Main Street  
Maynard, MA 01754

Subject: Software Licensing

Dear Mr. Olsen:

We are very concerned about recent developments in your 36-bit product line. At the Las Vegas DECUS Symposium you announced that you were not willing to unbundle your software. We strongly disagree with the position you have taken, and urge you to reconsider that decision.

Lawrence Livermore National Laboratory is the center of the national Magnetic Fusion Energy Network (MFENET), a network which includes many PDP-10 processors. Our MFE group in Livermore has outgrown our single 1090 system, and was planning to be a field test site for the JUPITER. As a result of your cancellation of the JUPITER project, we are now left in a very difficult position. Our computing needs are such that the VAX is NOT a solution for us (although we have bought VAXes and will continue to do so for those applications where they are appropriate, assuming they remain competitive). The VENUS product which is coming out next year will still NOT be a solution to our problem, and we have serious doubt that such a complex instruction set as that used in the VAX can be made to run at the speeds we need in the next 5 years (if at all).

We seem to have two choices right now, either move away from 36-bit systems soon, or stick with 36-bits for a few more years while waiting for an attractive alternative. If we must move away from 36-bits we will be looking for the fastest 32-bit system available with a decent floating point format (which eliminates IBM and their clones). It happens that DIGITAL doesn't have the fastest such machine, so we would probably look at other vendors who support UNIX.

To avoid moving away from DIGITAL in the near term, we want to see some future for 36-bit systems. There are a few other manufacturers (Foonly/Tymshare, System Concepts, and possibly Trilogy) who seem to be interested in meeting our needs through the offering of new 36-bit processors. (The "26KL" system offered by Tymshare will not meet our needs, but we feel that future developments in that market might). Your announced policy of not unbundling the software will undoubtedly put a damper on any activity in that area. We strongly urge you to reconsider that policy decision, to give us the breathing room to remain your customers.

In particular, if you refuse to unbundle the software, we will be forced to move to another vendor very soon. If you reconsider, we intend to buy another KL-10 to help us serve our users until something better comes along.



We are aware that Trilogy has shown some interest in building a new 36-bit processor, and would urge you to aggressively pursue a joint venture with them. We view this as a way for DIGITAL to make many currently unhappy customers very happy, while allowing DIGITAL to continue to profit from the part of the market where the majority of your income now comes from: software.

Sincerely,



Norm Samuelson  
DEC/-10/20 System Manager

NS:jw

cc: Stan Baer  
DECUS Large Systems SIG Newsletter Editor  
183 Chestnut Street  
Cambridge, MA 02139

15 November 1983

Per Hjerppe  
DIGITAL EQUIPMENT CORPORATION  
MRO2-2/C2  
One Iron Way  
Marlboro, Mass. 01752

Dear Per:

At the recent Fall DECUS Symposium it was announced that Digital's policy will be to not distribute the DECnet-10 sources with TOPS-10 version 7.02. This greatly disturbs us here at Stevens Institute of Technology. We have had a DECnet-10 source license for many years. We have kept DECnet-10 on a software maintenance contract so that we would receive all future source updates. According to the terms of the original purchase and our standing contract for software maintenance we feel that Digital is both legally and morally obligated to distribute the new DECnet-10 sources with release 7.02 of TOPS-10. We originally obtained DECnet-10 with the expectation that it would be used to begin a network architecture plan at Stevens. Without the DECnet-10 sources any attempt at a DECSYSTEM-10/VAX integration strategy would be greatly hindered and possibly abandoned here at Stevens. We are having a sufficiently difficult time trying to identify a viable Digital integration plan based on current product offerings. I certainly hope that the DECnet-10 policy will revert to its former, more useful form - distribution of full sources to licensed sites.

I look forward to hearing from you on this matter.

Yours truly,



Robert C. McQueen  
Programming Manager

RCM/pdt

cc: Leslie P. Maltz, Stevens Institute of Technology  
Barbara Osborne, Digital Equipment Corporation  
At LARGE ✓  
Walter Manter, Digital Equipment Corporation

32 Orange Road  
Middletown, CT 06457

23 November 1983

Mr. Kenneth Olsen, President  
Digital Equipment Corporation  
ML010-2/A50  
146 Main Street  
Maynard, MA 01754

Dear Mr. Olsen:

I am writing to ask you to reconsider Digital's decision not to develop new DECsystem-10/20 processors. I outline below the reasons I feel it is in the best interest of Digital, current LCG users, and possible future Digital customers to continue such development. Because of the dependence of major academic research facilities upon the unique features of these systems and their extensive base of software, it is also important for continued success in large-scale computer science research.

