Harlan Anderson

Herrn
Dr.med. G. Dumermuth
Leiter der EEG-Station
Universitäts-Kinderklinik
Steinwiesstr. 75

Zürich 7/32, Schweiz

7.9.63 TJ/sie 12.9.1963

Dear Dr. Dumermuth,

Thank you again for your letter of September 7. Following our telephone conversation yesterday, I am taking this opportunity to send price lists for the PDP-5 and PDP-4 computers, as well as a brochure describing analog/digital conversion techniques using modules previously available. I will be communicating with you again as soon as I have the additional information on the converter equipment referred to in your letter and in our new PDP-4 brochure.

The price list for PDP-5 indicates that we do offer the type 50 and tape control 57A for this machine. Present plans include offering a Fortran compiler for this machine, which would require Microtape storage.

I am also including a PDP-6 brochure. This machine is particularly well-suited for university research work and, in line with your presently ordered and expected computer equipment, might be of interest to you. This machine is exceptionally powerful for the price, offering high speed and programming and hardware flexibility.

Please do not hesitate to forward any additional question you might have. I look forward to an opportunity to discuss your requirements and to supply you with the information which you requested.

Sincerely,

Ted G. Johnson

Ted G. Johnson
Applications Engineer

Enc: F-42
F-52
F-61
E-450D

SCHOOL OF INDUSTRIAL MANAGEMENT

ESTABLISHED UNDER A GRANT FROM
THE ALFRED P. SLOAN FOUNDATION, INC.

50 MEMORIAL DRIVE
CAMBRIDGE 39, MASSACHUSETTS

December 18, 1963

Mr. Harlan E. Anderson
Vice President
Digital Equipment Corporation
146 Main Street
Maynard, Massachusetts

Dear Harlan,

Enclosed is a copy of my talk of November 12 which I gave at the conference that Ken attended. I would appreciate very much having your comments on any of the thoughts presented in it.

Sincerely,

Jay

Jay W. Forrester
Professor of
Industrial Management

JWF:bw
Enclosure: copy of "Dynamics of Corporate Growth"

The National Cash Register Company

Dayton 9, Ohio

December 23, 1963

Harlan E. Anderson
Vice President
Digital Equipment Corporation
Main Street
Maynard, Massachusetts

Dear Mr. Anderson:

Thank you very much for the opportunity of presenting the [illegible] product line to Mr. Robert Savell. Bob gave me a warm reception and made this a very pleasant visit.

In our discussion, we talked about our paper tape readers, [illegible] tape punch, card readers, the printer and magnetic tape. We did not discuss the magnetic tape units in great length since Bob [illegible]fied that he did not normally get involved with these.

During our conversation, Bob mentioned that the more immedi- [illegible]te interest would be in the area of card readers. As you know, we [illegible] three different card readers.

EM-D3 Static Card Reader
EM-D1 2000 card per minute serial reader
EM-D2 100 card per minute serial reader

I am very pleased to say that all of these have enjoyed a [illegible] reception on the OEM market, especially the 100 CPM card reader [illegible]2). As a result of this fine reception of the 100 CPM card [illegible], we expect this to be an extremely high volume item with us. [illegible] confident that this will fill your need for a low cost ($865) [illegible] reader, I would like to encourage you to place an order with us [illegible] an evaluation unit. Once we have your OK, we can guarantee de- [illegible]very within 120 days. If before that time you should decide that [illegible] unit would not fit your needs, we would certainly honor your [illegible]st for cancellation. In this way you could reserve a unit with- [illegible]fully committing yourself.

It is also possible that you or others in your organization [illegible] like to visit our Engineering Department here in Dayton. Here [illegible] would have the opportunity of talking to the engineers who designed [illegible] built the equipment. Other people who have been through our

neering Department have always gone away with the feeling that has a fine group of engineers and that we build nothing but high quality peripheral equipment.

I had this same impression of quality about Digital Equipment Corporation when Bob explained your line of equipment to me. I think you and others in your organization deserve a real pat on the back for showing a profit in the computer business. As you know, this is something that only a very few companies have been able to accomplish.

With this letter, I am enclosing a picture of the 100 CPM card reader. As you can see, it is an attractive and compact unit. As more information and brochures on this and other equipment becomes available, I will forward it to you immediately.

Again, thank you for your interest in our products and for the personal attention showed me by Bob while in Maynard.

Very truly yours,

D. L. Scanlon

D. L. Scanlon
Special Representative
Original Equipment Manufacturer
Sales Division

DLS:gw

cc: Mr. Robert E. Savell

C-382 CARD READER POWER REQUIREMENTS

Motor and A.C. solenoid:	115V. + 10 - 20%, 60 cycles, at 0.75 AMPS maximum.
Escapement solenoid:	16 ohms D.C., 10V applied until armature moves and then reduced to 4V.

382 CARD READER TIMING REQUIREMENTS

Reader at Rest:	Register button will mechanically load card from hopper to read station.
Computing Time:	7 milliseconds per column
Time between Column 80 and Column 1:	49 milliseconds

To maintain a free flow at 100 cards per minute the card from the hopper is brought forward to the loading platform mechanically at approximately Column 30 of the card presently being read. Fields from the card may be read upon demand due to a program disc in the rear of the reader. Reader comes to rest when hopper is empty.

CLASS 382 CARD READER

The Class 382 Card Reader is designed to read Hollerith punched cards, both alpha and numeric.

SPECIFICATIONS:

Hopper fed - 500 card capacity

Automatic Feed

Automatic Stacker - 500 card capacity

Speed - 100 cards per minute

Reading Field - 2 to 80 columns - number of digits to be read is programmable through processor

Has capability of demand feed from processor

Automatic feed can be disabled to permit entry of single card

Last card read is easily available for inspection

After reading, cards are stacked in same order as original deck

Capable of modification for operation in domestic or foreign countries. Input power should be 50 or 60 cycles, ± 3 cycles. 50 cycle feature of 200-220 or 220-250 volts is expected to provide future minimum production costs

Environment:	Operating	Minimum	Maximum
	Temperature	40°F.	98°F.
	Relative Humidity	20%	80%

BILLINGS AND REECE

EMERSON 9-2245
CONCORD, MASSACHUSETTS

December 31, 1963

Mr. Harlan Anderson
Vice President, Marketing
Digital Equipment Corporation
Maynard, Massachusetts

Dear ~~Mr. Anderson~~ Harlan:

We greatly appreciate the time you gave us on December 13 and your thoughtfulness in answering our computer industry study questions.

We are now approximately half way through the study, and the value of your contributions is increasingly evident.

Again, I want to thank you for your contribution. I hope you will not hesitate to call if you see an opportunity for Billings and Reece to reciprocate.

Very truly yours,

Tom

Thomas V. Atwater
Partner

pb

PUBLIC RELATIONS BOARD OF NEW ENGLAND
29 COLUMBIA ROAD • MARBLEHEAD, MASS. 01947

AREA CODE 617
BOSTON 593-1323

Dec. 27, 1963

Mr. Harlan Anderson
Digital Equipment Corp.
Maynard, Mass.

Dear Andy:

Since you were interested in or suggested the following projects, here is their standing:

1. Business Week will do a solo story on DEC, using the PDP-6 as a news peg. The story will be timed to come off at the time of the introduction.

2. Reports on Science, the MIT publication that reaches 3,000 top scientists and 800 major research organizations, is planning a story on DEC's computers. Idea is to show how some MIT research has helped create commercial products.

3. Science Reporter, the WGBH educational channel show will now include DEC in one of its programs. Filming is not likely to occur for the next couple months, due to a heavy programming schedule. Story line is now on the scientific applications of computers.

4. WHDH, Channel 5, is now likely to tape a DEC show. The station is undecided whether to tie the story to the PDP-6 showing, or to do a general story on computer development using DEC equipment. (WHDH would make its tape available to the ETV network, on request.)

5. Time magazine will likely do a story on DEC pegged to the PDP-6 introduction. The story has been tentatively accepted by Time. That is, it will be reported, but can always be knocked out by other stories or space requirements. The Time people, however, are enthusiastic about this as a business story.

Cordially,

Chip

F.N. Karmatz

12/30/63 copied and sent D & L Atwood

WILLIAM CONGLETON

200 BERKELEY STREET
BOSTON 16, MASSACHUSETTS
HANCOCK 6-7060

December 23, 1963

PERSONAL

Mr. Harlan Anderson
Digital Equipment Corporation
146 Main Street
Maynard, Massachusetts

Dear Andy:

Your thoughtful Christmas remembrance of the Adams Associates' Computer Characteristics Quarterly was certainly welcomed, and I thank you very much for your generosity. I had never before seen a copy of this publication, but I have already found it to be fascinating reading. I am sure that it will be quite useful to me in my efforts to keep generally informed on the general competitive situation in the data processing industry in the months ahead.

Everyone here at ARD joins me in wishing you and your fine family a happy holiday season and in hoping that your fondest wishes come true in 1964.

Cordially yours,

Bill

William H. Congleton

whc/mj

December 16, 1963

Mr. Kenneth H. Olsen, President
Digital Equipment Corporation
146 Main Street
Maynard, Massachusetts

Dear Mr. Olsen:

I think you would be interested in a new service to management program provided by Arthur D. Little, which has been pilot tested over the past three years with a limited number of clients with very good success. With the experience gained during this period, the program has been modified and broadened in scope to meet the needs of top and middle management and we are now offering it to a larger number of clients.

This program, described in the attached brochure, consists of accessibility to eight to twelve formal research projects carried out annually by our staff and management briefings initiated by you and your staff. Annual charge for the program is $5,000.

Research programs to be reported on for the remainder of 1963 and on which work is well underway include:

Outlook for Aerospace Electronics
Free World Communications
Significant Computer Design Trends
Passive Components - Markets and Technological Trends

Under the management briefing portion of the program, our full professional staff is available for interrogation by you and your staff on a variety of subjects.

I am enclosing a sample report on a project carried out in the latter part of 1962 with its accompanying "REMINDE". The REMINDE is so designed to list items which, in our opinion, require management investigation, and/or decision and is circulated separately from the report.

Would it be convenient for me to visit you or a member of your staff to further discuss this program?

Very truly yours,

John P. Thompson

JPT:an
Enclosures

ELLIOTT-AUTOMATION LIMITED

34, PORTLAND PLACE · LONDON W1

Telephone: Langham 9271 · Telegrams: Elliotauto London - Telex

Mr. Harlan E. Anderson,
Vice President,
Digital Equipment Corporation,
Maynard,
Mass.
U.S.A.

13 December 1963.

Dear Mr. Anderson,

On my return to London I hasten to thank you for the most interesting time we spent at your Works.

I certainly enjoyed talking to you, and I very much hope that you will give us the opportunity to reciprocate your warm hospitality in London.

With kind regards.

Yours sincerely,

L. L. Ross

December 12, 1963

Mr. Ted Johnson
Digital Equipment GmbH
Maximilianstr 26/I
8 Munchen 22
West Germany

COPY

Dear Ted:

In reply to your telegram of yesterday, yes we had thought about the question of a free-port or Bonded duty-exempt warehouse. We dropped the idea because:

a) Delivery is nearly as fast via air from Maynard as it would be out of a free-port particularly if the free-port was appreciably removed from the Customer's location.

b) The Germans with whom we discussed the matter were not enthusiastic (as apposed to some Common Market Countries who encourage this sort of thing.)

c) Bonded Warehouses themselves are not inexpensive (just the in-out handling and storage).

If you have a specific plan in mind Ted, we'd be interested in the particulars. (Which modules - how many - where - handling rates, etc.) We'd also wonder whether or not the same end result might not be accomplished through a duty bond such as is being obtained for the PDP-5.

