MAY 25 1967

11428 ROCKVILLE PIKE, ROCKVILLE, MARYLAND 20852 / 301-949-8800

CONTROL DATA CORPORATION

May 23, 1967

Mr. T. Johnson
Digital Equipment Corporation
146 Main Street
Maynard, Massachusetts 0175-

Dear Ted,

As I told you last week, I had an appointment with S. Abrahamson, Deputy Director, Office of Export Control, on Friday, May 19th. The purpose of the appointment was to discuss the definition of an advanced computer, and in particular, its relationship to your PDP-8 export license. I am sorry to say that the situation is still somewhat confused but let me give you the best interpretation that I can of the current situation.

It is true that a defintion has been established as to what an advanced computer is and that this definition is based upon 50 M bits per second transfer rate; however, this defintion simply means to our government that at this level and above the government-to-government agreement is involved. For computers falling below this definition there is no general agreement upon the ability of U. S. companies to export to the French AEC, as a matter of fact, this is an issue of considerable controversy within those government circles concerned with the problem. The eventual outcome is clearly in doubt at this time; therefore, the Office of Export Control is relying on other guide lines and these are our obligations under the Nuclear Test Ban Treaty and the particular end use of any computer regardless of the fact that they have a transfer rate of less than 50M bits per second. For example, it might be possible to obtain an export license for a computer falling under the criteria established if the end use

were such that the Office of Export Control knew it would not be used for weapons development, evaluation and testing. Currently, however, any indication that the end use would be in one of the above areas, it would be denied or at least delayed.

As I develop further information, I will be certain to pass it on to you.

Sincerely,

Hugh.

Hugh P. Donaghue
Assistant to the President

digital INTEROFFICE MEMORANDUM

DATE: May 31, 1967

SUBJECT:

TO: K. Olsen
P. Kaufmann

FROM: J. Smith

A number of meetings were called to discuss running margins under heat. Conclusions indicated that it was necessary to run margins under heat only on the memory portion of machines. All other portions should be heated but running margins was not required.

We are currently using this procedure on twenty PDP-8's and recording data in conjunction with Field Service. Results from the field should be available the end of July. If results are favorable, this procedure will be submitted for approval as Company policy.

Jack

Jack

sm

K. H. OLSEN

5/18/67

Pete:

Will you bring this question to a head.

Ken

DIGITAL EQUIPMENT CORPORATION

digital INTEROFFICE MEMORANDUM

DATE: May 1, 1967

SUBJECT: Heat Testing of Modules

TO: Dick Best FROM: John Leng

I have participated in a couple of discussions recently with Saul, Wally, and Rod on the merits of heat testing computers. Saul questioned the merits of doing margins at temperature on the 8/S, the chief advantage of elevating the temperature being to show up bad modules. If the 8/S has good margins designed into it and will perform these at room temperature, then a simple run at temperature should be adequate. However, we don't seem to be prepared to accept this with the PDP-8 and continue to do margins at temperature. Admittedly a lot of cards are thrown out, which at least shows that temperature tests are important. However, this whole principle is overlooked once the machines get in the field, and we replace bad modules with others which have not been heat tested, nor do we run the computer at elevated temperature again.

In our somewhat limited experience of computer checkout at Reading it has become quickly evident that the most serious checkout bottleneck is doing elevated temperature runs. Wally has built some ingenious ovens, which quickly get up to temperature and have little doors all over the place for getting at any part of the computer. However, a considerable amount of time is spent in running the computer in this rather odd way, which turns out to be largely a glorified and expensive module testing arrangement. Surely the modules should be heat tested as part of the module line either with some mechanical arrangement or using unskilled labor. This has, I am sure, been considered already so all I am doing is trying to emphasize the need for a further study of this problem. One idea we had would be to have the module conveyer belt consist of many flip-chip sockets. The girls could simply plug the cards into these as they were completed. They would then pass through a zone of several yards say during which power is applied to the standard supply lines. As they pass along this zone a wall of hot air is blown acorss the modules, quickly getting them to a high temperature. This could be repeated with a blast of cold air later on in the line if need be.

This, if proven practical, would reduce the time and skill required for checking out systems and as a side benefit would increase effectiveness and reduce inventories in the field and production organization.

John

JL/jk

cc: Rod Belden
Wally Spittle
Stan Olsen
Ken Olsen
Russ Doane
Saul Dinman
Ed De Castro
Bill McGregor
Jack Smith
Bob Savell
Ed Harwood
Steve Mikulski
Pete Kaufmann

digital INTEROFFICE MEMORANDUM

DATE: May 31, 1967

SUBJECT: TABLETOP VERSION OF THE PDP-8I
Re: Your Memo Dated May 26, 1967

TO: Ken Olsen ✓ FROM: Mike Ford
cc: Nick Mazzarese
Dick Sogge

Our mechanical design schedule now reflects this very plan. There are no constraints now imposed on the rack mount 8I or power supply by the tabletop. All design effort is now on the rack mount; the tabletop is on the "table". I am hoping that once all else is done, we can come up with the tabletop sooner than 6-9 months after D-day, but we have scheduled all tabletop mechanical design considerations to the end of the list of things to do.

Mike

eem

digital INTEROFFICE MEMORANDUM

DATE: May 31, 1967

SUBJECT: France (market)

TO: Executive Committee
Ron Smart

FROM: Ted Johnson

The opportunity exists for sales to the government universities, and industry. Payment practices standard to the French Government (sometimes mistakenly reviewed as capricious), make it difficult to bring accounts receivable into line. With initial investment, this problem can be reduced in time by subsidiary markups and perhaps delivery controls. The French subsidiary manager will propose alternative ways to approach the government market sector. Ignoring the government market would close out opportunities to sell to physics and research markets, where our machines are wanted.

The chief competitor in the future will be CAE. This company will be out of its relationship with SDS in 1 to 1½ years. They are developing their own line of 16 and 32 bit computers. They have quite strong management and engineering capability (American-educated management) and strong government support. The government has released $130M to invest in their computer industry over 5 years. CAE will get the lion's share of the orders thus created. To some extent this increases the size of the total market, however, so the base market still exists. CAE is currently $30M. Our French Manager, with some considerable first-hand knowledge of the organization, believes that CAE's problem will be their expansive tastes (broad line of computers, broad market approach including EDP).

All computer companies are accepting the government's way of ordering, namely standard government detailed boiler plate which must be followed. The pertinent clauses are with respect to payment terms and penalties.

Terms of Payment:

5-10 per cent	2 months plus after order
40 per cent	2 months past mid-point between order and delivery
40 per cent	2 months after acceptance
10-15 per cent	8 months after our invoicing point

The 2 and 8 month figures include a 2 month (min., 3 month max.) delay from the initiating points (order, midpoint, acceptance, invoice, and 6 months) to actual output from their automatic payment mill.

Penalties:

Apparently the government is very reasonable in enforcing these clauses. Like most government bureau rules like this (vis a vis renegotiation), the rule is a protection in the form of a potential club over grossly undependable vendors.

Other key facts are:

1. The government never allows a pre-payment on orders beyond 10 per cent with the order. We are not collecting 45 per cent in government orders.

2. The question on the Linc-8 license occurred because this department was labelled the military projects group. Other physics research purchases have been allowed.

3. There is a trend to bring the government practices into line (pressure).

4. There is a government agency that will loan money to vendors at 7½ per cent against the government order.

5. Customers do want our machines.

6. Terms for a subsidiary status carry the rider that we can't manufacture without government approval. Jean-Claude Peterschmitt has ideas that this was unnecessary. John Leng feels that, with our success and increased customer demand, the restriction would not be meaningful in the future.

We will get a proposal from Jean-Claude, the "subsidiary" manager in France, covering terms of trade and alternatives to sales to the government. Hopefully, one analysis of probable account receivable effects will be compared in time with the reasonable ideal (net 30 from invoice by the subsidiary). With a look at alternative markups and long term affects, the decision can be made as to the government sales program. Not selling to the government will affect our volume by 30-50 per cent. In the short term, market penetration will aid our long term ability to penetrate the growing but presently limited industrial market.

jk

digital INTEROFFICE MEMORANDUM

DATE: May 29, 1967

SUBJECT: "Sales Activity Reporting"

TO: Ken Olsen/
See Distribution
List on the last page

FROM: Ron Smart
FOR: Ted Johnson

Ron

1. Summary of previous meeting

The previous meeting was reviewed. As a result of this meeting Harry Mann will work towards having his department process the monthly bookings, expenses, and shipment data, to provide the Sales Department with complete information for the quarterly charts which they prepare for the Executive.

The main difference in this reporting path is that for charting purposes, expense data will be used which has a two month lag behind the bookings. This should allow charting to be completed the third Monday after the close of the quarter. In addition to the charting there will be monthly reports based on the above data. The detail of these reports will be arrived at by Sales and Accounting staff.

It was also agreed at this meeting, that Harry would provide a "return on assets" figure for each quarter for each of the foreign subsidiaries.

Ken advised that the Executive would call for a report from the Order Processing System committee. This report would describe the existing structure of and information flow through the Order Processing Department for review by the Executive.

2. Sales Department Model

Today's meeting was for a presentation by the Sales Department of the present sales-activity reporting and control system, to provide a basis for discussion of refinements to this system.

A rough model of the field sales structure was described, to show the relationship between this and other parts of the Corporation. A document was handed out commenting on this model, and describing the various reports and communication media operating between Maynard and the field sales people. The Sales Department has approximately 100 salesmen grouped into 23 district offices in 8 regions. There are something like 2000 active contact points between salesmen and customers, with about 6000 contacts being made per month. With the Sales Call Report system operating in every district, we could expect 500 to 1000 Sales Call Reports per month. These numbers are relevant to discussion of any detailed reporting system, such as those we used in the past. (Example of these were tabled for the meeting).

3. Sales Call Report

The Sales Call Reporting System was examined in detail. The main point of concern was the balance between too much paper input to product line people and excess filtering by the field people (e.g. Regional Managers). The system, in fact, allows for this balance to be adjusted between product lines from time to time. Win Hindle asked that his product group receive Sales Call Reports without waiting for a consolidated package at the end of the month. This will be handled by sending the special copy (No. 6) directly to his product marketing people (PDP-10, Linc-8 and Digital Test) daily.

4. Monthly Regional Managers Report

This report encompases information from the field to product people on significant activity in the field. Dave Denniston's reports where used for an example. The verbal comentary contained in this kind of a report was useful, however, the meeting was concerned with means for obtaining specific numerical forecast data from the field, and for providing overall trend information on the way our business was being conducted.

5. Numerical Sales Activity Data Reporting

One specific perameter called for was an indicator of the amount of business we are "ignoring" and inquiries we are not servicing, roughly catagorized by the various reasons (good or bad) for doing this.

To provide useful forecasting feedback it was agreed that we should plan a system which made use of an in-house computer. This system would be very like the one which has been in operation for some time using manual techniques (example tabled) and now is falling into disuse, because of the impossible amount of hand processing involved both in the sales offices and in Maynard.

The new system would have a file of records pertaining to specific expected pieces of business. Each record would identify the particular piece of business (customer's name, etc.) giving product line, price, probability of closing, and month of closing. To assist production, it would also include the significant items of peripheral equipment (when the system was fully developed).

It would be amended monthly for changes (probability, P.O. date, configuration, etc.) by returning a computer print-out to each salesman for marking up and returning to Maynard for processing. This would only involve each salesman in checking over about 10 items per month. It would mean about 1000 cards punched per month (approximately 6 hours work) back in Maynard.

Once this dynamic file system is operating, it would be possible to produce reports for production, regional sales managers, and the general sales management, as well as to bring out useful measures of the "soft" backlog, general management statistics, etc.

As indicated on the model diagram shown during the meeting, this system will take into account forecast business we have quoted for, with a reasonable probability of success. We can lower the probability level qualifying for inclusion, as the system developes. It would also provide statistics on the probability of conversion of LOI's and the probability of releases by OEM's against quantity discount agreements.

No future meeting date was set down, however, the next step will be to present a proposal for the computerized file of short-term forecast business.

jk

Ron

CC: All people present at the meeting of 5/26/67:

Harry Mann	Bob Collins
Win Hindle	George Newton
Nick Mazzarese	Don Summers
Mort Ruderman	Bill Farnham

COMMUNICATIONS & REPORTING SYSTEMS FOR SALES ACTIVITY

1. Sales Newsletter (weekly) — For information flow to salesmen from Maynard or other salesmen (including:
   * Product Information
   * Sales Tips
   * Competitive Information
   * Price Changes
   * General Policy
   * Etc. ----)

2. Sales Call Report System (daily)

   For detailed information flow from salesmen on specific customers (including:
   * New Prospects
   * Significant Status Change in Prospect
   * Loss of Good Prospect)

3. Regional Managers Report (monthly) by Product Line

   Content: (a) $ forecast for 3 months out (incorporating)
   * OEM Releases Expected
   * LOI, VI Conversions Expected
   * Quote Decisions Expected)

   (b) Significant Customers Listed

   (c) Significant Marketing Inputs

   (e.g.
   * Competition
   * Special Market Opportunities
   * Special Problem Areas

   (d) Significant SCR's

   (e) Analysis of forecast into numbers of prospects and for discussion % probability, $ value, etc.

4. Sales Policy & Procedures (irregular)

   Output of policy information to sales staff for updating their "black books"

5. Sales Manager's Feedback (approx. quarterly)

Feedback to Regional/District Manager
Content: Bookings, Expense performance charts giving previous quarters results against budget. (including:

* Bookings and Bookings Expense Ratio
* Product Line Bookings against Budget)

Additionally Under Consideration

Product status feedback (e.g. M Series, PDP-10)

Processed detailed forecasting data (to simplify office forecasting procedure and ensure "lost" orders are reported.)

For discussion:

6. Sales Activity Report to the Executive Committee (quarterly)

Including:

(a) Summary of Regional Managers Reports ($)

(b) Significant customer activity from each region e.g. listing important customers (with salesman)

(c) Commentary on Quarterly charts

(d) $ levels in Quote, LOI, OEM category and in delayed and lost categories to get control precentages for future estimating and sales strategy.

COMMENTS ON MODEL OF SALES SYSTEM

1. Note the conversion of Product Information into Bookings.

2. The "conversion Unit" is built and developed by :

   Hiring-training-firing plus providing real estate and furniture

   It is powered by expenses

   It is controlled through its structure of

   8 Regional Managers

   23 District Managers

   It contains about 100 salesmen

3. The system operating statistics are assumed to be of the order of :-

   6,000 contacts per month
   through 2,000 contact points
   reported through 500 SCR's (this is the equivalent corporate rate)
   about 250 quotes (including informal) are due per month for computers

   (See chart for other details)

4. The overall job of the reporting system from the field, is to provide feedback to marketing people (product lines) and staff management information to the Sales Manager.

5. In addition to controlling and directly assisting the sales staff, the Sales Department monitors the information flow between Marketing and Sales to assist in product definition and between Order Processing and Sales to assist in system refinements.

R. G. Smart
May 26, 1967

D
DIGITAL MAYN
DIGITAL CPL

MSE 2189 29 MAY 67

TO KEN OLSEN
COPU TO HARRY MANN
STAN OLSEN
FROM DENNY DOYLE

I AM VERY MUCH IN FAVOUR OF HAVING HARRY AND STAN COME ALONG WITH YOU AND HAVING A BOARD OF DIRECTORS' MEETING. IT WOULD HAVE TO BE HELD ON FRIDAY EVENING OR AROUND 11:00 A.M. ON SATURDAY.

SUGGESTED ITEMS FOR THE AGENDA:

-) SIGNING AUTHORITY - BOB DILL HAS THE BACKGROUND
2) REDRAFTING OF A PERFORMANCE MEASUREMENT STANDARD - I DISAGREE WITH THE ONE DATED 16 MAY 67
3) STATUS REPORT AND A 5 YEAR PROJECTION ON CANADIAN OPERATIONS

THANKS FOR THE COMMENT ON CAE BUYING SDS MACHINES - I WILL DISCUSS THE BACKGROUND IN A MEMO.

END OR GA PLS
END
DIGITAL MAYN

DIGITAL CPL

Ken Olsen

digital INTEROFFICE MEMORANDUM

DATE: May 29, 1967

SUBJECT: Schedule Review Committee Meeting - New Format

TO: Executive Committee FROM: Mike Ford

As a Manager of several engineering projects, I wish to comment that I think the new "hot-seat" format for the Schedule Review Committee is very effective. I was extremely impressed with the tone and speed with which last Friday's review of the DF-32 was conducted.

It makes the job of managing an engineering project much easier when the Engineers realize such an inquisition faces them every few weeks.

Mike

eem

digital INTEROFFICE MEMORANDUM

DATE: 11 May 67

SUBJECT: Minutes of Ad Hoc Committee - 11 May 67

TO: Ad Hoc Committee FROM: Stewart Ogden

The committee developed the following suggestions for presentation making:

I. Before preparing a presentation, the speaker should make two decisions.

1) Decide explicitly WHY the presentation is being made and thus, WHAT is expected from the committee:

Is it to ask approval? (E.g., a presentation before the Executive Committee for the approval of a project plan.)

Is it to convey information? (E.g., a presentation before the marketing committee to explain a certain product line's marketing approach with no decision required.)

2) Decide explicitly at WHAT LEVEL of detail the presentation should be made. (E.g., has the marketing committee asked for a detailed presentation of a product line's marketing plan; or will it be a very general presentation about a new product to the Board of Directors who have never previously heard of the product.)

II. When starting to make the presentation, the group and speaker should understand the above decisions.

1) Every member of the group has an obligation to understand WHY the presentation is being made and WHAT action it is expected to make. (E.g., the de facto meeting chairman should state these two points when introducing the speaker.)

2) The speaker then has the obligation to repeat in his own words WHY he is making the presentation and WHAT action he expects from the committee.

III. The form of the Presentation:

The form of every presentation cannot be specified by general rules. This form will vary according to the personality of the speaker, the nature of the material to be presented, etc. The Ad Hoc Committee suggests several guides that may be appropriate:

1) Make a half or three-quarter page outline to hand out. Additional backup material may be appended to this outline.

(more)

2) After repeating the WHY and WHAT as mentioned, explain the the outline. (I.e., "Tell them what you are going to tell them".)

3) Make the presentation brief. In many cases, the complete proposal or presentation can be made in 2-5 minutes. But, bring enough backup material to answer additional specific questions.

May I have your thoughts on the above? Are there additional suggestions we can make?

Stewart

Distribution List:

Nick Mazzarese
→Stan Olsen
John Jones
Mort Ruderman
Pat Greene
Ed Harwood

mg

digital MEMO

DATE May 29, 1967

TO Ken Olsen FROM Nick Mazzarese

We have had our first few meetings of the Ad Hoc Committee to Improve Presentations. Our current plan is to review on Thursday, June 1, Stewart Ogden's proposal and Mort Ruderman's for a CAT computer, and measure them against the guidelines presented in the minutes of the May 11 meeting, which are attached.

cmp
Enc.

digital INTEROFFICE MEMORANDUM

DATE: May 25, 1967

SUBJECT:

TO: Ken Olsen

FROM: Ted Johnson

cc: Harry Mann
Alan Hanson

I am interested in doing a better job of space planning for the Maynard District and Regional Sales Support Staff in location within the plant.

Pressure is always there for an office outside of the plant. Rather than that, I favor looking at improving their parking, appearance and general efficiency of their office as part of our space planning. They do bring in a good number of people to visit and discuss business.

Do you visualize an opportunity to put these people (along with some or all of their Field Service staff) on the first floor of Building #12, possibly moving the programming library, et al, to the top floor?

I would like this group to be recognized and seen more clearly. I do believe we would benefit from this look at their morale.

I think we need 2,000 sq. ft. for sales and 850 sq. ft. for Field Service for the next year with perhaps 20% for expansion.

mr

Ken Olsen

TO: Operations Committee

FR: Ted Johnson

"THE FRENCH ATTITUDE TOWARDS BRITAIN'S ENTRY INTO THE COMMON MARKET"

ARNAUD DE VITRY

RIC.31-25

12, RUE DE LA PAIX
PARIS, 2e

ADDRESS TO THE FRANCO-BRITISH SOCIETY

20TH OF FEBRUARY 1967

by

Paul LEROY-BEAULIEU

" THE FRENCH ATTITUDE TOWARDS BRITAIN'S ENTRY INTO THE COMMON MARKET "

I would like first to emphasize that I am no longer a member of the French Embassy in London nor a French Civil Servant and that, therefore, the views I might express are only my own personal views for whatever they are worth. Moreover, I am neither a prophet nor a wizard and would not be so bold on such a matter as to attempt to read in General de Gaulle's mind ! The best method therefore to try to forecast what the French attitude might be if and when Great Britain makes a formal application to join E.E.C., which is not yet the case, is to review why the negotiations failed in January 1963 and to examine whether what happened since, in Great Britain, in France or within the Common Market itself, makes it more likely or not that new negotiations would succeed.

...

It has been said, written, and it is widely believed on this side of the Channel, that the previous negotiations failed only because General de Gaulle opposed his personal veto to Britain's application to join E.E.C. at a time when the negotiations were on the point of succeeding.

Well, I think that this may be an overstatement, and it is not the whole story. It seems to me that in order to understand fully the state of mind prevailing in France in I963 and what brought about some doubts, not only in the mind of General de Gaulle but of many people in France and on the Continent about the "Europeanness" of the British Government, it is necessary to bear in mind what had been the respective French and British approach to the problem of European unity since the end of the last war.

In I949, when the Council of Europe was set up, which compri ses most of theEuropean countries, Great Britain refused to enter into some commitments proposed by France which would have given teeth to the organization.

Later on, when Mr Robert Schuman was working on his plan to place the steel and coal productions of Western Europe under a Common High Authority, he sent M.Monnet to London to ask the British to join in the scheme, before he submitted his plan to the other Five. The answer was :"We are not ready and you won't succeed". Germany, Italy, Belgium, Luxembourg and the Netherlands agreed and the Coal and Steel Authority was set up between the Six in May I952.

When during the height of the Corean War an attempt was made again by France to create a European Defence Community, in order to remove the obstacles to the rearmament of Germany by integrating her forces in a European army, the British Government was once more asked to join and again declined. The treaty was nevertheless signed between the Six, but the British refusal was partly responsible for its rejection by the French National Assembly : a large section of French public opinion could not be convinced that France should renounce to have an independent army when Great Britain was not prepared to do so.

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Finally, when the Foreign Ministers of the Six belonging to the CECA met in Messina in early June I955 to give a new impulse to the European idea by organizing a Common Market in Western Europe, the British Government were again invited to participate in the discussions of the Committee presided by Mr Spaak who was to make a preliminary report. They sent two delegates to Messina but after six months these ceased to take part in the work which was to give birth to the European Economic Community and the EURATOM. Thus, the treaty signed in Rome in I957 was again signed by the Six only. Why did the British representatives cease to participate in these negotiations ? I think one reason may be that, once more, they had no faith in the enterprise ; they did not believe that such an ambitious and difficult project would succeed. I happened to be then stationed in London as Financial Counsellor to the French Embassy and I remember addressing the Lombard Association in the City on the Messina negotiations in the summer of I956. I told the audience that the Common Market would eventually be set up .whereas the Imperial preference was bound to dwindle and that if Britain did not cooperate in the venture, she might wake up one day between the devil and the deep blue sea ; but during the debate which followed, I could see that most of the audien ce felt that I was a victim of my latin imagination and that this was a dream which would never come true.

In I958, after the signature of the Treaty of Rome, Great Britain set up the Free Trade Area with the Scandinavian countries, Austria, Switzerland and Portugal, which, in the view of many people in France and on the Continent, was looked upon as a competitive organization not aimed at helping E.E.C.

Such was the background when in July I96I Mr MacMillan reversed the policy and asked Parliament to open negotiations with the Six.British public opinion was then still divided : the Labour Party,

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including its present leader, was in its great majority opposed to Britain's entry into E.E.C. and the Conservative were far from being unanimous. A Gallup Poll showed that 40 % only of the people consulted were in favour of joining the Common Market. This may be the reason why Mr MacMillan did not make a formal application to join but only asked Parliament to open exploratory negotiations ; their object was "to determine the conditions of an eventual adhesion to the Rome Treaty". In October 1961, Mr MacMillan announced the amendments, which, in his views, were to be introduced in the Treaty in order to enable Great Britain to sign it. They were of major importance ; therefore, from the start, there was a misunderstanding : in the view of the Six, the adhesion of a new member implied that it accepted without reservations the rules and objectives of the Treaty of Rome, whereas on the British side, one was pressing for derogations to the rules of the Treaty which would have substantially transformed the spirit and the working of the Common Market. These derogations dealt chiefly with agriculture and the Commonwealth.

As regards agriculture, the British delegation, while declaiming that they accepted "in principle " the Common Market agricultural policy based, as in America, on high government-regulated prices paid ultimately by the consumers, insisted that the U.K. should be allowed to maintain for a lengthy period their support policy of "deficiency payments" to the farmers, which, coupled with free imports, assures cheap food to the British consumer. This would have placed the British farmers in a privileged position versus their continental competitors and would have obliged the Six to subsidize their exports of agricultural goods to Great Britain. Moreover, by reducing the price of food in Britain as compared with the Continent, it would have enabled British industrialists to pay lower wages, thus increasing their competitiveness on the European market.

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As regards the Commonwealth, the British Government were then under strong pressure from the Governments of Canada, Australia and New Zealand, to obtain a guaranteed outlet for their exports of agricultural goods at a preferential tariff. This would have constituted a discrimination against the imports from third countries, mainly from the U.S.A. and it would have obliged the Six to maintain a certain degree of protection against imports of agricultural goods from Great Britain, in order to prevent diversions of traffic through the preferential British market.

The Six, and not France alone, thought that the interests of the exporting countries could be safeguarded by world agreements and the establishment of reasonable prices within the Community ; they were not opposed to a short transitional period, but when the negotiations, which had been dragging on for sixteen months, were interrupted, no agreement had been reached neither on the price policy to be followed within the Community, nor on the transitional measures, nor on the preferential tariffs to be applied to certain Commonwealth products.

As one of the French negotiators put it to me then, the negotiations had become so lost in details and so muddled that one no longer knew whether their object was still the entry of the U.K. in the Common Market or rather the entry of the European Economic Community within the Commonwealth !

One can of course wonder why, if the negotiations were going to fail, General de Gaulle chose totake the onus upon himself and on France by interrupting them abruptly in his Press Conference on January 1963. It is generally assumed that the answer is to be found in the agreements on Defence concerning atomic weapons, the so-called Polaris agreements reached in Nassau between Mr MacMillan and President Kennedy, of which the General had not been in the least previously informed. Rightly or wrongly, these agreements were for him the sign on the wall, the proof that Great Britain was not prepared to throw her lot with Europe, but preferred her "special relationship" to the

...

United States. Why therefore go on bargaining about such details as the fate of Kangaroo canned meat or Canadian red tinned salmon, at the risk of weakening the Common Market and the cohesion of the Six, in order to bring into the Community a country whose will to build a united and independent Europe seemed to be sorely lacking ?

Although a large part of French public opinion, and I for one, deplored the abrupt breaking up of the negotiations by the President, many European minded people in France shared, although not for the same reasons, his belief that Britain was not yet ripe to become a member of E.E.C. ; they did not object to Britain's special links with the U.S.A. but feared that if she were admitted, she would slow down any further progress towards integration, especially in the field of agriculture, which is of vital interest to France.

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Such was the situation in I963. Since then things have changed and most of the obstacles which prevented Great Britain from joining the E.E.C. should, in my view, no longer be insuperable, provided the right approach is made.

First of all, there has been within the last two or three years a great shift of opinion in Britain in favour of closer cooperation with Europe. In I963, according to a Gallup Poll, 40 % only of the people consulted thought that Britain should join the Common Market ; the figure is now 65 % and there is a majority in both parties.

A similar evolution has taken place in France ; the last survey of public opinion made last December shows that 48 % of the Frenchmen who took part thought Britain's entry was in the interest of France, compared to 35 % in January I963 ; those against have dropped from 22 % to I4 % ; on the other hand, only 3I % consider

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that Britain at present fulfills the conditions for membership, while 27 % do not. But 54 % are now of the opinion that if Britain officially applies soon for admission, agreement will be reached, while I6 % only do not.