The continued development of the large computer line is important to Digital for many reasons. I believe the product line is profitable and, though it represents only a small portion of Digital's total sales, it does contribute in a positive manner to Digital's net profit. Its continued development would be a financial asset to the company.

LCG products have been competitive with mainframes from other vendors and have provided Digital with a product which can be used to introduce large corporations to Digital's products. The timesharing environment provided by TOPS-20, for example, is the best in the industry in terms of ease of use and ease of management. As such, it has provided many students with their first computing experience. Continued development of LCG systems would ensure continued presence of large-scale Digital products in these environments.

I am aware of the competition between the LCG group and others, notably VAX. Well-managed competition can provide cross-fertilization which results in better products across all product lines. Corporate management for product lines to out-do each other rather than do-in each other can only improve the range and quality of all products.

The LCG group has a history of innovative ideas and products. The table-top DEC-20 which was developed in 1979 but not produced for market was four years ahead of equivalent IBM developments. This is the kind of advanced development which should be recognized, valued, and fostered by any company in the computer business.

The LCG products are heavily used in teaching and research. The base of software in support of research in fields such as artificial intelligence is unmatched in other systems, for example. It is important not to disrupt the future of research and development projects in this area by forcing system conversions. Indeed, it is critical that additional compute power be available to support and extend existing work. It is not

enough to continue to provide processors with the power of the current KL product. Continued development in this area by Digital is of national importance.

We users have a considerable interest in continued LCG development. My university has used LCG equipment for 11 years. As with many other LCG customers, we have a major investment in software unique to the DEC-20. It would be expensive and disruptive to convert to any other computer system. We see no other system on the market with the features and capabilities of the DEC-20 to which we would want to convert our users. We know Digital will continue to maintain our system, and we intend to continue to use it. However, the decision to discontinue development of additional processors and the delayed development of the tools to integrate (CI/CFS and NI) discourage users from considering further acquisition of LCG processors. Indeed, the manner in which the decisions were made and presented and the delays in development of integration tools has discouraged LCG users from acquiring any additional Digital equipment.

If the LCG development effort is not continued, Digital's reputation as a well-managed corporation making prudent business decisions and capable of advanced development will be at risk. Certainly its reputation as a vendor of a wide variety of computer products will be damaged. This will affect Digital not only with current LCG customers but with the customer community at large.

The decision in 1979 to discontinue LCG development, though quickly reversed, disrupted the development group. Instead of developing a processor with 2- to 4-fold increases in capacity in 1980 and then again for 1984 (keeping the industry trend), the group attempted to cover the missed step with the single development of a faster processor (5- to 10-fold increase) in just three years. This is difficult to do, appears to have been managed poorly, and failed.

With many others in the Digital user community, I regret the decision to terminate further LCG development. I feel it indicated poor management and development decisions and was not caused by the inherent technical complexity of the architecture. I have enough knowledge of computer architecture to believe the assertions of my engineering colleagues that it will be more difficult to develop a VAX with twice the throughput of the KL than to develop a KL-compatible processor of that power.

It is not too late to reverse that decision. A renewed commitment to the LCG product development with a commitment to use of modern development management and tools would be warmly welcomed by current users (including non-LCG users, I believe). Erosion of current customer base could be prevented if the announcement were made very soon. Agressive corporate support of the fine LCG products as one set of a variety of products can only help Digital in the marketplace.

I appeal to you to cause the corporation to reconsider its decisions with respect to LCG processor development. I will circulate this to my fellow LCG users and urge them to present their views, which may differ from mine or may offer more substantiation.

In the event that Digital continues to insist that LCG processor

Mr. Kenneth Olsen

23 November 1983

development be terminated, I urge you to sell non-exclusive licenses to TOPS software to other hardware manufacturers. We users have too much invested in our systems and the quality of service they deliver for our needs to want to switch to other computer systems. If Digital cannot manage technical development, please at least permit other companies to attempt further development of what has been a profitable product line. They can realistically attempt that only if they have certain access to existing software.

Thank you for considering my suggestion.