In other words, the subject is not closed but would take more particulars before a decision could be reached.

Sincerely,

George T. O'Dea
Treasurer

GTO'Dmcs

cc: H. Anderson
S. Olsen

ELECTROFILM INC., 7116 LAUREL CANYON BLVD., NORTH HOLLYWOOD, CALIFORNIA

P.O. BOX 106 / AREA CODE 213 875-1000 / 781-8000

TWX 213-765-5288

H.B.G.

December 6, 1963

Harlan Anderson
Digital Equipment Corp.
Maynard, Mass.

Dear Sir:

Following up your interest in Electrofilm's Heating Elements at the National Electronics Conference, our representative, Malovac Sales Company, 5906 W. North Avenue, Chicago 39, Illinois, has requested that we send you the literature enclosed.

If we can be of further service, we would be pleased to have our representative in your area call on you.

Very truly yours,

ELECTROFILM, INC.

Bill Droege

Bill Droege
Sales Manager

BD/jt
Enclosures
WMB2 SOH ESH

sent D Purchasing

Andy

Who knows? BOT

Applied Dynamics, Inc. / 2275 PLATT ROAD, ANN ARBOR, MICHIGAN / AREA CODE 313 / PHONE 662-4493

November 29, 1963

Mr. John A. Ridgeway
Digital Equipment Corporation
Maynard, Massachusetts

Dear Jack:

Thanks for your letter and the copy of the RFQ from Minneapolis Honeywell. We have contacted Carl Edstrom who both Jerry Kennedy and I know from the past concerning this. It turns out that he is very receptive to a bid from Applied Dynamics for the Analog Computer equipment. He has a funding problem at present which probably will foreclude his buying the Analog Computers immediately, however, he does plan to go ahead with the purchase of a Digital machine. As far as we can determine his real interest lies in purchasing a PDP-6. I believe that this interest is largely based on the good experience that he has had with the PDP-1 since it has been delivered.

We will, at his request, prepare him a proposal on the analog portion of this system which he will consider. We will certainly keep you informed.

Very truly yours,

APPLIED DYNAMICS, INC.

G.F. Graber
Vice-President
Marketing

GFG:lb

November 18, 1963

COPY

Mr. Paul Slattery
KIE Corporation
68 Devonshire Street
Boston, Massachusetts

Dear Mr. Slattery:

Enclosed is a clipping which may be of interest to you. The item appeared in a California paper about 2 weeks ago.

Sincerely,

Don Smith
Communications
Applications Engineer

DS:mc

Enclosure

CC: Harlan Anderson

DATA PROCESSING: Railroad official describes cost-saving device

ALFRED E. PERLMAN, president, says the New York Central Railroad has developed a device that will permit $300,000-a-year-savings in the cost of transmitting about 700,000 messages annually. Perlman says the device automatically translates data from punch card to teletype and from teletype to punch card, short-cutting time-consuming manual code conversions before and after each teletype transmission. He claims it has applications in many large-scale business operations outside railroading.

UNIVERSITY OF *Minnesota*

INSTITUTE OF TECHNOLOGY
SCHOOL OF PHYSICS · MINNEAPOLIS 14

November 15, 1963

Mr. George L. Rice
Applications Engineer
Digital Equipment Corporation
Maynard, Massachusetts

Dear Mr. Rice:

Thank you very much for developing the interesting proposal which you submitted in response to my request for a quotation on a system for on-line processing of multi-channel analog voltage data from our biomedical experiments and for recording this multiplexed A-D converted data in IBM compatible format on standard magnetic tape.

While your proposal does not conform at all closely to my specifications which were written around the concept of a special purpose machine designed to perform, at minimal cost, a fixed set of rather complicated operations, I find it very attractive because it offers much greater flexibility of application than was inherent in my design and it is assembled out of standard modular packages so that it is likely to be reliable and easily expandable in function as new needs arise. Obviously it also offers a general utility computer in miniature which students and staff can use to learn at first hand the rudiments of computer interface technology and programming for on-line biomedical research without tying up a large computer.

In point of fact you have hit enticingly close to the alternative instrumentation plan which I considered before writing the specifications to which you responded for a fixed program converter system. This more general modular scheme was outlined in the conference on computer-aided biomedical research which I organized, now over two years ago. This conference had a good deal to do with the adaptation and subsequent acceptance of the LINC computer for financing by the National Institutes of Health where it is planned to constitute a first attempt at a minimal adequate computer for direct incorporation in the life scientist's laboratory. Here it will provide a constantly available utility instrument to be used on-line or off-line as a working tool in place of a separately administered computer in a central facility. As the proceedings of that conference are just now being published by the Thomas Company as a book, I would be glad to send you a copy if you or your associates would be interested in it. We hope, of course, that the LINC will be only the first of a series of specially designed computers and associated modular units which will be evolved with adaptations to the needs of life science research as the special design consideration in mind.

Initially I had thought to use the locally manufactured CDC 160A or the PDP-1 combined with an appropriate digital magnetic tape transport and a relatively simple package of A-D conversion equipment to serve our

specific research needs for vector electrocardiographic data conversion and to serve at the same time as a very useful laboratory computer. This plan, besides costing an amount which even with educational discount would be difficult to justify for the immediate load of regular conversion work and the limited number of students who would be learning from it, ran directly counter to the University's firmly entrenched administrative policy against decentralized general utility computers. I have little sympathy for this policy and believe its invalidity should be demonstrated as soon as possible. An immediate and effective step would be the introduction of a special purpose converter of the type which you propose which is not technically a "computer" in the official sense, yet is enough of a computer that it can demonstrate the utility of "little computers" and "nearly computers" about the campus as educational as well as working tools.

The hard facts in the situation are these: I have requested and have received authorization from the U.S. Public Health Service to spend for a special purpose converter system just about half, give or take a couple of thousand dollars, of the money you mention in your initial bid. This converter must be able to produce formatted digital tapes from our own on-line experiments in basic heart research on spatial vector representation of the electrocardiogram and of adaptive pattern recognition in the vectorial field domain. Besides this research of our own, we plan to convert, for two collaborating heart research laboratories in the University, IRIG FM format 7-channel tapes into digital tapes suitable for analysis by our local CDC 1604 or other similar computers elsewhere.

Our own research will thus load a machine of the type we propose with perhaps 1 - 2 hours of work per day while the conversion service work for our collaborating laboratories will total less than an hour per day. You can see why we would like to have a more generally useful digital system. We are clearly invited by the terms of our research grants to utilize the equipment for instructional and exploratory research purposes whenever it is not needed in its primary research function and we firmly intend to use it in this capacity should it become obsolescent in its original primary function, as the title to all this equipment passes permanently to the University. I am required, however, to order specific equipment with the available funds within the next few weeks as the money will otherwise revert.

What I would like to have you explore with the directorate of your company is the feasibility of some arrangement of educational discounts, permanent loan of equipment, or other legitimate procedures through which we could purchase with available grant funds a minimal conversion system incorporating the 4096 word model PDP-5 and sufficient auxiliary equipment to produce properly formatted digital tapes from multichannel voltage inputs. This would meet our grant obligations with respect to our own heart researches and our obligations with respect to converting FM analog tapes for our associated laboratories.

We would obviously like to use this system as a nucleus around which to elaborate a more powerful processing complex. We would also like to use it to introduce the twenty or more staff members and graduate students who would utilize the equipment at first hand to the real capabilities of simple digital computer assemblies. Our laboratory, as you may know, is now heavily loaded with special purpose analog systems and has indeed done some pioneering in this direction, but I would now like to emphasize the power of composite analog-digital systems, especially in on-line closed-loop adaptive form.

We have every reason to believe that funds for adding to a basic system can be made available from time to time, and indeed presently committed grant and contract funds incorporate sums for this purpose in each additional year. It seems especially pertinent therefore to establish this nucleus.

Because you may not be too familiar with the kind of work that goes on in a laboratory like ours, I am enclosing a few reprints to give you some idea. Unfortunately most of the new work about which I told you, on analog simulation of digital smoothing filters, resynthesis of degraded data of poor signal to noise ratio and vectorial pattern recognition is still in press so that I cannot offer you reprints. I have, however, included reprints on some current work as well as copies of a few ancient reprints that might amuse you in line with our discussion of the slow assimilation of new ideas into computer applications. Perhaps these reprints will give you an idea of what I mean by saying that the laboratory is run as a kind of research prototype laboratory rather than as a mass production research operation.

I am sorry that I was not in my office when you called earlier this week: I have had to be out of town much of the time since I talked with you at MIT and have been so besieged with foreign visitors, ongoing research and minute by minute emergencies of one sort and another that only tonight could I find the time to write the letter I promised you two weeks ago.

Should you want to reach me by phone, I shall be in Baltimore attending the Annual Joint Biomedical Engineering Meeting of the IEEE and ISA next Monday, Tuesday, and Wednesday (Nov. 18-20). These meetings will be held in the Lord Baltimore Hotel where I shall be registered and where there is supposed to be a message service. On Thursday I shall be attending the Veterans Administration Scientific Advisory Council meeting at Mt. Alto Hospital in Washington, D.C., and I am sure Dr. H. Pipberger's secretary will be able to reach me there.

I hope that something will come of this effort on your part as you have renewed my enthusiasm to do this job right when I had reluctantly decided to compromise on an expedient but less ideal solution. Perhaps the compromise will have to be made after all but first let's see whether the small versatile computer system can be managed within existing financial and administrative limitations. If I can furnish any further pertinent facts personally or by letter, please let me know.

Best regards,

Otto H. Schmitt
Professor of Zoology
and Physics (Biophysics)

OHS/ves

Encl.

H. Anderson

DIGITAL EQUIPMENT OF CANADA, LIMITED
1301 RICHMOND ROAD
OTTAWA, ONTARIO, CANADA

November 8, 1963.

Dr. F. C. Roesler,
Research Department, Fundamental Group,
Billingham Division,
Imperial Chemical Industries Limited,
P.O. Box No. 6,
Billingham, Co. Durham,
England.

sent 3 Sales folders

Dear Dr. Roesler:

Thank you for your letter of October 29th. It was a pleasure to hear that Professor Wilkes had suggested our computers to you.

At the present time we produce four solid-state high speed computers, namely the PDP-5, PDP-4, PDP-1 and PDP-6. The first three of these fit basically into the price range you suggested, but possibly the PDP-4, when incorporating magnetic tape back-up, is closer to your requirements. I have enclosed brochures on the PDP-5, 4 and 1 computer together with price lists. As you can see, a variety of magnetic tape systems are possible and I have enclosed brochures covering our Type 57A system and our fixed-address micro-tape system.

Our European sales at the present time have been confined to ferrite-core and computer-memory testers and to digital circuit modules, a catalogue of which I have sent under separate cover. However, we now have a subsidiary company in München which is able to handle sales, engineering and servicing and as a result we expect to be installing computers in Europe in the near future. A similar subsidiary is nearing reality for the U.K.

Our machines are guaranteed for a period of six months during which time our service engineers will make themselves immediately available in case of trouble and after that period maintenance is charged on a per-call basis. We do however recommend that customers perform their own maintenance as the

..2

reliability of the machines and the simplicity of servicing are such that it is more economical for the user to provide these. Digital Equipment Corporation provide free maintenance and programming courses at Maynard, Massachusetts, and will also do the same in Europe when required.

You may be interested to know that we will have a PDP-5 computer being demonstrated as a pulse-height analyzer at the forthcoming MESUCORA Show from November 14th to 21st. Following this we also hope to demonstrate it at CERN and Harwell.

I shall be in Europe during this period and if you are able to get to the MESUCORA Show, our stand is 1A02 rouge, we could discuss your problem in more detail. Failing that, I shall be in England for a few days at the beginning of December and could possibly meet you then. In any event, I will telephone you to see if this is possible.