Moreover, the political climate has changed for the better. In the field of Defence, the British Government seems now willing to abandon the construction of Polaris submarine ; Britain an France cooperate closely in the construction of military aircraft and the "Concord" ; they have decided to build the Channel Tunnel ; they both advocate and pursue a policy of "détente" towards the East, and they share on the whole the same views about South East Asia and Vietnam, although in the case of Britain those views may be expressed in more subdued and diplomatic terms.

Last but not least, in his recent speech before the Consultative Assembly of the Council of Europe in Strasbourg, Mr Harold Wilson repeated again and again that in his approach to Europe his Government ment business ; he said, I quote : " We mean business in a political sense because over the next year, the next ten or twenty years, the unity of Europe is going to be forged and geography, history, interest and sentiment alike demand that we play our full part in forging and working it." Referring to Britain's loyalty to NATO and the Atlantic Alliance, he reminded his audience that "he had always said that loyalty did not mean subserviance" and this was certainly music to the French President's ear ! Conversely, in his toast to Mr Wilson and Mr Brown at theElysée, the General, whose careful choice of words is proverbial, referred to Britain as "our friend and ally always dear and always admired."

Mr Wilson's suggestion made last November of a "European technological community" is in this respect no less important, for it is in this field that Britain has much to offer to the existing

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members of E.E.C., whereas the problems created by the backwardness of Continental Europe in research and science, compared to America and Russia, are very much in the French Government's mind.

In recent speeches in Paris, H.R.H. the Duke of Edinburg and my friend and former colleague in the Control Council in Germany, Sir Paul Chambers, the Chairman of I.C.I., reminded their audience that Britain's contribution to scientific and technological progress in the last twenty or thirty years are impressive : the jet engine, the first commercial jet air-lines, the first hovercraft and the first commercial power station based on nuclear energy were built in Britain ; but one of the disturbing trends is that British and other European discoveries so often are more effectively developed for full scale production in the U.S.A. ; for exemple, whereas the British were responsible for the major early development in computers, the lead has been taken over by the U.S.A. The fault lies more with the policies, or rather the absence of policies on this side of the Atlantic, than in the aggressive expansion policies of American industrial corporations and it is only on a European scale that a problem of this magnitude can be successfully tackled ; the long-term remedy is the development of joint science-based European firms or groups of firms that can compete with American rivals in the U.S. itself as the European chemical giants can more or less today. This, it could be hoped, could have the additional advantage of stopping or at least reducing, the alarming drain of scientists from Europe to America.

Mr Wilson's approach to this problem is therefore most helpful ; it should not fail to find a ready response in France and be looked upon as a concrete proof of his European spirit.

Lastly, it should be stressed that during the recent talks which Mr Wilson and Mr Brown had in Paris, there does not seem to have been any hint that political obstacles would be raised by

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the French Government against a formal application by Britain to join E.E.C. and the French President is too shrewd and experienced a states man to take on this political aspect of the problem a stand which would today be disapproved by a majority of Frenchmen, not to mention France's partners in E.E.C.

Meanwhile, within the European Community itself, new developments have taken place since 1963 : the first one concerns the majority rule and should facilitate Britain's entry ; the second deals with agriculture and might add to her difficulties.

The Treaty of Rome lays down in article 148 that the decisions of the Council of Ministers are taken as a rule at a straight majority and at a qualified majority for certain well defined and limited matters. The qualified majority is 12 votes, out of 17 ; France Italy and Germany having 4 votes each, Belgium and Holland 2 each, Luxembourg 1.

The French Foreign Minister, Mr Couve de Murville,pointed out at a meeting of the Six in Luxembourg last year in January, "that this majority rule seemed difficult to apply and that in certain respects it appeared abusive " ; he submitted that a State cannot be forced to accept decisions that can have serious repercussions in a domain affecting its vital interests. After considerable discussions, article 148 remained unchanged, but an agreement was reached on the following "statement of purpose"concer ning its implementation : "When in the case of decisions that could be taken by majority vote on proposals by the Commission, very important interests of one or several partners are at stake, the members of the Council will try, within a reasonable period, to arrive at solutions that can be adopted by all members of the Council, while respecting their mutual interests and those of the Community in accordance with Article 2 of the Treaty.

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With regards to the preceding paragraph, the French delegation considers that, when it is a question of very important interests, the discussion must be continued until a unanimous agreement has been reached".

During the discussions, the French delegation was isolated as the other Five showed great reluctance to weaken in any way the enfor cement of the majority rule.

Nevertheless, the gentleman's agreement arrived at on French insistence, although it has been looked upon in certain quarters as a mere agreement to disagree, should make it easier for Britain to accept the voting procedure of the Treaty of Rome, for the supranational charac ter of article I48 of the Treaty has constantly been looked upon in Britain as one of the stumbling blocks.

#2 change

The second major development within the Community since I963 is the agreement on agriculture reached in Brussels in May I966 and completed last July.

The agreement reached last may, following a series of three months continuous working meetings is a major contribution to building the Common Market. It settles the question of financing the common agricultural policy and it sets a firm date, July Irst I968, for the free movement of farm products as well as industrial goods within the Community; on the same date, the remaining 15 % protective tariffs between the member States will be eliminated and the common external tariff definitely established ; the Six will then have identical protective tariffs with respect to non-member countries. The customs' union will thus be completed on the Irst of July I968, a year and a half ahead of the Rome Treaty's timetable.

The French Ministers played a major part in the discussions, for in the view of an overwhelming majority of Frenchmen, a community comprizes all aspects of life, and agriculture cannot be left out of the club as a poorer and older relation.

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The essence of the financial regulations for agriculture is that if a member of the Community buys abroad farm products at a lower price than the Common Market price, it will pay the difference in a common pool which will be used mainly to finance the support prices within the Community and exports of surpluses to third countries. This Community farm fund is now in operation and from Irst July I967 the member States will pay into it 90 % of their import levies.

On July 24th I966, after 33 days of exhausting negotiations in Brussels, the Council of Ministers of E.E.C. reached a further agreement whereby the common agricultural policy would apply to almost every food item produced in the E.E.C. countries ; they decided that starting in I967, the Community's farm products will circulate freely in a single market ; in this market, producers will enjoy uniform guarantees, not only through the single price system, but also through the organization of common markets for these products designed to established identical production and marketing conditions inthe Six member countries.

They also set a common price forgrains, milk and dairy products, beef, rice, sugar and olive oil. France had to make substantial concessions in order that the last agricultural agreement could be reached. She accepted prices higher than she would have liked, and certainly higher than Britain would like, for sugar and olive oil and to a lesser degree for milk, as she had already done for grains.

It is not for me to stress here that for Great Britain the entry into E.E.C. after the Brussels' agreements on agriculture raises major problems both in the political and economic fields, as it would entail a complete reversal of the policy which has been enforced in some sectors since Cobden's days.

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Broadly speaking, it means : ceasing to import cheap food, accepting that imports of food from non-member countries, including the Commonwealth, should be subject to levies and accepting that these levies should be put in a European common pool. The consequence will be inevitably a substantial increase in the cost of living and therefore in industrial costs and a heavy burden on the balance of payments.

In an interview given a month agao to the French magazine "Réalités", Mr Brown estimates "that the rise in retail food prices would be between IO and I4 % and the consequent rise in the cost of living between 2,5 and 3,5 %.

" There would be also serious repercussions on the relations with the Commonwealth. Britain's regular suppliers would be seriously hit if no change in the present regulations were made. New Zealand's case would be a particularly difficult one and it is obvious that special arrangements would be required to meet her problems".

" As regards the effect of the financial regulations of E.E.C. on Britain's balance of payments," Mr Brown estimates that "on the basis of realistic assumptions, the cost to Britain after a transitional period would be between I65 and 250 millions Pounds a year". One should not be surprised therefore that Britain, though not claiming a special treatment, should be assured that her essential interests will be safeguarded.

" Some people - adds the Foreign Minister - think that our insistence to talk about safeguard of our essential interests b fore adhering to E.E.C. is a negative and unrealistic approach. I disagree. In my view, it is sheer common sense, an international fact of life."

Although the difficulties which E.E.C.'s agricultural policy raises for Britain are well understood in France, and Britain's decision to accept it in principle is highly appreciated, it should be stressed here that the range of concessions which could be made in this field appears to be tenuous and limited as Mr Wilson and Mr Brown

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himself might have gathered from their recent tour in Rome and Brussels as well as in Paris. As a matter of fact, the protracted and strenous discussions which led to the agreements on agriculture, the intricate bargaining to which they gave rise between the Six, the fact that 15 million farmers on the Continent have now a vested interest in their preservation, coupled with the strength of the farmers' lobbies in the European Parliaments, make it doubtful that the Six would or could agree to substantial alterations in order to meet British wishes.

However, with good will on all parts a solution might be found in a short transitional period and the setting up of a ceiling on the payments with Britain would have to make into the European Farm Fund. As my friend Mr Chambers said in Paris : " We must not allow the agricultural tail to wag the whole European dog".

As regards the Commonwealth, due to recent changes in the pattern of Britain's foreign trade, the problem seems to have become more emotional than economic, with the possible exception of New Zealand, and should not therefore raise major difficulties, always provided that Britain does not ask any modification to the Treaty of Rome.

#3.

The other main problem raised by Britain's entry into the Common Market is related to Britain's present economic situation, the sterling balances and the position of the Pound.

It has been said in this connection that France would like the Pound to be devalued before England joins the Common Market. I don't think that this is the case. The present problem in Great Britain is not the exchange rate of sterling ; a devaluation of the Pound, taking into account the present level of international prices, would certainly give British industry a competitive advantage which most French industrialists would consider as dangerous and not justified and it might lead therefore to further devaluations of some continental currencies.

other side of devaluations

.....

The real problem here arises from article I08 of the Treaty of Rome which makes it compulsory for the signatories to come to the aid of a member state which faces balance of payments troubles that it cannot solve alone. The Council of Ministers decides on this mutual assistance (concours mutuel) at a qualified majority vote. It is therefore not surprising that the Six should be genuinely worried about this aspect of the problem and would like to know whether, in admitting Britain to membership, they are taking a financial risk or not.

This problem was discussed at length during Mr Wilson's recent visit to Paris,Brussels and Bonn ;he gave to his French,Belgian and German hosts a rather optimistic picture of Britain's present economic position and did not fail to underline the great improvement which has taken place last year in Britain's balance of payments and the position of sterling ;he pointed out thatthe sterling balances had remained remarkably steady since the end of the war and that they had not been affected by the various crises which had overtaken the British balance of payments. Mr Wilson's hosts listened with great interest to his long and detailed statement.Whether they were convinced, they did not say ... Some doubts were however expressed by some French and Belgian officials about the possibility for Britain to meet in an emergency short term liabilities with long term assets.

There were also some discussions about the international role of sterling and how its reserve currency role affects the U.K. balance of payments for good or ill; divergent views are held in France,but not only there,on this subject and we shall hear from it again...However,Minister Jean Rey,a member of the Commission of E.E.C. said in Paris last week that these financial problems,although very serious,should not be a stumbling block.He pointed out that the preliminary discussions leading to Britain's entry in E.E.C.would last at least one year,the formal negotiations one more year.Meanwhile,it can be hoped that due to the courageous and energetic policy pursued by the present British Government,internal financial stability will be restored and that there will be a continuous surplus in the current balance of payments,

....

balance of payments, so that the problem will be solved before the Treaty admitting Britain is signed.

#4

The last problem raised by Britain's entry into the Common Market arises from the fact that if she decides to join, she won't do so alone. Her application will be followed by other applications from her fellow-members in E.F.TA. or at least by most of them and especially the Scandinavian countries. This will of course raise specific problems like timber,paper pulp,fishing,merchant marine,etc.. but it will also raise the wider issue of what is going to become of E.E.C. once it is transformed from a club of six continental countries who have been working closely together in the economic field for the last ten years into a much wider association including countries who are mostly outside the continent itself and whose economy is much more linked with the outside world. Are these countries prepared to accept those rules of the Treaty of Rome which provide for the free movement of capital and labour within the Community ? Will this not raise, for their mainly socialist governments,difficult political problems ? In other words, will not the entry of these countries transform the essence of the Common Market, stop its further progress towards unity and make of E.E.C. a sort of glorified E.F.T.A. ?

This is a crucial problem for in the mind of most Frenchmen and very many people on the continent,the Common Market should not be reduced to a mere customs union; it is already more than that,as I mentioned above,and as stated in article 4 of the Treaty of Rome,it should progress further towards a common policy in the field of transportation,a common policy in the field of taxes and a close coordination of the economic policies. (I)

....

(I) In the fiscal field,I would remind that on the 9th of February an agreement has been reached between the Six to adopt the French system called "the added value tax"as from the Irst of January I970 (in the case of Germany : Irst January I968)

This is already a difficult task for six countries, but what will become of it when they are ten or more ? It is my feeling that the answer which the British Government and their partners in E.F.T.A. will give to all these questions cannot fail to have a crucial bearing on the coming negotiations.

If Britain and her friends in E.F.T.A. are not yet prepared to pay the full price to join E.E.C. some measures should be taken in order to avoid a widening of the gap between the Six and the Seven. A temporary solution might be found in a kind of association agreement between the two groups but this could only be a stop gap.

I would like to conclude on a more hopeful note. Everyone, I think, agrees now in the West, that a strong and united Europe is in the interest of Europe itself, of the U.S.A. and of the world at large. It is widely admitted also that, to be strong, Europe cannot remain divided in a score or more of completely sovereign and indepen dent states.

The present nucleous E.E.C. must therefore both expand and integrate. The entry of Great Britain and her friends in E.F.T.A. into the Common Market would add considerably to Europe's strength in all fields,political,economic,financial,military, provided it dit not stop progress towards closer unity.

With good will on all sides, a solution should be found on those lines and, as you say in English, where there is a will there is a way.

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dec INTEROFFICE MEMORANDUM

CONFIDENTIAL

DATE May 24, 1967

SUBJECT LEAVE OF ABSENCE POLICY

TO K. H. Olsen

FROM Bob Lassen

The consensus of the Personnel Committee is that the more common types of excused absences should be administered consistently throughout the company. Our objective is to provide all managers with uniform guide lines for administering excused absences and including Personnel Department approval (and in special cases, Executive Committee approval) to avoid impractical commitments to employees.

The following are the types of absences the Personnel Committee feels should be included in the policy:

Military Duty
Jury Duty
Family Death
Pregnancy
Educational

In many cases, we will want to encourage good employees to return, and we would advise them accordingly. Poor employees will not be allowed an excused absence and will be terminated. We recognize that we cannot guarantee jobs in all cases and will advise employees of this before they leave.

We do not recognize extended absences for personal reasons and requests of a personal nature (i.e., long vacations, domestic problems, etc.) will be dealt with individually and very carefully.

The Personnel Committee will review the final policy wording on May 24 and will then present it to the Executive Committee.

Bob

/jfr

dec INTEROFFICE MEMORANDUM

CONFIDENTIAL

DATE May 24, 1967

SUBJECT DIABETIC EMPLOYEES

TO K. H. Olsen

FROM Bob Lassen

We presently have five diabetic employees in the company.

Our nurse has their medical history including special information pertaining to their diet, weight and dosage of daily insulin. She also maintains a record of each employee's personal physician. I am advised that all of these people are well controlled by insulin, proper diet and under medical supervision.

Mrs. Hudson has had considerable experience in working with diabetic patients, and because of her knowledge and competence I would not hesitate to hire a diabetic who is otherwise in employable good health.

Diabetics are usually well disciplined, and I worry less about them than I do employees who have other medical problems and who are less inclined to communicate with us.

Bob

/jfr

digital INTEROFFICE MEMORANDUM

DATE: May 23, 1967

SUBJECT: Minutes of Meeting held on Friday, May 19
Discussion of PDP-8I Mechanical Design

TO: SEE DISTRIBUTION LIST FROM: Mike Ford

Ed Harwood presented a summary of the Mechanical Engineering Design Review Committee Meeting that was held the previous Monday. He stated that the following questions had been raised at the Monday meeting.

a) The cost of the table top version appeared too high.

b) Too much emphasis was placed on the table top design when cabinet mount is biggest seller by far. (20% - TT, 80% - cab mount)

c) The cost and inconvenience of the cabinet mount appeared too high.

d) The power supply mounting in the teletype base seemed full of unsolved problems.

e) The plastic cover on the table top has many cost and production problems.

f) It was proposed and agreed that a plain, flush-flat front panel should be designed for PDP-8I cabinet mount.

Stan Olsen raised the issue that the PDP-8I was expensively conceived because it contains 40 blocks in a 4x10 configuration which results in the following loss of economy.

a) Use of cables to front panel - rather than direct plug-in.

b) Use of 10 more blocks than necessary for basic 4K package without 804 logic, extra 4K stack, or 10% spare slots.

c) The width of 4 blocks prevents horizontal planar mounting due to width in excess of 19", thus, the frame cannot be mounted in a 19" cabinet cheaply.

The issue was also raised that the vertical mount was not completely thought out and appeared to be so non-standard that it might not be acceptable to the market place.

There followed considerable discussion of alternatives and the following points were established by the Mechanical Engineers.

1) 30 blocks is the absolute minimum number of blocks possible for the PDP-8I without <u>any</u> extras in a 3x10 configuration.

2) Inclusion of extra memory (3 blocks) and 804 logic (3 blocks) and a few spare blocks, brings the only other reasonable alternative to 40 blocks.

3) The incremental cost of the 40 blocks (vertical) vs. 30 blocks (horizontal) was estimated as follows:

Vertical Mounting, Hardware, etc.	$ 25.00
Cable to Front Panel	66.00
Extra blocks - 10 blocks @ $4.00	40.00
Extra wiring	70.00
Total additional cost	$201.00

This method of mounting could be accomplished economically and conveniently for any 19" cabinet and be perfectly acceptable to the market place.

4) There was considerable question as to whether a 3x10 frame can fit in a 19" cabinet without protruding to the front and without precluding I/O cables behind the frame in the rear. The attached memo sheds more light on that subject.

5) The inclusion of blocks and wiring for the 804 logic, and extra 4K within the main frame, although slightly costly for the basic machine, represents considerable cost savings from the point of view of option manufacturing costs. Since the 804 options and extra memory represent 50% of all options (estimate 25% of total PDP-8I sales volume), economy in cost here should not be ignored and represents a significant increase in profit for the product line.

It was subsequently decided that no more suitable alternative to the 4x10 vertical frame had been proposed, but that the designers should examine carefully their point that the 3x10 horizontal frame would absolutely not fit, and put all of their effort into quickly proving that a 4x10 vertical frame could be mounted cheaply and neatly in DEC, Budd and Emcor cabinets.

eem
Attachment

Distribution List:

To: PDP-8I Mechanical Engineering Design Review Committee
cc: Ken Olsen ✓
Stan Olsen
Nick Mazzarese
Pete Kaufmann
Loren Prentice
Jim Jordan
Stan Znamierowski
Dick Sogge

digital INTEROFFICE MEMORANDUM

DATE: May 23, 1967

SUBJECT: 40 Block 8I vs. 30 Block 8/S - Mounting and Cost

TO: Mike Ford
cc: Stan Znamierowski
Loren Prentice

FROM: Jim Jordan

The PDP-8I will not fit into a DEC, Bud or Emcor Cabinet in a PDP-8/S configuration for the following reasons:

1) An 8/S type logic frame will project forward of any cabinet frame by 2 1/2 inches. (Doors will not close over it.)

2) The control panel will mount within the proposed space only if it is mounted higher than the present 8/S bezel and there is enough space in the cabinet to push it back one inch, (1. there is no space, 2. this adds height).

3) Switch levers protrude 3 1/4 inches from the front surface of the post. (Again, doors will not close.)

4) The logic frame must be offset to the side to allow room for fans. Leaving no room for component size variations.

5) In order for fans to be mounted to the side, chassis track slides must be mounted below the wiring casting and attached with special brackets. (This adds still more overall height to the machine.)

6) There are many difficult problems still to be solved, such as: attachment of fans and development of a "C" shaped casting that can be used for both wire wrapping and cabinet mounting.

Cost Variations

1) PDP-8/S

Tilt Slide Feature	$ 15.00
2 Brackets @ $5.00	10.00
Total	$ 25.00

2) PDP-8I

Wiring	$ 70.00
Blocks	40.00
Cabling to Control Panel	66.00
2 "T" Bars @ $10.00	20.00
"U" Bracket	30.00
Total	$226.00

Total Net Difference	$201.00

eem

file

INTEROFFICE MEMORANDUM

DATE 23 May 1967

SUBJECT

TO Ken Olsen

FROM Denny Doyle

Suggested Topics for Speech at Canadian Open House - 23 June - 2:15 P.M.

1) The audience will consist mainly of customers and government officials - all will be invited by personal invitations.

2) I will give a 10-minute talk in which I will describe our Canadian activities, trace the company's history, and talk briefly about our sales success in Canada.

3) The following are suggested topics for your speech.

Introduction

State that you have in the past visited some of our Canadian research establishments and have met a number of our customers, and point out that our open house is long overdue.

Main Theme of Speech

Emphasize that DEC is an international corporation.

That all markets and all resources are important to it.

In Canada we have found both - we are very pleased with the acceptance of our products and with the success of our manufacturing operations - you would like to compliment our Canadian users for the development of certain computer uses which were truly unique, and would like to comment briefly on the energy and industriousness of our Canadian staff in building up a sound and efficient production facility - then you would expand on both these topics.

Unique Canadian Computer Applications

a) AECL at Chalk River implemented the first computer-controlled nuclear reactor using a PDP-4 and PDP-5 in 1963.

b) The Defence Research Board, Queen's University and Nova Scotia Technical College are all using on-line computers for the study of unique communications problems - (Use of psuedo-random sequences and matched filtering to combat noise).

DATE 23 May 1967

SUBJECT

TO Ken Olsen FROM Denny Doyle

c) The Bedford Institute of Oceanography at Dartmouth, Nova Scotia has used 2 PDP-8's on board the "Hudson", a Canadian oceanographic vessel for almost two years. I understand that it is docked near the "EXPO" site during most of the summer.

Production Activities

Emphasize DEC's readiness to spread its production efforts to those parts of the world where the market and the economics of the situation warrant it - in the case of Canada, we found that greatest economics could be achieved by allowing the Canadian subsidiary to act as a sole supplier of certain units - would permit largest possible runs - at present, we are achieving a level of efficiency which allows the Canadian subsidiary to put these goods back into the U.S. at prices which are 30 to 40% lower than we were getting from an outside vendor - (R210's and R211's).

Concluding Remarks

Direct people to the various exhibits - module assembly on the 2nd floor - computer checkout in the basement, a PDP-8 system is on display in the basement also - look forward to meeting as many of the guests as possible, etc.

Denny

DJD:jp

Sounds corny, but I hope it's some help- feel free to deviate from these suggestions.

Denny

digital INTEROFFICE MEMORANDUM

DATE: May 23, 1967

SUBJECT: PAPER TAPE READERS

TO: Ken Olsen FROM: Ed de Castro

The production start up problems with the new paper tape reader appear to be over, and they are now being built and installed quite smoothly. There are, however, two remaining design problems which are in the process of being corrected. Damping is presently being done by a spring loaded friction damper. This is not accurately repeatable and changes with wear. We will change to an oil damped motor as soon as we can get delivery. This is scheduled for the end of August. The reader has also been quite difficult to adjust. This is partially due to the spring loaded damper and partially due to the design of the lower tape guide. The lower guide has been redesigned to use a single anodized aluminum piece rather than a combination of several metal and plastic parts. The improved version is currently being phased into production.

There is very little to be saved by designing a slower version, and thus I think that we should stick with the basic unit we now have and add refinements as they become necessary.

Ed

jeg

dec INTEROFFICE MEMORANDUM

DATE 16 May 1967

SUBJECT

TO Harry Mann
Ken Olsen

FROM Denny Doyle

Enclosed is some information from the Canadian Department of Trade and Commerce relating to its current campaign to force Canadian subsidiaries to act as "good corporate citizens" as they put it. I felt that you should be made aware of this, because we are approaching the size where some of this pressure could be brought to bear on us.

On the surface, it doesn't appear as though the program has any teeth in it. In practice, however, what has developed is a fraternity of "good guys" with the Department of Trade and Commerce as its patron - and indeed as its own free lobby. In the computer industry, we have IBM, Ferranti, and Honeywell as solid members of this fraternity. These are the companies that influence tarrif, legislation, control bidding rights where public money is involved, and generally make life miserable for everyone else.

After watching this thing for the past year, there is no question that it is a force to be reckoned with. I'd like to sit down and talk about it in some more detail - perhaps when Ken is here for our open house.

Denny

DJD:jp
att.

SOME GUIDING PRINCIPLES OF GOOD CORPORATE BEHAVIOUR IN CANADA

To fulfill their responsibilities to the community in which they operate, subsidiaries in Canada of foreign companies are urged to strive for the following objectives:—

1. Pursuit of sound growth and full realization of the company's productive potential thereby sharing the national objective of full and effective use of the nation's resources.

2. Realization of maximum competitiveness through the most effective use of the company's own resources, recognizing the desirability of progressively achieving appropriate specialization of productive operations within the internationally affiliated group of companies.

3. Maximum development of market opportunities in other countries as well as in Canada.

4. Where applicable, to extend processing of natural resource products to the extent practicable on an economic basis.

5. Pursuit of a pricing policy designed to assure a fair and reasonable return to the company and to Canada for all goods and services sold abroad, including sales to the parent company and other foreign affiliates.

6. In matters of procurement, to search out and develop economic sources of supply in Canada.

7. To develop as an integral part of the Canadian operation wherever practicable, the technological research and design capability necessary to enable the company to pursue appropriate product development programs so as to take full advantage of market opportunities domestically and abroad.

8. Retention of a sufficient share of earnings to give appropriate financial support to the growth requirements of the Canadian operation, having in mind a fair return to shareholders on capital invested.

9. To work toward a Canadian outlook within management, through purposeful training programs, promotion of qualified Canadian personnel and inclusion of a major proportion of Canadian citizens on its Board of Directors.

10. To have the objective of a financial structure which provides opportunity for equity participation in the Canadian enterprise by the Canadian public.

11. Periodically to publish information on the financial position and operations of the company.

12. To give appropriate attention and support to recognized national objectives and established Government programs designed to further Canada's economic development and to encourage and support Canadian institutions directed toward the intellectual, social and cultural advancement of the community.

Minister of Trade and Commerce
Ottawa March 31st, 1966

E PUBLICITY BRANCH DEPARTMENT OF TRADE AND COMMERCE OTTAWA CANADA

FOR IMMEDIATE RELEASE

63/66

OTTAWA, August 17, 1966 -- Trade and Commerce Minister Winters released today the texts of two letters dated August 15th which he sent to subsidiaries in Canada of foreign companies in connection with the guiding principles for good corporate behaviour set out in his letter of March 31, 1966.

Both letters transmit an engrossed copy of the guiding principles. One of the letters is to companies that have already replied to Mr. Winters' earlier letter of March 31st, 1966. The other is to those companies which have not yet replied. It asks what progress the companies are making in complying with the guiding principles.

Mr. Winters also referred to the fact that some four hundred of the larger companies have been asked to submit certain statistical information which will be forthcoming on a periodic basis.

The Minister commented on the good cooperation that is being extended by the vast majority of Canadian subsidiaries of foreign companies.

- 30 -

MINISTER OF TRADE AND COMMERCE

LE MINISTRE DU COMMERCE

CANADA

OTTAWA 4, August 15, 1966.

Dear Mr. -:

On March 31st I wrote you setting out what the Government considers to be some of the guiding principles of good corporate behaviour in Canada. We have now had these principles engrossed in the form of a certificate and I enclose a copy for your retention.

At your convenience I would be glad to have your reactions to these principles, indicating the extent to which your Company already conforms to them and informing me of further action you may be contemplating in areas where your Company's practice does not at present conform.

The generally constructive response to the enunciation of these guiding principles has been encouraging and indicates a high order of cooperation on the part of foreign-owned subsidiaries in Canada.

Yours sincerely,

Robert H. Winters.

MINISTER OF TRADE AND COMMERCE
LE MINISTRE DU COMMERCE
CANADA

OTTAWA 4, August 15, 1966.

Dear Mr. -:

On March 31st I wrote you setting out what the Government considers to be some of the guiding principles of good corporate behaviour in Canada. We have now had these principles engrossed in certificate form and I enclose a copy for your retention.

I appreciated receiving your reply to my letter, together with your various comments on the guiding principles.