Sincerely,

*H. David Todd*

H. David Todd

# TOPS-10/20 and VMS Technical Comparison

By Peter Hurley

October 23, 1983

## SYSTEM FACILITY

## NOTES ON VAX/VMS IMPLEMENTATION

### 1.0 SYSTEM MANAGEMENT

- |   |  |
|---|--|
| 1.1 Batch & Batch Queue Control           | Cluster-wide operator terminal (V4).<br>More operator queue controls (V4).   |
| 1.2 Printer & Print Queue Control         | New error recovery, forms control,<br>and restarting at specific pages (V4).   |
| 1.3 Tape Control                          | Automatic tape switching on multi-reel<br>volume sets (V4).  |
| 1.4 Backup/Archiving                      | Recent VAX Backup performance improvements.<br>HSC based disk-to-tape image copying.<br>No Archiving facility (a la TOPS-20).            |
| 1.5 Accounting                            | Items logged: Page faults, I/O counts,<br>peak working set, print job data, CPU usage,<br>connect time, etc.                             |
| 1.6 Documentation Update Kits             | VAX documentation set update service available.  |
| 1.7 Multiple Groups/Accounts Per User     | Access Control Lists provide same facility (V4).<br>No "Set Account" or "Set Session" facility.  |
| 1.8 File Quota                            | One quota type only (i.e. no permanent/working<br>quotas). Also, VMS has its file quota per user,<br>10/20 has its quotas per directory. |
| 1.9 Hierarchical Accounts and Directories | No such facilities exist on VMS.   |
| 1.10 Graceful Degradation                 | VAX Clusters support graceful reconfigurations.<br>VMS facilities: Checkpoint/Restart, file<br>journaling, and recovery units.           |
| 1.11 Audit Trailing                       | Logging of Login failures, file accesses, privilege<br>changes, mount/dismount, mailbox reads/writes (V4).                               |
| 1.12 Number of Users per System           | User Identification Code (UIC) expanded (V4).  |
| 1.13 Password Features                    | Passwords are encrypted.<br>Password length enforcement (V4).  |
| 1.14 Access Control to Files              | Access control lists (V4).<br>More powerful than File Daemon (TOPS-10).<br>More flexible than Directory/User Groups (TOPS-20).           |

2.0	HUMAN INTERFACE	
2.1	HELP Facilities	VMS - HELP gives detailed info but destroys image. TOPS-10 - Same style of help, only smaller library. TOPS-20 - "?" gives help on field-by-field basis. Same Help command as TOPS-10. Image is never destroyed.
2.2	Command And Filename Completion	Only TOPS-20 has this.
2.3	Commands Vs. Images	TOPS-20 supports "ephemeral files", "side forks", and many commands in the EXEC that do not destroy the current program image.
2.4	Macro-Commands (or "Meta-commands")	VMS - DCL and procedure libraries. TOPS-10 - MIC TOPS-20 - MIC and PCL
2.5	Operator Interface (GALAXY)	Cluster-wide operator terminal facility (V4).
2.6	Long Filenames And Extensions	File names will be increased to 39 characters (V4). "_" and "\$" are legal file name characters (V4).
2.7	Terminology	A set of manuals will be written to document terminology differences.
2.8	Consistent Command Syntax	VMS is working on improving consistency across its products. The VAXstation and ALL-IN-ONE products move toward a consistent user interface through their screen and menu facilities.
2.9	Multi-Forking Facility	TOPS-10 - ATTACH/DETACH TOPS-20 - PUSH/POP, KEEP, STAY/CONTINUE, and ATTACH/DETACH. VMS - SPAWN, ATTACH/DETACH.
2.10	DDT	TOPS-20 - DDT can be merged at any time. VMS - The debugger must be loaded during linking.
2.11	Logical Names	VMS logical name tables will be increased (V4).
2.12	Search Lists	Search list facility will be included in VMS V4.
2.13	Undelete	Feature not available. However, a user defined command procedure can be used to emulate Undelete.
2.14	Job Resumption After Phone Disconnect	TOPS-10/20 jobs get detached on phone disconnects. VMS - Process waits. Can be reattached later.
2.15	VMS Documentation Philosophy	VMS - Reference shelf, Handbooks, Reference cards. TOPS-10/20 - Individual manuals, documentation set, pocket reference cards.
2.16	Command Line Editing	VMS - Recall and Re-issue up to 20 commands back (V4).