Thank you again for your interest.

Yours sincerely,

JL:LM
Encls.

John Leng,
Manager of Engineering.

cc: H. Anderson
N. Mazzarese
G. Hüwe

BOLT BERANEK AND NEWMAN INC
CONSULTING DEVELOPMENT RESEARCH

8221 MELROSE AVENUE
LOS ANGELES 46, CALIFORNIA
TELEPHONE OLIVE 3-0180

8 November 1963

Mr. Gordon Bell
Digital Equipment Corporation
Maynard, Massachusetts

Subject: Proposal for Sequence Break and DDT Modifications to DECAL-BBN (P64-LA-9)

Dear Gordon:

This letter is intended to become a part of the subject proposal which you have already received. A copy is attached for reference.

Section III is changed to read:

III. We propose to provide items
1 - a, b, c, d, e, f,
For a fixed price of $2,500

And/or items
2 - a, b, c, d, e,
For a fixed price of $2,500

The method that will be used for buffered input/output using the sixteen channel sequence break system is such that any arrangement of channel assignments can be accommodated with only trivial binary modifications to the program. This feature will make it possible for any PDP-1 installation to use DECAL-BBN with buffered input/output.

We continue to believe that the two proposed modifications are equally valuable to DEC. The value of the DDT modification can be clearly seen. The value of the sequence break modification is more subtle. In addition to the advantages

noted in the subject proposal, I would add one. It is probably good salesmanship to have a program which is used so much show off one of the powerful features of the PDP-1 - the ability to have buffered input/output by utilizing the hardware interrupt system.

We hope that with this additional clarification of features and cost breakdown, DEC will respond favorably to this proposal. Please feel free to contact me or Mr. Richard J. McQuillin if there are any questions concerning this proposal as amended.

Sincerely,

BOLT BERANEK AND NEWMAN INC.

William E. Fletcher

WEF:vo

cc with attachment

cc: Ken Olson
Harlan Anderson
Harrison Morse
Gino Cocelli
Ronald Coleman (DEC-LA)

JOHN P. YOUNG & ASSOCIATES (VIC.) PTY. LTD.

MANAGEMENT CONSULTANTS

TELEGRAPHIC ADDRESS:
"CONSULTANCY," MELBOURNE

TELEPHONES:
EXECUTIVE SELECTION & MANAGEMENT SERVICES 81 1466
TRAINING DIVISION 81 1491
SALES & MARKETING DIVISION 81 1474

2 GLEN STREET, HAWTHORN, E.2
VICTORIA

MELBOURNE SYDNEY
BRISBANE ADELAIDE
PERTH

8th November, 1963

Mr. Gordon Bell,
Manager, Computing Division,
Digital Equipment Corporation,
Maynard,
MASSACHUSETTS. U.S.A.

Dear Mr. Bell,

Re: Branch Manager, Sydney.

I have been asked by Mr. J. J. Masur, your new Australian agent, to procure a young electronic engineer who would, under your guidance, set up a branch of your company in Sydney, New South Wales.

As Mr. Masur was unable to give me full enough details to proceed with the assignment, I am writing to you direct with his concurrence.

I have made the following assumptions -

1. That you require a man to set up and operate a branch which will create and service new customers in the Australian and New Zealand areas.

2. That the equipment will be imported fully assembled and that he is concerned only with sales and service.

3. That he will be given adequate technical backing from the U.S.A., but that nevertheless he will carry full responsibility for the profitability of the branch.

4. That his compensation plan will be geared to branch profitability.

5. That your equipment is of greater interest to University departments and scientific research institutes than to commercial or industrial users.

6. That you would require a man with a relevant university degree, unless he had experience of an unusual quality to compensate for his lack of academic standing.

7. That you require an Australian, or at least a person very familiar with Australian conditions and locally acceptable.

8. That you will be making provision for superannuation, indoctrination overseas, etc.

As in the U.S.A., when hiring executives you get what you pay for. Accordingly I suggest you should offer a suitable inducement to ensure that you get a top quality man.

A few guide lines may help you here -

(a) A professor in charge of a University department would be paid about £4,500 p.a., with substantial fringe benefits.

(b) The general manager of an important computer company (staff of 35) is paid £5,600 A. p.a. A car, superannuation and liberal expenses are provided.

I suggest that you should offer a base salary of £3,500 to £4,000 p.a., a bonus on results achieved, a car and contributory superannuation. (An endowment policy, maturing at age 65, is common practice here, with the executive and the company each contributing a sum equal to 5% of the annual salary).

The cost of advertising for this executive we estimate at 150 guineas. Our professional fees for interviewing candidates and reporting to you on a short list would also amount to approximately 150 guineas.

In other words, you could expect to have the candidates reduced to a short list of 3 or 4 finalists at a cost of 300 guineas (£A 315.)

I attach a draft advertisement that we propose inserting in the local press immediately you have cabled acceptance of our proposal.

You will no doubt appreciate the necessity for prompt action, as the business world comes to a halt in Australia for the summer vacation about 23 December. (Our services, however, are available to you 365 days a year).

We now await your reply,

Yours faithfully,

Leo R. Parker

Leo R. Parker,
Director,
JOHN P. YOUNG & ASSOCIATES (VIC.) PTY. LTD.

Draft Advertisement.

G E N E R A L M A N A G E R

required to set up from scratch

A NEW DIGITAL COMPUTER COMPANY

a subsidiary of a vigorously managed U.S.A. Corporation

Duties: Responsible for setting up and operating a new company to sell and service digital equipment throughout Australasia.

Qualifications: A degree or diploma in a relevant field, a detailed knowledge of modern data processing techniques and business acumen of a high order are required. Age 30 to 40 preferred.

Salary: Initially £3,500 to £4,000 p.a. Substantial bonus on results achieved. Car provided. Superannuation available.

Applications: Confidential. Please detail age, training, qualifications, experience, 'phone numbers and other relevant information. Apply by letter, mentioning "Position VP - 27" to:

Executive Selection Division,
JOHN P. YOUNG & ASSOCIATES (VIC.) PTY. LTD.,
MANAGEMENT CONSULTANTS.
2 Glen Street, Hawthorn. E.2. Victoria.
Or to our Offices In Sydney, Brisbane, Adelaide, Perth.

BOLT BERANEK AND NEWMAN INC
CONSULTING DEVELOPMENT RESEARCH

8221 MELROSE AVENUE
LOS ANGELES 46, CALIFORNIA
TELEPHONE OLIVE 3-0180

8 November 1963

Mr. Gordon Bell
Digital Equipment Corporation
Maynard, Massachusetts

Subject: Proposal for Sequence Break and DDT Modifications to DECAL-BBN (P64-LA-9)

Dear Gordon:

This letter is intended to become a part of the subject proposal which you have already received. A copy is attached for reference.

Section III is changed to read:

III. We propose to provide items
1 - a, b, c, d, e, f,
For a fixed price of $2,500

And/or items
2 - a, b, c, d, e,
For a fixed price of $2,500

The method that will be used for buffered input/output using the sixteen channel sequence break system is such that any arrangement of channel assignments can be accommodated with only trivial binary modifications to the program. This feature will make it possible for any PDP-1 installation to use DECAL-BBN with buffered input/output.

We continue to believe that the two proposed modifications are equally valuable to DEC. The value of the DDT modification can be clearly seen. The value of the sequence break modification is more subtle. In addition to the advantages

noted in the subject proposal, I would add one. It is probably good salesmanship to have a program which is used so much show off one of the powerful features of the PDP-1 - the ability to have buffered input/output by utilizing the hardware interrupt system.

We hope that with this additional clarification of features and cost breakdown, DEC will respond favorably to this proposal. Please feel free to contact me or Mr. Richard J. McQuillin if there are any questions concerning this proposal as amended.

Sincerely,

BOLT BERANEK AND NEWMAN INC.

William E. Fletcher

William E. Fletcher

WEF:vo

cc with attachment

cc: Ken Olson
Harlan Anderson
Harrison Morse
Gino Coucelli
Ronald Coleman (DEC-LA)

NCR

D. L. SCANLON

Special Representative
Original Equipment Manufacturer
Sales Division
THE NATIONAL CASH REGISTER COMPANY
Dayton, Ohio

The National Cash Register Company

Dayton 9, Ohio

November 7, 1963

Mr. Harlan E. Anderson
Vice President
Digital Equipment Corporation
Maynard, Massachusetts

Dear Mr. Anderson:

Thank you very much for your interest in our equipment at the National Electronics Conference.

As you know, NCR is announcing an expanded marketing program under which we will sell to other original equipment manufacturers a wide line of peripheral units and mechanisms, most of which are intended for incorporation in electronic data processing systems.

All of us in the data processing business today are conscious of the tremendous investment required in the development of a full line of peripheral equipment, and for this reason you might be interested in our new OEM program. Among the products which we plan to offer are punched paper tape and punched card readers, high speed buffer units to link these input and output devices to processing equipment. We are also prepared to engineer and manufacture variations of these types of products in accordance with the individual specifications of other manufacturers.

Within the next few weeks, I will be in your area and would like to call on you for the purpose of explaining this program to you or to others in your organization and to explore any possible interest on your part.

In the meantime, if you have any questions about the scope of our new OEM program, I would be pleased to hear from you.

Very truly yours,

D. L. Scanlon

D. L. Scanlon
Special Representative
Original Equipment Manufacturer
Sales Division

H. ANDERSON

November 5, 1963

Mr. David H. Lord
National Institute for Research in Nuclear Science
Rutherford High Energy Laboratory
Chilton, Didcot
Berkshire
ENGLAND

Dear Mr. Lord:

RE: Your WU1 November 4, 1963 to Mr. Harlan Anderson concerning 4678 Level Amplifiers

Thank you for your recent message requesting information concerning the Digital Equipment Corporation Type 4678 Level Amplifier Module.

I have enclosed a preliminary data sheet which gives detailed specifications of this module as well as a comparison of it with our other level amplifiers.

The price of the 4678 is $78 and shipment of a reasonable number of these units can be made within two weeks of receipt of a purchase order.

We sincerely appreciate your interest in DEC products. Please do not hesitate to contact me if I can be of any further service to you.

Sincerely yours,

John J. O'Connell, Jr.
Applications Engineer

JJO:mc

Enclosure: 4678 Data Sheet

5 November, 1963

Mr. Harlan Anderson
Vice President
Digital Equipment Corporation
Maynard, Massachusetts

Dear Andy,

Thank you for your letter of October 15, 1963. I shall be in the States from December 1 through December 15, 1963, and will attend the meeting and Annual Dinner on the 9th December in Maynard.

Thank you for acting on Solartron and Le Materiel Electrique. I have forwarded to Monsieur Lantieri the PDP brochures and I have requested from him some PLP material. I shall arrange a meeting with Jon Fadiman between November 11 and November 21 with these people.

I shall meet with pleasure Mr. John Leng in Paris and will visit the Mesucora show.

Hoping to see you in December, I remain,

Sincerely yours,

A. de Vitry

adv:z

H. Anderson

DIGITAL EQUIPMENT OF CANADA, LIMITED
1301 RICHMOND ROAD
OTTAWA, ONTARIO, CANADA

November 4, 1963.

Dr. E. Bretscher,
Head, Nuclear Physics Division,
Atomic Energy Research Establishment,
Harwell,
Didcot, Berks.,
England.

Dear Dr. Bretscher:

Thank you for your letter of October 22nd which was routed on to me from Chalk River. As you will notice from my address, I am no longer with AECL but, however, still engaged with the problems of using computers for physics research.