The generally constructive response to the enunciation of these guiding principles has been encouraging and indicates a high order of cooperation on the part of foreign-owned subsidiaries in Canada.

Yours sincerely,

Robert H. Winters.

TRADE PUBLICITY BRANCH DEPARTMENT OF TRADE AND COMMERCE OTTAWA CANADA

31/66 FOR IMMEDIATE RELEASE

OTTAWA, March 31, 1966 -- Trade and Commerce Minister Winters today tabled in the House of Commons a copy of a letter which he is sending to foreign company subsidiaries in Canada setting forth some guiding principles of good corporate behaviour.

In tabling the letter, the Minister stated: "Honourable members will recall that, in dealing with questions asked during consideration of Departmental estimates, I indicated my intention to formulate appropriate guidance to help subsidiaries of foreign companies conduct their affairs as good corporate citizens of Canada.

Much attention has been given in recent years to the role of subsidiaries of foreign companies in the Canadian economy and to the difficulties which can arise from the responsibilities of subsidiaries both to their parent companies and to the community in which they operate. Many views have been expressed on this important subject. In recent weeks I have had helpful consultations with chief executive officers of many Canadian subsidiaries of foreign companies located in various countries. I have concluded that a statement of what is expected of subsidiary companies as regards their responsibilities in the

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Canadian community would be welcomed and would be of benefit to all concerned.

Accordingly, I am writing to the heads of subsidiaries of foreign companies in Canada setting forth some guiding principles of good corporate behaviour. In the letter I also indicate my intention to ask the larger subsidiary companies to provide periodically, on a confidential basis, information on certain aspects of their operations and financing. I beg leave to table a copy of this letter and ask permission to have it appended to the record of the day's proceedings.

Honourable members will observe from a reading of the letter that the principles emphasize, above all, the need for subsidiary companies to strive for maximum realization of their potential and for full participation in, and identification with, the life of the Canadian community. While these principles have been formulated with regard to the particular circumstances pertaining to the operations in Canada of foreign-affiliated companies, the underlying objective sought is equally applicable to all Canadian companies.

I trust that this statement of the basic essentials of good corporate citizenship will contribute to a better understanding of the role of subsidiaries of foreign companies in our economy and will encourage and facilitate their full participation in our growth and development in line with Canada's trade, economic and social needs".

A copy of the letter to subsidiary companies is appended.

LETTER FROM THE HONOURABLE ROBERT WINTERS TO THE CHIEF EXECUTIVES OF FOREIGN COMPANY SUBSIDIARIES IN CANADA.

OTTAWA, Ontario,
March 31, 1966.

Dear Mr.

The Government has been giving a good deal of attention to the need for the best possible performance from the Canadian economy and to the contribution in this regard of the many Canadian companies which are subsidiaries of foreign parents or are largely foreign-owned. Such companies have responsibilities both to their parent companies and to the country in which they operate.

I have concluded that a statement of what is expected of subsidiary companies as regards their responsibilities to the Canadian community would be of benefit to all concerned.

To fulfill its responsibilities as a good citizen, a company seeks to perfect its performance through the vigorous pursuit of available market opportunities and the efficient use of its resources and, in so doing, contributes to the sound development of the community in which it operates.

In the pursuit of this end, subsidiaries of foreign companies enjoy the backing of their parent companies through the provision of financial, managerial, technological and research assistance, along with other forms of support which might not otherwise be available. At the same time, the fact of foreign control leaves the subsidiaries open to external influences which may not always be consistent with their own best interests and those of the Canadian community at large. Such a company may lack the decision-making authority to pursue policies in line with the opportunities afforded within the growing national community and otherwise to develop the full potential of the Canadian operation.

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Subsidiaries of foreign companies occupy a prominent position in the Canadian economy. They have contributed greatly to Canada's development in the past and their role in the future is no less challenging. In a more interdependent world, companies with foreign affiliates have an increasingly important role in the international exchange of goods, services, technology and ideas.

The Canadian Government is desirous that subsidiaries be free to develop their full potential within the Canadian community. In this regard it is most important that subsidiaries should not have restrictive limitations placed upon their sound development by their parent organizations.

This objective can be made more difficult if foreign Governments introduce measures which affect the financial or commercial policy of parent companies or seek to influence them in their relations with their foreign subsidiaries.

In the case of the United States balance of payments program, the authorities in that country have made quite clear, as indicated in the communique of the recent meeting of the Joint United States-Canadian Committee on Trade and Economic Affairs, that the "United States Government was not requesting United States corporations to induce their Canadian subsidiaries to act in any ways that differed from their normal business practices as regards the repatriation of earnings, purchasing and sales policies, or their other financial and commercial activities". The United States authorities have, in fact, re-emphasized the view that "United States subsidiaries abroad should behave as good citizens of the country where they are located".

I am confident that this also would be the view of the Governments of other countries whose companies have subsidiaries in Canada.

I believe it timely and useful therefore to set forth, particularly for the benefit of subsidiary companies, some basic principles of good corporate citizenship in Canada. I trust that these principles will be regarded as helpful by your company.

SOME GUIDING PRINCIPLES OF GOOD CORPORATE BEHAVIOUR FOR SUBSIDIARIES IN CANADA OF FOREIGN COMPANIES

Desirable objectives include the following:-

1) Pursuit of sound growth and full realization of the company's productive potential thereby sharing the national objective of full and effective use of the nation's resources.

2) Realization of maximum competitiveness through the most effective use of the company's own resources, recognizing the desirability of progressively achieving appropriate specialization of productive operations within the internationally affiliated group of companies.

3) Maximum development of market opportunities in other countries as well as in Canada.

4) Where applicable, to extend processing of natural resource products to the extent practicable on an economic basis.

5) Pursuit of a pricing policy designed to assure a fair and reasonable return to the company and to Canada for all goods and services sold abroad, including sales to the parent company and other foreign affiliates.

6) In matters of procurement, to search out and develop economic sources of supply in Canada.

7) To develop as an integral part of the Canadian operation wherever practicable, the technological research and design capability necessary to enable the company to pursue appropriate product development programs so as to take full advantage of market opportunities domestically and abroad.

8) Retention of a sufficient share of earnings to give appropriate financial support to the growth requirements of the Canadian operation, having in mind a fair return to shareholders on capital invested.

9) To work toward a Canadian outlook within management, through purposeful training programs, promotion of qualified Canadian personnel and inclusion of a major proportion of Canadian citizens on its Board of Directors.

10) To have the objective of a financial structure which provides opportunity for equity participation in the Canadian enterprise by the Canadian public.

11) Periodically to publish information on the financial position and operations of the company.

12) To give appropriate attention and support to recognized national objectives and established Government programs designed to further Canada's economic development and to encourage and support Canadian institutions directed toward the intellectual, social and cultural advancement of the community.

In setting forth the foregoing principles of good corporate behaviour, I recognize that there is already widespread adherence to such principles among subsidiary companies in Canada both in spirit and in deed. However, to the extent that these principles are not already applied, subsidiary companies are urged to work purposefully and constructively toward their application, as circumstances permit.

I would like also to tell you of my intention to seek the co-operation of large and medium sized subsidiary companies in providing periodically information, on a confidential basis, relating to certain aspects of their operations and financing. In this way the Government will gain a clearer insight into the contribution of Canadian subsidiaries to the Canadian economy.

Questionnaire forms providing a full explanation of the information being sought will be circulated within the next few weeks. I hope that prompt and careful attention will be given this request for information.

Thank you for your co-operation.

Yours sincerely,

Robert H. Winters.

digital INTEROFFICE MEMORANDUM

DATE: May 17, 1967

SUBJECT: Norm Doelling

TO: Ken Olsen
Nick Mazzarese
Stan Olsen
John Jones
Mike Ford
Ted Johnson
Roger Handy
Al Titcomb
Perry Harris
Bob Lassen
Graydon Thayer
Larry Portner
Bob Lane

FROM: Win Hindle

Many of you know Norm Doelling, Vice President of BBN in charge of TELCOMP service and a very good customer of DEC. Norm has decided to leave BBN in early July and would like to be associated with a firm operating in the New England area in the "on-line computer service" business. He discussed the possibility of DEC directly sponsoring this type of activity with PDP-10's, and we responded negatively. If any of you have any contacts or ideas on new companies starting in this field, please get this information to Norm either directly or through Roger Handy or me. If he gets started, he should continue to be an excellent DEC customer.

bwf

May 23, 1967

Corporate Behavior in Canada

Denny Doyle
Canada

CC: Harry S. Mann
Ken Olsen

I am quite familiar with the propaganda that you sent on to Ken and me with your note of May 16. Although I dub it "propaganda," indeed I think that from the point of view of the Canadian government and its citizens, this is a reasonable and worthwhile objective. I, for one, at least, do not have any quarrel with its objectives.

From our point of view, I think we can hold our heads high in meeting the goals in most instances as outlined by the guiding principles that you enclosed. In the first place, we have invested money in Canada to start a business when Digital was still a very small company in the United States. Since that time we have never given a dollar out of the company in the form of dividends or any other type of repayment. In other words, we have plowed back into the business every dollar which we have earned in Canada. On top of that, because of your needs for working capital, etc., to handle the expanding business, the accounts payable from the Canadian subsidiary to the States has naturally increased. From a financial point of view, therefore, I think we have done an outstanding job to help the Canadian economy.

In the way of personnel, I think we have also followed very completely the goals and objectives of the Canadian government. As you know, many companies in the United States fill all of the key positions in their Canadian subsidiary with American citizens. Indeed, we have not done this and you know better than most the approach that has been used in respect to staffing our operation in Canada.

The next point which is raised by the so-called principles of good behavior, involves the degree of autonomy in your operations. I suppose that we could consider this a controversial area as regards our handling this phase of the Canadian operation. I believe we have given you and others in Canada an equal opportunity to participate in any decision-making which had to occur concerning Canadian operations. This does not mean that we have always reached the same conclusion that you or others in Canada would have reached or would have liked us to reach. At the same time, this situation prevails in the United States. Hardly a day goes by that a decision is made which does not conflict with someone's point of view. On average, though, I personally feel there has been no management by dictation but rather by cooperation.

Insofar as the goal of having Canadian investments in our Canadian subsidiary, I feel the situation is not yet large enough to even consider this approach. In the meantime, there is nothing to prevent a Canadian national from buying DEC stock. Indeed, we would welcome it.

In summary, I think we should face any comments about our corporate behavior in Canada with our heads held high and aggressively selling to the rest of the community what a great job we have done in this respect.

ml

Ken Olsen

digital INTEROFFICE MEMORANDUM

DATE: May 16, 1967

SUBJECT: Technical Description - PDP-8I

TO: SEE DISTRIBUTION LIST BELOW FROM: Mike Ford

The following is a compilation of notes based on Ed de Castro's presentation of the design and philosophy of the 8I presented on May 11 at the 8I Design Review Meeting.

CONTENTS

Distribution List:

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Saul Dinman
Jack Shields
Dave Dubay
Jim Davis
Jack Smith
Howie Painter
Ed Harwood
Paul Tremblay
Henry Burkhardt
Larry Seligman
Dick Clayton
Ed de Castro
Dick Mangsen

I. SPECS

The operating and environmental specs of the PDP-8I are to be identical to those of the PDP-8 with the following exceptions:

1. Processor speed should be such that a 1.0 μsec memory may be added at a later date.

2. Processor operation should be asynchronous with memory so that slower memories may be added at a later date.

3. Cost and inconvenience of adding the following options must be reduced.

   a) extra 4K memory and control

   b) all 804 options

4. The I/O buss and data break interfaces should be identical to those of the PDP-8 so that the PDP-8 and PDP-8I are interchangeable in any system. However, maximum flexibility exists so that a positive (I/C compatible) interface can be substituted without wiring modification.

II. CIRCUITS & MODULES

TTL I/C Circuits

TTL multiple emitter transistor circuits (Fig. 1) are used as the elementary gating circuit. Each emitter represents one leg of a NAND circuit, i.e. when all inputs are high (positive 3v) the transistor is cut off and no collector current flows. When one of the

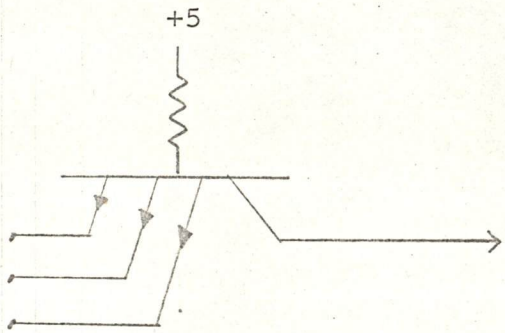


Figure 1

Multiple Emitter Transistor

emitters is a zero (ground) current flows from base through that emitter and saturates the transistor. Unused NAND inputs must be held positive by connection to the +5 through a resistor, since the multiple emitter transistor has a characteristic high leakage current.

The Standard Gate

The standard gate consists of the multiple emitter transistor input, a phase splitting network and a totem pole output circuit (Fig. 2).

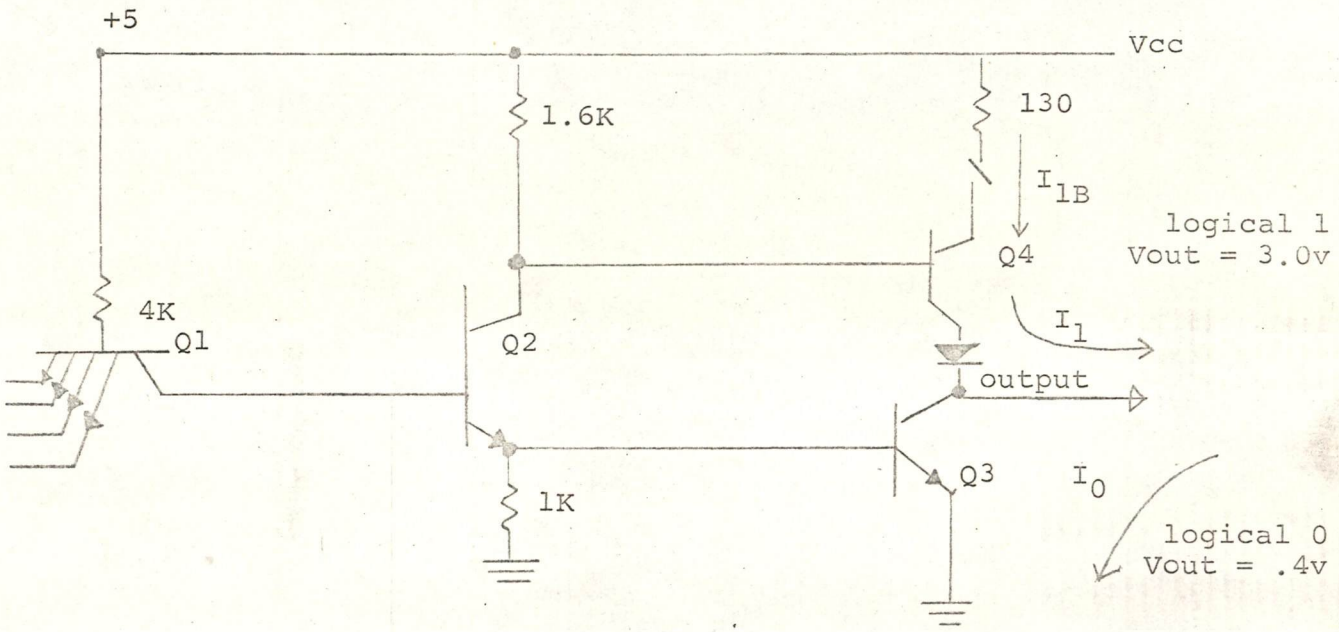


Figure 2

Standard Gate
TI - Series 54/74

When all emitter inputs are high, the base current of Q1 flows through the collector of Q1 into Q2. This drives Q3 into saturation, developing an output voltage of approximately +0.4 volt.

When the emitter voltage drops towards ground, the base current of Q1 flows toward that emitter, turning off Q2 and Q3. As Q3 turns off its

collector, voltage rises and current flows through R1 and Q4, which network acts as an emitter follower. V out is determined by Vcc-$I_{1A}R_1-V_{BE\ (Q4)}-V_{F(diode)}$. and is nominally 2.4-3.0 volts using a 5.0v Vcc supply.

The characteristic of the totem pole output is that it is a driven output at both ground and positive levels and, thus, more current is available for fan-out and to discharge cable capacitance to provide faster switching. The switching of more current naturally generates more noise on the power lines, resulting in a requirement for more high frequency filtering on the DC lines.

The standard gate output can drive 10 units of fan-out.
The standard gate input represents 1 unit of fan-out.
A buffered standard gate can drive 30 units of fan-out.

A disadvantage of this type of gate is the inability to accomplish logical OR by directly connecting outputs to 1 following input.

And/Or Gate

By paralleling inputs to the totem pole portion of the standard gate, one can build up an and/or gate. This connection is very sensitive to capacitance and, thus, the rule was adopted that such an expansion of the basic gate would only be attempted within a module where lead lengths can be absolutely controlled.

Standard Flip-Flop

The standard flip-flop (Fig. 4) is illustrated schematically below. The direct set or clear is a d.c. conditioning level, such that when direct set or direct clear is at ground, the flip-flop can not be cleared (if direct set=ground) or set (if direct clear=ground).

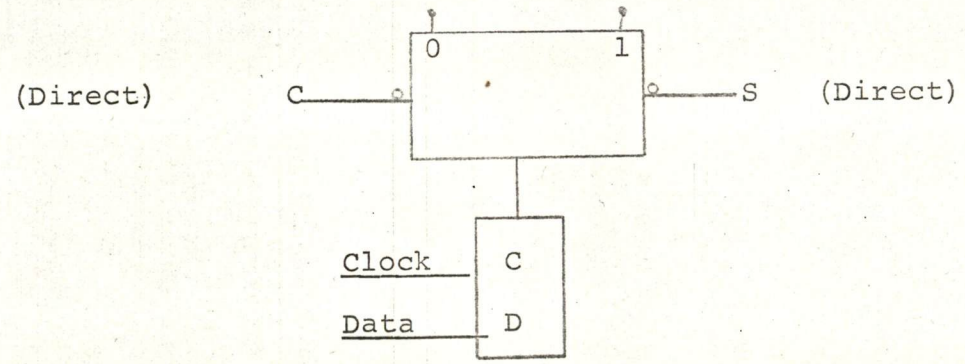


Figure 3

Standard Flip-Flop

TI - Series 54/74 Type D

The transfer gate is such that the polarity present at the "data" terminal is transferred to the 1 terminal at a positive going transition at the "clock" terminal.

Discrete Circuits for the PDP-8I

Pulse Amplifier - The pulse amplifier circuit is incorporated with the Delay Line module as shown below in Fig. 4. The pulse amplifier produces a standard positive pulse (Fig. 4).

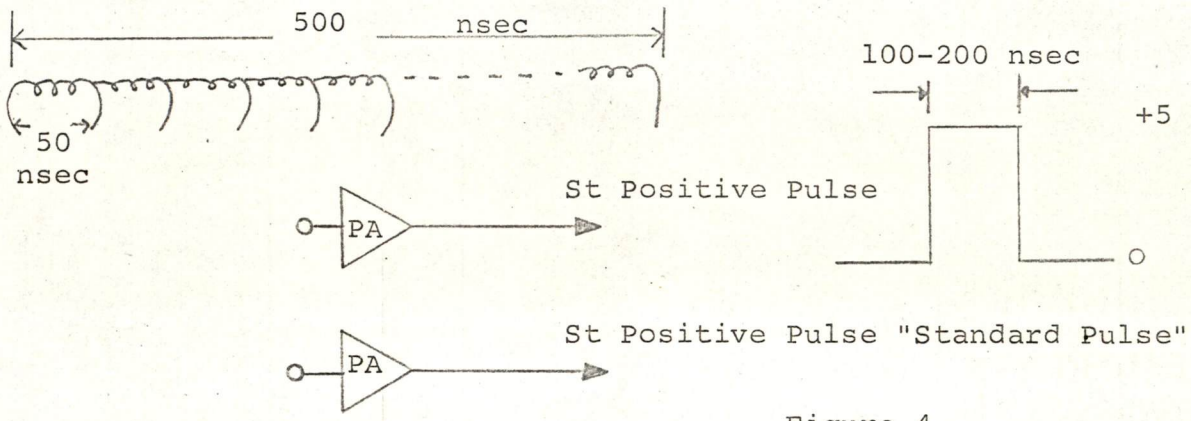


Figure 4
Tapped Delay Line Module

The Tapped Delay Line (Fig. 4) is 500 nsec long, tapped at 50 nsec intervals. The delay line accepts positive pulses or positive level changes and drives 30 fan-out units through the associated PA.

Variable Delay - The variable delay is similar to the B603 circuit modified to accept positive pulses or positive level changes and outputs a standard positive pulse. The variable delay is capable of driving 30 units of fan-out.

Major Register - The major register module is a two-bit slice of tne AC, PC, MB, and MA with all associated input and output gating and adders. This is a double sided board. (See discussion of logical organization-major registers.) The adder is similar to that used in the PDP-9 serial carry and has the specification of 6 nsec/bit.

Teletype-Receive, Transmit Module - This is a special module being designed not only for the PDP-8I, but as a general serial to parallel converter module using TTL I/C circuits.

Switch Filter Network - Module for handling the inputs from the keys.

Input-Output Level Converter - Modules for conversion between I/C positive signal levels and Gnd/-3 negative DEC signal levels for the I/O buss and data break interfaces.

Option Control Modules - The options normally controlled by the current 804 logic for the PDP-8 will be controlled by an I/C version of the 804 that is to be wired into the main frame of the PDP-8I. The individual controls are all accomplished via separate modules as listed below.

PC02	Paper Tape Reader Control	1 double sized module
PC01,3	Paper Tape Punch Control	1 double sized module 5 positive signal input solenoid driver modules
Calcomp Plotter		1 double module
34D Display		1 double module 2 10-bit D/A modules
CR01C		1 double sized module

PDP-8I Module Requirement

(includes CP, EAE, 8K, Parity and 680)

Totals

7	G020/21	Sense Amplifier
16	G221	Memory Selector
9	G228	Inhibit Driver
7	G624	Power Resistor
1	G805	Regulator Power Transistor
1	G826	Regulator Control
34	L113	10 2 Input Gates
15	L115	8 3 Input Gates
7	L117	6 4 Input Gates
8	L160	And-Or Invert Gate
4	L162	Parity Decoder
14	L310	Tapped Delay Line
2	L360	Variable Delay Line
8	L506	Input Level Converter (-3v ⟶ +3v)
11	L617	6 4 Input Buffers
14	L650	Output Level Converter (+3v ⟶ -3v)
1	L700	Manual Function Timing Generator
1	M452	Teletype Clock
1	M706	Teletype Receiver
1	M707	Teletype Transmitter
162	Total	

Power Supply

The power supply will have the following specs:

+5 volts	10 amps	regulated
-15 volts	5 amps	
+15 volts	5 amps	unfiltered for indicators
-30 volts	6 amps	filtered to be sent to memory voltage regulator

In addition, for the PC01, PC03 tape punch, the solenoid drive current must be supplied from an external 30 volt supply.

III. MEMORY SYSTEM

Stack

The memory stack used in the PDP-8I is the same stack that is now phasing into Production for the PDP-8.

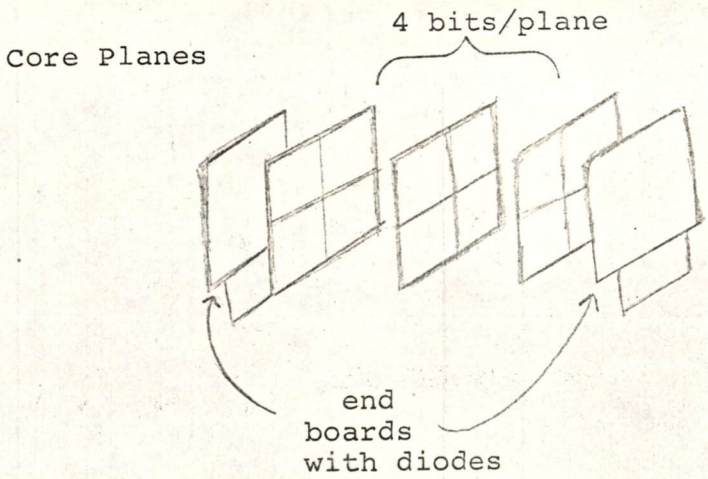


Figure 5

Memory Stack Packaging

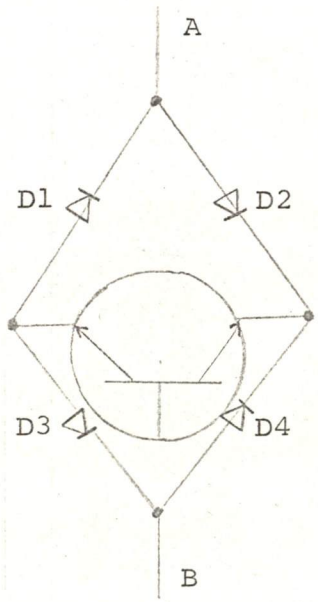
The stack plugs into the wired panel like a module. The stack assembly consists of three memory planes (4 bits per plane) sandwiched between two end boards containing the selection diodes. The memory speed is 1.5 μsec per complete cycle. By utilizing bi-polar R/W selection switches and sharing R/W drivers and sense amplifiers, one can plug 8K of core into the main frame.

Memory Circuits

Sense Amplifier - The sense amplifier module utilizes a differential amplifier and slicer integrated circuit from Motorola in conjunction with an integrated circuit flip-flop. The data read from memory is stored in the sense amplifier until the next memory request.

Memory Description

The PDP-8I memory is a 1.5μsec coincident current system using 30 mil. cores. The access time is 350 nsec and full select current is approximately 630 ma. The core array is built on three planes, each of which contains 4 x 4096 cores. Thus, all of the cores for 4 bits of the word are on a single plane. The array is sandwiched between, and connected to, two flip chip printed circuit boards which contain 256 diodes each. These diodes constitute the memory selection matrix for both the x and y axes. A four diode per line scheme is used, thus, fully isolating the drivers from unselected line capacitance. The stack consists of 64 x selection lines, 64 y selection lines, 12 inhibit lines, and 12 sense lines. Both the x and y selection lines are driven as 8 x 8 matrices, thus, requiring 16 switches per axis. The basic switch is a bipolar diode quad. See Figure 1.



This circuit allows current to flow in both directions and, yet, requires only one transistor. Referring to Fig. 1, it can be seen that positive current can flow from A to B by passing through D2, the transistor and D3. Current can also flow from B to A by passing through D4, the transistor and D1. The diodes labeled D1 and D2 are, in fact, part of the selection matrix. D3 and D4 are included with the switch circuit.