### 3.0 SYSTEM PERFORMANCE

- |     |                                   |   |
|-----|-----------------------------------|---|
| 3.1 | Disk I/O Bandwidth                | Need comparative information from 10/20/vax sites. Our studies show equivalent relative I/O speeds.   |
| 3.2 | Terminal I/O Bandwidth            | Relative VMS terminal performance meets or exceeds 10/20 performance. New CTERM protocol improves remote and virtual terminal performance (V4). DMF32 hardware supports DMA access for low overhead. Terminal concentrator support increases the number of terminals per system (V4). |
| 3.3 | Scheduler                         | VMS has a pre-emptive scheduler. TOPS-20 has a class scheduler.   |
| 3.4 | Adaptability To Varying Workloads | VMS requires more tuning to get good performance.   |
| 3.5 | Analysis Tools                    | VMS - Monitor, "Show Cluster", "Show Process", SPM<br>TOPS-10 - Systat, Sysdpy, Snoopy/Tattle.<br>TOPS-20 - Watch, Sysdpy, and others on Tools Tape.  |
| 3.6 | Multi-Processors Systems          | TOPS-10 - SMP and TRISMP.<br>TOPS-20 - Loosely Coupled Systems (V6.0).<br>VMS - VAX 782 (Master Slave), VAX Clusters.   |
| 3.7 | Inter-job Sharing Of Memory       | VMS - Global Sections<br>TOPS-10 - Shared High Segment.<br>TOPS-20 - PMAP (shared file and private pages)   |

### 4.0 UTILITIES

- |     |                            |  |
|-----|----------------------------|--|
| 4.1 | MAIL                       | VMS mail features: Callable EDT, broadcasting.<br>VMS mail shortcomings: No store and forward, no spooling, and not user friendly. |
| 4.2 | Editors                    | VMS - EDT, EMACS (unsupported), TECO.<br>TOPS-10 - SOS, TECO, ...<br>TOPS-20 - TV (TECO), EDIT, EMACS (unsupported), ...           |
| 4.3 | Software Development Tools | VMS - CMS, MMS, Shell.   |
| 4.4 | Languages                  | VMS - Fortran, Cobol, Apl, Bliss, C, PL/1, Pascal, Coral, Dibol, DSM, Basic.   |
| 4.5 | Data Management            | VMS - CDD, DBMS, TDMS, Datatrieve, ACMS  |
| 4.6 | Graphics                   | VMS - Decor, Decgraph, Decslide  |



- 5.0 PROGRAM INTERFACE
- 5.1 Processes  
 VMS - One process per job.  
 A process can SPAWN other processes.  
 TOPS-10 - One process per job.  
 TOPS-20 - Multiple processes per job.
- 5.2 Usable User Address Space  
 VMS - 2\*\*29 K bytes (restricted further by system build parameters).  
 TOPS-10 - 256 K words  
 TOPS-20 - 2\*\*23 K words
- 5.3 Embedded Command Parsing  
 A Command Definition Utility and a Command Language Editor provide VMS embedded command parsing (V4).
- 5.4 File structure  
 VMS - RMS, Remote file access (via RMS/DAP), Global Sections, and file journaling (V4).  
 TOPS-20 - RMS (V2), PMAP, Shared file pages, Copy-on-Write.
- 5.5 Inter-process communication  
 VMS - Mailboxes, event flags, Asynchronous System Traps, DECnet, ENQ/DEQ, Global lock manager.  
 TOPS-10 - IPCF, ENQ/DEQ, software interrupts, DECnet (7.02).  
 TOPS-20 - IPCF, ENQ/DEQ, software interrupts, DECnet, THIBR/TWAKE.
- 5.6 High Availability  
 VMS - Checkpoint/Restart (V4)  
 Recovery Units (V4)  
 File Journaling (V4)  
 TOPS-10/20 - No such facilities exist.
- 6.0 NETWORKING
- 6.1 DAP  
 VMS - Transparent.  
 TOPS-10/20 - Only via the file transfer utilities.
- 6.2 Ethernet  
 VMS - now  
 TOPS-20 - Release 6.1  
 TOPS-10 - Release 7.03
- 6.3 TCP/IP (ARPANET)  
 VMS - Available through third party.  
 TOPS-20 - Standard.
- 6.4 Foreign Communications  
 VMS - 2780/3780, HASP, SNA, 3271, MUX200, X.25  
 TOPS-10/20 - 2780/3780, HASP, X.25
- 6.5 ANF  
 TOPS-10 - Remote stations,  
 Remote terminal concentration.