I'm happy to say that I shall be in Europe for the nuclear electronics conference together with Dr. A. Pearson who, as you probably know, is in charge of the electronics work at Chalk River. Dr. Pearson is, I believe, visiting Harwell on Wednesday and Thursday, the 4th and 5th of December and I have recently written to Mr. Cooke-Yarborough requesting the opportunity to visit on the Monday and Tuesday, the 2nd and 3rd of December. This date coincides with that suggested by yourself and I would welcome the opportunity to talk with the people you suggested. In addition, I shall have material with me for talks at Paris and CERN so this could very well form the basis of a colloquiem at Harwell if you so wish.

Mr. Cooke-Yarborough has probably mentioned to you that I would like to bring a small computer with me to Harwell. We will also be demonstrating this machine at the MESUCORA Show and at CERN. You will no doubt be interested to know that we will have this machine interfaced with a pulse-height encoder, so its use as a pulse-height analyzer can be conveniently demonstrated. We would be happy to leave this machine at Harwell for

..2

a while so that your people could have a chance to play with it and acquire some feeling for the use of a small computer in this application. I've enclosed a brochure on the standard PDP-5, together with a price list, and also a brochure on the PDP-5 Pulse-Height Analyzer. Your electronics division might possibly consider it worthwhile interfacing their own equipment to such a computer, and this of course is quite easy to do.

I look forward to meeting you and your colleagues in December. Thank you again for your invitation.

Yours sincerely,

JL:LM
Encls. F-51B
F-52
G-560

John Leng,
Manager of Engineering.

cc: H. Anderson
N. Mazzarese
G. Huewe

UKAEA

ATOMIC ENERGY RESEARCH ESTABLISHMENT,

HARWELL,

DIDCOT, BERKS.

Your reference

Our reference

telegrams: ATEN, ABINGDON telex: 83135

telephone: ABINGDON 1220 EXT

22nd October, 1963.

Mr. J. Leng,
Atomic Energy of Canada Limited,
Chalk River,
Ontario,
Canada.

Dear Mr. Leng,

Dr. Montague has shown me the paper list for the conference on nuclear electronics. I notice that you are offering a paper and I thought you might possibly be coming to Europe to present it; if you do, I would very much like to invite you to come to Harwell to see what we are doing and perhaps to give a talk on on-line computing with your tandem and your further plans.

I have just received a request from our linear accelerator people for a small computer to be associated with the linac, the cyclotron group has asked for such an instrument, and I have no doubt that more requests will be forthcoming. It is clear that most of our scientists have not yet formed firm ideas of what one can do with a certain amount of money and we are lacking the experience which you, in Chalk River, have.

If you do not come across, because of financial difficulties, I would attempt to get at least part of your expenses paid and perhaps Dr. Lewis could find the rest (we have very little money left for travelling). I am anxious that we have someone with experience who could act as a focus for a fruitful discussion of the matter. I would expect that someone from Professor Wilkinson's laboratory (or he himself), Professor Paul, several people from the Nuclear Institute, Mr. Wells from Electronics Division, and the Nuclear Physicists, would join together for an exchange of opinions and philosophies. The best time would be the Monday following the Paris conference, or if you are in a hurry, on the Friday, which would be less desirable.

Would you be good enough to let me know your plans as soon as possible so that I can, if necessary, take steps to help you in one way or another.

Yours sincerely,

E. Bretscher

E. Bretscher
Head, Nuclear Physics Division

COPY FOR H. Anderson

ITT

DATA AND INFORMATION SYSTEMS DIVISION

POST OFFICE BOX 285

PARAMUS, N. J.

TWX 201-262-0421 07652 201 CO 2-8000

November 4, 1963

E. Newman, Secretary
Digital Equipment Corporation Users Society
Maynard, Massachusetts

No.: HJM-237

Dear Mrs. Newman:

Your welcoming letter and your offer to assist with the listed reservations was appreciated. I have read the DECUSCOPES you have sent and have passed copies of specific items to interested parties. They have been of interest to many, and two other ITT/DISD personnel, Messrs. A. Loshin and G. Schloemer, will accompany me to the next meeting of DECUS.

Enclosed is my completed DECUS membership application together with the listing of proposed attendees. Mr. Loshin and I represent the Development Division of ITT/DISD. My specialty is integrated systems (hardware/software). Mr. Loshin is interested in display equipment. Mr. Schloemer is a Programming Supervisor in the Advanced Programming Department of the Data Products Division of ITT/DISD. All of us are concerned with the compatibility of the PDP line and the equipment we are utilizing.

I am sure that the future holds a much closer working relationship between DECUS and ITT/DISD.

Very truly yours,

ITT DATA AND INFORMATION
SYSTEMS DIVISION

J. Tauber
Systems Specialist

JT:amm
enc.

COPY FOR K. Olsen

NOV 6 1963
DECUS

ITT

DATA AND INFORMATION SYSTEMS DIVISION

POST OFFICE BOX 285

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TWX 201-262-0421 07652 201 CO 2-8000

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Very truly yours,

ITT DATA AND INFORMATION SYSTEMS DIVISION

J. Tauber
Systems Specialist

JT:amm
enc.

NOV 8 1963

G.E.C. (ELECTRONICS) LIMITED DECUS

~~XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX~~

~~XXXXXXXXXXXX~~

Works: Coventry, Wembley, Portsmouth

APPLIED ELECTRONICS LABORATORIES, STANMORE, MIDDLESEX

Telephone: ~~XXXXXXXX~~ Bushey Heath 2441

CAB/M.2

28th October, 1963

Mrs. Elsa Newman,
DECUS Secretary,
Maynard,
Massachusetts,
U.S.A.

Dear Elsa,

I was delighted to receive your letter, with copies of Decuscope and of the Proceedings of your 1962 Meeting. Were ever beauty and brains so happily allied as in their Editor? No wonder that someone called her "the greatest weapon"!

As a mere retired airman I naturally did not understand all the learned papers put in by your contributors, but what I understood I found very interesting. So too have some of my specialist colleagues. I should be very pleased if you can leave me on your circulation list.

Here at Stanmore we are working hard on our own breed of airborne digital computer for navigation and allied purposes. So we too know something of the machine/man interface problem. Elsewhere in the Company we make industrial, scientific and process control computers. In our process control work we are associated with Thompson Ramo Wooldridge whose name to my surprise does not appear in your papers. As users of computers we are perhaps not yet up to the standard of some Decus members, but we have a major Ferranti installation in Kent which is accessible by land-line to all the Company's forty plants.

There is as no definite news about Agard for 1964, but we still expect the arrangements to be what we heard proposed in Athens: the General Assembly and some Panels would meet in Lisbon; the Avionics Panel in London. I'll let you know as soon as anything is decided. I may hear something in a few days' time when I expect to see Dukes, the AVP Executive, in Paris.

It's good to hear that your leg is improving, but I can just see you tearing around Livermore in the next few weeks and putting it all back to first base. I hope it gets better despite everything.

My kind regards to Philip and yourself,

Cedric Bell

C.A. Bell

COPY FOR Ken Olsen

November 4, 1963

COPY

Mr. E. Fredkin, President
Information International, Inc.
Post Office Box 106
Maynard, Massachusetts

Dear Ed:

Confirming our conversation of November 1, 1963, the Digital Equipment Corporation extends the following terms of payment on our invoice #10435 in the amount of $161,100.00.

- 70% or $112,770 to be paid by III on November 16, 1963.
  Remainder when collected by III or February 16, 1964, whichever event occurs first.
  III to pay interest at a rate of 6% per annum on the unpaid portion for so long as the debt remains unsettled.

These terms are extended in recognition of the fact that III's progress payments under its contract with the end user are subject to a 30% retention pending completion.

If you accept these conditions, please indicate by signing and returning the enclosed copy of this letter.

Sincerely,

George T. O'Dea
Treasurer

GTO'Dmcs

Accepted for Information International, Inc.

_____

Date _____

bcc: Messrs. Anderson, Mazzarese and Mills.

copy to Harlan Anderson

LOS ANGELES REPRESENTATIVE:
Mr. Ken Jones
c/o MUNZIC INTERNATIONAL, INC.
212 S. WESTERN AVENUE
LOS ANGELES 4, CALIF.
TEL: DUnkirk 2-1276
CABLE: MUNZIGINT
LOSANGELES

TDK ELECTRONICS CO., LTD.
No. 11, KANDA ASAHI-CHO, CHIYODA-KU
TOKYO, JAPAN
TEL: 251-4751, 270-7151
CABLE: OXIDECORE TOKYO

NEW YORK OFFICE:
82 WALL STREET
ROOM 807
NEW YORK 5, N.Y.
TEL: HAnover 5-6973
CABLE: TODENKA
NEWYORK

TO: Mr. Jonathan Fadiman
Special Systems,
Digital Equipment Corppration,
Maynard, Mass. U.S.A.

DATE: Oct. 31, 1963
YOUR REF:
OUR REF:

ATTN:
SUB:

Dear Mr. Fadiman:

Upon receipt your letter dated on October 24, 1963, I contacted immediately to Mr. Ishikawa of Rikei Trading Company if the man is available to interview since I saw you are willing to harry, and of course I agree to accept with your proposal. However, I am understood that they have not yet been prepared a man they would hire for training purpose. Although it is difficult to find out a man suitable, their plan is to decide it until the next February which is too far to my understanding at the time I received your letter. Furthermore, the Rikei asking me to look for such engineer for them at my personal activity because they could not see what kind or character of engineer should be met with your requirement especially in the field of technical capabilities.

It is then recognized to me that the core of concerning with this program would be my responsibility. But in the case of which I could think about an opportunity to join with DEC Tokyo Office in future, this is very important for me as a manager of that office. With this anticipation, I will do my best endeavour on the job for you.

However, as I mentioned before, there is a dearth of excellent engineer in computer field in Japan as the world goes with no exception. I have some friends who might be interested to this job, but as you see, better engineer has better position already and he feels of satisfaction by that. And another things which comes to the problem is that the different shape of an employment, relation between employer and employee. As in the most of Japanese companies, one joined at once to a company, he and his family are supported by company to the bitter end of his life, almost like a family belonged to the company with giving his house, school etc. It is so different rather than a contract basis regarding only in the job in the U.S.

That is why a Japanese hesitates to get the job of American firm even though the salary is very attractive. We do not generally fire him so far he made brought a great extent disadvantage to the company. Therefore, the one who changes his job is not accepted fairly by the common sense of a Japanese. He might afraid about his future, particularly for the case of his family.

In the circumstances, I would say, for your program, the best selection is a bachelor, around 26 years of age with few years of experiences in the field of digital circuitry. This man will not so afraid about his future because he has no family and young, looking and studying foreign country are much more interesting than such fear, plus attractive salary. He should be willing to participate enthusiastically in an extensive range of training program.

I will asking to my friends and professors at my best knowledge, and will interview to judge to be met with your requirement on the above mentioned line. Will it be all right? How soon do you need this man? Let me know whether the Rikei's plan is OK (to find until next Feb.). How much I may ask to him for his salary when he becomes to an employee of DEC Tokyo Office?

As soon as I get the information should know you, I will inform you while I expecting to get answer to my present questions above. I hope this will be of benefit to both of us.

Sincerely yours.

Yu Hata

Yu Hata
Head of Research & Develop't
Electronics Division,
TDK Electronics Co., Ltd.
5-chome, Ichikawa-cho,
Ichikawa, Chiba, Japan

digital equipment corporation
MAYNARD, MASSACHUSETTS
TWinoaks 7-8822 TWX MAYN 816

October 29, 1963

Mr David H Lord
National Institute for Research in Nuclear Science
Rutherford High Energy Laboratory
Chilton, Didcot
Berkshire
England

Dear Mr Lord:

Re: Your letter of October 17, 1963 to Mr Harlan Anderson regarding 1572 Difference Amplifier.