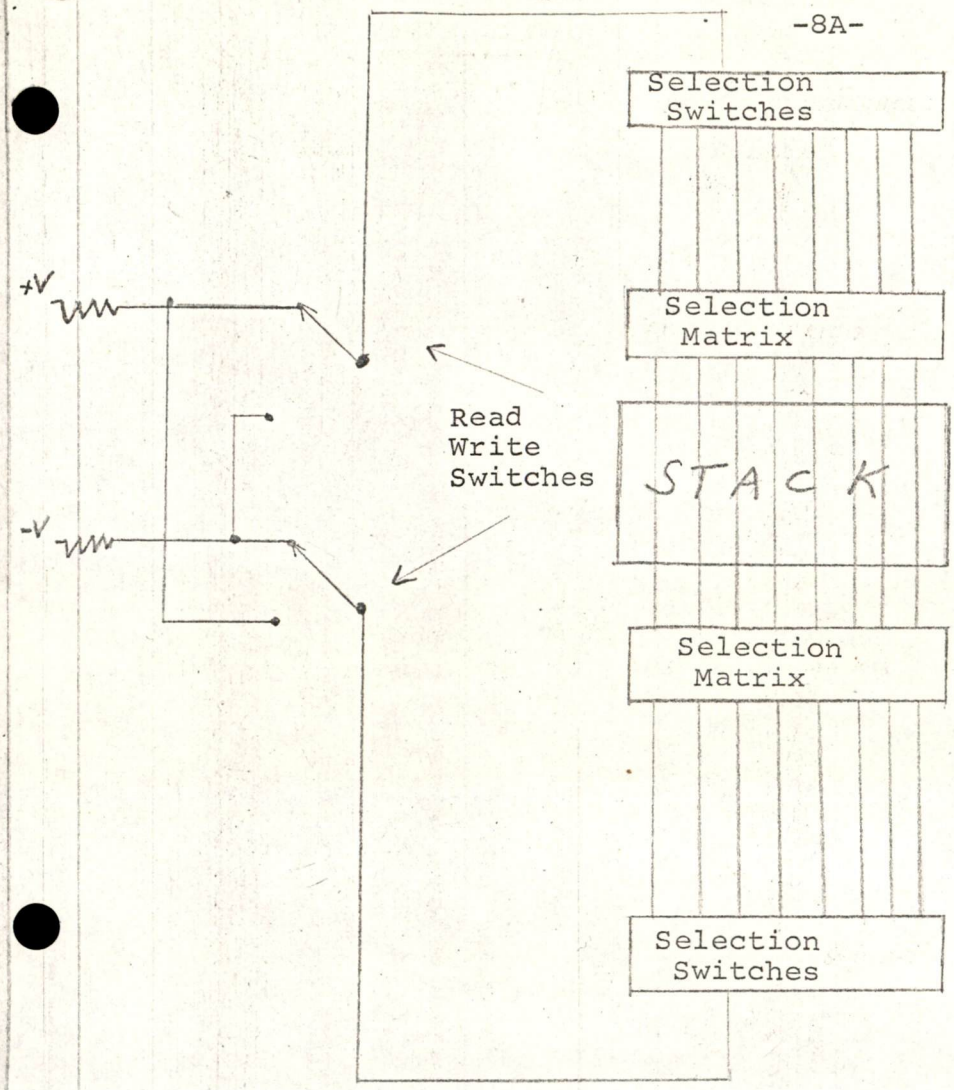


Figure 2

Fig. 2 is a simplified block diagram of the drive system for a part of one axis. The selection switches are diode quad switches as described above. A single selection switch is closed at each end of the stack, thus establishing a bipolar current path through one stack line. The direction of current is then determined by the setting of the read-write switch which is, in turn, controlled by the read and write flip flop in the memory control. The read-write switch is a unipolar transformer coupled transistor switch. This same circuit is also used as the inhibit driver. In this case, the balun is jumpered into the circuit.

The sense amplifier is completely new, and consists of an integrated circuit which performs differential amplification, slicing and strobing. The output of this circuit feeds a flip flop constructed from integrated circuit gates. The output of the sense amplifier is stored in this flip flop until the next memory cycle is requested by the processor.

IV. LOGICAL ORGANIZATION

Register Gating

The PDP-8 utilizes the DCD gate extensively in transferring information to and from major registers. In the PDP-8, each major register has a set of input gates for each transfer from any other register. For the PDP-8, this organization was convenient and inexpensive because the DCD gate was so cheap and convenient to use. There is no such gate in I/C and consequently, for the PDP-8I, a buss system similar to that used in the PDP-9 was adopted.

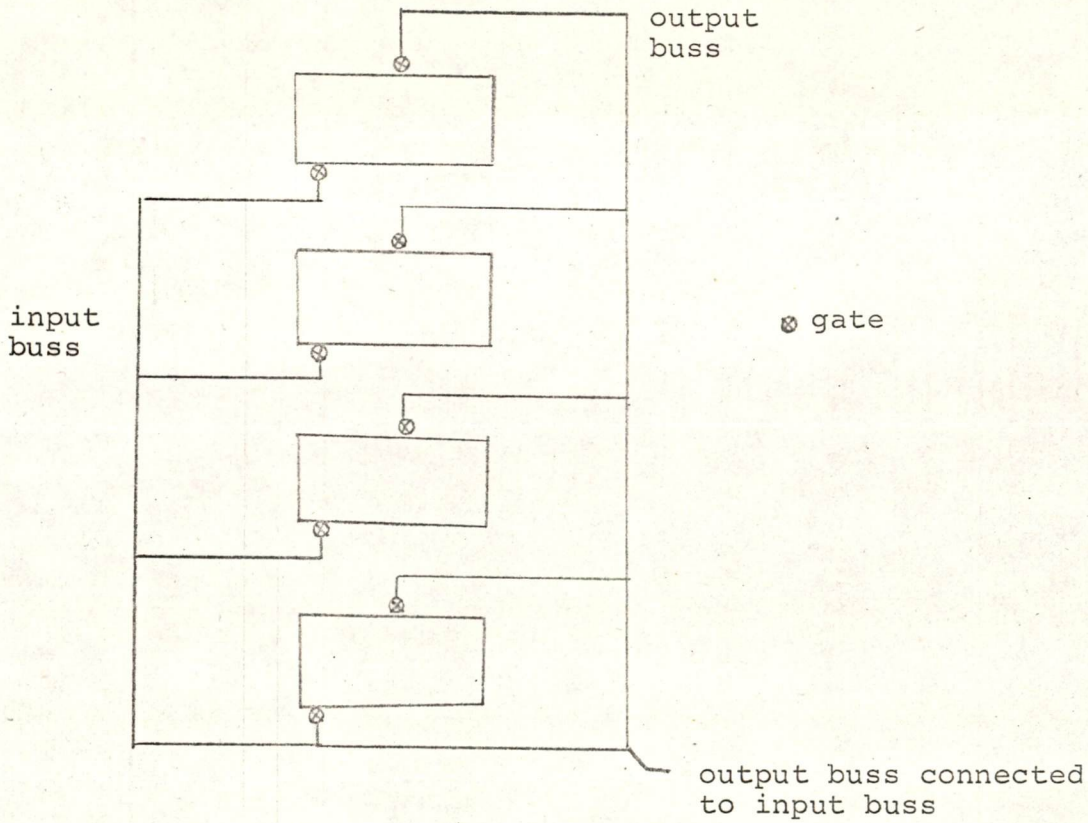


Figure 6

Schematic Buss System

In the buss system illustrated in Fig. 6, each register requires only one output gate (to the output buss) and one input gate (from the input buss). This buss system realizes considerable savings in gates over the system utilized in the PDP-8.

A further economy in circuits can be achieved by realizing that in many cases, one needs to modify the contents of a register before transferring it to another register. Thus, the system of Fig. 6 can be modified by breaking the output buss into two busses and connecting each output buss to the input buss through an adder (Fig. 7).

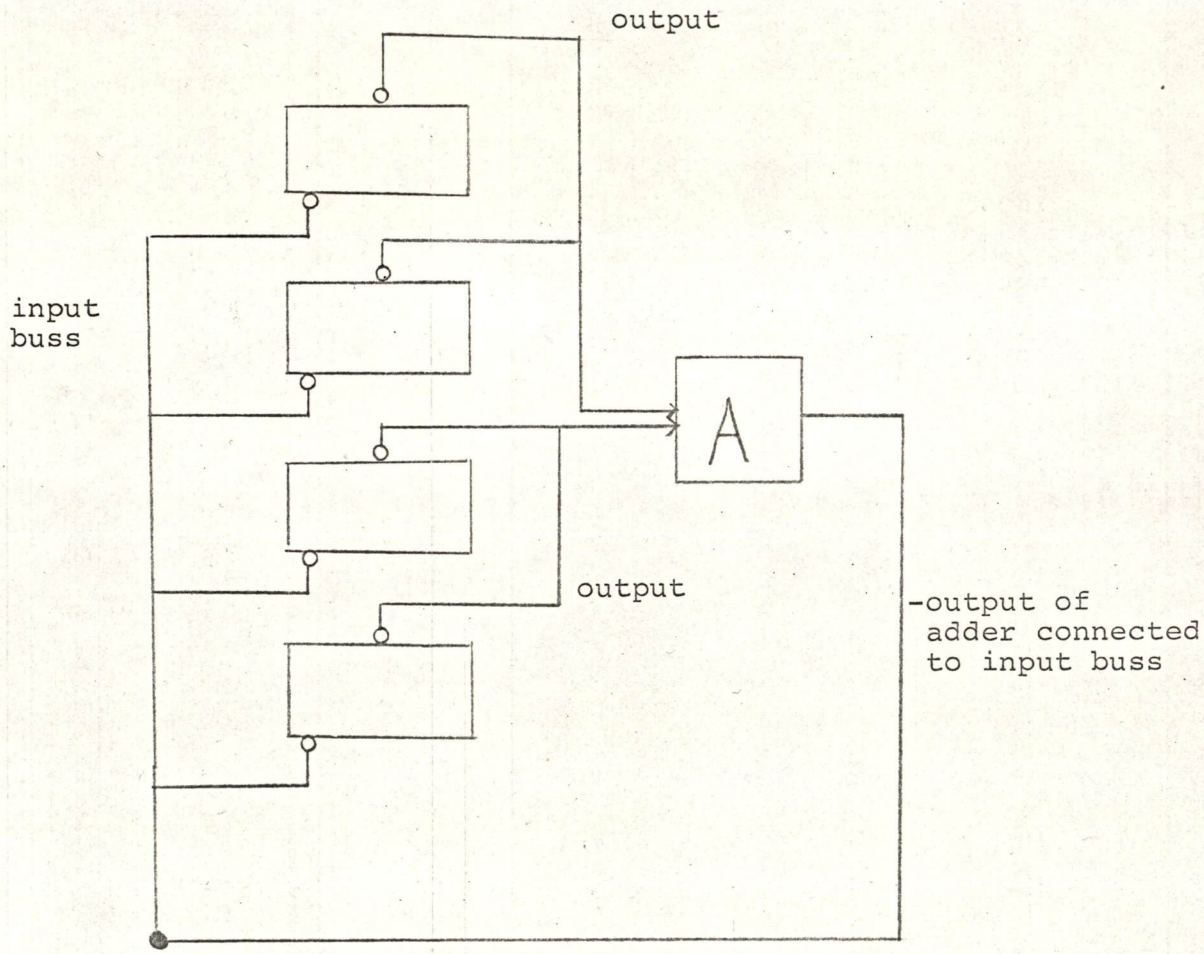


Figure 7

Buss System using an Adder

Utilization of the adder-buss system eliminates the special counters and modification circuits now used in the PDP-8 and, thus, permits further design economies.

A disadvantage of the buss system over the direct gate system in the PDP-8 is that one cannot simultaneously transfer from register to register. Only one register output can be on the buss at one time.

The processor of the PDP-8I is built up around the adder-buss system illustrated in Fig. 7. The implementation of this buss system is achieved via the Major Register Module, which is illustrated for one bit in Fig. 8. The Major Register Module contains all of the circuitry illustrated by Fig. 8 for <u>two bits</u> on one double sized module.

Using Fig. 8, consider the example of a transfer from PC ⟶ MA.

1. Enable PC ⟶ 1 No Shift ⟶ 1	This puts PC output on buss, no other inputs to adder are enabled, thus, contents of PC appear at output of adder for all bits. Since no shift = 1, the contents of PC pass through the shift gates onto the input buss and are present at data terminals of all of the register flip-flops.
2. MA Clock Pulse	The positive transition at the clock input of all MA flip-flops jam transfers the contents of the input buss into the MA.

As another illustration, consider the operation PC+1 ⟶ MA.

1. Enable PC ⟶1 No Shift ⟶1 Initiate Carry	This achieves the same result as the first example, except the Initiate Carry causes 1 to be added to the input of the adder. Thus, PC+1 exists on the input buss through the No Shift gate.
2. MA Clock Pulse	Jam transfers the input buss (PC+1) into the MA.

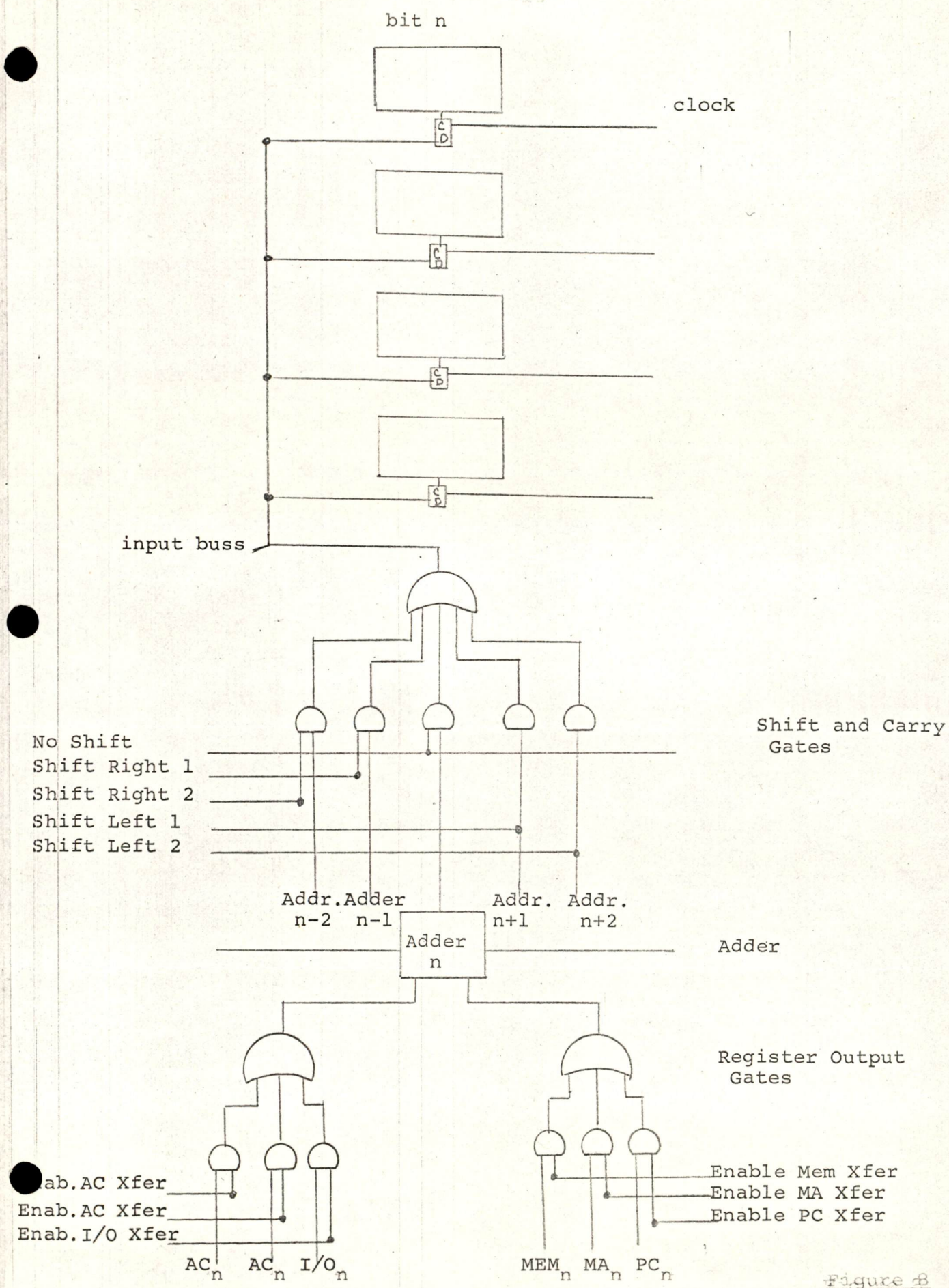


Figure 8

Major Register Module (1 bit only) (not all inputs shown)

The operation of the EAE is made considerably more convenient through this gating scheme. In the process of multiplication, the contents of memory must be added to the AC and shifted right one bit. In the PDP-8, this represents three steps/bit. In the PDP-8I, the same operation is accomplished in a single step as follows (refer to Fig. 8).

1.	Memory Enable ⟶ 1 AC Enable ⟶ 1 Shift Right ⟶ 1	This puts contents of Memory and contents of AC at the inputs to the adders. The sum at the output of adder n is gated to the input buss for bit n+1 through the Shift Right gates. Thus, the input buss contains Mem + AC shifted right 1 bit.
2.	AC Clock Pulse	Jam transfers the contents of the input buss into the AC.

Timing

The 1.5 μsec cycle of the 8I is divided into four time states: TS1, TS2, TS3, and TS4. At the end of each time state, there is a standard positive pulse named TP1, TP2, TP3, and TP4.

The time state is used to set up the condition levels on the buss (step 1 in all of the above examples) and the associated time pulse is used to produce the jam transfer (step 2 in the above examples) as well as end the current time state and begin the next.

Each time state is generated by one of four flip-flops arranged as a ring counter. Furthermore, the timing is arranged as shown below so that memory operates asynchronously with the processor.

The integration of the processor timing with the memory is illustrated by Fig. 9.

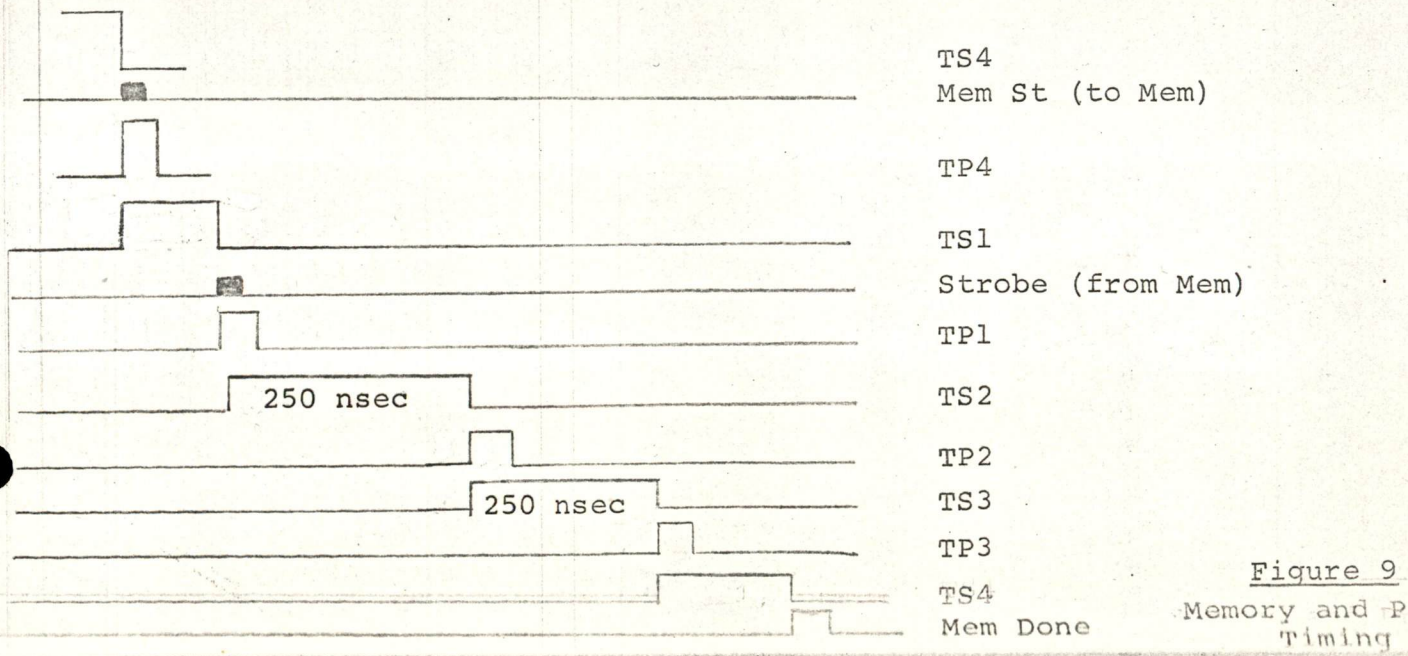


Figure 9
Memory and Process Timing

Memory Start - (TP4) starts the memory timing chain. The address of the memory reference is loaded into the MA at this time. The delay required to settle the address selection decoders is set as part of the memory timing chain and is independent of processor timing. The processor enters TS1 at TP4 and waits in TS1 until the memory timing chain issues a strobe pulse, at which time the data read from core is stored in the sense amps.

Strobe - becomes TP1 in the processor, ending TS1, and beginning TS2. Within the processor Mem Enable is usually turned on by TS2 allowing TP2 to clock the data stored in the sense amps into the MBR. TP2 occurs 250 nsec after strobe or TP1 and turns off TS2, turning on TS3.

TS3 is also timed by the processor at 250 nsec and is the execution time of most cycles. At the end of TS3 comes TP3, which turns on TS4. TS4 remains on until Memory Done is issued by the memory timing chain, signifying the completion of the memory cycle. Normally, Memory Done is used by the processor to start the next cycle by turning it into TP4 and Memory Start.

By this means, the processor timing is independent of the memory and the processor will always wait for the memory. The maximum speed of the Major Register buss is 250 nsec per Time State and, thus, the maximum memory speed allowable is 1.0 nsec per complete cycle.

Control

The control portion of the machine is divided into two sections: the Shift and Carry Gate Control and the Register Output Gate Control. These two control portions of the machine provide the shift and carry enabling levels, the Register Output enabling levels (see Fig. 8), and the Register Input clock pulses according to the combination of the instruction being executed, the type of cycle, and the time state.

digital INTEROFFICE MEMORANDUM

DATE: May 16, 1967

SUBJECT: MECHANICALLY LOCKING PORTIONS OF A TIME SHARED MEMORY

TO: Ken Olsen FROM: Larry Portner

Unfortunately, I am not sure precisely what he means. Can programs execute from this memory? Is it write protected only? With the exception of the Monitor itself, storage is allocated dynamically and mechanical protection would be unwieldy or impossible. The Monitor itself is already protected from users by the relocation hardware.

It is conceivable that some potential applications might require say, some "secret" process to be always resident in core memory and could use this mechanism, but aside from technical curiosity, I don't think we are interested.

Larry

/lr

MAY 16 1967

digital INTEROFFICE MEMORANDUM

DATE: May 15, 1967

SUBJECT: PAPER TAPE READER

TO: Ed de Castro

FROM: Ken Olsen

cc: Jack Smith
Jack Shields

I have heard a number of comments which seem to indicate that there are problems with the paper tape reader. Will you list for me the problems you know about in its design, and let me know if you think we should re-design it or if we should have a less expensive model that runs at a slower speed.

No one has given me a clear indication to the problems, but the subject seems to come up often. I would, therefore, like to have a list of just what they are because this product is getting to be more and more important to us.

Ken

ecc

Jack - I would still like to hear your comments on the PC01 also.

KHO

Ken,

Initially we had a problem with workmanship. Once this was taken care of, the general consensus of people on the Checkout Floor is "a very reliable reader". There is an SCR problem that DeCastro is aware of.

Jack

digital INTEROFFICE MEMORANDUM

DATE: May 15, 1967

SUBJECT: Seminar on "Technological Forecasting for Industry"

TO: Ken Olsen FROM: Bob Collings

The Seminar, "Technological Forecasting for Industry" appears to focus on an interest of major importance of long-range efforts. As the attached Seminar description points out, "technological forecasting as a discipline is in its infancy." This would suggest that there is a significant risk that the Conference will not be very useful.

On the other hand, a discussion with Professor Bright (Chairman of the Conference), leads me to believe that the potential value of such techniques are so substantial that, for our situation, the cost warrants the risk. I would, therefore, recommend that DEC be represented at the Seminar which will be held from May 22 - 25.

If you would like me to attend, the following cost would be incurred:

660 miles (round trip) @ $.09	$59.40
3 days lodging @ $22 a day, plus 15% service charge	76.00
Registration fee (vs. normal fee of $375)	25.00
4 days salary @ $65	260.00
	420.40

Bob

jb

INTEROFFICE MEMORANDUM

DATE May 12, 1967

SUBJECT SECURITY OF ENGINEERING DOCUMENTS

TO Win Hindle

FROM Roger Melanson

cc: K. Olsen
S. Olsen
P. Kaufmann
N. Mazzarese
H. Mann
L. Prentice

This information is being sent to assist you and other interested parties, and briefly outlines a program which could provide better protection of unreleased engineering drawing records in the earlier stages of product development.

I. The average number of drawings we presently have in different stages of drafting is 1700. All but 200 have never been micorfilmed. These drawings are representative of such products as the TU79, PMA8, PDP-10, PDP-8I, etc... Some are being checked for the first time; some are awaiting sign-off by the engineer; others belong to engineering changes; but most are new drawings and engineer's sketches of work to be started.

We don't think this amount varies more than several hundred in any one month, and represents the drafting activity continually going on.

II. If all product lines wish to fill the protection gap, microfilm would be the more economical and practical way to go. Because, if we use the blueprint method discussed with Frank Nardo for the PDP-10, approximately 1500 drawings, most of them 22 x 34 size, would need to be reproduced. This would be bulky to handle and would substantially increase the costs, even if done once a month.

Yearly Cost Based On 1500 Prints Per Month

Storage area needed - 72 cu.ft. @$3.50/cu.ft.	$ 252.00
Handling cost - Ultra Security Vault @$10.00/shipment	120.00
Shipping charges @$6.00/150 lbs.	72.00
Material cost @$60.00/month	720.00

Labor cost to make prints @$20.00/month	$ 240.00
Sort tracings & return to respective work areas @$40.00/month	480.00
Destruction of previous year records (incinerator)	200.00
TOTAL FOR YEAR	$2084.00

III. We tossed the problem around a bit and came up with five different approaches.

1. Film all new and changed drawings (except E.C.O.'s) once a week, preferably on Saturday or Friday evening.

2. Film all new and changed drawings (except E.C.O.'s) daily.

3. Assign a specific day of the month for each job and rotate accordingly.

4. Microfilm drawings prior to being checked.

5. Film drawings once a month.

Of the five, we suggest the first approach. We feel it lends to less confusion during the day, it does not tie up equipment and manpower for three or four consecutive days and it does not interfere with our routine microfilm work, besides providing maximum protection. The film would be left in roll form rather than mounted on aperature cards. If, however, our services are used to capture other company records, an entirely different program would have to be worked out.

Yearly Cost Based On A Weekly Program

Storage area - 1 bin @$13.00/year	$ 13.00
Shipping charges (absorbed with regular shipments)	----
Material cost (film and developer)	200.00
Labor cost @16.00/week	800.00
Destruction of previous year records	15.00
TOTAL FOR YEAR	$1028.00

IV. As mentioned before, we film 80 to 100 officially released drawings each day. One set of aperature cards are retained in the active file while one set is shipped to Graphic Microfilm in Waltham. In turn, the film is trucked to Ultra Security, Inc. in Hull, Massachusetts. The storage space we presently occupy has cost DEC $350.00 each year for the past two years.

If you have further questions regarding cost and ways of retaining protection of engineering drawings, please let me know.

RM:ljh

digital MEMO

DATE May 12, 1967

TO Ken Olsen FROM Roland Boisvert

I have TU 55 Plate & guides assembled. So-Syn and head will be in within 10 days. I will get the transport ready for the Summer Student.

Roland

RB/crh

I have called Gordon about the specs and he is very happy with them.

INTEROFFICE MEMORANDUM

DATE May 12, 1967

SUBJECT SUMMER PROJECT DECTAPE II/S

TO Ken Olsen
Gordan Bell
Nick Mazzarese
Win Hindle
Robert Savell
Stan Olsen
Joseph St. Amour

FROM Roland Boisvert

Goal: To have a fully operational Dectape II/S with operating programs by mid September.

Dectape II/S is a serial digital recorder utilizing the present Dectape (TU55) mechanical packaging. The unique feature of this design is the use of teletype input/output on a computer for control purposes and data transfer.

This design essentially becomes a high speed teletype without hard copy.

The project schedule is shown on the attached sheet. The questions left unanswered at the end of summer will be:

1. How many tracks and whether head is moveable.
2. Engineering design work left to be done will be:
    a. Matrix design for selection of tracks.
    b. Head positioning (if applicable).
    c. Redesign considered necessary.