# PRODUCT RELEASE DATES

(Presented at Decus)

TOPS-20 V6.0 (CI, NSC, CFS)	February 1985
TOPS-20 V6.1 (Phase IC, Ethernet, NI)	June 1985
TOPS-10 V7.02 (Phase III)	May 1984
TOPS-10 V7.03 (CI, NSC, NI, Phase IV)	January 1986
Datatrieve - 20	January 1985
COBOL-20 V13	Spring 1984
KL improvements (larger cache, pager, p-code changes)	September 1984

The above dates are not official DEC announcements. They represent best estimates and are provided to aid in site planning. They should not be considered firm DEC commitments.

# FIELD SERVICE AGREEMENTS

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## MULTI-YEAR AGREEMENT

Field Service is introducing a Multi-year Agreement program that will help Digital customers protect their investment in 36-bit hardware with service at significant cost savings - now and in the future.

The Multi-year Agreement is designed to reinforce Digital's Integration Strategy with a long-term commitment to support and service customers with 36-bit systems at competitive prices.

The program, which will be available for registration starting December 1, 1983, to December 1, 1984, is being offered to current Digital customers with KI, KS, and KL systems and customers purchasing KL systems within the next 12 months.

With the Multi-year Agreement, current and future 36-bit system customers are assured that Digital will service all KI, KS, and KL based processors for the next 10 years.

Field Service is offering customers not only a commitment to service 36-bit systems for 10 years, but also a significant savings in service prices over the life of the contract.

The Multi-year Agreement features:

1. Up to five year agreements for DECservice and Basic Service contracts.

Customers with 36-bit systems can purchase an on-site service program tailored to their needs -- and know that the same high level of service will be available for the life of their systems.

2. Predictable maintenance costs

Maintenance prices are frozen for the first two years of the five-year agreement, thus helping customers to predict service costs.

3. Cap on price increases

An escalation clause caps price increases to a maximum of five percent of a customer's monthly charge for each of the remaining years of the contract, thus assuring customers of reasonable maintenance costs.

4. No penalty for early withdrawal

With the Multi-year Agreement, customers can design the term of on-site service coverage for their 36-bit systems in a

length of time that best suits their needs.

The Multi-year Agreement is a key element in Digital's Integration Strategy to assist our customers in systematically integrating their 36-bit CPUs with Digital's VAX architecture.

By supporting the expanded coverage both existing and future 36-bit customers need, the Multi-year Agreement helps to reassure customers that Digital is committed to protecting their investment in 36-bit hardware -- and that Digital offers this service at competitive prices.

For more information on the Multi-year Agreement, contact your local Digital Field Service Representative.

# TOWN MEETING RESULTS

FALL 1983 DECUS

## General opinions voiced by DECUS participants with DECsystem-10's/20's

1. DEC has lost significant credibility and user trust
2. The future product time frames are too long; products too late
3. Cost of KL ownership is too high
4. DEC must unbundle all software so that it can be run on third party CPU's
5. Need a real plan that is timely, implemental, and meets the user needs
6. Marketing effort in LCG has totally disappeared
7. DEC's announcement not only hurts them but it makes every major proponent of DEC within customer sites look bad in the eyes of the their management

## MENU RESULTS AT THE SESSION CLOSE

	<u>VOTES</u>
1. Cost of ownership - decrease cost	69
2. 3rd party, non-exclusive licensing of software operatings systems layered products applications	38
3. Accelerate KL performance upgrades	34
4. Concentrate on NI before CI if that will help get it done sooner, and release the hardware first	25
5. Need a "better" large system oriented operating system for the VAX	19
6. Languages - new standards and com- patibility across all products (10, 20, and VAX)	
7. Integration tools to help move (flaggers, etc.)	
8. High speed link between JK and VAX now	
9. NI hardware supplied before software support	
10. More mips/processor	

## A 7.01A MONITOR PATCH FOR DISK CACHE

To: Users of the 7.01A monitor disk cache code

Here is the latest round of the monitor disk cache code. It contains bug fixes and enhancements over the previous release, including a command to turn the cache on or off from monitor level ([1,2] job), and provision for disabling the cache when the system loads.

Bugs were pointed out by Eugene Skopal (Copley) in the previous release, and enhancements were suggested by Eugene Skopal and Brent Sterner (U. of Western Ontario).

Feel free to distribute these enhancements, even though 7.02 will have equivalent features.