The 1572 may be operated without clamp diodes if desired, without damage to the module. The dissipation in the output stage transistors will be higher, of course, and the amplifier drift will be somewhat greater as a result. I would estimate the drift to be about 20% greater than with the clamp diodes.

The voltage gain of the amplifier is a minimum of 6000. No upper limit is set, but I doubt the gain is much greater than 10000, and there is no reason why this gain should change drastically with removal of the clamp diodes. No severe power supply requirements exist. The module is tested using a variable supply, and the supply voltages are varied several volts before a 5 millivolt unbalance occurs. My recollection is that the last volt of power supply change causes most of the unbalance.

Please feel free to contact me if you have any other questions.

Sincerely yours

DIGITAL EQUIPMENT CORPORATION

Donald A White
Circuit Engineer

DAW:ASJ

CC NOT INDICATED ON ORIGINAL
H Anderson
J O'Connell
Customer File

NATIONAL INSTITUTE FOR RESEARCH IN NUCLEAR SCIENCE,

RUTHERFORD HIGH ENERGY LABORATORY,
~~HARWELL~~, Chilton,
DIDCOT, BERKS.

17th October 1963.

Mr Harlan Anderson
Vice President
Digital Equipment Corp.
Maynard
Massachusetts
U.S.A.

Dear Mr Anderson,

Many thanks for the data on your new different amplifier 1572 and for your rapid reply to my query about drift of the offset voltage. I have one or two other questions about this block.

We would be interested in using it in a non-standard manner, as we require an output varying roughly over the range 0 to ~~+~~ 8 v. Could we in fact get this if we removed the clamping diodes to - 3 v (D9 and D11) or would some stage saturate, cutoff or be over dissipated? We are not very interested in the linearity of the response. What would be the approximate gain of the amplifier if we removed these clamps? Finally are there any tight tolerances on the power supplies to this card.

Yours sincerely,

David Lord

D. H. Lord

Copies sent to J. O Connell
~ B Stephenson

BOLT BERANEK AND NEWMAN INC
CONSULTING DEVELOPMENT RESEARCH

50 MOULTON STREET
CAMBRIDGE 38, MASSACHUSETTS
TELEPHONE 491-1850

29 October 1963

Mr. Gino Colicelli
Digital Equipment Corporation
Maynard, Massachusetts

Subject: BBN Proposal No. P64-E-15

Dear Gino:

Bolt Beranek and Newman is pleased to submit the following proposal with regard to the DECAL-BBN programming system and its implementation to accept statements written in the FORTRAN II Language.

In accordance with our telephone conversation with Dit Morse and following our technical discussions, our proposal is presented in three parts:

Part I The implementation of floating point variable and constant handling capabilities in DECAL-BBN;

Part II The modification of DECAL-BBN to accept statements written in the FORTRAN II symbolic language; and

Part III The writing of an input-output interpreter to process FORTRAN input-output and format statements during run time.

These three parts are interrelated to implementation of FORTRAN. However it is understood that the input-output interpreter would not be suitable for processing statements written in DECAL-BBN unless work was done to implement input-output and format statements into the DECAL-BBN system. That is, DECAL-BBN will be modified to accept symbolic programs written in the FORTRAN II symbolic language, and henceforth will not be able to accept statements written in the DECAL-BBN language. Further, the implementation of FORTRAN II means that DECAL-BBN must be made to handle real variables and integers. This does not mean, however, that doing the second part of the proposal automatically fulfills the first part. The implementation of real variables and constants into the DECAL-BBN system means that such symbols will be recognized in the ALGOL sense, that is, the real variables will be declared as such before use.

It is assumed that the object program derived from a FORTRAN II source program will be completely compatible with one written in DECAL-BBN symbolic language. This is the main advantage to approaching the implementation of a FORTRAN compiler in this way; the entire DECAL-BBN library will be available to the PDP-1 user writing in FORTRAN and the entire wealth of programs written in FORTRAN will be available to the DECAL-BBN user. This will also provide a link between users of various machines within the Digital family.

Part I The implementation of real variable and constant handling capabilities into DECAL-BBN

In this phase of the work we will study and implement the floating point operations into DECAL-BBN. The most difficult problems seem to arise in the handling of real constants, rather than real variables. We have considered various schemes for converting numbers into normalized floating point constants, and part of the work will be expended selecting the best method. The most serious constraint is that of space. If we follow a straightforward approach where the floating point input and normalization routines that are needed are compiled into DECAL-BBN, then there is evidence that the system would need its symbol table in a second core of memory, and that this is undesirable because it would force people to have at least 8K of memory in their machines to use the system. We believe that it may be possible to develop another, less straightforward method so that only one core of memory will be needed and yet the real constants can be implemented. If, however, two cores of memory are needed, then we agree to implement DECAL-BBN into a two-core system, using the second core for symbol table. However if two cores are not needed to handle this task we will not implement the two-core version under terms of this proposed contract.

The implementation of real variables and constants into the DECAL-BBN system is a valuable addition indeed. With the addition of the ALGOL-like capabilities in the previous work, the user is ready to have the algorithms of the Comm. ACM at his disposal. The lack of real number capability has been the chief obstacle to compatability with these algorithms.

Part II The Modification of DECAL-BBN to accept statements written in FORTRAN II

The guide book for this work will be the newly published PDP-4 FORTRAN Manual, F-37(4P). The new compiler for the PDP-1 will accept programs written on paper tape and produce a linking loader tape that will be loaded by Linking Loader-BBN.

The new compiler will recognize characters in the left-hand side of the page. The possibilities will be c for comment, s for machine code, a number for a label, or nothing. The underbar will appear as the last character on the preceding line so that the next symbol (carriage return) will be ignored.

Following is a list of symbols as described in the PDP-4 FORTRAN Manual. They will be implemented as described in the PDP-4 Manual: FUNCTION; SUBROUTINE; DIMENSION; CALL; GOTO (in 4 forms); If statements; DO statements; PAUSE(N); STOP(N); COMMON; END; READ; WRITE; FORMAT; ASSIGN···TO; RETURN; CONTINUE. The use of functions and subscripted variables in algebraic statements will be implemented. The input-output statements will be of the form:

read D, N, list

write D, N, list

where D is the device number and N the format statement number. The compilation of the input-output and format statements will produce coding that will be picked up and interpreted by the INPUT-OUTPUT interpreter. The list can be any of the four as described in the PDP-4 FORTRAN manual.

Part III The INPUT-OUTPUT Interpreter

The interpreter would be written so as to accept the intermediate language from the compilation of input-output and format statements. The needs are fairly sophisticated. It must handle subscripted and real variables as well as integers, and also be able to process the Hollerith format. It must be able to process a variable string of symbols.

The concept of the interpreter will be that the system will be open ended. That is, the main part of the interpreter will be common to all in-out equipment. It will use input and output buffers. Specialized programs will be at the buffer-hardware interface to manipulate particular types of hardware. These programs will be able to be added at will to fit any computer installation configuration.

Items to be delivered

Part I
a) Binary tape of DECAL providing for implementation as described in Part I.

b) Symbolic tapes and listings of all changes made to existing system.

c) Three copies of an addendum to the DECAL-BBN Programming Manual describing the changes to the existing system and a description of how to use the new system.

Part II
a) Binary tape of FORTRAN compiler.

b) Symbolic tapes and listings of the FORTRAN II compiler.

c) A Programming Manual describing FORTRAN II for the PDP-1.

Part III
a) Symbolic and Linking Loader tapes to implement the input-output interpreter as described in Part III.

Note that description of the interpreter is to be given in Part II-c.

Personnel

The work will be carried on in both the Cambridge and Los Angeles offices of BBN under the prime direction of Richard J. McQuillin. The Los Angeles effort will be under the direction of William E. Fletcher.

Delivery Schedule

The proposed delivery schedule for all three parts will be one hundred and twenty calendar days from receipt of the contract. Part I is expected, but not guaranteed, to be completed in ninety calendar days. If this is indeed the case, this part of the work will be delivered to DEC upon completion. It is expected that Part II will take the full one hundred and twenty days to complete. Part III can be executed in a much shorter time, but it must wait for certain progress in Part II before being started.

Cost

The cost of the work will be determined under several alternative configurations. It is proposed that the work will be done under fixed price contract.

Cost I The entire work as described in Parts I, II, and III: $30,000. This is distributed as follows:

Part I - $10,000
Part II - $15,000
Part III - $ 5,000

Cost II Parts II and III: $25,000. This is distributed as follows:

Part II - $20,000
Part III - $ 5,000

Cost III Part II alone: $20,000.

Cost IV Part I alone: $10,000.

The cost of any other configuration will be quoted on request.

Additional Conditions

1. The name shall be PDP-1 FORTRAN.

2. The name(s) of the author(s) of the PDP-1 FORTRAN Programming Manual shall appear on the title page of that manual along with their affiliation.

I hope that the content of this proposal is satisfactory to DEC. Please feel free to contact me if there are any questions concerning this proposal.

Sincerely yours,

BOLT BERANEK AND NEWMAN INC.

Richard J. McQuillin

Richard J. McQuillin
RJMcQ:mp

cc: Addressee
Ken Olson
Harlan Anderson
Gordon Bell
Harrison Morse

Harlan Anderson

Mr. Don Hunter
Computer Analysts and Programmers Ltd.
11 Grocers Hall Court
Poultry, London EC2
England

Jo/ho 29 October, 1963

Dear Mr. Hunter,

As your associate has probably informed you, I tried to reach you during my visit to London on Friday Oct. 25.

I hope that we might have an opportunity to meet in the near future. If you will be at the MESUCORA Show in Paris, you might want to look me up at our booth there. Otherwide, I look forward to hearing from you and arranging a meeting while I am in England or you might be in Munich.

Sincerely,

G. Gilbert

for:
Ted G. Johnson
Computer Applications Engineer

SOLARTRON

THE SOLARTRON ELECTRONIC GROUP LTD

FARNBOROUGH · HAMPSHIRE

TELEPHONE:
FARNBOROUGH, HANTS 3000

CABLES:
SOLARTRON, FARNBOROUGH, HANTS

TELEX:
6545 SOLARTRON F N B R O.

JL/nh

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

25th October, 1963

DLD/MWO

For the attention of:
Mr. J. Leng, Engineering Manager, Ottawa.

Dear Mr. Leng,

Thank you for your letter dated 16th October, 1963 which I have now received having just returned from an overseas visit. I had heard from Mr. John Bolton, our Managing Director, of the visit made here by your Mr. A. de Vitry, and was expecting to hear from someone with regard to further contact.

It is possible that either myself or Mr. Catherall, or even both of us, may be at the Mesucora Show in Paris, but in case neither of us is there, it would indeed be very much preferable for you to visit us here at Farnborough on December 4th, 1963. Almost certainly one or other of us will be here.

I am already slightly acquainted with the activities of your company, and am looking forward to hearing a lot more from you about them, on the occasion of your visit, as well as taking the opportunity to inform you of our activities in this field.

Yours sincerely,

D. Leighton Davies.

D. Leighton Davies
Systems Director

G.E.C. (ELECTRONICS) LIMITED

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G.E.C. REG^D TRADE MARK

CAB/M.2

28th October, 1963

Mrs. Elsa Newman,
DECUS Secretary,
Maynard,
Massachusetts,
U.S.A.

Dear Elsa,

I was delighted to receive your letter, with copies of Decuscope and of the Proceedings of your 1962 Meeting. Were ever beauty and brains so happily allied as in their Editor? No wonder that someone called her "the greatest weapon"!