PERTINENT SPECIFICATIONS (PRELIMINARY)

Speed	10 ips bidirectional
Density	200 BPI
Reels	Dectape
Tape	3/4 inch 491 sandwich
Write	Forward only
Read Data	Forward only

Read Spacing	Bidirectional	
Format	Label track with block ident number	
Block Length	Fixed	
Head	7 Channels	
	1 Label track	
	6 Data tracks	
Total Storage	40 ft reel	576,000 bits
	240 ft reel	3,456,000 bits
	40 ft reel	48 sec
	249 ft reel	288 sec

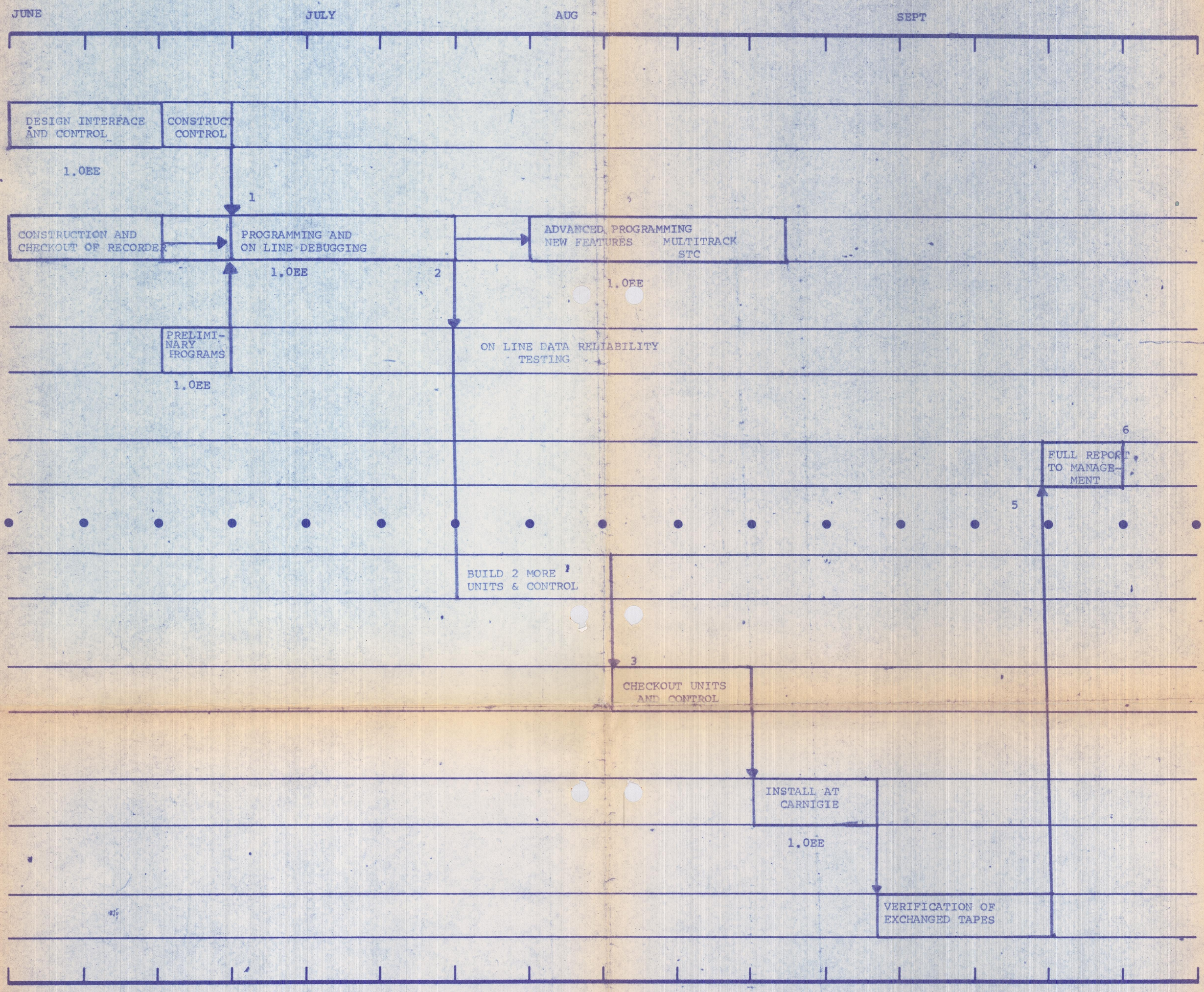
Electro Mechanical Details

The drive mechanism will be an AC synchronous motor coupled to the right hand reel driving the tape in either direction. Drag will be applied to tape in forward direction by an AC torque coupled directly to the left hand reel. The AC torque will provide take up for the synchronous motor when tape is moving in the reverse direction.

Drive control of the motors will be performed with DEC K-series modules.

Standard DEC circuits will be used with modifications as necessary.

RB/crh



DECTAPE II/S

Project

By R. BOISVERT

D. BURTON

Revision Date

Check Point Table

1	6/27/67	ON LINE									
2	7/13/67	DATA RELIABILITY									
3	8/1/67	BUILD MORE									
4	8/21/67	INSTALL CARNIGIE									
5	9/11/67	TAPES VERTIFIED									
6	9/18/67	REPORT ON PROJECT									

RB 6/27/66

Ken Olsen

digital INTEROFFICE MEMORANDUM

DATE: May 12, 1967

SUBJECT: Information Files

TO: Executive Committee Members FROM: Bob Collings

As part of our effort to improve our long-range planning, I am attempting to develop two major files of information. The first file, let us call Opportunities (until someone suggests a better name). Opportunities are represented in production potential and market potential (either as groups or individual customers). You will find attached two "blurbs" which would represent an example of market and customer opportunities.

The second major file of information will be Competition (or threats). An attempt will be made to keep completely up-to-date on the activities of our competitors, and information contributing to this awareness will include competitor annual reports, company write-ups, etc. You have already received the write-up on Control Data Corporation which would be an example of this type of information.

As this information is obtained, a copy will be sent to each Executive Committee Member. Without being completely familiar with everyone's interests, it is not possible to forward to you just that information which you would like to receive, so please accept an advance apology for some "chaff among the wheat." To improve this input, suggestions are solicited as to which areas you would like covered as well as the areas that are covered that you are not interested in.

To further enrich this information scanning effort, I would like to request that as you encounter information of long-range consequences (of the type mentioned above), it be forwarded to me. As our communication system develops, it may warrant a summary note which would include all developments of the past week.

Bob

jeb

Better air service for many middle-size cities is on the way. Regional airlines will get gov't approval to supply more nonstop service to the bigger cities. Means a boost in earnings for many of these lines. Also more congestion in the larger airports, which already are crowded.

Airport congestion will get attention from Congress this year. It probably will vote more federal aid to expand the ground facilities, but sad fact is that money can't be spent fast enough to do much good for at least a couple of years. In meantime, the crowding will worsen.

Reminder on motor vacations: Most major oil companies provide free marked-trip maps, sightseeing and motel information, and so on... your gas station can tell you how to contact company's travel people.

For an excellent peek at future plans for recreational driving as put together for the President's natural beauty council, get a copy of "Scenic Roads" from Sup't of Documents, Wash., D.C. 20402...$2.75.

New Atlantic-Pacific canal is a long way off. The commission studying sites needs more money and another 3 years to make its report.

Site is likely to be Panama rather than Nicaragua or Colombia. Chances are it will be built with atom power, run by an int'l consortium.

Shopping centers are surging again...in the suburbs and downtown.

New ones reflect the "fun boom"...combine shopping with pleasure. The main lure, movie theaters. But also billiards, bowling, indoor golf.

Adds up to more competition for businesses not fortunate enough to be located in shopping centers that cater to shop-&-play customers.

"Teaching machine" business is all shook up, for the second time. Overoptimism about programmed learning again has led to a sudden letdown.

Big problem: Computer men, educators can't seem to get together. The equipment exists, but there's disagreement on how to teach with it.

Now...a pause and a fresh look at ways to use computers in class. The bright future, and investment returns, won't bloom until the 1970's.

Colleges with room for students, even "C" students: About 600 of them around. We have a list that tells you which will take transfers or new freshmen this fall...also the kind of student that each prefers. Send 75¢ to Changing Times Reprint Service, ask for a copy of "Colleges."

On school desegregation, gov't guidelines will stick. In fact, they'll toughen, despite pressure in Congress. The federal courts back the govt's right to set percentages of Negroes and whites in a school, even check on athletic scholarships. Balky schools may lose gov't aid.

U.S. technical lead over Europe is continuing to increase... especially in lines that rely on computers or very advanced research. A major reason is all the gov't-paid research, making our bigs bigger.

And the "brain drain"...flow of trained men to U.S. from Europe for more pay, better facilities...has the Europeans angry and scared.

Result: More European firms will have to team with Americans, cut our companies in on their markets. U.S. firms may get tax breaks from some nations, too, as a lure to do more of their research there. It will add up to extra profits for many U.S. lines...and shareholders.

The "technology gap" also will help Britain's Common Market bid. Many Europeans think a bigger group of countries is the only way to match the U.S. technological weight, so they'll push harder to get Britain in.

THE FOXBORO COMPANY

Symbol:	Fox
Price 4/20/67:	61
1966-67 Range:	61-33
Earnings Per Share	
1965: $2.13 1966: $2.59	1967E.: $2.90
Price X Est. 1967 Earns.:	21.0
Indicated Dividend:	$1.00
Yield:	1.6%

With labor costs continuing to rise, industry is beginning to rely more and more on automatic and semiautomatic controls as a means of conserving both time and labor. Automated process control employs computers to supervise manufacturing, chemical and power generating plants, with instruments to accurately record data such as temperature, pressure, flow of liquids, electrical currents and other pertinent items. Foxboro is the largest of the process control instrument companies and produces more than 1,000 different kinds of instruments used for those applications.

The company's long history of profitability, which began almost 60 years ago, has been continuing at a growing rate. In 1966 it recorded its highest earnings $2.59 per share) while achieving its eighth consecutive year of record sales ($111.3 million). Management has predicted a sales increase in 1967 approximating the gain in 1966 over 1965. On this basis, we are estimating earnings per share of $2.90 for the year ending December 31, 1967. Foxboro should show a continuing rate of growth of between 10 and 15% in the years ahead and, in our opinion, represents an attractive long-term investment commitment.

Capitalization

December 31, 1966

Long Term Debt	$28,750,000-a
Common Stock ($1 par value)	3,912,709 shares-b

a — Includes $15,000,000 of 5⅛% sub. debs., due Oct. 1, 1986, convertible into common at $44.75 a share.

b — Approximately 37% held by the Bristol Family.

The Company — Foxboro has been a leader in supplying the most modern controls to the chemical, petrochemical, pulp and paper, oil refining, gasoline and oil and gas production industries. Sales are also being recorded in the textile, food, power, cement and the minerals and metal production processing industries.

The company manufactures over 1000 different kinds of instruments used primarily for indicating, recording, and controlling temperature, pressure, rate of flow, liquid level, conductivity, density, viscosity, humidity, acidity, and alkalinity in a production process.

Recently sales have ranged from hybrid control systems using multiple digital computers and a variety of supporting analog instrumentation; to analog control systems using electronic or pneumatic instruments; to rush-orders of single instruments to keep customer's plants in operation.

Mechanical and pneumatic instruments, control valves, and valve accessories account for slightly over half of total sales; electronic instruments, which include digital systems, about one-quarter; instrument accessories and supplies about 15%; and panels, cabinets, engineering and programming services, repairs, etc., the remainder of sales.

In addition to its main plant and headquarters in Foxboro, Massachusetts, the company has subsidiaries in Canada, England, The Netherlands, Mexico, Italy and Australia and a licensee in Japan. Foreign business makes up about 40% of sales, with the English, Dutch and Canadian subsidiaries accounting for the largest part.

Research, Development and New Products — In 1966 approximately one-third of company sales were in products developed during the last five years. A well equipped and adequately staffed Research & Development department of over 360 persons maintains constant use of the most modern technologies to develop improved controls for industrial processes. Expenditures for research and development in 1966 totalled almost $5.5 million. Research and Development programs cover a broad spectrum of studies in electronics, pneumatics, including fluidics, analyzers, systems, material sciences, physical measurements and flow.

The introduction of the redesigned electronic Consotrol line of solid-state controllers, recorders, indicators and auxiliary stations was the company's major product breakthrough in 1966.

Some other products introduced in 1966 were a highly-sensitive in-line pneumatic consistency transmitter for the pulp and paper industry; an electronic and pneumatic buoyancy transmitter used to measure liquid level, interface between two liquids, or density; a digital system for blending gasoline and chemical components directly from processing units; a new digital totalizer-batch controller which will monitor the exact volume or weight of a product until a predetermined shut-off quantity is reached.

The company has continued to build its digital systems business upon a sound foundation. Foxboro digital computer systems have been purchased by the chemical, petroleum, textile, metals, power, cement and food processing industries.

On February 9, 1967 the company announced a program to measure and control all forms of environmental pollution. Responsibility for this new program has been assigned to the company's Environmental Resources Division.

SALES AND EARNINGS

Years Ended December 31	Millions Sales	Millions Net Income	Net Income as % of Sales	Per Share* Earnings	Per Share* Dividends	Price Range*	Price X Earns. Range*
1959	$41.15	$2.85	7.0%	$0.83	$0.33	25-16	30-19
1960	59.55	4.25	7.8	1.17	0.36	34-24	29-21
1961	61.59	4.22	6.8	1.15	0.47	58-33	50-29
1962	64.66	3.34	5.2	0.91	0.47	46-37	51-41
1963	70.77	4.18	5.9	1.14	0.47	58-38	51-33
1964	79.15	6.31	8.0	1.72	0.48	55-29	32-17
1965	95.84	8.34	8.7	2.13	0.70	43-27	20-13
1966	111.26	10.12	9.1	2.59	0.85	59-33	23-13

*—On stock outstanding at end of period, adjusted for stock splits, as follows: 3 for 2 in 1965 and 100% stock dividend in 1960.

Finances — The company has maintained a strong financial position. At the end of 1966 net working capital was $66 million, up 38% from the previous year's $47.7 million. Current assets totalled $82.7 million and current liabilities $16.7 million for a current ratio of roughly 5.0 to 1.

In 1965 the company realized $9.45 million from the sale of 250,000 shares of its common stock. In late 1966, $15 million of 20-year 5⅛% convertible subordinate debentures were sold at par. Conversion of debentures (most unlikely for some time to come) would dilute equity only about 8%.

Conclusion — Foxboro, a leader in the field of process control instrumentation, should continue its impressive record of growth. While we would not anticipate maintenance of the 25% growth rate of the past few years, a 10 to 15% earnings increment appears realistic for the years ahead. In our opinion, the stock offers investors an attractive commitment for longer term appreciation.

April 21, 1967 Advisory and Research Department

c- Win
Bob Larsen 5/18

digital INTEROFFICE MEMORANDUM

DATE: May 11, 1967

SUBJECT: Paging System

TO: Jim Myers

FROM: Bob Clements

cc: Ken Olsen

A thought on annoying pages:

It is very easy to ignore pages consisting of a name and a phone number, while still hearing one's own name.

However, I think the annoying pages are the ones for:

1. "The driver of a purple Volkswagen....." These rarely get answered anyway.

2. "Will whoever borrowed the......."

3. "The fire alarm is being tested...." This should be done outside working hours.

These are all annoying and disruptful of thought.

I suggest restricting paging only to names and phone numbers, except in real emergencies.

bwf

Ken Olsen

digital INTEROFFICE MEMORANDUM

DATE: May 10, 1967

SUBJECT: Design Review Meetings for PDP-8I

TO: Executive Committee FROM: Mike Ford

The following have been selected as members of the PDP-8I Electrical Design Review Committee:

Henry Burkhardt - Chairman
Larry Seligman
Saul Dinman
Jack Shields
Dave Dubay
Dick Clayton

This committee will meet in the Mechanical Engineering Conference Room on Thursday, May 11, at 9:00 for the purpose of final evaluation of the PDP-8I design. They will subsequently prepare a report for the Executive Committee.

The following have been selected as members of the PDP-8I Mechanical Design Review Committee:

Ed Harwood - Chairman
Ed de Castro
Dick Mangsen
Howie Painter
Dave Dubay

This committee will meet in the Mechanical Engineering Conference Room on Monday, May 15, at 3:00 for the purpose of evaluation of the PDP-8I mechanical design.

Members of the Executive Committee are invited to attend.

Mike

eem

K. H. OLSEN

5/1/67

Ted Johnson

cc: John Leng

MAY 2 1967

Should we answer this?

Ken

DIGITAL EQUIPMENT CORPORATION

digital INTEROFFICE MEMORANDUM

DATE: May 9, 1967

SUBJECT: April 14 Letter from J. Lucas Ltd.

TO: Ken Olsen

FROM: Ted Johnson

cc: John Leng

I believe the answer should be to refer the letter to John Leng and suggest they send the package to John. It could be useful in getting us on board with some OEM systems house who might want to do the job. I think the technical questions require consultation and suggest we look at the spec and visit them if it has any possible potential.

Do you want me to write the letter?

mr

John Leng -
I just want to double check to make sure you realize that we have not answered this letter and are leaving it up to you.
Ken

LUCAS

JOSEPH LUCAS (ELECTRICAL) LTD., GREAT KING STREET, BIRMINGHAM 19

TELEPHONE:
NORTHERN 5252
TELEX No. 33691
TELEGRAMS:
LUCAS BHAM TELEX

The President,
Digital Equipment Corporation,
Maynard,
Massachusetts, U.S.A.

14th April 1967

Dear Sir,

We are investigating the feasibility of introducing an automatic production planning, production control and management information system into our Company.

The system we envisage will operate in the manner indicated below:-

"All data originating on the shop floor and relating to production progress, operator performance and machine utilisation will be collected automatically and transmitted into a factory control system.

"The factory control system will, by a mixture of real time and batch processing, provide information for shop floor control, wages payment and management reporting and will transmit data to the Company's main computer (an I.B.M. 360 Model 40 from June 1967), for master file updating and further batch processing.

"The factory control system will also transmit original and derived information to the shop floor for initiating production work or control action on operations outside pre-set limits."

We have prepared a broad specification of the characteristics and the volumes of data that will have to be transmitted to operate the total system for our Great King Streeet factory, which is one of the largest in the Company.

This specification is available to equipment manufacturers, who are interested in supplying equipment and possibly software for the total system or a substantial part of it, and will be sent on receipt of a letter indicating this interest.

However, if manufacturers can meet only a part of our requirements, but feel that their equipment merits our attention and consideration, we shall be very pleased to receive brochures and price lists pertaining to this equipment.

In order to complete our investigation, we need information regarding currently available (and projected) equipment and/or computer programmes which meet our requirements. We require information on the following:-

Component sensing devices

To sense machine cycles and/or component output from the event and produce an output pulse compatible with a computer or buffering device input.

Input/Output devices

To output printed messages to the shop floor from, and to input via keys or cards messages to, a factory control computer.

Data transmission links

To transmit data from sensing and input/output devices to the factory control computer and, from the computer, data to input/output devices at various locations throughout the factory. It is worth noting here that buffering devices may be required and could be included in the data transmission links.

Data processing equipment and programmes

To process all the data handled by the devices mentioned above in "real time" and to provide "on line" access to various factory operating and master files.

The selection we shall make from suggested equipment will be on the basis of the following criteria:-

Cost

The installation of any proposed equipment will be expected to produce economies and/or increased effectiveness.

Service

The ready availability of expert advice and assistance. The ready availability of spares and back-up computing capacity to cover equipment breakdown.

Flexibility

The ability to build on additional equipment in a modular fashion. The ability to accept varying input/output formats to allow for systems changes and development.

We hope that this letter conveys the scope and importance of our project and that you will give it your close attention.

We await your early reply with interest.

Yours faithfully,

A. SIDDALL
Director

digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

To: Ken Olsen

I'm not clear on how Mr. Kubie's idea could help us. However, I don't know enough about it to say no definitely. Should one of us give him a call or do you have more information.

Win

~~Bob Savitt~~
~~Would you see me about this?~~

digital INTEROFFICE MEMORANDUM

DATE: May 9, 1967

SUBJECT: COMPUTER USAGE COMPANY

TO: Larry Portner
Bob Lane
Win Hindle

FROM: Ken Olsen

Mr. Elmer Kubie from the Computer Usage Company has an idea for mechanically locking portions of a time shared memory to safely protect it from users. Are we interested in his idea?

Ken

ecc

digital MEMO

DATE 9 May 67

TO Ken Olsen FROM Ken Gold

The mental health patients from Waltham will be visiting tomorrow from 9:30 to 11. Cy Kendrick and his supervisors have given me step-by-step information on what happens to the 2051 transformers after they are received from the workshop. I plan to show and explain to them each step.

The girls in Cy's areas have been alerted to the fact that I will be taking pictures, and the short tour should go very smoothly. I will show you the pictures as soon as they are developed and would like to discuss with you which media would be of most benefit to us for this excellent publicity. The Mental Health Association has also requested some photos for use in their Annual Report. I understand that the patients are delighted with the plan to visit us.

Ken

8th May, 1967.

Jack Smith

John Leng

c.c. Ken Olsen
Dick Best

Ken said you were interested in the idea for heat testing modules. Unfortunately, I wasn't able to get up to see you last week but would like to hear your comments on whether such an idea is practical. I think that it is essential to apply voltages during heat test but I'm not certain whether these should be d.c. levels on the power lines alone or in conjunction with signal levels and changes. Dick should be able to establish that for us.

Hope you are able to try this out.

JL/hc

digital INTEROFFICE MEMORANDUM

DATE: May 8, 1967

SUBJECT: Associated Industries of Massachusetts

TO: Ken Olsen FROM: Harry S. Mann

We have received our invoice for next year's dues for the Associated Industries of Massachusetts. I would like to know whether you wish to continue membership in this organization.

The decision to be a member apparently dates back quite a few years and therefore I am not familiar with all of the reasoning involved. Since the dues is a function of the payroll, it follows that our dues for this year will be $1,700.

The general function of the AIM is to represent the interests of manufacturers in the state legislature and in other ways try to help build a good image with the public. The AIM takes credit for having accomplished legislation that has been beneficial to industry in Massachusetts and also to have blocked legislation which would have been detrimental.

I am not familiar enough with the quality of the work of this association to be able to recommend it specifically. On the other hand, I do feel that we need to support any organization which represents our interests since labor groups and other groups which tend to be antagonistic have extremely effective lobbying strength. Assuming, therefore, that this group does as good a job as they claim, I believe that we should continue to support them.

Harry S. Mann

Harry S. Mann
Vice President, Finance

HSM/ml

digital EQUIPMENT G. M. B. H. KÖLN

INTEROFFICE MEMO

SUBJECT A low-priced stripped PDP-9

DATE May 6, 1967

TO John Jones

FROM Gerry Moore

cc. Ken Olsen
Stan Olsen
Ted Johnson
John Leng
Tom Dalzell
Jean-Claude Peterschmitt

As per our telecon, I would like to offer a stripped PDP-9 to Philips. Such an offer to Philips would be conditional on their agreement to purchase a specified minimum number of computers - approx. 50 - over a 2-year period. By no means would all of these be the stripped version. Since talking to you, AEG has also expressed an interest in the OEM purchase of stripped PDP-9's. Heretofore AEG has not been interested at all in '9, because they come too close in price to the G-PAC computers that they are purchasing from GE for process control.

Advantages of Philips business

As discussed, some of the advantages of getting Philips business are as follows:

1) This would not be an ordinary blanket purchase contract; it would be a 1-shot firm order for 50 machines. We would work out cancellation charges for any machines Philips does not take in much the same matter that we would apply to any customer cancelling a firm order.

2) We could propose, and write into the contract, a delivery schedule that is most favorable to ourselves. Perhaps, we would like to start at 1 machine per month and build up to 3, holding steady at 3 for many months.

3) The contract could specify the purchase quantities, i.e. 50 processers, 64 8K memory modules, 30 high-speed reader-punch combinations. Individual configurations could be firmed up, say, 6 months prior to scheduled delivery. The same discount would apply to all additional discountable items ordered 6 months prior to delivery of the configuration on which they are to be installed.

4) This order would very likely extend the product line '9 by a non-negligible amount.

5) I am sure 50 machines is an appreciable portion of the total you expect to build. And, therefore, since they are machines we won't otherwise build, unless we get the order, it is a reasonable business approach to take an incremental costs profit look at this business. On that basis I think the Philips business would look attractive at any reasonable Price per machine.

digital EQUIPMENT G. M. B. H. KÖLN

INTEROFFICE MEMO

SUBJECT DATE

TO FROM

Disadvantages of not getting Philips business

If philips does not buy from us, they will buy from 3C - DDP-416's and 516's - This will introduce the 3C machines to Europe on a grand scale. Further it may completely freeze us out of Holland, as far as the PDP-8 and 9 go. Philips will likely offer these machines for resale in Holland. Since most of our Dutch customers are government financed, the availability of a competing machine from a Dutch firm would definitely prejudice government contracts.

What must we offer to get the business

Most important, as discussed above, we must offer a lower price version of PDP-9. I don't think it is necessary to offer a 4K version, although it would help. We should justify a mcuh lower price based on stripping off as much else as possible. Specifically a price in the range of $ 25,000 to 29,500 - fob U.S.A. - is required before applying quantity discounts. Some thoughts on areas where some price reduction might be possible are:

1) high-speed reader and punch
2) data channel, direct memory access, ~~for~~ and real-time clock

I recognized that practically no saving could be made in some of these areas. However, it might be desirable to justify a small reduction by removing the module or two, that the particular facility requires and then sell Philips on the low cost of adding back that particular facility. For example, a pricing structure similar to the following might be arrived at:

Basic 8K PDP-9 without high-speed reader and punch and without KSR-33 data channels, direct memory access and real-time clock	$ 28,300
ASR-33	$ 1,200
Total for a minimum workable system	$ 29,500
KSR-33	$ 900
High-speed reader PC02	2,500
High-speed punch PC03	3,000
High-speed reader-punch	~~48,000~~ $4800.
Real-time clock	400
4 data channels	400
Direct memory access	200

Thus the pricing is constistent, and you get $ 35,000 by replacing everything that was removed.

digital EQUIPMENT G. M. B. H. KÖLN

INTEROFFICE MEMO

SUBJECT

DATE

TO

FROM

Second most important: it would be a distinct advantage - and, possibly a necessity - if we could deliver some of the machines this year. Philips would like to get 15 machines before the end of the year.

Conclusion

There remain some questions. For example, what do we do for diagnostic software on machines without the high-speed reader-punch. Frankly, I was a little surprised at your response to this problem on the phone and further, somewhat disappointed in your level of interest in the Philips business. We are talking about an amount of business, which, if I'm not mistaken, excedes anythings we got from Foxboro over a 2-year period. And yet, we realised, fairly late in the game, that we had not given sufficient support. We subsequently assigned one man full-time to the Foxboro account. Foxboro has constistantly required a lot of attention from top-management people at DEC. - you had a half-day or so meeting with them last time I was in Maynard - I will propose to John Leng that we offer to assign a full-time application engineer to the Philips account, if we get the order. I also propose that we fully convert our software. I f you don't want to handle the diagnostic programs in Maynard, perhaps you would agree to having Ray Jones's group do it.

You may be interested in reviewing my correspondence with Philips, attached. I would appreciate rapid response on your part as a contract between Philips and 3C is imminent. However, we still have a very real chance.

Cheers,

Gary

Pardon the hand corrected errors. I dictated this to my secretary over the phone. She left well designed. I didn't want to wait to have her make final correction.

Gary

digital INTEROFFICE MEMORANDUM

DATE: May 5, 1967

SUBJECT: INEXPENSIVE RECORDER

TO: Ken Olsen ✓
Nick Mazzarese
Win Hindle
Stan Olsen
Gordan Bell

FROM: Roland Boisvert

Before anymore design consideration be given to an inexpensive recorder, I feel that the ultimate goals for the recorder over the next three years should be outlined. In addition, the system functions of this recorder should be defined.

I propose the following goals for the unit. These goals are for a three year projected plan of applications.

a. High speed teletype
b. Off line print station
c. Off line tape preparation
d. Replace paper tape
e. Replace Dectape
f. Off line data logging
g. IBM compatible for processing on large tape units

I propose that the systems functions for the initial design be those listed below:

a. Computer to any combination of data phone and recorder.
b. Computer to any combination of teletype and recorder.
c. Recorder to any combination of teletype, data phone, computer.
d. Teletype to any combination of computer and recorder.

Please forward any suggestions pertaining to the goals and functions of the recorder so that design proposals can be prepared for presentation in the near future.

RB/crh

INTEROFFICE MEMORANDUM

DATE May 5, 1967

SUBJECT Image Scanning System Proposed by Object Recognition Systems, Inc.

TO
Ken Olsen
cc: Mike Ford
Ted Johnson
Mort Ruderman

FROM
N. Mazzarese

Dr. Sidney Auerbach, who is associated with the University of Minnesota and the Glenwood Hills Hospital in Minneapolis, called me Wednesday to discuss an image scanning system that he has developed. Basically, his system scans microscope slides or direct microscope images with a video scanner. It digitizes the data and then encodes it in what he claims is an extremely efficient format, and feeds this information into a PDP-8. There is a pattern recognition program in the PDP-8 which allows a pathologist to make a diagnosis of the tissue on the slide. The program and box he has developed have been used in several other applications: One of these is reading radioactive tracers on a magnascanner and making a diagnosis as to whether a tumor is malignant; another is a fluoroscopic scan of the heart to diagnose certain types of heart lesions.