From: John Edgecombe  
ADGA c/o CCRS  
2464 Sheffield Rd.  
Ottawa, Ontario, Canada K1A 0Y7

ETYPNAM DSKD:COMMON.CORE10,242,TEST1/Created:04-Nov-83:12:57/Access:04-Nov-83]

```
INS 64/95      ;End of page prior to CNFTBL
;Permanent pointers for monitor disk block cacheing
nd mcache,40      ;Default to 32. blocks cached (4K)
xp mcnun,3        ;Unit,Block,Address needed
xp mcmax,mcnum*mcache-1 ;Final block of descriptors
mcunit::         ;Space for descriptors
mcblok==:mcunit+1 ;Unit of disk/, block number
mcaddr==:mcunit+2 ;Cached data address
zz=-1
repeat mcache,<
block mcnun-1      ;UNIT, BLOCK
exp mcdata+zz      ;Point to address (-1) of data
zz==zz+200
>;repeat
mchi==:mcmax-mcnun+1
mcdata: block 200*mcache ;Space for the disk blocks
INS 2/163      ;In SNAMEs macro
c CACHE,mcscsh,nocore!nojobn!nologin!noinck
SUM 36433
```

ETYPNAM DSKD:COMMON.CORE10,242,TEST1/Created:07-Nov-83:08:24/Access:07-Nov-83]

```
INS 11/48      ;End of page containing DISABLE/ENABLE (convenient)
;Here for SET CACHE [ON/OFF] command
mcscsh::pushj p,setlgl ;Are we allowed to?
jrst comera      ;No, silly
pushj p,ctext    ;Get next atom
move t1,C-2,,[sixbit /ON/
sixbit /OFF/]
pushj p,indnam   ;How do you want it?
jrst comerp      ;Need to know
jrst mc.csh##    ;Fix the cache state
SUM 4359
```

```

INS 10/29      ;Before XCHUN2
               pushj  p,mcflun      ;Flush unit (U)
               exch   u,p1          ;Switch to other unit
               pushj  p,mcflun      ;Flush that unit
               exch   u,p1          ;Switch units back
REP 41/85      ;Before MCNIO1
               PUSHJ  P,UUCP#Q      ;GO PUT IN QUEUE STRUCTURE
               PUSHJ  P,PWAIT1      ;WAIT TILL DATA IS IN
*IT
               hlrz   t1,devdmp##(f) ;Is transfer large?
               skipn  mc.go          ;Turned off?
               caige  t1,-200        ;More than a disk block
                   jrst  mcdo        ;Yes, cannot be in cache
               tln   s,io           ;Read/write?
                   jrst  mcdo        ;write, it aint there now
               aos   mctry          ;Count attempts
               pushj p,mcfind        ;Find in the cache
               jumpi t4,mcdo1        ;Not there, must read
               hll   t1,devdmp##(f) ;Get target size
               sub   t1,mchi##+mcaddr## ;See if we have enough
               jumpi t1,mcdo1        ;Asking more, must read
               aos   mcgot          ;Count successful attempts
               pushj p,mclru         ;Note this most recent use
               movs  t4,mchi##+mcaddr## ;Move from
               move  t1,devdmp##(f) ;Move to address
               pushj p,mccopy        ;Move the monitor buffer
               jrst  monio1         ;Continue after "reading"

mcfind: movei   t4,mcmax##          ;Most recent use
        dskoff          ;Do not interrupt me
mcnext: subi   t4,mcnum##-1        ;Start of block
        camn   u,mcunit##(t4)      ;Cached this unit?
        came  t2,mcblok##(t4)     ;And this block?
           sojge t4,mcnext         ;No, try an older buffer
        popj   p,                  ;Found (or not, as the case may be)

mclru:  hrli   t4,mcunit##+mcnum##(t4) ;Set up BLT pointer
        push  p,mcaddr##(t4)       ;Save buffer address
        addi  t4,mcunit##          ;Real to address
        olt   t4,mchi##+mcunit##    ;Move more recent down a slot
        movem u,mchi##+mcunit##    ;Unit of most recent use
        movem t2,mchi##+mcblok##    ;Block most recently used
        pop  p,mchi##+mcaddr##      ;Buffer most recently used
        popj  p,                    ;LRU ordering complete

mccopy: hrri   t4,(t1)             ;Set up BLT pointer
        aobjp t4,#+1              ;Point to word 0, not IDWD's word -1
        hlrz  t2,t1               ;Size to copy
        sub   t1,t2
        blt   t4,(t1)             ;Copy buffer
        dskon          ;Disk interrupts allowed again
        popj  p,                    ;Done.

;Routine to turn on disk cache system
mc.csh::sos   t1                  ;on to -1, off to 0
             movem t1,mc.go        ;Stow away
             pjrst mcflus         ;Flush the system