As a mere retired airman I naturally did not understand all the learned papers put in by your contributors, but what I understood I found very interesting. So too have some of my specialist colleagues. I should be very pleased if you can leave me on your circulation list.

Here at Stanmore we are working hard on our own breed of airborne digital computer for navigation and allied purposes. So we too know something of the machine/man interface problem. Elsewhere in the Company we make industrial, scientific and process control computers. In our process control work we are associated with Thompson Ramo Wooldridge whose name to my surprise does not appear in your papers. As users of computers we are perhaps not yet up to the standard of some Decus members, but we have a major Ferranti installation in Kent which is accessible by land-line to all the Company's forty plants.

There is as no definite news about Agard for 1964, but we still expect the arrangements to be what we heard proposed in Athens: the General Assembly and some Panels would meet in Lisbon; the Avionics Panel in London. I'll let you know as soon as anything is decided. I may hear something in a few days' time when I expect to see Dukes, the AVP Executive, in Paris.

It's good to hear that your leg is improving, but I can just see you tearing around Livermore in the next few weeks and putting it all back to first base. I hope it gets better despite everything.

My kind regards to Philip and yourself,

Yours Cedric Bell

C.A. Bell

October 25, 1963

Mr. Thomas E. Kurtz
Dartmouth College
Computation Center
Hanover, New Hampshire

Dear Mr. Kurtz:

Pursuant to your letter of October 9, 1963, Digital Equipment Corporation, Maynard, Massachusetts is pleased to submit the following fixed price quotation for a Programmed Data Processor-6 System to Dartmouth College, Hanover, New Hampshire.

Digital Equipment Corporation further extends to Dartmouth College an educational discount of 30% of the list price. This discount is applicable to the total system components and will be valid through December 1, 1963. At this time a re-evaluation of the delivery schedule and applicable discounts will be made.

The below system can be delivered on or about August 1, 196[illegible] subject to standard Digital Equipment Corporation terms and conditions (a copy of which is attached) as amended by the educational discount.

The configuration specified by your referenced request for a quotation is as follows:

Item	Type #	Description	Qty.	List Price	Disc. Price	Total Price
1.	166	Arithmetic Processor - (36 bit word length)	1	170,000.	119,000.	119,000.
2.	161B	Core Memory - 4 microsecond cycle, 1 microsecond access, 16,384 words	1	100,000.	70,000.	70,000.

Mr. Thomas E. Kurtz
Dartmouth College

October 25, 196[illegible]

Item	Type #	Description	Qty.	List Price	Disc. Price	Total Price
3.	551	Micro Tape Control Unit	1	14,000.	9,800.	9,800.
4.	555	Dual Micro Tape Unit	4	7,400.	5,180.	20,720.
5.	461A	Card Reader - 200 cpm	1	16,500.	11,550.	11,550.
6.	460A	Card Punch - 100 cpm	1	29,000.	20,300.	20,300.
7.	646	Line Printer - 300 lpm	1	30,000.	21,000.	21,000.
8.	340	CRT Display Light Pen Character Generator Vector Generator	1	40,000.	28,000.	28,000.
9.	516	Magnetic Tape Control Unit	1	25,000.	17,500.	17,500.
10.	570	Magnetic Tape Unit 75/112 inches/second, 200/556 bits/inch	1	30,400.	21,280.	21,280.
11.	236	Drum Processor and Drum 1800 rpm 38 X 10^6 bits storage 9 microsecond/word transfer rate	1	95,000.	66,500.	66,500.
12.		Line Unit Scanner	2	5,000.	3,500.	7,000.
13.		Teletype Transmitters & Receivers	10	1,600.	1,120.	11,200.
					TOTAL	423,850.

Mr. Thomas E. Kurtz
Dartmouth College

October 25, 1963

Digital Equipment Corporation extends a six (6) months warranty on maintenance and replacement parts for all system components. Further, Digital Equipment Corporation will provide both maintenance and programmer training through regularly scheduled customer training programs conducted at Maynard, Massachusetts.

If additional information or clarification of the above is desired, please feel free to contact the undersigned immediately.

Yours very truly,

R. L. Lane
Computer Applications Engineer

RLL/pam

CABLE ADDRESS: "RIKEIGOOD" TOKYO
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Our ref: No. CI-00021

TOKYO: October 25, 1963

Mr. Harlan E. Anderson
Vice President
Digital Equipment Corporation
Maynard, Massachusett

Dear Mr. Anderson:

This is to acknowledge receipt of your letter of October 18, '63 for which I thank you very much.

I appreciated very much the proposal on hiring an engineer for selling and services of DEC products.

I should like to closely study the same to inform you of my opinon on the matter in due course.

Thank you for your best cooperation.

Sincerely yours,

RIKEI TRADING CO., LTD.

C. Ishikawa
President

SN: td

October 24, 1963

Professor W. R. Uttal
Mental Health Research Institute
University of Michigan
Ann Arbor, Michigan

Dear Professor Uttal:

Pursuant to our telephone conversation of today, Digital Equipment Corporation of Maynard, Massachusetts is pleased to submit the following fixed price quotation for Programmed Data Processor-6 System Components to the University of Michigan Mental Health Research Institute.

Type #	Description	Price
166	Arithmetic Processor - (36 bit word length)	170,000.
162	Fast Memory 0 .5 microsecond - 16 words 15 Index Registers 16 Accumulators Floating Point Arithmetic	
	Core Memory - 4 microsecond cycle, 1 microsecond access	
161A	8,192 words	70,000.
161B	16,384 words	100,000.
760	Paper Tape Reader - 400 cps	9,000.
761	Paper Tape Punch - 63.3 cps	5,500.
626	Teleprinter - 10 char/sec (Model 33)	6,100.
461A	Card Reader - 200 cpm	16,500.
460A	Card Punch - 100 cpm	29,000.
460B	Card Punch - 300 cpm	42,000.
461B	Card Reader - 800 cpm	27,200.
340	CRT Display Light Pen Character Generator Vector Generator	40,000.
516	Magnetic Tape Control Unit	25,000.
570	Magnetic Tape Unit 75/112 inches/second, 200/556 bits/inch	30,400.
551	Micro Tape Control Unit	14,000.

Professor W. R. Uttal
University of Michigan

October 24, 1963

Type #	Description	Price
555	Micro Tape Unit	7,400.
646	Line Printer - 300 lpm	30,000.
236	Drum Processor and Drum 1800 rpm 38 X 10⁶ bits storage 9 microsecond/word transfer rate	95,000.

The Programmed Data Processor-6 offers a fast, reliable, flexible and relatively inexpensive general purpose computer designed for use in fields of science, math, medicine, engineering, business and information processing. Its unique logical organization makes it an excellent choice for inclusion in special purpose computer systems or in a computation center where many types of users and applications are present.

Software includes a FORTRAN II compiler, a symbolic assembler, a utility system, and an executive system. The utility system supervises translation, loading, and execution of the user's program. The executive system permits on-line editing of Micro Tape, calls the compiler and assembler when needed, and calls subprograms to be used with the program.

Add instruction times vary from 3.5 to 8 microseconds, depending on the memory locations of the operand and instruction. Memory is in two sections, both expandable. Fast memory is a basic 16-word section with an access time of 0.5 microseconds. It contains 16 36-bit accumulators, used interchangeably as index registers, list pointers, program flags, and in small program loops. The main memory, a 16K-word module of 36-bit words can be expanded to 262,144 words using modules of the same or different speeds. Cycle time is conservatively rated at 4 microseconds, with average effective cycle time for random accesses reduced by automatic overlapping of memory cycles.

Memory and the central processor operate asynchronously to reduce waiting time and let each function at its top speed. The processor can make up to four memory references in eight microseconds while carrying out one instruction.

I am enclosing a list of Digital Equipment Corporation's standard terms and conditions which constitute an integral part of this quotation.

Professor W. R. Uttal
University of Michigan

October 24, 1963

Digital Equipment Corporation is capable of delivering the Programmed Data Processor-6 within six (6) months from date of contract award; except that delivery of the initial systems will not begin until June, 1964. Consequently, a mutually agreeable and firm delivery date will be established at time of purchase by the University of Michigan.

Digital Equipment Corporation will provide a six months warranty. This warranty includes all travel, living, labor and replacement parts during the six months period immediately following acceptance. Digital Equipment Corporation will at this time enter into a continuing maintenance contract with the University of Michigan in accordance with various options available.

Further, Digital Equipment Corporation will provide both maintenance and programmer training through our regularly scheduled customer training programs conducted at Maynard, Massachusetts.

If further information or clarifications are required, please feel free to contact the undersigned immediately.

Yours very truly,

R. L. Lane
Computer Applications
Engineer

RLL/pam
Enclosure: Terms and Conditions

October 24, 1963

Mr. Richard Peterson
Laboratory of Nuclear Science
M.I.T. Room 26-043
Cambridge 39, Massachusetts

Dear Mr. Peterson:

The tapes you requested were mailed on October 14, and I trust you have received them. If you have any difficulty whatsoever with the programs, please feel free to contact me. DECUS is interested in obtaining as many "reviewers" comments as possible.

It has come to my attention that you and Harry Rudloe have contributed to the new relocatable assembler called DANTRAN. The subject of two papers given at the DECUS May Symposium concerned work with the PDP-1 at the Laboratory of Nuclear Science. Would you be willing to prepare an article for publication in DECUSCOPE describing this system or some of its applications in the Laboratory?

Best wishes and let me hear from you soon.

Sincerely,

Elsa Newman
DECUS Secretary

EN:ajc
cc: Professor M. Deutsch
Harlan Anderson

KIE CORPORATION

October 24, 1963

Mr. Don Smith
Digital Equipment Corporation
Maynard, Massachusetts

Dear Don:

Thank you for the information you forwarded to me on October 15, 1963 concerning Systematics "Telepunch".

We have contacted Mr. Aenslie and a meeting is being arranged to investigate further the possible use of this equipment in conjunction with our system. If you have the time available we would be happy to have you join us.

Your continued interest and cooperation is greatly appreciated.

Very truly yours,

KIE CORPORATION

Paul J. Slattery
Vice President

PJS:esc
cc: Mr. Harlan Anderson

October 24, 1963

Mr. Yu Hata
TDK Electronics Co.
Tokyo, Japan

COPY

Dear Mr. Hata:

As you are aware from the conversations with Mr. Anderson and myself, Digital Equipment Corporation has been expanding the sale of its memory test equipment in Japan. We must now give serious consideration to the problem of maintenance and service of this equipment. We hope that we will continue to sell more memory test equipment, and in addition, we hope to be able to sell our computers in Japan. However, we do not feel that we are at this moment in the position to set up our own company in Japan. Therefore as an intermediate measure, we would like to continue working through Rikei Trading Company, who has done a good job for us so far in the field of sales work, but as yet does not have any Engineers capable of equipment service and maintenance. We have proposed to Mr. Ishikawa, President of Rikei Trading Company, that he hire an Engineer capable of doing this job and that we would pay a portion of the man's trip to the United States plus living expenses here in order for him to be trained at DEC. You can see the details of this proposition in the enclosed copy of the letter to Mr. Ishikawa. Note particularly points 3 and 8. The idea of this arrangement is that we would then very shortly have an Engineer capable of doing field service work while employed by Rikei Trading Co. Then if future business conditions warrant this decision, we could set up our own company in Japan with a Manager in charge, and this man working for him as a Field Service Engineer.

Would you then be willing to interview this man for us in order to judge his technical capabilities for field service work? We are of course, still interested in setting up our own company in the future, and we hope that you might at that time be interested in the job as Manager. However, DEC is not in a position to make a firm decision about that at this time, and therefore we can not make firm committments to you. For the job of interviewing for us, we will of course arrange to pay you as a consultant to DEC. We can agree upon the amount in future correspondence.