His claim is that the diagnosis that is performed is as good as the best pathologist at the Mayo Clinic and at the Glenwood Hills Hospital.

He has formed a company called Object Recognition Systems, Inc., to exploit the possibilities of his invention. He is looking towards Digital for engineering, marketing, and production support. He feels that financing is not a problem in that he's had financial offers from several major computer companies. He is primarily interested in Digital, he claims, because his program is currently coded on a PDP-8, and he has a lot of confidence in the reliability of our equipment.

I would suggest that Mike Ford, Mort Ruderman, and I discuss the possibilities of this system as soon as possible, and let Dr. Auerbach know the extent of our interest. His address and telephone number are:

Dr. Sidney Auerbach
Glenwood Hills Hospital
3901 Golden Vallen Road
Minneapolis, Minnesota 55422
Tel. 612-588-2771

Dr. Auerbach is a pathologist by profession.

Nick

cmp

5/2

Stan -
How should I answer these comments?

BAPTIST MEMORIAL HOSPITAL
899 MADISON AVENUE
MEMPHIS, TENNESSEE 38103

FRANK S. GRONER, ADMINISTRATOR

CARDIO-PULMONARY LABORATORY
J. LEO WRIGHT, M. D., DIRECTOR

April 27, 1967

Digital Equipment Corporation
Maynard, Massachusetts 01754

Attention - Mr. Kenneth H. Olsen

Dear Mr. Olsen:

In reply to your letter of April 24 I will go over the problems briefly.

Assume you have Bud series 60 cabinets as we do, selected because they are well built, attractive, not too expensive, and readily available through a large distributor network. Turn to your Logic Handbook and pick out a 1943 Mounting Panel (holds 64 cards). When you mount the 1943 in your cabinet you find that the terminals on the connector block extend forward beyond the panel flanges. This means a cover cannot be mounted directly on the panel flanges and that the terminals are subject to mechanical damage and in turn can inflict personal injury to unwary hands.

On the first of these we bought we mounted the panel in the back of the cabinet out of sight and out of harm's way. The second 1943 panel was ordered with the H002 Setback Bracket and 1907 Cover in the hope these accessories would solve the problems mentioned. New problems arose - the 3 inch depth of the H002 was not sufficient to bridge the Bud mounting rails, and the 1943 had to be fastened to the H002 from the rear of the cabinet which is hard to do because quarters are cramped in this area.

The same criticisms apply to those PDP-8 accessories which use 1943 panels. We have a 34D display which uses two of these panels with machine wiring between them. The only mechanical connection between the two is the wiring, except for shipping brackets that had to be removed to get the unit mounted in the cabinet.

Our PDP-8, ordered in a rack-mountable configuration, presented problems of its own which I shall list only: (1) Slides are too lightly constructed to carry the load in a satisfactory way, (2) doors, frame and control panel don't fit well into the standard 19 inch space, (3) no

Digital Equipment Corporation
Maynard, Massachusetts 01754

provision for air filter and (4) power supply requires 115 v power connection from the front panel.

Our instrumentation includes ten or more units of other manufacturers which, whether designed well or poorly, were intended for racks like ours. I'm hoping that your future designs can be undertaken with this consideration for your laboratory customers.

Sincerely yours,

George A Bradfute Jr.

George A. Bradfute, Jr.
Research Engineer

GAB:lc

dec INTEROFFICE MEMORANDUM

DATE May 4, 1967

SUBJECT LETTER FROM BAPTIST MEMORIAL HOSPITAL, MEMPHIS, TENNESSEE
(Mr. George A. Bradfute, Jr. - Research Engineer

TO Ken Olsen FROM Loren Prentice

cc: Ken FitzGerald
Howie Painter

I have reviewed this letter with Howie Painter. I got out the Bud Catalog, Series Sixty Cabinet Racks and I believe we can resolve all his difficulties. These cabinet racks have channel type braces for panel attachment, supposedly movable in 9/32" increments. I believe he should have ordered an H001 set-back bracket with a 1907 cover and that he should have had a 19" front panel and not a 19-5/8" panel.

I will consult with Ken FitzGerald on Monday, when he returns from California, on all the problems posed by this letter and will make specific recommendations, either to our field office nearest Memphis, or directly with Mr. Bradfute via telephone. I will send you a separate memo detailing the specifics as soon as this is done.

K. Olsen

digital INTEROFFICE MEMORANDUM

DATE: May 3, 1967

SUBJECT: SEMICONDUCTOR STUDY

TO: SEE DISTRIBUTION LIST FROM: Dave Knoll

In an effort to gain information which will allow us to make maximum utilization of semiconductor technology and the DEC facility, two parallel studies are being undertaken which will independently lead to recommendations for future programs.

Bob Brown is conducting one study and will make a proposal in the near future. In parallel to this, EMS Consultants has been hired to make recommendations based on a one time study and an outside, unbiased viewpoint.

Dr. Rex Sittner, President of EMS, will be in the plant next week, May 8-10th, to gather information for his report. Dr. Sittner comes to us with impressive credentials and many years of operating experience in the semiconductor field. He has previously spent some time talking with Tom Stockebrand, Dick Best, and Pete Kaufmann. In order to gain further background information, he would like to talk to each of you for an hour or so during his next visit.

I have set up a tentative schedule for his next visit which is attached. Please contact Janet Buscemi, Ext. 557, if any rescheduling of time is necessary. Dr. Sittner will undoubtedly want to talk with other people before his study is complete.

Dr. Sittner has signed the necessary security agreements prohibiting him from divulging confidential information gained during his study.

Thanks in advance for your cooperation.

Dave

Dave

jab

DR. REX SITTNER'S SCHEDULE

	MONDAY May 8	TUESDAY May 9	WEDNESDAY May 10
8:30-9:45		B. Hanson	P. McGaunn
10:00-11:45	B. Hughes	B. Brown	J. Jones
12:45-2:15	E. DeCastro	T. Johnson	M. Ford
2:30-4:00	B. Savell	L. Seligman	A. Devault
4:00-5:00	D. Sogge		K. Olsen

DISTRIBUTION LIST

Bob Hughes
Ed DeCastro
Bob Savell
Dick Sogge
Bill Hanson
Bob Brown
Ted Johnson
Larry Seligman
Paul McGaunn
Bob Brown
Mike Ford
Al Devault
Ken Olsen

cc:
Pete Kaufmann
PL Managers
Dr. Sittner
Harry Mann

digital INTEROFFICE MEMORANDUM

DATE: May 3, 1967

SUBJECT: ACCEPTANCES AND WAIVERS FOR THE MONTH OF APRIL 1967

TO: Ken Olsen, Nick Mazzarese, Mike Ford, John Jones, Ted Johnson, Stan Olsen, Pete Kaufmann, Jack Smith, Win Hindle, Steve Mikulski

FROM: Jack Shields

Acceptance papers were made up for the following for the month of April.

PDP-8/S	51
PDP-8	40
Linc-8	8
PDP-9	2
PDP-7	1
Options	52
	154

There were nine waivers for the month of April. The following is a breakdown of the waivers.

PDP-8/S — Total Machines Shipped: 51
Total Waivers: 5

1 - No Type 138
1 - No PC01
1 - No 34D Display & no Timing Clock
1 - No MD8S Option Drawers, ME8s Memory Extension Control, MM8s Memory Modules and DB8S Break
1 - No CR01C Low Speed Card Reader and no PC01 Reader and Punch

PDP-8 — Total Machines Shppped: 40
Total Waivers: 4

1 - No TC01, TU55, and CAB-3
1 - No PC02 and ASR-33
1 - No PC01 and Cab-3
1 - No Photon 560 Program

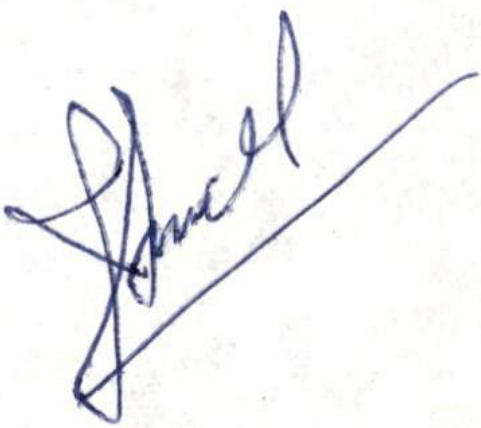
JJS:ned

5/3/67

Ken,

I have been pushing for this for sometime. I will discuss it at the Manufacturing and Manufacturing/Engineering meetings. This one single procedure change could greatly reduce the computer checkout cycle.

Jack



digital **INTEROFFICE MEMORANDUM**

DATE: May 3, 1967

SUBJECT: MEETING ON TELETYPE PROBLEMS

TO: W. Burns
P. Gadaire
D. Dubay
M. Dill
A. Johns
S. Dinman
cc: J. Shields ✓

FROM: Walter MacKenzie

To Ken Olsen
This is a result of the frequency of problems during acceptance & installation of ASR-33's. This sort of approach will sidestep the "witch doctor" syndrome on ASR-33's
Jack

In accordance with the agreements that were established at the meeting on April 13, 1967, I did the following:

1. Wrote a short, but I believe, fairly thorough checkout procedure for ASR-33 teletypes.

I decided to limit the areas checked to known trouble areas. By that, I mean the portions of the machine that seem to fail more frequently, on new installations in particular.

A copy of this procedure is attached to this memo.

2. Two of Al Johns' people opened 18 ASR-33's that were just received from Teletype.

I personally checked these machines to the best of my ability, using the short checkout procedure attached.

Certain adjustments were on the border line of being within specifications established in the Teletype Technical Manual, Bulletin 273B, Vol.2. I gave them the benefit of doubt and did not mark it down. This, however, does not mean that certain things would not start to fail at an earlier date due to a marginal adjustment.

Here are the results of this check by machine number:

NOTE The items listed will be the items found out of adjustment. In some instances, the measurements were recorded and are listed beside the item.

Serial No. 109871
Code Bar Clutch
Selector Clutch

Serial No. 109874
Selector Clutch
Carriage Drive Bail
Hammer Release
Line Feed
Code Bar Restoring

Serial No. 110830
No. 8 Code Bar Bowed Excessively
Rear Rail (too low)
Hammer Release (.115)
Line Feed
Tape Nudger

Serial No. 111665
Distributor Clutch
Hammer Release (.117)
Print Suppression Latch (.070)

Serial No. 110820
Function Clutch
Hammer Release
Print Suppression Latchlever
Distributor Clutch End Play

Serial No. 112289
Universal Lever
Carriage Drive Bail
Hammer Release
Print Suppression Latch (Binding)

Serial No. 112293
Universal Lever
Carriage Drive Bail

Serial No. 112294
Function Clutch
Carriage Drive Bail

Serial No. 112298
Code Bar Clutch
Function Clutch
Universal Lever
Hammer Release
Print Suppression
Distributor Clutch End Play (.020)

Serial No. 112297
Function Clutch

Serial No. 112302
Selector Clutch
Carriage Drive Bail
Hammer Release (.100)

Serial No. 112304
Code Bar Clutch
Function Clutch
Carriage Drive Bail
Print Suppression Latch

Serial No. 112306
Selector Clutch
Code Bar Clutch
Tape Nudger
Feed Pawl
Spring missing on selector stripper bail

Serial No. 112317
Code Bar Clutch

Serial No. 112326
Code Bar Restoring
Print Suppression Latch

Serial No. 112331
Print Suppression Latch Lever (.095)

Serial No. 112354
Code Bar Clutch
Print Suppression Latch Lever

Serial No. 112342
Code Bar Clutch
Print Suppression Latch
Hammer Release (.097)
Selector Clutch End Play (.025)

One of the subjects that was mentioned at the meeting was the fact that we do not have as many problems on teletypes, on PDP-8 installations.

It was noted that this could be due to the fact that the teletype is run many more hours in-house during checkout on a PDP-8. Thus, the initial problems are fixed by Al Johns' people before it ever gets to the customer.

As a result of our experience with ASR-33's, it appears that we will have to do additional visual checks on these machines before they are sent to production.

This will certainly increase the man hours required to checkout each machine. But until we receive better quality machines from Teletype Corporation, we will have to check their work.

WM:ac

RECOMMENDED CHECKOUT PROCEDURE

FOR ASR-33

PRINTER

1. Four Clutches (Latching)
2. Universal Lever (Restoring Clearance)
3. Carriage Drive Bail (Parallel)
4. Rear Rail (Parallel and Height)
5. Hammer Release (Clearance)
6. Line Feed
7. Code Bar Restoring (Clearance)
8. Print Suppression Latch and Latch Lever
9. End Play of all Clutches

PUNCH

1. Tape Nudger
2. Feed Pawl

READER

1. Alignment of Feed Sprocket to Pins

CONFIDENTIAL

digital INTEROFFICE MEMORANDUM

DATE: May 2, 1967

SUBJECT: NEW PAID SUPPER BREAK POLICY--HOURLY (Wage Class 1 and 2) EMPLOYEES. Effective Date--Monday, May 8, 1967

TO: All DEC Managers and Supervisors

FROM: Personnel Committee

The following (see attached) New Paid Supper Break Policy for Hourly (Wage Class 1 and 2) Employees will become effective on Monday, May 8, 1967. The new policy supercedes the Paid Supper Break Policy outlined in the employee handbook.

Please read this policy very carefully and explain it thoroughly to all supervisors under your direction. It is most important that this policy be explained to all DEC employees in detail before May 8.

You will note that in order to qualify for the half-hour paid supper break from 6 p.m. to 6:30 p.m., hourly employees must now work overtime which extends to or beyond 9 p.m.

If an employee qualifies for the half hour paid supper break, his supervisor should indicate his approval by noting "Paid Supper Break" in the appropriate section of the employee's time card.

If an employee works through the 6 p.m. to 6:30 p.m. supper period, his supervisor should indicate "Continuous Work" in the appropriate section of the employee's time card.

RTL/jfr

digital INTEROFFICE MEMORANDUM

DATE: May 2, 1967

SUBJECT: PAID SUPPER BREAK POLICY--HOURLY EMPLOYEES
Effective Date--May 8, 1967

TO: All Supervisors FROM: Bob Lassen

1. If an employee is asked to work overtime which extends to or beyond 9 p.m., he will be eligible to receive a one-half hour paid supper break from 6 p.m. to 6:30 p.m. under the following conditions:

(a) The employee will receive his normal rate of pay (not overtime pay) during the one-half hour supper break period.

(b) Employees must punch "out" and "in" if they leave the plant during the supper break period.

(c) In the event an employee is asked to work through the 6 p.m. to 6:30 p.m. supper period, he will be eligible for overtime pay (in accordance with the Company overtime pay policy for hourly employees).

(d) In order to qualify under the paid supper break policy, the employee must take his supper break from 6 p.m. to 6:30 p.m., and his supper break must not extend beyond this period.

2. Hourly employees who are working overtime which does not extend to 9 p.m. will receive their regular overtime pay (in accordance with the Company overtime pay policy for hourly employees), but they will not be eligible for a paid supper break. Hourly employees working in this category will be given a 10 minute paid break from 6 p.m. to 6:10 p.m.

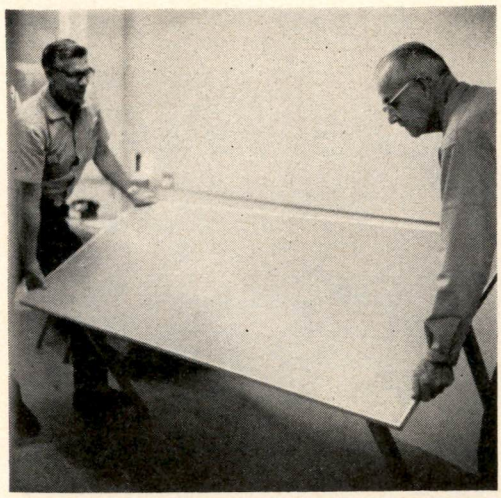
RTL/jfr

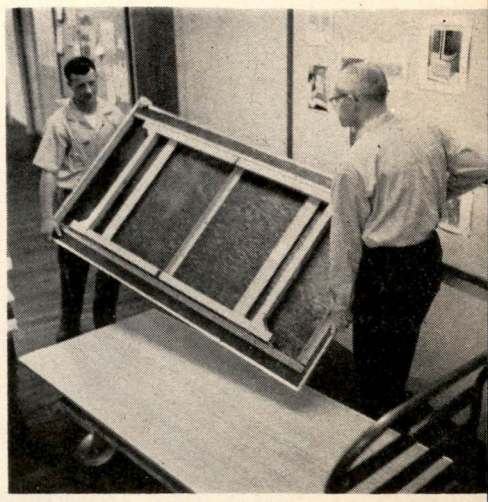
Folding tables . . .

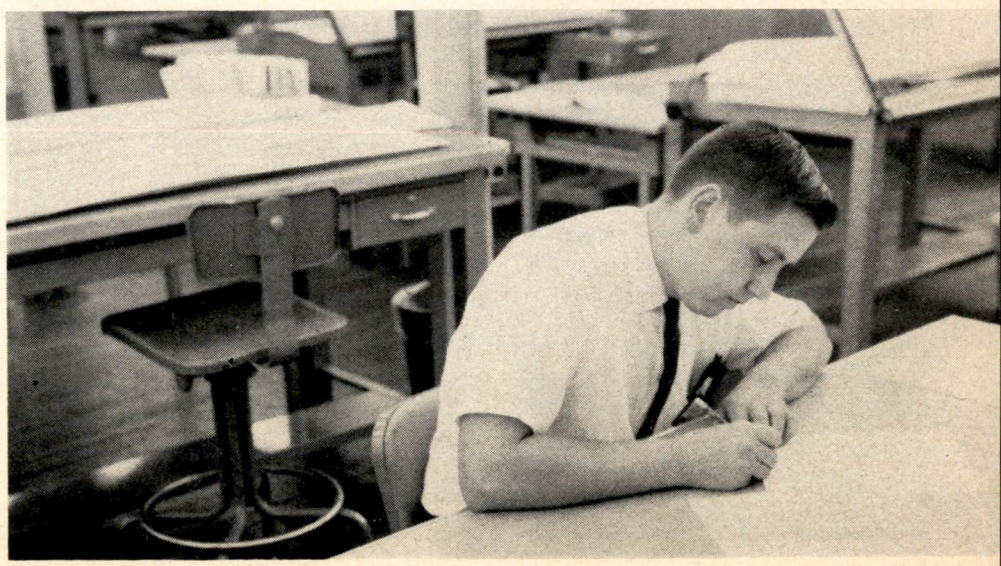
Give Plant Space Flexibility During Production Peaks

PROBLEM: While an influx of new business delights the sales department, it can also be a source of frustration for those responsible for production. This was the case at Digital Equipment Corp., Maynard, Mass. The problem lies in gearing a factory's physical capacity to keep pace with sudden production peaks. Within limits, output can be increased or cut back. But manual operations require an increase in personnel and also call for additions to the physical plant itself. Unlike machines that can be stepped up while occupying the same square footage, more production personnel means increased work space plus more of such basics as work tables. If the addition of large numbers of work tables becomes a permanent fixture, space normally required for traffic and production may become tied up even during off-peak periods. Besides, off-peak periods at one section of the plant may be offset by peaks at the other.

SOLUTION: Digital Equipment, which manufactures digital computers and specialized test equipment, knows in advance when to expect production peaks and can plan ahead for them. Key to the situation is flexibility. With peaks occurring at various times of the year, the company finds it easier to increase its staff of active production personnel rather than shift workers from department to department. To accommodate additional personnel, Digital uses specially designed folding tables made by Hower Folding Furniture, Inc. While providing flexibility and mobility, the tables are rigid, providing the same solid work surface as permanent-type tables. During production, the company places into service about 100 of these tables which, when not in use, can be folded and stored away.







Circle No. 256 on Card . . . Last Page

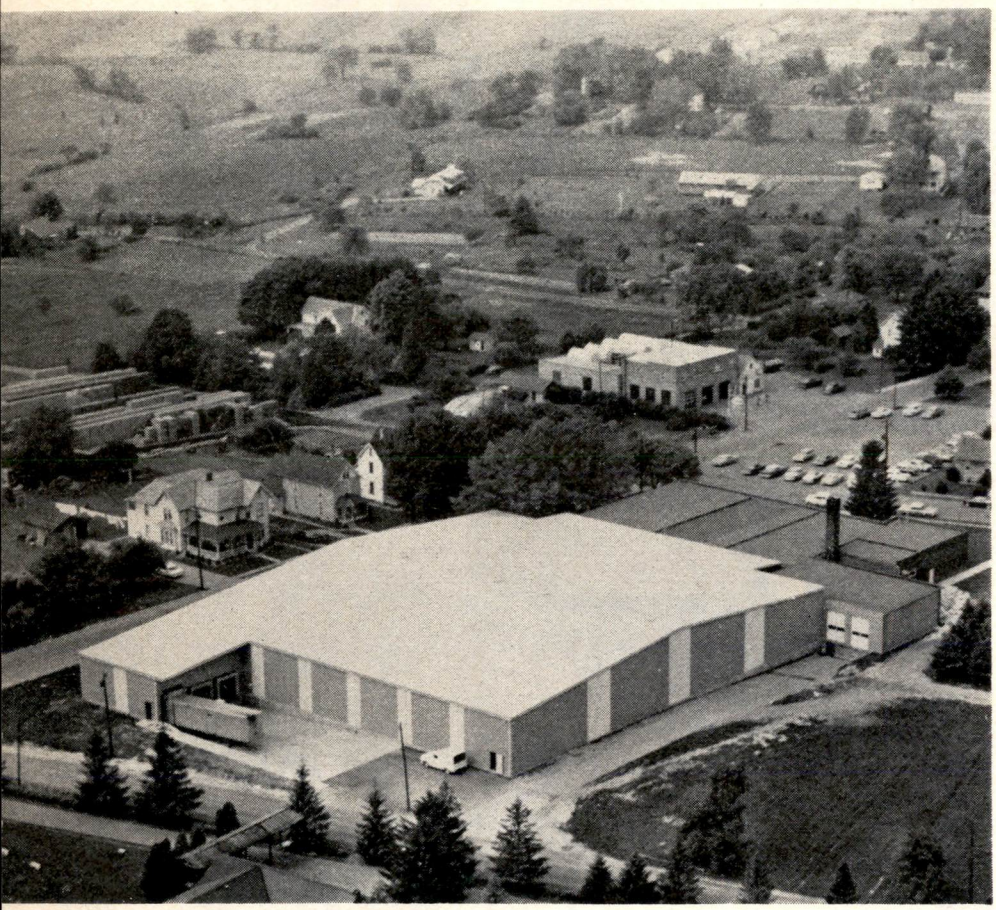
turn page

KNOW-HOW CASE STUDIES

Pre-engineered warehouse . . .

Outdoes Conventional Building in Built-in Economies

PROBLEM: Plasti-Vac, Inc., in Jersey Shore, Pa., needed 30,000 sq ft more space for inventories of raw and finished goods. The company, which makes thermoplastic products, had to have the job done within 90 days.



SOLUTION: Because time was a factor, a new warehouse was completed in less than three months. Economical first cost and the economy of heating and maintaining the building were the deciding factors that led company management to put up the Butler pre-engineered building.

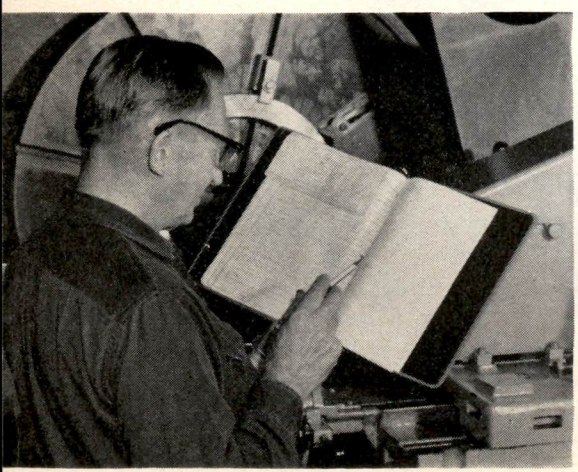
Cost of the new facility—180 ft wide, 168 ft long, and with 20-ft sidewalls—was $4.46 per sq ft including built-in low maintenance factors such as baked-on silicone finish on wall panels and an aluminum roof Butler has guaranteed against leaks for 10 years. According to the contractor, Lundy Construction Co., Williamsport, Pa., a comparable conventional building would cost at least 50¢ to 75¢ more per sq ft.

Wall and roof panels are field-insulated with a 1½" fiberglass blanket. In insulating efficiency, this is equal to a 13" conventional wall of 4" brick veneer, 8" of concrete block, ½" of air space, and ½" of plaster.

Circle No. 257 on Card . . . Last Page

Semi-annual lube charts . . .

Simplify Lubrication Scheduling



PROBLEM: At the Rollway Bearing Co. plant in Syracuse, N.Y., there are 450 major production machines that require lubrication as follows:

1037 weekly or 51,850 per year,
166 monthly or 1992 per year,
10 bi-monthly, or 60 per year,
81 quarterly or 324 per year,
204 semi-annual or 408 per year,
and 126 annual.

The two oilermen had to keep track of 54,760 lubes per year.

SOLUTION: A manual, prepared as part of Mobile Oil Corp.'s MI/DAC system, uses data processing techniques to schedule lubrication. Following the book, the oilermen perform and then check off activities. Additional codes spread the work throughout the year to balance the load.

In addition to simplifying the work schedules, the system provides management with the assurance that all work called for is performed. Since the new method was installed over a year ago, Rollway has not had a single breakdown due to lubrication.

New books are prepared by the system itself every six months. They can be altered to keep up with changing machines.

Circle No. 258 on Card . . . Last Page

digital MEMO

DATE 2 May 67

TO Ken Olsen FROM Ken Gold

For your interest -- these are the pictures I took for Howe Folding Tables a few months ago. Howe paid for the entire project, and ironically, the magazine spelled their name wrong (10th line from the bottom).

Our Maintenance people are quite happy about making it into a national magazine. They have extra copies I obtained from the publisher.

I haven't forgotten what you mentioned to me about the Carpenter/Machine Shops -- the next similar opportunity I get, we'll boast morale by getting these people published somewhere, too.

Ken

c - Harry Mann 5/5/67

INTEROFFICE MEMORANDUM

DATE May 1, 1967

SUBJECT Lobby

TO Ken Olsen

FROM Jim Jordan

As you may have noticed, four of the chairs in the front lobby have been removed for use at the Spring Joint Computer Conference. While this situation does not occur often, it should be remembered that these chairs are the property of the exhibits group and are therefore subject to removal by them for whatever purposes they have. With this in mind, I would like to propose that we obtain some permanent chairs for the area. Two things occur to me in regard to this. The first is to find out whether people are satisfied with this kind of chair for the lobby. If they are, we should get chairs that have a spring return swivel. This will return the chair to the proper position. The chairs are now being left in all sorts of random positions which tend to make the area look a little sloppy.

Jim

pgj

digital INTEROFFICE MEMORANDUM

DATE: May, 1967

SUBJECT: PDP-8 Report - 1967 #2

TO: All Field Sales Personnel FROM: Howie Painter

Nick Mazzarese
Mike Ford
Ted Johnson
Ron Smart
Al Alexanian
Allen Klutchman
Ken Olsen ✓
Steve Bowers
PDP-8 Marketing Group

Order Rate and Deliveries

Over the past 3 months, the PDP-8 order rate continued to increase, giving further evidence that this product has a long life ahead of it.

In addition, on-time deliveries have become the rule rather than the exception, further strengthening our position in the eyes of OEM's and others that we are indeed the major supplier of small machines in quantity.

We will continue to reserve several slots each month for short delivery. I think you'll agree that this has proved an effective sales tool.

As I pointed out in a recent Sales Newsletter, option deliveries have improved considerably. With the exception of drums, line printers, mag tapes and the new disk, you should be able to get customer's options within 90 days.

Personnel

In the February report, I described plans for Communications Marketing. Don Murphy has joined the group to carry out these plans and provide you with sales support. Please call on Don anytime.