```

```

;Routine to flush disk cache of this unit (in U)
mcflun::movei t4,mcmax## ;Set up
        dskoff ;Make indivisible
mcfln1: subi t4,mcnum##-1 ;To next group
        camn u,mcunit##(t4) ;Cacheing this unit?
        setzm mcunit##(t4) ;Yes, zap it
        sojge t4,mcfln1 ;Continue
        jrst dopopj ;Until done

$low
;Routine to flush disk cache system
mcflus::movei t1,mcmax## ;Highest location cached
mcfls1: subi t1,mcnum##-1 ;To next group
        setzm mcunit##(t1) ;Zap it
        sojge t1,mcfls1 ;Continue
        popj p, ;Until done

;Data for performance analysis and cache control.
mc.go:: block 1 ;-1 turned off, 0 on, +started off
mctry: block 1 ;Attempted reads
mcgot: block 1 ;Successfully cached reads
mcwtry: block 1 ;Attempted writes/failed reads
mcwfai: block 1 ;New cache area allocated
mcsust: block 1 ;SUSET/super USETOs done
$high

mcdol: dskon
mcdos:
        PUSHJ P,UUOPWQ ;GO PUT IN QUEUE STRUCTURE
        PUSHJ P,PWAIT1 ;WAIT TILL DATA IS IN
        hlrz t1,devdmp##(f) ;Transfer size
        skipn mc.go ;Turned off?
        caige t1,-200 ;More than one block?
        jrst moniol ;Yes, will not fit in cache
        hrrz u,devuni##(f) ;Get unit
        move t2,devblk##(f) ;And block requested
        aos mcwtry ;Count attempts
        pushj p,mcfind ;Find a valid buffer
        skipge t4 ;Was it the oldest?
        jrst [aos mcwfai ;Count misses writing
        aoja t4,+.1] ;Point to oldest block
        pushj p,mclru ;Make it the most recently used
        movs t4,devdmp##(f) ;Move from buffer
        move t1,mchi##+mcaddr## ;Where to (for safekeeping)
        hrl t1,t4 ;Size to copy
        movem t1,mchi##+mcaddr## ;Keep size with buffer
        pushj p,mccopy ;Copy to permanent storage
INS 9/102 ;Before UUOPW0-1
        tline s,iosupr ;Super-
        tltn s,io ;Output?
        jrst uuopza ;No, cache is good
        pushj p,mcflun ;Flush unit
        aos mcsust ;Count happenings
        uuopza:
INS 34/121 ;Before IFN FTDUAL at FREINO-6
        pushj p,mcflun ;Flush unit out of cache
SUM 33281

```



LTPNAM DSKB:SYSINI.CORC10,242,TEST1/created:07-Nov-83:08:32/Access:07-Nov-83

```
INS 25/2      ;before JSR1
              pushj  p,mcflus##      ;Flush disk cache system
              skipg  mc.go##         ;Unless user turned off earlier,
INS 44/15      ;End of ONCE code, before ACCINI-1 (SJSP U,NULJB1##)
              setom  mc.go##         ;Turn off cache for once time
              skipg  mc.go##         ;Unless user wants to come up off,
SUM 188899      setza  mc.go##         ;Turn on disk cache now
```

---

To: Disk cache participants

From: John Edgecombe

Re: Typographic error in code implementing the SET CACHE  
[ON/OFF] command.

At this site, I had implemented the command as  
SET CACHE [DISK/MEMORY] [ON/OFF]  
and had to PUSH the first argument across the ON/OFF decision.  
As a result, I had the error return from FNDNAM go off to  
COMERP, which POPed off the argument. This, naturally, fails  
if there is no argument, going off into never-never land, at  
the University of Western Ontario, where the error was  
discovered, into a UIL.

The cure is to replace the JRST COMERP by a JRST COMERA, which  
does not do the extra POP.

My appreciation to Brent Sterner for pointing this out, and my  
apologies to others who attempted to execute a SET CACHE  
command without a valid ON or OFF following.

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Canada

83 November 21