We thank you very much for the help and advice which you have been giving to DEC and I hope that our association will continue to be of benefit to both of us.

Sincerely yours,

Digital Equipment Corporation

Jonathan Fadiman
Manager, Special Systems

JF/bbn

c.c.: Mr. Harlan Anderson, Vice-President, DEC ✓
Mr. Stan Olsen, DEC Sales Manager

AID INC.
PERSONNEL SERVICES AND SYSTEMS

P.O.BOX 448
CONCORD, MASSACHUSETTS
AREA CODE 617 369-4282

October 24, 1963

Mr. Harlan E. Anderson
Vice President
Digital Equipment Corporation
Maynard, Massachusetts

Dear Andy:

I read with considerable interest, Miller's report in the Traveler on your company.

You and Ken are certainly to be congratulated on guiding Digital through this first six year period and being able to show such fine progress.

I'm sure it is a most rewarding personal experience. Our best wishes on your continued success.

Sincerely,

W. C. Hall
President

WCH:mlr

Arnaud de Vitry
c/o Al Davidson
12 rue de la Paix
Paris 2 - France

October 24 1963

Mr Harlan Anderson
Digital Equipment Corporation
Maynard, Mass

HEA "article" file

Dear Andy,

Recently a friend of mine who works for Thomson, Ramo, Wooldridge in Europe, sent me the attached articles which may be of interest to you. You have probably read the article by the Foxboro Company, printed in the ISA Journal, on evaluating control computers in which they specifically mention the P.D.P. - 4 and I would be especially interested to know whether you agree with their profile of the ideal control computer.

Hoping to see you at the Board meeting of the DEC in early December, I remain,

Sincerely yours

A. de Vitry

Arnaud de Vitry

P.S. - I just learned that Daystrom has sold its Control Computer activities to Control Data.

AdV/NH

SUMMARY OF
PROCESS CONTROL COMPUTER SALES

Company	Chem	Pet	Gas	Power		Cement	Paper	Steel	Misc.	TOTAL
				Conv.	Nucl.					
TRW-CAE-ISC-Mit	14	4	-	7	8	3	-	1	9	46
GE (U.S.A.)	2	-	-	16	1	1	1	11	1	33
Elliott-ISI	12	2	2	3	1	-	-	3	-	23
IBM	1	4	1	-	-	-	13	3	1	23
Westinghouse	-	-	-	6	-	-	1	9	-	16
Daystrom	1	1	-	7	1	-	-	1	-	11
M-H	5	-	-	2	-	-	-	-	-	7
RCA	-	-	-	3	-	-	-	3	-	6
GPE (U.S. - in Germany as "Eurocomp")	-	-	-	-	-	-	-	-	3	6
P-B	1	-	-	3	-	-	-	-	-	4
L-N	-	-	-	4	-	-	-	-	-	4
SEREL (France)	1	-	-	1	2	-	-	-	-	4
NAA	-	3	-	-	-	-	-	-	-	3
CITAC (France)	-	-	-	-	2	-	-	-	1	3
Eng. Electric	-	-	-	-	-	-	-	3	-	3
Ferranti	1	-	-	1	-	-	-	-	-	2
Control Corp. (U.S.)	-	-	1	-	-	-	-	-	-	1
ACEC	-	-	-	-	-	-	-	1	-	1
SEA	-	-	-	-	-	-	-	1	-	1
CEA-Perego (Italy)	-	-	-	1	-	-	-	-	-	1
	38	16	5	54	15	4	15	36	15	198

WORLD WIDE CONTROL COMPUTER SALES

Country / Company	USA	France	U.K.	Japan	Italy	Germany	Other European	Total
TRW, et al	35	18	2	3	-	1	-	59
GE	39	-	1	2	-	-	-	42
Elliott	16	-	4	-	-	-	4	24
IBM	25	1	-	-	2	1	1	30
Westing-house	15	1	-	-	1	-	-	17
Daystrom	14	-	-	-	-	-	-	14
Minn. Honeywell	9	-	-	-	-	-	-	9
RCA	6	-	-	-	-	-	-	6
GPE	5	-	-	-	-	-	-	5
NAA	5	-	-	-	-	-	-	5
PB (Packard Bell - U.S.)	12	-	-	-	-	-	-	12
Tokyo (Shibaura)	-	-	-	7	-	-	-	7
L & N (U.S.)	4	-	-	-	-	-	-	4
Ferranti	-	-	4	-	-	-	1	5
Serel (France)	-	4	-	-	-	-	-	4
Others	8	4	3	-	-	-	2	17
TOTALS	193	28	14	12	3	2	8	260

J. Gutzon

OVERSEAS PROCESS COMPUTER SALES BY YEAR

Company \ Year	1958	1959	1960	1961	1962	Totals
CAE *	2	3	4	3	7	19
ISC	-	-	-	-	2	2
M-TRW *	-	-	-	2	1	3
Totals	2	3	4	5	10	24
All Other Companies	1	2	7	11	18	39
Totals	3	5	11	16	28	63

TRW & Affiliates % of Market = 40%

* To October 1, 1962

NOTE: CAE has also sold 6 data loggers

NEA — For Computer Simulation conf 11/6

UNIVERSITY OF CALIFORNIA

DEPARTMENT OF MATHEMATICS
NUMERICAL ANALYSIS RESEARCH
LOS ANGELES 24, CALIFORNIA

October 23, 1963

Mr. Kenneth Olsen, President
Digital Equipment Corporation
Maynard, Massachusetts

Dear Mr. Olsen:

I am very sorry about the long delay in sending you this letter but as usual I found myself snowed under upon my return here. First of all, let me thank you for your courtesy during my visit to Maynard. It was a pleasure to meet you and your associates and I very much enjoyed my trip to your plant. I would like to briefly explain why we feel we are entitled to the maximum educational discount which your company can provide.

A. Uniqueness of Contemplated Programs and Research Applications. Our present plan calls for the establishment of an intermediate type computer permitting immediate interaction between the machine and some 16 users who would operate simultaneously without interfering with each other. While this general picture describes similar proposals from several major laboratories we believe that the unique feature of our own program is the type of interaction which we want to establish between the user and the computer. Experience has indicated that physicists and other applied scientists are often unable to decide upon the best method of attacking a complex problem. It is often useful to approach this problem by approximate methods which simplify the original problem and can be more easily solved and better understood. Furthermore, the user's feeling for the problem improves as he experiments with it using all his mathematical and physical intuition. This has shown to be possible on a digital computer with convenient input by keyboard and CRT display output. The scientist is not asked to learn a complicated programming system nor does he have to wait for his answers and thus lose his trend of thought; he can, however, keep trying various approaches to the problem and build up his understanding to the point where a solution can be achieved in a relatively short time. Such an operation is somewhat unusual since it puts the man back into the loop but it has been shown to produce some startling results and I am enclosing a report regarding such operation carried out at the Thompson-Ramo-Wooldridge Corporation by Dr. Culler and Professor Fried. Dr. Culler has been greatly instrumental in setting up our present program and will continue to consult for us in its realization; Professor Fried is presently a member of the UCLA physics faculty and is anxiously awaiting the development of our on-line system. During a recent visit to UCLA by Professor Yang, from Princeton's Institute for Advanced Studies, Professor Fried showed him the TRW system and Dr. Yang was quite taken with this mode of problem solving.

In addition to this type of operation, I would like to mention other types of problems for which we would like to use our proposed system. These include on-line debugging with all the time saving which it can bring about; here in particular the contemplated connection to the 7090 would prove useful as both

the 7090 and the PDP-6 have 36 bit words. We also have a large number of users at UCLA who would like to use the computer for receiving, monitoring, and taking special action upon on-line received data. These include, in particular, members of the Medical School staff (who presently operate an IBM 7094) and the Brain Research Institute; problems range all the way from analysis of electroencephalograms to information retrieval systems in the medical field; such work is, of course, heavily dependent upon close interaction between man and computer and the Medical School looks upon our proposed project as a possible pilot model for an even larger scale system. The Institute for Transportation and Traffic Engineering has been studying for several years driver characteristics and responses and freeway analysis; their work should be enormously facilitated by the system we propose. The Department of Engineering has a number of projects which would make considerable use of the on-line multi-user system and they have asked for at least two stations both for engineering design and research, and for engineering education; they are particularly taken with the possible use of a display system for on-line design of engineering components, stress analysis, circuit design, etc. The Institute of Geophysics and the Space Center groups are very anxious to make use of our suggested system for retrieval and analysis of all sorts of data ranging from satellite studies to IGY data; they are also quite anxious to carry out the type of work started at TRW as many of their problems require the highest ingenuity. Indeed, Professors Libby and MacDonald (respectively, Director and Associate Director of the Institute of Geophysics and Planetary Physics) have been listed as co-principal investigators in our proposal. I will not dwell any further upon the research applications of our proposed system but I could easily extend this description to several pages including some of the major research workers of UCLA.

B. Educational Applications. Three years ago I prepared a report which in part listed the courses directly concerned with the use and design of high speed computers at UCLA. This report listed 13 courses in mathematics and 6 courses in engineering which included 404 and 270 students respectively. In the past three years several other departments have been making use of the machine in their teaching programs, including the departments of meteorology and astronomy which offer courses requiring the use of the computer for problem solutions. I do not have a recent report on the number of students enrolled in computer courses but I would like to state that this past semester the Information Systems Division alone (Department of Engineering) accepted 93 new graduate students and we have been forced to institute an examination program for the master's degree in addition to our usual thesis program due to overwhelming demands on the faculty.

I have discussed the use of our proposed system as a teaching and classroom tool with members of several colleges and the response has been universally enthusiastic. The Mathematics Department would request a console for demonstrating graphically solutions to differential equations and similar work. The Engineering Department would consider the use of individual consoles an essential part of engineering courses and other departments have expressed similar interests.

I would also like to mention the rapidly rising interest at UCLA in automatic methods of information storage and retrieval. The School of Library Service is planning a graduate program in this field and several individual task

projects have already been instituted. The contemplated multi-user on-line system could play a major role in this type of undertaking and has been mentioned in several proposals to develop automatic information systems.

C. Source of Financial Support. I have discussed a preliminary proposal to support this program with members of NASA in Washington, D. C. They have expressed cautious interest. This was due to three points:

1. The present budgets are low.

2. They have not supported a computer system in the past.

3. They feel the need to evaluate our proposal both on relative and absolute grounds.

We are presently formalizing the proposal and hope to forward it to NASA in the near future. However, while government agency funds are necessary to establish our proposed system, let me point out the direct and indirect support offered by the university through the work of the academic and research faculty, research and teaching assistants, programmers, research users, etc. We are presently preparing an on-line display system for a one-man console to be used with the 7090 through the SWAC (a computer which was built here 13 years ago and still operational).

I hope that I have been able to make a case for our discount request. I would like to add that UCLA is probably the most powerful university computing organization in the world since we have two 7094's, one 7090 (to be converted to a 7094 this year), two 1620's, two Bendix G15's, one CDC 160A, SWAC, three 1401's and three 1410's (I am giving you my latest count, there may be more since I last looked).

Other computer corporations are offering us maximum discount and I hope the Digital Equipment Corporation will find it possible to do likewise.

Very truly yours,

Michel A. Melkanoff

Michel A. Melkanoff
Associate Professor of Engineering
Chief of Programming & Application
UCLA Computing Facility

MAM/md

Enclosure

October 23, 1963

M. Pierre Lantieri
Le Materiel Electrique S.W.
36, Qual National
Puteaux (Seine) France

Dear M. Lantieri:

I recently received a letter from M. Arnaud de Vitry stating that your company might possibly have some interest in our Computers for use in process control work. For your information, Digital Equipment Corporation will be exhibiting its PDP-5 Computer at the Mesucora show in Paris November 14 through 21. I will be in Paris November 11 through November 20 and will be very happy to meet with you or M. Verigny to discuss the possible uses of our equipment. Attached to this letter is a card giving the address of our European office. If you would like any further information on our products, please feel free to write in French either to our office in Munich or directly to our company in Maynard, Mass.