(continued)

PDP-8 Report - May, 1967

As most of you already know, Charlie Kotsaftis has joined us to handle OEM Marketing. Charlie has several excellent ideas and plans to 1. better support our current OEM customers, and 2. develop more OEM business. You'll be hearing more from him shortly. Feel free to call Charlie on anything concerning OEM's.

Market Area Support - PDP-8 and 8/S

The following people are your in-plant contacts and technical supporters:

1. OEM Customers - Charlie Kotsaftis
2. Navigation/Oceanography - Bob O'Hagan
3. Data Acquisition Systems - Bob Niro
4. Communications and large computer interfaces - Don Murphy
5. Typesetting - Marv Cothran
6. Education - Bill Landis
7. Scientific (Physics, etc.) - Howie Painter
8. Applications Programming Assistance - Rick Merrill
9. Contracts, off-beat questions, policy and other miscellania - Mike Ford, Bill Landis, Howie Painter

Note: All who are concerned with the 8 and 8/S are here to best serve you. We're willing to travel, on short notice, to provide technical support and anything else you may need - just call us!

New Products and Software

Data Acquisition Systems (AFO Series) have been announced, and prospects look extremely good. Call on Bob Niro if there is a PDP-8 involved. These products should provide a good income for us over the next few years.

The new DEC Disc (DF-32 and DS-32) has been well received since its introduction at SJCC. We plan on selling at least 200 of these per year, and I'm sure we will with your help. The Disc/DECtape systems software that will be available in December should help sell these (see recent Sales Newsletter). In addition, we should have a FORTRAN II package available by early fall. This will require an 8K PDP-8, and will fit in with the systems software.

(continued)

PDP-8 Report - May, 1967

New Customers

In the can-you-top-this category, Tony Liveris in Houston now leads by a wide margin - he has brought in an order for 200 machines (OEM) from University Computer Corp., Dallas. U.C.C. is interfacing to high speed line printers and card readers and will use as terminals for several Univac 1108's in their computer centers.

PDP-8/S - Bill Landis

We are currently offering 30-day delivery on basic PDP-8/S systems. The expanded systems, that is, extended memory, data break and some options are still in the 90 to 120 day delivery category.

We want to continue the "build DIGITAL in" theme from an OEM standpoint. The PDP-8/S is being used in the Analytic Chemistry and Instrument field (gas and liquid chromatographs, X-ray defractometor and special purpose applications like Beckman's Vehicular Emission Analyzer). The 1-2 punch we offer with the PDP-8/S and PDP-8 can be very discouraging to competition such as the HP2116A system.

As far as the Education market is concerned, DEC is starting to make a name for itself. Plans are being made to stabilize the following:

1. Configuration
2. Brochure
3. Class workbook
4. Direct mail and trade shows

If you have ideas relative to the education market, please feel free to submit them to me. We have nothing in concrete yet. In conclusion, "help stamp out poverty", sell lots of PDP-8/S's.

Bill

(continued)

PDP-8 Report - May, 1967

Typesetting

We are now in a position to offer excellent delivery in both basic and expanded Typesetting Systems. Marv Cothran has done an excellent job of organizing our Typesetting Software support and we now have Photon 513, and Linofilm Display Ad programs working in three or four newspapers. Acceptance of these programs has been excellent. We have also successfully installed a no-space bands program in Wheeling, West Virginia and have received a lot of interest from that as well.

We are about to launch an intensive ad and direct mail campaign for typesetting. The basic messages of our campaign are:

1. Direct comparison of Basic Typesetting System with Merganthaller Justape on the basis of flexibility and cost per line/hour.

2. We have supplied more GP computers to Newspapers than any other computer manufacturer. (Let IBM come and challenge us!)

3. We offer the highest variety and highest performance software for more different hot-metal, photocomp, and Display Ad typesetting machines than other supplier.

We will have both an expanded -8 Typesetting System and a Basic Typesetting system in the booth at Kansas City. Expect a tremendous upsurge in typesetting inquiries, which must be fielded and followed up rapidly. When you need Marv to help you in any way, jult holler and he'll do everything he can to support you.

ewm

C - Jack Shields
5/1/67

JS

INTEROFFICE MEMORANDUM

DATE: May 1, 1967

SUBJECT: Heat Testing of Modules

TO: Dick Best FROM: John Leng

I have participated in a couple of discussions recently with Saul, Wally, and Rod on the merits of heat testing computers. Saul questioned the merits of doing margins at temperature on the 8/S, the chief advantage of elevating the temperature being to show up bad modules. If the 8/S has good margins designed into it and will perform these at room temperature, then a simple run at temperature should be adequate. However, we don't seem to be prepared to accept this with the PDP-8 and continue to do margins at temperature. Admittedly a lot of cards are thrown out, which at least shows that temperature tests are important. However, this whole principle is overlooked once the machines get in the field, and we replace bad modules with others which have not been heat tested, nor do we run the computer at elevated temperature again.

In our somewhat limited experience of computer checkout at Reading it has become quickly evident that the most serious checkout bottleneck is doing elevated temperature runs. Wally has built some ingenious ovens, which quickly get up to temperature and have little doors all over the place for getting at any part of the computer. However, a considerable amount of time is spent in running the computer in this rather odd way, which turns out to be largely a glorified and expensive module testing arrangement. Surely the modules should be heat tested as part of the module line either with some mechanical arrangement or using unskilled labor. This has, I am sure, been considered already so all I am doing is trying to emphasize the need for a further study of this problem. One idea we had would be to have the module conveyer belt consist of many flip-chip sockets. The girls could simply plug the cards into these as they were completed. They would then pass through a zone of several yards say during which power is applied to the standard supply lines. As they pass along this zone a wall of hot air is blown acorss the modules, quickly getting them to a high temperature. This could be repeated with a blast of cold air later on in the line if need be.

This, if proven practical, would reduce the time and skill required for checking out systems and as a side benefit would increase effectiveness and reduce inventories in the field and production organization.

John

JL/jk

cc: Rod Belden
Wally Spittle
Stan Olsen
Ken Olsen
Russ Doane
Saul Dinman
Ed De Castro
Bill McGregor
Jack Smith
Bob Savell
Ed Harwood
Steve Mikulski
Pete Kaufmann

ALSO

E NUMBER FS 854

TO; AL BEAL, SAN FRANCISCO

FROM; JACK SHIELDS

WITH COPIES TO BOB MC INTURFF
KEN LARSEN

JIM MCPHERSON

DEC'S STANDARD TERMS AND CONDITIONS UNDER FIELD INSTALLATION OF OPTIONS STATES STANDARD FIELD INSTALLATION CHARGE OF 5% OF THE OPTION'S LIST PRICE WITH A $200 MINIMUM AND $5,000 MAXIMUM PLUS TRAVEL EXPENSE.

I HAVE RECEIVED TWO ORDERS WITHOUT FIELD INSTALLATION FEES. YOUR NAME IS ON THESE ORDERS AS THE SALESMA. N WHY IS IS YOU FEEL ENTITLED TO TAKE EXCEPTION TO CORPORATE POLICY IN THIS MATTER? YOU REALIZE, OF COURSE, THAT THIS EQUIPMENT WILL BE SHIPPED FOB MAYNARD WITHOUT ANY WARRANTY.

END OF MESSAGE.

ALSO

ALSO

INTEROFFICE
MEMORANDUM

SUBJECT: TWX MSG. NO. FS-854 dated 25 April 1967

TO: JACK SHIELDS FROM: KEN LARSEN

cc Ken Olsen, Stan Olsen, Nick Mazzarese, Harry Mann, Win Hindle
Ted Johnson, Pete Kaufman, File

Thank you for your unusually pleasant TWX message No. FS-854 of 25 April 1967 to Al Beal.

Al Beal is an exceptionally conscientious person but it is possible that he made a mistake or perhaps the customer made the mistake when he placed his order. It would have been much better if you had not spent so much time and effort on the pleasantries of your TWX but rather have given him the company name, their purchase order number, the DEC number and the product involved. This would make it much easier for him to trace down to see if he made the error or the customer made the error or, if indeed, the customer ordered it specifically without DEC installation. Many of our customers are capable of installing their own equipment and therefore do not need the assistance of DEC Field Service.

You mention that this equipment will be shipped f.o.b. Maynard without warranty. I know f.o.b Maynard is our Standard Policy but, to my knowledge, there has been no Corporate Policy withdrawing warranty. Maybe this is something I missed in the Procedures Manual or possibly the Sales Newsletter. It would seem most unusual for DEC to withdraw their warranty. Maybe you could persuade the Executive Committee to define and publish this new policy statement if indeed it is a policy or is this another one of the Field Service Department's "instant" policies?

I want to encourage you to continue showing a pleasant attitude in all your communications with the field. Receiving a message like this from you builds character, company loyalty, morale and esprit de corps.

Thank you so much.

KL:mmg
enc.

"a soft answer turneth away wrath...."

to: Ken Olsen

digital INTEROFFICE MEMORANDUM

DATE: April 28, 1967

SUBJECT: MY TWX TO AL BEAL AND YOUR RESPONDING MEMO

TO: Ken Larsen FROM: Jack Shields

cc: Executive Committee

Ken, I am sorry if I have hurt the feelings of one of your people. However, sometimes it is necessary to be straightforward rather than subtle to be sure people get the message.

The frequency of occurrence of failure to charge the 5% installation fee is very low. However, a problem seems to prevail in the Palo Alto area, as this is the third instance of this in the past two months. Since the frequency of this problem is low in all other areas, it is difficult for me to understand why special consideration must be made in the Palo Alto district.

Field Service is not generating instant policy with regard to voiding warranty on this equipment. This problem has been discussed on numerous occasions with the Product Line Managers and agreement has been reached that should the customer decide to field install the options himself, the probability of him getting into trouble and subsequently calling on us to bail himself out is extremely high. Therefore, we tell the customer that if he feels qualified to install the options he must realize that he voids the warranty on this option and should things not work after he "has installed it and it was working but now a warranty failure has occurred", we will provide service but it will be according to our standard charges.

I have the responsibility to be sure that company policy with regard to warranty, etc., is adhered to. When continuous violations of a policy emanate from one area without any explanation, I assume that proper controls are not being exercised. Therefore, I felt it necessary to bring this to the attention of the people concerned in a strong, straightforward manner.

JJS:ned

digital INTEROFFICE MEMORANDUM

DATE: 4 May 67

SUBJECT: Unpackaged Modules Shipped to U. of Illinois

TO: Ken Olsen FROM: Stewart Ogden
CC: See Distribution List Below

The following changes have been made which will prevent the accidental shipping of unpackaged modules in the future:

1. The entire shipping function is now under the direction of Frank Kalwell. He has supplied crating personnel with the special Flip-Chip shipping trays and explained their use. All module orders will be shipped in these trays (previously, some "spare parts" module orders had been wrapped in kimpac for shipment). Specific discussion of the University of Illinois example with the crating personnel has driven home the importance of proper packaging to DEC's profit and customer image.

2. Ray Michel has initiated periodic inspection of all crating operations in order to catch all instances of poor crating and packing practices before they leave the plant.

3. Al Alexanian has planned a procedure to completely check the contents of all shipments for completeness before they leave the plant. As he is anxious to avoid a repetition of the University of Illinois problem, this will provide a double check on the adequate preparation of all outgoing shipments.

With the enclosed copies of memos and telex, you have copies of all the correspondence about this matter that I am aware of.

SO

mg
enc

cc: Stan Olsen
Nick Mazzarese
Al Alexanian
Pete Kaufmann
Jack Smith
Bud Dill
Ray Michel

Ken Olsen

INTEROFFICE MEMORANDUM

DATE May 1, 1967

SUBJECT Schedule Review Meetings

TO Executive Committee

FROM Win Hindle

We established the Schedule Review Meetings on Thursdays at 4 PM in order to show our engineers and programmers that the Executive Committee was interested in their progress. By the disinterest which our Committee has shown in this meeting for the past few months, I believe we are convincing our engineers just the opposite. It is unusual to have 4 members of our committee there, very often it is only 1, and those who are there (myself included) are popping in and out constantly to take phone calls or do other business.

I suggest that we do not have Schedule Review meetings unless there are at least 4 Executive Committee members there for the whole meeting. Perhaps Dick Best's secretary should call on Thursday mornings to check on this and cancel the meeting unless there are at least 4 attendees. I'd like to discuss this at a future Executive Committee Meeting, because I think the Review Committee is having a negative effect at present.

bwf

Ken Olsen

digital INTEROFFICE MEMORANDUM

DATE: April 28, 1967

SUBJECT: CENTRALIZED USE OF VEHICLE UNDER A TRAFFIC MANAGER

TO: Executive Committee FROM: Jack Shields
Henry Crouse
Frank Kalwell

An AD HOC Committee composed of Henry Crouse, Frank Kalwell and Jack Shields has studied the possibility of establishing a vehicle pool under the traffic manager. The committee feels that there are many advantages to keeping the present system as it is at this time.

1. Under the present system, trip schedules are published by the two departments which have vehicles; Field Service and Purchasing; and redundant trips are eliminated, if possible.

2. Since there are only two motor vehicles and their primary functions are different; e.g., one is a truck and the other a passenger van; it is virtually impossible to be more efficient than the present system.

3. Each department manager who has a vehicle under his control has specialized service needs. Since there are no obvious advanatages to a centralized vehicle pool, these managers feel strongly about controlling their own vehicles.

4. As the needs of the company increase, and additional vehicles are needed, we will review the "vehicle pool" idea and re-submit our recommendations at that time.

JJS:ned

digital INTEROFFICE MEMORANDUM

DATE: April 28, 1967

SUBJECT: 338 Maintenance Manual and Customer Maintenance Training

TO: Ken Olson FROM: Stewart Ogden SO

cc: Nick Mazzarese

The maintenance manual is in preparation by Dave Brown, Dick Ward, and me. We expect a draft for review by the end of next week and completed, printed copies by 30 May. A distribution to all 338 installations will be made in June by Field Service.

I have no plans to offer regular customer maintenance training on the 338. I will arrange special training for customers at their request, as DEC has in the past on other peripheral options. Tom Quinn has been notified of two possible ways this might be arranged (1) in a course, or (2) by letting them study under an engineer here, at a cost of about $1000/man for 1.5-2 weeks training.

mg

INTEROFFICE MEMORANDUM

DATE April 27, 1967

SUBJECT Awards Area

TO Ken Olsen

FROM Jim Jordan

The company has accumulated a significant number of awards, metals, and certificates both as a result of industrial excellence and activities of the members of the company in sports. I am sure that the individuals concerned, as well as the company as a whole, would be proud to have, on some sort of permanent display, these awards and certificates.

If the company feels that this is a worthwhile project, I will be willing to set it up if space and a budget can be provided.

Jim

pgj

digital INTEROFFICE MEMORANDUM

DATE: April 26, 1967

SUBJECT: ADDITION TO PERSONNEL STAFF

TO: All Managers FROM: Bob Lassen

On Monday, May 1, 1967, Graydon A. Thayer will join the Personnel Department as Manager of Professional Personnel.

His initial responsibilities will be to develop an aggressive professional (salaried) recruiting and employment program for the entire company.

He will coordinate departmental personnel forecasts and will immediately concentrate on filling our professional openings. He will be responsible for improving our "image" in the labor market, developing recruiting sources (including gaining stronger rapport with all sources). He will also be responsible for developing necessary "feedback" reports (recruiting costs, results and hiring status) and providing quick response to DEC managers and applicants.

Graydon has had extensive background in all phases of Personnel work including professional recruiting, policy formulation, management and supervisory development, college relations and wage and salary administration.

We feel that he has both the experience and the ability to assume greater responsibilities as he becomes acquainted with DEC, particularly in the area of supervisory training and wage administration.

I want him to learn as much about the company as quickly as possible. Therefore, I plan to have him meet with all department managers as soon as he comes to work.

I would appreciate your full cooperation in reviewing with Graydon your current and long range personnel requirements, departmental activities, opportunities and any ideas or philosophy you think will help in developing an outstanding professional personnel activity.

RTL/jfr

C - Harry - 5/18
What shall we do with this?

digital INTEROFFICE MEMORANDUM

DATE: April 26, 1967

SUBJECT: Tuition Refund Taxes

TO: Bob Lassen

FROM: Allan Kent

cc: K. H. Olsen
Win Hindle
Bob Savell

DEC keeps putting on its "Application for Tuition Refund" forms and elsewhere the following statement:

"As the Internal Revenue Department has ruled that such reimbursement represents taxable income to the employee, I understand that it will be necessary for the company to deduct Federal Taxes from all gross amounts payable under this program."

I object to this statement (and its consequences) on one major point. This alleged ruling is not consistent with the practices of other companies in this area. This means that either all of these other companies are operating their tuition refund programs illegally (dubious) or else DEC has been browbeaten by the IRS. (Comment: There is no "Internal Revenue Department" only an "Internal Revenue Service.") If the second premise is in fact true, I would suggest that DEC investigate why the other companies' tuition refund programs are not subject to tax deduction and if necessary reword DEC's policy statements so that they are consonant with IRS rules allowing tuition refund without tax deductions. The objection has been raised (by accounting) that this is not really a problem as I can deduct the tuition refund as a business expense on my income tax return and regain the tax deducted -- this is not true however, as I do not find it profitable to itemize deductions on my tax return and therefore cannot deduct these refunds.

bwf

dec INTEROFFICE MEMORANDUM

DATE 21st April, 1967.

SUBJECT PDP-9 delivery problems

TO Ken Olsen

FROM John Leng

c.c. Ralph Maurice
Jack Shields
Ted Johnson
Jean-Claude Peterschmitt
Gerry Moore
Tom Dalzell
Bill Newell

Thank you for your memo of 3rd April. Enclosed is an organization chart for Europe. This covers all of our activities here and I will outline our weaknesses in them, as requested.

1. Field Service.

Bill Newell is at present filling too many managers' positions. The situation on the four districts are as follows:-

(a) U.K. Has been well organized by Colin Cape. Vince Marshall now carrying on but has to prove himself as manager. We are just one short on budgeted staff. Technical competence much higher than 6 months ago. Still below strength technically however, but should be up to strength in 6 months.

Should be in sound position for increased shipments 6 months from now.

(b) Scandinavia. Sven Martin will likely be made manager of F.S. within next 2 months.
Strong technically but understaffed. New people just being taken on.
Greatest planned percentage growth in Europe for coming fiscal.
Confident that organization can handle this.

(c) Germany. Jossbacher will likely be made manager of F.S. within next 2 months. Strong technically and well staffed. Should be able to cope with growth comfortably.

(d) France. Weak on management. Colin Cape going over to help organize this. New man to be hired to manage F.S. Technically average and holding fort. Growth possible here by getting strong technical people for new hires.

Ken Olsen. John Leng. 21/4/67

(3) Europe. Two strong tech. support people located in U.K. helping with fire fighting. Have reduced calls from Maynard to practically zero.

F.S. in total are in a position to help with PDP-9 project. Gelfert from Germany is already at Maynard and will be replaced in several months by Blundell. Jolivet from France will come across in next several weeks for 4 month stay with PDP-9 group. These people will help build up production faster and will return later to strengthen European service.

2. Accounting:

As of end of January we managed to catch up with horse. New man in France now in control. Germany just keeping up, will hire man in next month or so. U.K. just keeping up, about to hire new person.

Will be centralizing a good part of the European accounting in Reading within next 3 months. NCR machine operation to be introduced. Total European operation will then be in good position for growth and budget control.

3. Import/Export and Shipping Problems.

This is the one area in which we are not confident. Germany O.K., France average but U.K. a heart-ache.

Shipping volume through U.K. has risen dramatically in last year. In two days last month we cleared 17 computers through customs. F.S. gulped, but took them and installed them and had them accepted including a PDP-6 in 3 weeks.

The average of shipments over the last 2 months to the U.K. were 2 per day. These in turn included an average of 3 customer orders, thus making 6 shipments per day from the airport.

On each one of these duty is paid outright, on deposit if the goods are for re-export, on deposit if a claim for duty relief has been made but no approval given, or no duty if a duty-free certificate has been obtained.

Unfortunately, a legacy of poor importing control was inherited by our new shipping man, with a result that we are still making claims for refund of duty on shipments made up to 2 years ago. This is the one thing in the shipping business that is giving us our greatest problems, i.e. getting duty back after being paid on deposit. We usually don't have this problem on computers but frequently do on modules.

Ken Olsen. John Leng. 21/4/67

This is the one area in which I am unable to say with confidence that it will be o.k. in under 6 months.

In the long term I think we are taking the correct steps to strengthen our organization over the next 2 years.

Basically by centralizing on support services and de-centralizing on customer sales and service, as laid out in the diagram, I believe we will keep ourselves lean and fit.

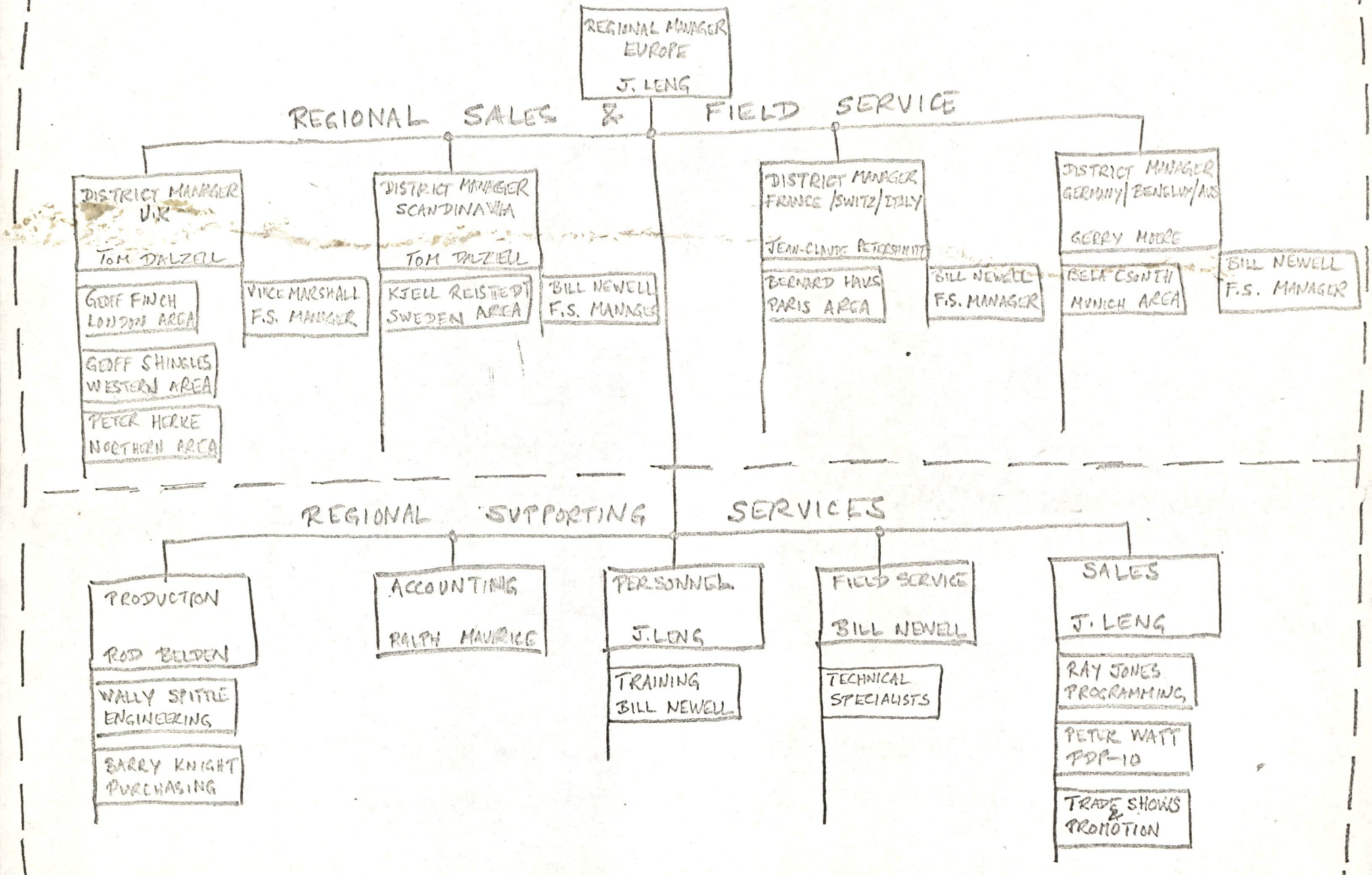
The experiences we have had in the U.K. are being taken into account in the rest of Europe so that we don't run into the same problems again. We will thus be able to concentrate on our main business of sales and service and we're back to asking for more PDP-9's.

John

Encl:

JL/hc

EUROPEAN REGION OF DEC SALES & SERVICE ORGANIZATION



April 14/67

digital MEMO

DATE May 3, 1967

TO Ken Olsen FROM Nick Mazzarese

Subject: University of Illinois DEC 18091, and
Your Memo Requesting the Name of the Manager Responsible

Stewart Ogden is the manager responsible. The two photocopied memos attached explain the action he has already taken. I have asked Stewart to let you know what steps have been taken to try to prevent this happening in the future.

Nick

cmp
Enc. 2


THIS END UP

Mary Jo, Jim
Copy Nick M.; Al Alexarian
Chamberlin; SO

END AND THANKS
A MILLION A MILLION THANKS TO TZXX YOU
OK I F YOU SAY SO. //TO BRAD

MSG. NO. C-1155 4/28/67

TO: STU OGDEN
FROM: TOM QUINN

SUBJ: UNIV. OF ILLINOIS

I UNDERSTAND THE SPARE PARTS ARE BEING ASSEMBLED. PLEASE DO NOT SHIP THIS PACKAGE UNTIL WE CAN VERIFY WHAT WAS SHIPPED PREVIOUSLY AND WHAT WAS REQUIRED BY SPECIFICATION.

END OR GA PLS.

TO BRAD

5/1 Ken from Stan

APR 28 REC'D

digital INTEROFFICE MEMORANDUM

DATE: April 28, 1967

SUBJECT: University of Illinois 338 DEC #s 18091, 18154, 18806

TO: Tom Quinn FROM: Stewart Ogden
CC: See Distribution List Below

1. Modules

A new set of 338 and PDP-8 spare modules will be shipped to U. of Illinois next week. Al Alexanian plans to bill them for this new shipment and give them full credit for the returned shipment. Let him know if the U. of Illinois would rather handle the paperwork in some other fashion.

For your information, we have made several changes that will prevent this happening again, including a consolidation of crating with shipping under Frank Kalwell. All modules shipped will be packed by Frank in the individual-tray boxes.

2. Maintenance

As you pointed out in your memo, we do not offer customer training on any peripheral option. This includes the 338 and we have no plan to change this at the moment.

However, we will make an exception to this policy if requested by U. of Illinois. Several alternative ways of doing this are available. Two that look possible are:

1) To give one or two persons prints and flow diagrams, and put an engineer at their disposal for answering questions;

2) To provide a more formal classroom arrangement. Any arrangement we make will require that the enrollees have had a PDP-8 maintenance course. This is a one week course at $300 per man (for example, 15-19 May). The cost for the 338 would be about $1000. per man for 1.5-2 weeks.

The maintenance manual is in preparation. Final printed copies will be distributed to all 338 installations early in June. In the interim, I am providing you with a copy of the flow charts.

As I mentioned to Gil Slaw, I would like to visit their installation with him when he next goes.

Stewart Ogden

mg

cc: Ted Johnson Nick Mazzarese Jack Shields Al Alexanian Frank Kalwell
Stan Olson Pete Kaufmann Jack Smith Bud Dill

digital INTEROFFICE MEMORANDUM

NJM	
APR	2 8 1967
FILE	

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TO: Tom Quinn FROM: Stewart Ogden
CC: See Distribution List Below

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Stewart Ogden

mg

cc: Ted Johnson Nick Mazzarese Jack Shields Al Alexanian Frank Kalwell
Stan Olsen Pete Kaufmann Jack Smith Bud Dill

MAY 2 - 967

digital INTEROFFICE MEMORANDUM

DATE: April 28, 1967

SUBJECT: Module Packing - Your Memo of April 25, 1967

TO: S. Ogden ✓

FROM: J. Smith

CC: P. Kaufmann
B. Dill

Crating does not inspect the packing of spare parts being delivered from areas other than Manufacturing. They do inspect and crate the machine itself. In the future, Crating personnel will inspect the packaging of spare parts from other areas.

Frank Kalwell, as I see it, was not involved in the problem.

Crating personnel have been notified of the problem and will be sensitive to same in the future.

The last minute addition of equipment could have generated the problem for the 338 people.

Jack

JFS/sm

– Many thanks, Jack. I've answered Tom Quinn w/copies to you all in production. SO

digital INTEROFFICE MEMORANDUM

DATE: April 25, 1967

SUBJECT: Module Packing

TO: Pete Kaufmann
~~Bud Dill~~ Jack Smith

FROM: Stewart Ogden

I received the attached from Tom Quinn. I expect to answer his memo to him, to Ken, and to Nick. With your help, I would like to include answers to the following questions:

1) What steps will you be able to take, if any, to avoid this in the future?

2) What steps might you suggest others take to avoid this in the future? Have you any other action which you would suggest?

I have been able to assemble the following facts:

1) This was the 338 system (DEC #18091, 18154) to which was added the extra memory (DEC #18806) at the "last minute" in March.

2) The system was accepted by Field Service and then stood on the southeast end of the 5th floor of Bldg 5 for about three days before going to crating.

3) The spare parts modules - the subject of Tom's memo - were drawn from stock in mid-March by Jimmy Dimauro, locked in the special systems area, and then hand carried to crating area (in the boxes shown in the picture) about the time the system itself was moved into crating.

4) Final crating and shipping seems to have taken place on the last Saturday of the quarter.

I have begun arrangements to reship the modules to U. of Illinois, double bill them, and then give them credit for the modules shown when they are returned. I hope I can get your help in expeditiously procuring some of these modules if all are not available. Many thanks.

SO:mg

INTEROFFICE MEMORANDUM

DATE April 21, 1967

SUBJECT University of Illinois DEC 18091

TO Ken Olsen

FROM Tom Quinn - Chicago

This order concerns a 338 with 16K of core DECtapes, Real Time Clock, Light Pen, etc. The entire value of the order was approximately $100,000. I am attaching a picture showing how the spare parts were shipped. As you can see, they were simply placed in a carton covered with paper and no attempt was made to protect these modules. The spare parts have a value of $5400. The customer obviously is upset and most likely will not release this shipment for payment until a complete set of spare parts are replaced. He is reluctant to send back these modules for fear that we will simply repackage them properly and return them without having run them through our module testing procedure. Frankly, I share his concern.

I think this is a serious issue and presents an extremely poor impression of the Digital Equipment Corporation before a valuable customer. Our reputation to date has been unblemished. I would appreciate corrective action as soon as possible.

Finally, by way of comment, the documentation for the 338 does not include a Maintenance Manual. In addition, we have not offered training on this device. Illinois takes the position on all purchased equipment that they should be self-sustaining. Consequently, formalized documentation and training are requirements for their installation. I wonder if we might give greater consideration to this issue. I can guarantee that Illinois will send four people at a minimum to any training course.

Tom

eas
Enc.

cc: Ted Johnson
Nick Mazzarese
Jack Shields
Stu Ogden
Al Alexanian

dec INTEROFFICE MEMORANDUM

DATE April 21, 1967

SUBJECT Bob Hughes' letter of April 19

TO Ken Olsen
CC: Stan Olsen

FROM Dave Denniston, MAR

I feel, Ken, that there are several points in Bob's letter that need clarification as far as his comments on "hearing very disturbing reports, all verbal so far, and rumors of possible three-month delay" are concerned. We did notify three different people at Data Trends, including Bill Highleyman, their Vice President, and didn't feel that the formality of written notice was therefore required. As you probably know, we are doing everything we can for them, and the PDP-9 group is aware of their problems.

One of our difficulties has been Data Trends' practice of issuing change orders and add-on orders for more peripherals on a given computer at a later date. This, needless to say, makes both our paperwork and scheduling difficult. My point is that they don't alway understand that we can't slide any old option that they desire into the schedule for any machine they happen to have on order without sufficient lead time. I have written him a letter trying to point out our difficulties here in a positive way, since they seem to want everything in writing.

Dave

DBD:ll

digital INTEROFFICE MEMORANDUM

DATE: April 20, 1967

SUBJECT: Computers in Non-Destructive Testing

TO: Ken Olsen

FROM: Win Hindle

cc: Nick Mazzarese
Stan Olsen

In your absence, I talked with Bernard Stiff of AVCO, who is a friend of yours, I understand. He called to tell us that one of his associates at AVCO, Mr. Royal Schweiger, would be visiting DEC soon to discuss the use of computers in non-destructive testing (NDT). Mr. Schweiger and his group have done quite a bit of investigation in the NDT field and they believe there is an excellent computer application there. Mr. Stiff called you to be certain that we listened carefully to Mr. Schweiger when he visits.

NE
Wrote

bwf

C. Ken Gold
Alice Hendrickson

digital INTEROFFICE MEMORANDUM

DATE: April 18, 1967

SUBJECT: PHOTOGRAPHS FOR THE ANNUAL REPORT

TO: Ken Olsen FROM: H. Mann
cc: Executive Committee

I would suggest that we get some good shots of interesting areas within the plant, which will show off our manufacturing capability. I would suggest that we get some good action shots of people. For example, it might be well to have a group picture of those fellows who have been working on the PDP-10 as though they were in a meeting. It might also be well to have a picture of the 8/S line with Saul Dinman and Stan shown examining some of the work being done.

In general, I feel that we should place far less emphasis on our products as such, in this year's annual report, and concentrate more on people and facilities. I realize that the annual report has been used frequently as a sales tool, as indeed it should. One of the complaints that we heard from other members of the Executive Committee a while ago was that SDS seemed to have a better institutional image than we did, and I think that we should attempt to use our annual report to concentrate in that area of our image, rather than in the product area. We have many opportunities to show our products in advertisements and in the extensive promotional literature which is high quality and in my opinion does a fine job in describing our products. I believe that we can not do justice to our products in the annual report since the descriptions of necessity are brief.

It seems to me that if we want a selling tool, throughout the year the annual report talking about our people and facilities and our financial statements, coupled with a selection of key promotional literature pieces, would give a well rounded selling tool.

Harry

/jm

cc: K. Olsen

digital INTEROFFICE MEMORANDUM

DATE: April 12, 1967

SUBJECT: MANUFACTURING MEETINGS

TO: DISTRIBUTION LIST FROM: PETE KAUFMANN

The Manufacturing Meetings held in my office on Thursdays are becoming too complicated and lengthy and it was suggested we change the meeting.

In order to facilitate our needs, I have decided to divide the Manufacturing Meeting into three meetings.

Manufacturing - Engineering Meeting
10:00 Thursdays

Steve Mikulski
Ed Harwood
Dick Richardson
Joseph St. Amour
Loren Prentice
Al Verchot
John Trebendis
Ron Cajolet
Dave Knoll
Cy Kendrick
Jack Smith
Dick Best

Central Planning Meeting
8:30 Thursdays

Cy Kendrick
Jack Smith
Henry Crouse
Bill Hanson
Dave Knoll
Ed Simeone

General Manufacturing Meeting - Monthly
8:30 1st Friday of the Month

Lee Butterworth
Ken Peirce
Dick Richardson
Dave Packer
Ed Simeone
Steve Mikulski
Ed Harwood
Joseph St. Amour
Harvey Shepherd
Henry Crouse
Loren Prentice
Dave Knoll
Cy Kendrick
Jack Smith
Bill Hanson

DISTRIBUTION LIST

Lee Butterworth
Ken Peirce
Dick Richardson
Dave Packer
Ed Simeone
Steve Mikulski
Ed Harwood
Joseph St. Amour
Henry Crouse
Loren Prentice
Al Verchot
John Trebendis
Ron Cajolet
Dave Knoll
Cy Kendrick
Jack Smith
Bill Hanson
Dick Best
Harvey Shepherd

dec INTEROFFICE MEMORANDUM

DATE 12th April, 1967.

SUBJECT DEC organization in Europe

TO ✓ Tom Dalzell/Gerry Moore
Jean-Claude Peterschmitt
Rod Belden/Ralph Maurice
Bill Newell

FROM John Leng

c.c. Ted Johnson/Jack Shields
Harry Mann/Nick Mazzarese
Stan Olsen/Win Hindle
Ken Olsen/Pete Kaufmann

There has been a certain amount of confusion and misunderstanding in Europe as to the role of our organization here. Let me re-emphasize a few major points which I hope you will continue to do for yourselves and the people that work with you.

First and foremost we are a sales and service organization. This means that our prime measures of performance are:-

(1) Bookings per salesman.
(2) Installations per serviceman.

The remainder of our organization here is to provide support to this effort, either technically (sales and service specialists), promotionally (production and marketing), or administratively (accounting and personnel). Naturally, each of these areas have similar measures of performance.

The subsidiary structure is of secondary importance and their existences are primarily to provide local protection for the company and its employees and to fulfill local legal obligations.

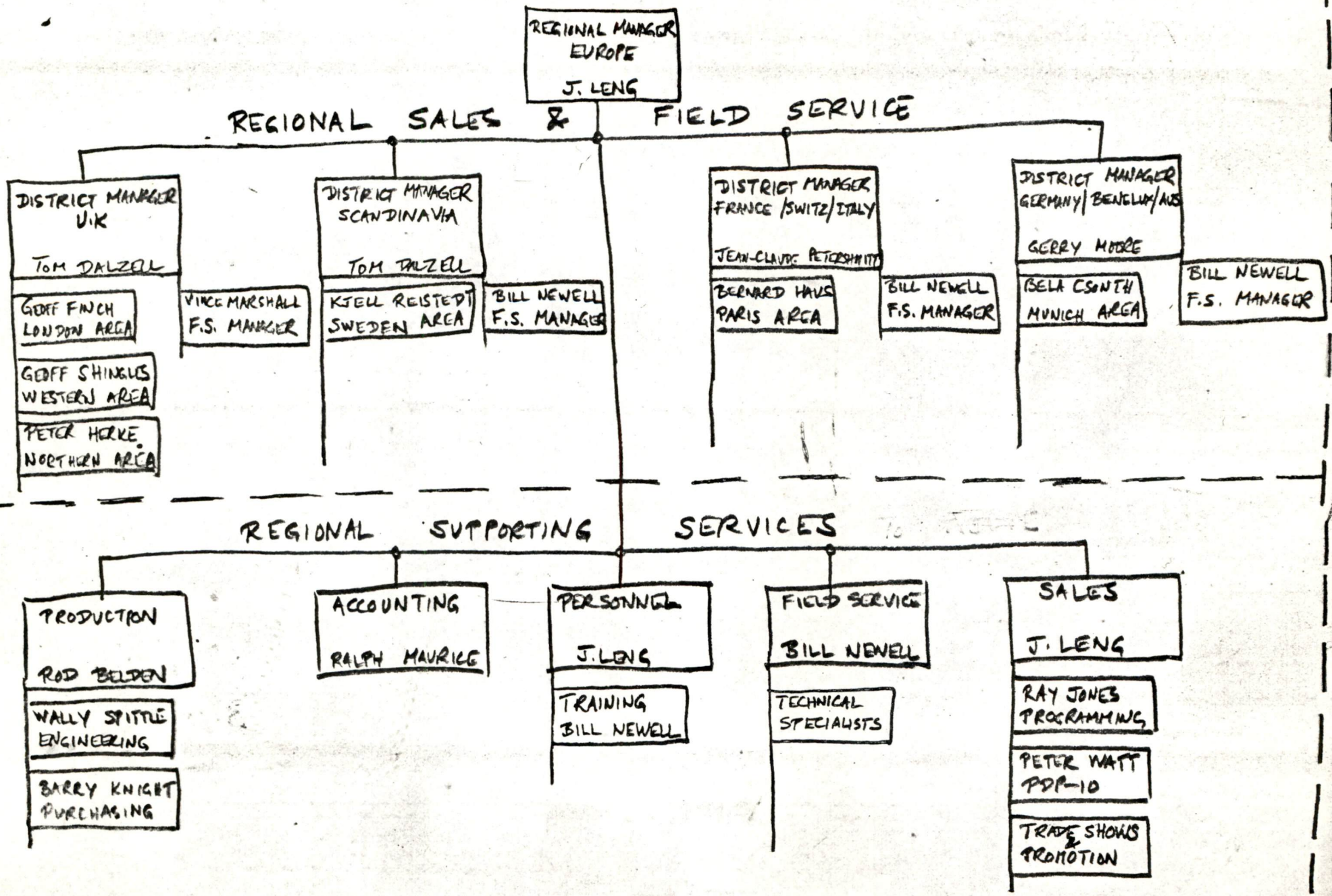
The organization structure in Europe reflects this thinking and I've prepared a chart outlining the major responsibilities. This makes use of the regional structure as established elsewhere in the company's sales and service organization, together with some of the other services being provided to support the subsidiaries.

I believe this is the most appropriate way of using our resources in Europe and will enable us to concentrate on and achieve our main objectives.

John Leng.

JL/hc

EUROPEAN REGION OF DEC SALES & SERVICE ORGANIZATION



April 14/67.

Dick Best

digital INTEROFFICE MEMORANDUM

DATE: April 11, 1967

SUBJECT: Project Engineer for Interconnection System

TO: Ken Olsen FROM: Bob Savell

It seems to me that Drafting symbology and standards, module connector blocks, back panel wiring, standard FLIP CHIP modules and automated drafting all form one large interdependent system that should be the direct responsibility of one individual. At present this responsibility is divided between a large number of individuals and committees. No single individual, or even a single committee, at present seems to understand how all the pieces inter-relate.

I propose that Dick Best is the one who comes closest at present to understanding the whole system, and that he be responsible for insuring that the many people and committees working on the various pieces of the system in fact do develop a consistent workable system.

The committees can provide useful input as to what's needed, but I firmly believe that unless one person is made responsible, the resultant system that will evolve will do so very inefficiently.

bwf

digital INTEROFFICE MEMORANDUM

DATE: April 7, 1967

SUBJECT: Local Chamber of Commerce Activities

TO: Ken Olsen

FROM: Ken Gold

I'd like to keep you informed on the activities of our Maynard Chamber of Commerce.

After a year of relative inactivity, the Chamber is being reactivated this year. I've been working on the group's Executive Committee, supporting programs that will benefit Digital as well as the entire town. One project the Chamber is planning, which I think will definitely be of benefit to our Company, is a prospectus of Maynard. This would be a booklet telling about the advantages of the town: school system, tax rates, excellent employment opportunities in industry, good location close to both Boston and Worcester, town history, accomplishments, etc. Such a publication , and the publicity sure to go along with it, should assist us in our overall recruiting effort.

I think that it is important that Digital support its local chamber; the effort certainly pays off in good community relations. Also, I think the Chamber can be of invaluable help to us when we hold our Digital days in Maynard this September.

Question: When the Chamber holds its annual membership drive for dues, would you be willing to pose for a publicity picture of Digital "giving the first dues payment"? This would be dependent, of course, on how the other C. of C. Executive Board members feel about such publicity; but if it is possible, I would like Digital shown as the leader in our community, paying its dues first.

I will keep you informed about other Chamber of Commerce activities as they occur.

Ken

Ken Olsen

digital INTEROFFICE MEMORANDUM

DATE: April 5, 1967

SUBJECT: Outline of Trip to Potter Instrument Company

TO: Attendees (DEC Only)
Lee Fryer
Don Busiek

FROM: Allan Kent

Attendees: Win Hindle (DEC)
Bob Savell
Bob Wyman
Al Kent

Daniel Webster, VP (Potter)
Bill Sharp, Gen'l Sales Mgr.
Jack Richardson, Boston Area Mgr.
Tom Foley, Printer Eng. Mgr.
(John Potter) Pres. (briefly)

Dan Webster, who runs Potter's day-to-day operation outlined their corporate goals and financial picture. Their financing, principally unsecured loans, appears solid. John Potter controls nearly 60% of the stock. They have a new building under construction to increase their manufacturing facilities.

Present delivery of a standard printer was stated as 5 months after receipt of order, with possibly 14 weeks for an evaluation unit. They will gladly accept a production order conditional on satisfactory operation of an engineering evaluation unit.

Their weaknesses seem to be (1) an empirical approach to problem elimination which has slowed down their release by several months. (2) A lack of concern by those present for the electronics aspect of the printer, typified by a switch filter mod which is presently handmade, as it is a recent change.

Print quality and maintainability are more than adequate. They seem to have beaten down their earlier print positioning problems.

Miscellaneous: They will maintain 24 hour emergency spares service, 72 hours normal service. They will provide 2 - 3 days of training for our field service (or engineering) personnel. Their standard warranty is 4 months or 1000 hours (power on) -- a little short for our large system requirements.

They are running a 1000 hour life test which has gone $\sim$ 500 hours --- they have found some problems and are correcting them, none of them insurmountable.

My opinion: Although their design is basically sound, another 6 months to a year is going to be required to shake down all of the bugs. One of their customers (with a PDP-7) has been very happy with their performance in fixing bugs, but has had a fair number of the relatively minor but nagging variety. Their printer has several outstanding features -- a chain character can be changed in 2 - 3 minutes by personnel unfamiliar with the operation, the chain can be replaced in about a

half hour, a character slug costs one $1.00, and the printed line can be read immediately after printing.

Conclusion: The Potter printer is a good buy if the shakedown period can be tolerated before delivery to our customers.

bwf

TO Ken Olsen
Harry Mann

FROM

digital EQUIPMENT CORPORATION
MAYNARD · MASSACHUSETTS

SUBJECT: Budget for General Admin. Cntr DATE: 4/5/7

FOLD ↑

The consensus seems to be that the following should be included in and budgeted for under center #644 General Administration

Harry Mann
Wes Henalle
Stan Olsen
Nick Mazzarese
~~Pete Kaufmann~~

Unless you object, it will be done.

PLEASE REPLY TO → SIGNED Clayton Ray

DATE SIGNED

PRINTED BY GRAYARC CO., INC., BROOKLYN 32, N. Y.

digital INTEROFFICE MEMORANDUM

DATE: April 4, 1967

SUBJECT: German Government Influence on U.S. Computer Purchases

TO: Ken Olsen FROM: Win Hindle

I suggest you send the following letter to Senators Kennedy and Brooke and to Representatives Morse and Philbin (if he still represents the Maynard area).

DRAFT

Dear _____:

Our firm has encountered an international issue that we believe you could influence if you were aware of it. Digital Equipment Corporation designs, manufactures, and sells advanced computers and related equipment throughout the world. Some 25% of our total corporate sales are outside the United States.

Because our computers are used extensively in scientific research, the funds to purchase them come from government sources, especially in foreign countries. For sometime in England and France, there has been pressure to use the funds to purchase local computers rather than U.S. manufactured computers. Despite this pressure, which has been initiated to encourage computer developments within national boundaries, Digital has successfully sold machines because of very favorable price and performance characteristics.

Recently the West German Government has begun to exert the same type of influence on computer purchases, particularly at German Universities, by offering larger grants to research professors if they will purchase German-made computers. Thus, although our computers are admittedly superior and lower priced, we are losing sales because of this government influence.

It is our understanding that a U.S. policy objective is to have West Germany purchase U.S. goods in order to ease the balance of payments problems incurred by the large number of troops stationed in West Germany. Also, it is evident that the German Government does not want to purchase military products from U.S. Manufacturers. We feel that an excellent case can be made for having the German Government ease its pressure against the purchase of U.S. computers (and presumably other non-military products) in return for the U.S. maintaining its current troop levels in West Germany.

If you believe this is a worthwhile policy objective, we would appreciate your help in proposing it in the appropriate government agencies. I'm sure you know how important the computer business is to the economy of Massachusetts. In addition to the several large computer manufacturers within the state, there are a multitude of manufacturers and programming firms who supply materials and services to the computer industry.

I have written this same letter to Senator _____ and Representative _____ in the hope that the Massachusetts delegates can work together in discussing this suggestion.

Sincerely,

K. H. Olsen
President

digital INTEROFFICE MEMORANDUM

DATE: April 4, 1967

SUBJECT: R. C. A.

TO: Mike Ford
Ken Larsen
Howie Painter

FROM: Henry Crouse

cc: Ken Olsen /
Nick Mazzarese
Pete Kaufmann

I visited Teletype Corporation of Chicago with Messrs. Avery, Reeves, Krislou and Joycner on Wednesday, March 22, 1967. The purpose of the visit was to introduce RCA to Teletype and assist in their procurement of teleprinters.

Teletype Corporation representatives were enthusiastic and most helpful in resolving the definition of RCA's requirement. The first major commitment for 33 KSR's will be, approximately, 250 units. RCA will purchase, directly, from Teletype and add to our PDP-8.

It is interesting to note that Teletype now has a Marketing Manager, who is looking to customers other than Bell Telephone/ Western Electric for sales growth, specifically, computers and special systems.

Henry

amg
Enc.

Teletype Corporation

March 22, 1967

Represented

RCA	Digital	Teletype
Mr. Avery	Mr. Crouse	Mr. Tom Race, Sales Adm.
Mr. Reeves		Mr. Ken McGinty, Mkt. Mgr.
Mr. Krislou		Mr. W. J. Tobias, Sales Eng.
Mr. Joycner		Mr. Ron Gafrick, Sales Eng.
		Mr. Dave Corkle, Sales Mgr.

Points of Discussion

1. RCA's application of teleprinters.

2. Specifications of 33 KSR, Keyboard, Noise Level, General dimension and Keyboard code.

3. U. L. approval of teleprinter.

4. Cost-Estimate, RCA estimated about $500 per terminal per year for their system rental.

5. Quantity of teleprinters and general procurement schedule.

6. New products, ie., 37 teleprinters and high speed ink, line printers.

Plant Tour

digital INTEROFFICE MEMORANDUM

DATE: April 4, 1967

SUBJECT: Anelex Visit of March 21, 1967

TO: Win Hindle FROM: Bob Savell

Don Busiek has written an excellent report to Jack Shields to which I only want to add a few comments.

My general feeling is one of confidence in the ability of the new president, Mr. Roth, to get things under control and turn Anelex around. They claim they will make a profit in 6 or 7 figures this year, and after a loss of 3.6 million dollars last year, that's quite a feat.

I'm convinced they are concentrating their efforts in the proper direction, i.e. recognizing and solving problems with the printers. Mr. Roth's avowed policy is to stick to the business that they know best which is building line printers and to be the best printer company in the business. To that end as I mentioned before, they are concentrating on solving present problems.

It is interesting that the four problems we submitted to them as the ones we considered the most serious are also those which they consider most serious. They have both long range and short range solutions to all of these problems. The long range holds more promise than the short range; however, the short range solutions in my estimation, as detailed in Busiek's report, are completely satisfactory.

Their director of Engineering, which is a fancy name for the engineer who really is controlling the engineering, is Bob Pearson. Pearson used to run their disc engineering effort in the last year or so of its life and impressed me greatly with his design efforts in that area. He continues to impress me by his detailed explanations of the causes of the present four outstanding problems and his proposed solutions. He is an outstanding engineer and the most outstanding and competent engineer at Anelex. When they went out of the disc business and we heard rumorsof layoffs, I made immediate efforts to see if we could hire him.

By May 15 they will have implemented the short range solutions to their problems and will stop instituting changes on a machine by machine basis. The claim is that all machines from that point on will look the same. This should allow them to get their documentation into better condition.

Conclusion

My conclusion is that we should continue to use Anelex as a supplier of 600 line per minute printers. Even before this meeting, our field service problems had been clearing up with only two machines that had been a constant source of problems.

I am convinced they are in the printer business to stay.

Their attitude is completely cooperative and unlike Anelex's attitude of old. On the one major outstanding design defect for which they have tried to soak us for replacement parts in the past, the paper puller, I am convinced they will negotiate, either a free or reasonably priced settlement.

In the 300 line per minute area I think they will probably be a satisfactory vendor with their $12,000 + shuttle printer.

We have yet to speak to their customers who presently have shuttle prints and must evaluate Potter before reaching a decision.

The low speed 300 line per minute printers that we saw were producing good copy.

bwf
cc: K. Olsen
Enc.

INTEROFFICE MEMORANDUM

DATE 3 April 1967

SUBJECT PDP-1-53

TO Ken Olsen FROM Dave Cotton

On March 22, Bill Long and I visited Doug Hogan and Barbera Stephenson at the National Security Agency. Hogan has received funding approval and wishes to purchase the following system:

Item No.	Quantity	Description	Price
1	1	PDP-1-53 (used) 16K memory 16-channel sequence break system	$75,000*
2	1	Type 19 High Speed Channel Control	9,000
3	2	Type 123 High Speed Data Controls	20,000
4	1	Type 131 High Speed Data Control	10,500
5	1	Type 510 Automatic Magnetic Tape Control	18,000
6	4	Type 570 Magnetic Tape Transports	96,000+
7	1	Type 550 DECtape Control	9,400
8	2	Type 555 DECtape Transports	14,800+
9	1	Type 64 Line Printer	28,900
10	1	Type ADA-1A 8-Channel A-D-A Converter System (estimated)	65,000
		TOTAL	$346,600

* Price set by Bob Lane

\+ Surplus equipment

This system would be a fairly complete sub-set of the $0.5 million system he already owns, and he can justify it because he can use his existing programs. If we cannot sell him the used PDP-1, the entire system is lost.

We are supplying him details for his quote. We are anticipating that the process of quoting, negotiating with NSA contracting officers, and award will result in a contract during the next two months, with delivery about six or seven months from receipt of the order.

I have attached the list of PDP-1 installations in the Greater Boston area that you requested.

DBC/mcb

Attachment

Dave Cotton

PDP-1

Number	Customer
1B-1	BB&N
1C-1	Itek
1C-3	AFCRL, Hanscom Field
1C-4	AFCRL, Hanscom Field
1C-5	MIT, E. E. Dept.
1C-6	Harvard (Moved from AFCRL)
1C-20	BB&N
1C-26	MIT, Lab. for Nuclear Science
1C-36	AFCRL, Hanscom Field
1C-37	MIT, Lincoln Labs
1C-41	Harvard (Dunbar Labs)
1D-45	BB&N
1C-55	Inforonics

digital EQUIPMENT G. M. B. H. KÖLN

INTEROFFICE MEMO

SUBJECT Engineering Newsletter 335
Your report

DATE 4-3-67

TO Ken Olsen

FROM Peter Herke

I suggest someone look into a cheap alternative to paging; the following seems one possibility. A little pocket receiver which is carried in the shirt pocket produces a buzz when hit buy a unique code.
It is then switched on and a message can be received. Even if the message is garbled by noise, the person could call the switchboard, Where the message originated, from the nearest extension phone.
I've seen it work effectively in a research center here at the Max-Planck Institut for Coal Research in Mülheim. Certainly only people ~~hear~~ nearby hear the buzz at all.
Finally, it has a range of several miles, so a person can ever be reached in the parking lot, the bowling alley at lunch, or as in a case here a fellow took a nap at home over lunch time and was awakened by the buzz.
If no one knows anything about this setup over there, and you want to pursue it further, I'd be glad to get some of the details on costs, performance etc.

Peter

c - Win Hindle 5/1/67

digital INTEROFFICE MEMORANDUM

DATE: April 3, 1967

SUBJECT: Parking Stickers

TO: → Ken Olsen

FROM: Robert Clements

cc: Bob Lassen
Bob Savell

My own displeasure with the parking situation, coupled with comments I hear around me in the company, compels me to document my objections to the parking sticker requirement.

1. Efficiency of utilizing the parking lots is a question of ability and attitude of the employees. It is not related to parking stickers, except perhaps negatively as they influence persons' attitudes.

2. The only valid justification for requiring stickers to park in the Thompson Street lot would be if there were persons attempting to park there who did not have business with DEC. I don't believe that this is the case.

3. At our group's last Tea, you were careful to point out that employees should not think in terms of "The Company" when they have complaints. I don't see how they can think otherwise, when this subject is being brought to their attention by their supervisors, the Pinkerton Guards, the Personnel Department, and your own memo of March 16 which states "It is the company's firm intention ....."

4. A blazing orange sticker on one's car inhibits the gaining of information in the company's interest. I, for instance, have learned a number of items about SDS competition by visiting at BBN, working in the same room as SDS engineers. I don't think I can do that now that I have a label on my car.

5. In connection with the above, It seems unfair to ask DEC employees to advertise DEC while they are on their own time.

   A solution to (4) and (5) would seem to be allowing DEC people to put stickers on sun-visors and turn them down while in the lot. I got a parking violation while trying that.

6. It is a contradiction to ask employees to both A)"Park within the Lines" and (B) behave respectfully to the guards.

bwf