Sincerely yours,

Digital Equipment Corporation

Jonathan Fadiman
Manager, Special Systems

JF/bbn

c.c.: M. Verigny, Le Materiel Electrique
Mr. Nick Mazzarese, Computer Sales Manager
Mr. Harlan Anderson, Vice-President, DEC ✓

encs.: Brochures on PDP-1
PDP-4
PDP-5

ELLIOTT

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LJC/JMG

22nd October, 1963.

Mr. J. Leng,
(Manager of Engineering, Ottawa),
Digital Equipment Corporation,
146, Main Street,
Maynard,
Mass.

Dear Sir,

Thank you for your letter of 16th October, 1963.

We would be pleased to have you visit us on Thursday, 5th December.

Would you let us know your approximate time of arrival.

Yours faithfully,
for ELLIOTT BROTHERS (LONDON) LIMITED

L. J. Crowhurst,
NATIONAL COMPUTING DIVISION

SHOREHAM
4497

"BOIS GRENIER"
2 ERRINGHAM ROAD
SHOREHAM-BY-SEA, SX.

Mr. John Leng,
Manager of Engineering
Digital Equipment of Canada Limited
Ottawa
Canada

22nd October, 1963.
KSB/BP

Dear Mr. Leng,

Thank you for your letter of 17th October. I had been considering the possibility of visiting MESUCORA and in view of the information you have given me, as far as I can say, I shall now be definitely visiting the Exhibition and will spend some time with you. It is also possible that I shall attend the Symposium on Nuclear Electronics which follows the Exhibition. Several of my contacts would be very interested in seeing your equipment and it is possible that I will bring one or two of them with me, but I will let you know as soon as any arrangements are final.

If, for any reason, this meeting in Paris does not materialize, I will look forward to meeting you here in England.

Yours sincerely,

Keith S. Burgess.

K. S. Burgess

cc.
Mr. Anderson

Dr. G. Hortig

i/ MAX-PLANCK-INSTITUT
FÜR KERNPHYSIK

DIREKTOR:
PROF. DR. W. GENTNER

69 HEIDELBERG
JAHNSTRASSE 29
TELEFON 23178

October 18, 1963

Ho/me

Mr. John Leng
Sales Engineer

Digital Equipment Corporation

Maynard, Massachusetts
U. S. A.

Dear John,

Professor Gentner has passed on to me your letter of October 10. November 21 will be perfectly convenient for me and it will be a pleasure to be able to show you round Heidelberg and the Institute.

Many people in our laboratory are very interested in "on line" computers, and would be most interested to meet and talk with you when you visit us.

Yours sincerely,

Günther

2 Copies of each
1 for H. Anderson
1 for Russell

H. Anderson

October 17, 1963

Mr. Keith Burgess
"Bois Gremier"
2 Erringham Road
Shoreham-by-Sea
Sussex, ENGLAND

Dear Mr. Burgess:

I have read your letters to Mr. Harlan Anderson with interest and look forward to the possibility of meeting you in Europe. I shall be at the Mesucora show from the 14-20 of November demonstrating our new PDP-5 computer in use as a pulse-height analyzer. If you could arrange to be in Paris during this time it would afford us an excellent opportunity to discuss the possibilities in the U. K. and at the same time give you a first hand look at the "hardware".

However, if you are unable to get to Paris during this period I expect to be at Harwell on Tuesday, December 3rd and a meeting that evening at Abingdon would seem feasible. In any event, I'll call you by phone on arrival in the U. K. so it would be possible to make final arrangements then.

Looking forward to our meeting.

Yours sincerely,

John Leng
Manager of Engineering
Ottawa

JL/nh

CC: H. Anderson
S. Olsen

BOLT BERANEK AND NEWMAN INC
CONSULTING DEVELOPMENT RESEARCH

50 MOULTON STREET
CAMBRIDGE 38, MASSACHUSETTS
TELEPHONE 491-1850

15 October 1963

Mr. Gordon Bell
Digital Equipment Corporation
Maynard, Massachusetts

Re: BBN Proposal No. P64-IS-3

Dear Gordon:

I. Bolt Beranek and Newman Inc. is pleased to submit the following proposal with regard to the Drum Diagnostic/Troubleshooting Package, which we discussed in our telephone conversation of 11 October 1963.

The Drum Diagnostic/Troubleshooting Package is designed for acceptance testing, diagnostic testing, and troubleshooting of the DEC standard drum.

which one?

The system will operate in a free-running mode upon read-in, generating error print-outs as errors are detected. In addition, it will be possible for the user to execute a wide variety of tests, under typewriter control. These tests will involve the reading, writing, and swapping of data to and from the drum in various ways. The user will be able to specify, from the typewriter, the specific tests and data sets desired. The tests include the reading, writing, and swapping of fixed-length blocks and of variable length-blocks. All location on the drum are, of course, involved. The data sets include all zeroes, all ones, random words, various checkerboards, and "same-name data"; other data sets may also be specified from the typewriter. Since the tests include, among other things, full-field transfers, the program requires a system configuration with at least two fields of core memory.

The proposed system has evolved through our own need to cope with the problems of acceptance testing, diagnostic testing, and troubleshooting of the drum. As a result of our experience, we feel confident that the system we propose encompasses a set of tests of a variety and thoroughness to meet these needs most adequately and conveniently.

If you desire, we shall be pleased to give a technical presentation on the details of the proposed system.

II. Bolt Beranek and Newman Inc. will provide:

1. Operating manual for the Diagnostic/Troubleshooting Package. This manual will follow the format of the MAINDEC series. Three (3) copies of the manual will be provided.

2. Symbolic tape of Drum Diagnostic/Troubleshooting Package.

3. Binary tape of Drum Diagnostic/Troubleshooting Package.

III. Delivery will be made as soon as the system becomes available, but not later than six months after receipt of contract. It is expected, but not guaranteed, that the system will be available within four months.

IV. We propose to accomplish the above on a straight fixed price basis of $15,000.

Sincerely yours,

BOLT BERANEK AND NEWMAN INC.

Thomas Marill

Thomas Marill
Head, Information Systems Department

TM:jm

cc: Mr. Harlan Anderson

Harlan Anderson

October 15, 1963

COPY

Mr. Paul Slattery
KIE Corporation
68 Devonshire Street
Boston, Massachusetts

Dear Mr. Slattery:

Enclosed is literature describing equipment which may be the solution to your problem. Further information may be obtained from:

Mr. Doug Aenslie
46 Greenfield Lane
Scituate, Massachusetts

Tel. 545-3794

Sincerely,

Don Smith
Communications
Applications Engineer

DS:mc

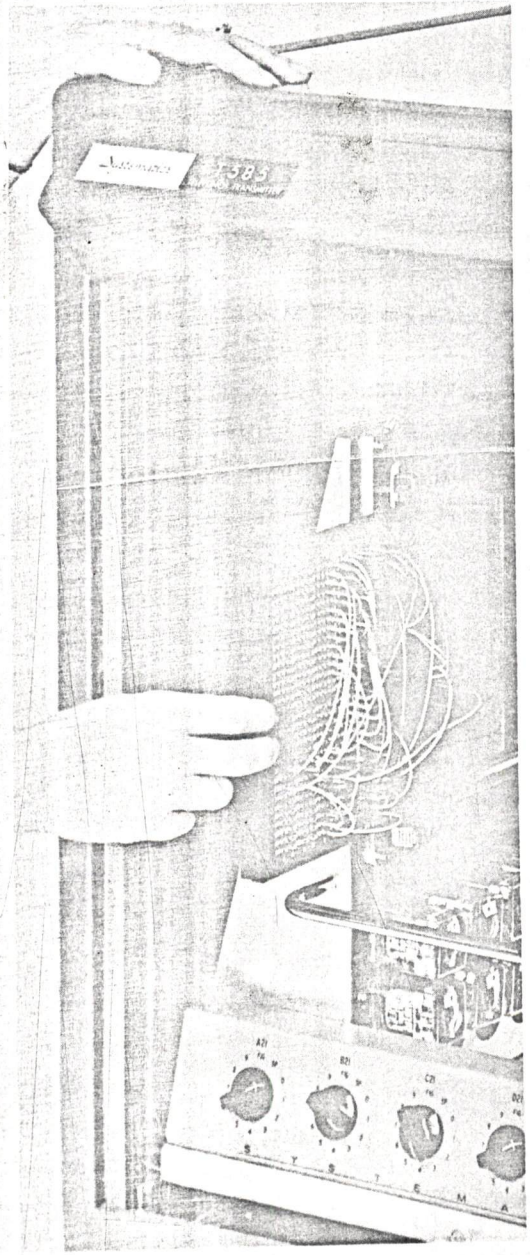
Enclosure

CC: Mr. Harlan Anderson

TELEPUNCH

Systematics

DATA BULLETIN



INTRODUCING TELEPUNCH-

A DATA TRANSMISSION SYSTEM WITH AN ENTIRELY NEW RANGE OF ON-LINE MEDIA-HANDLING CAPABILITIES:

-- PUNCHED CARDS

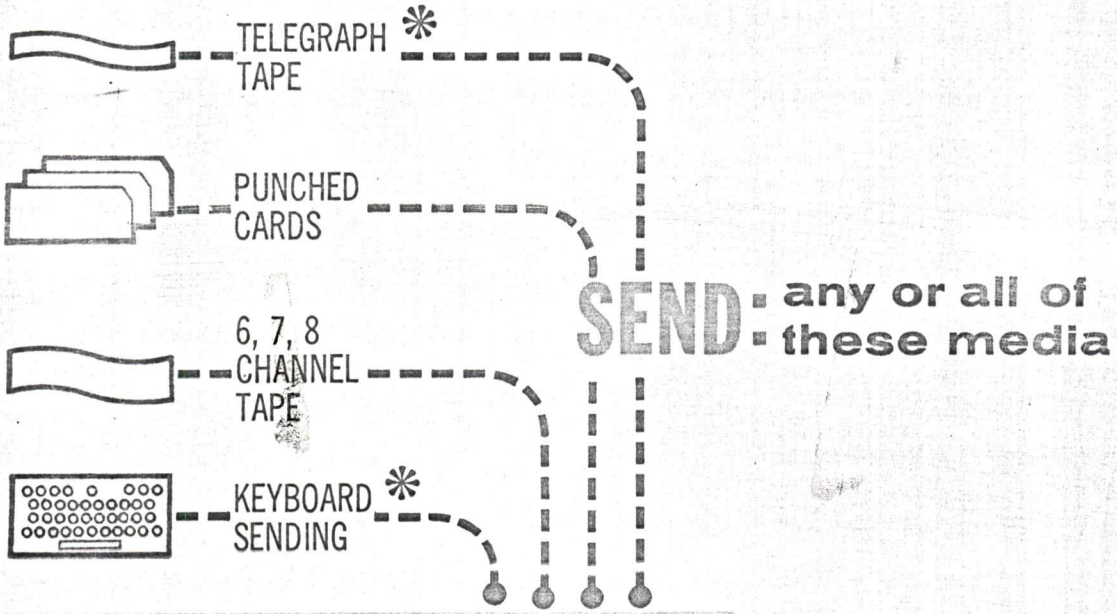
-- PRINTED COPY

-- 5, 6, 7, OR 8-CHANNEL PUNCHED TAPE

-- KEYBOARD SENDING

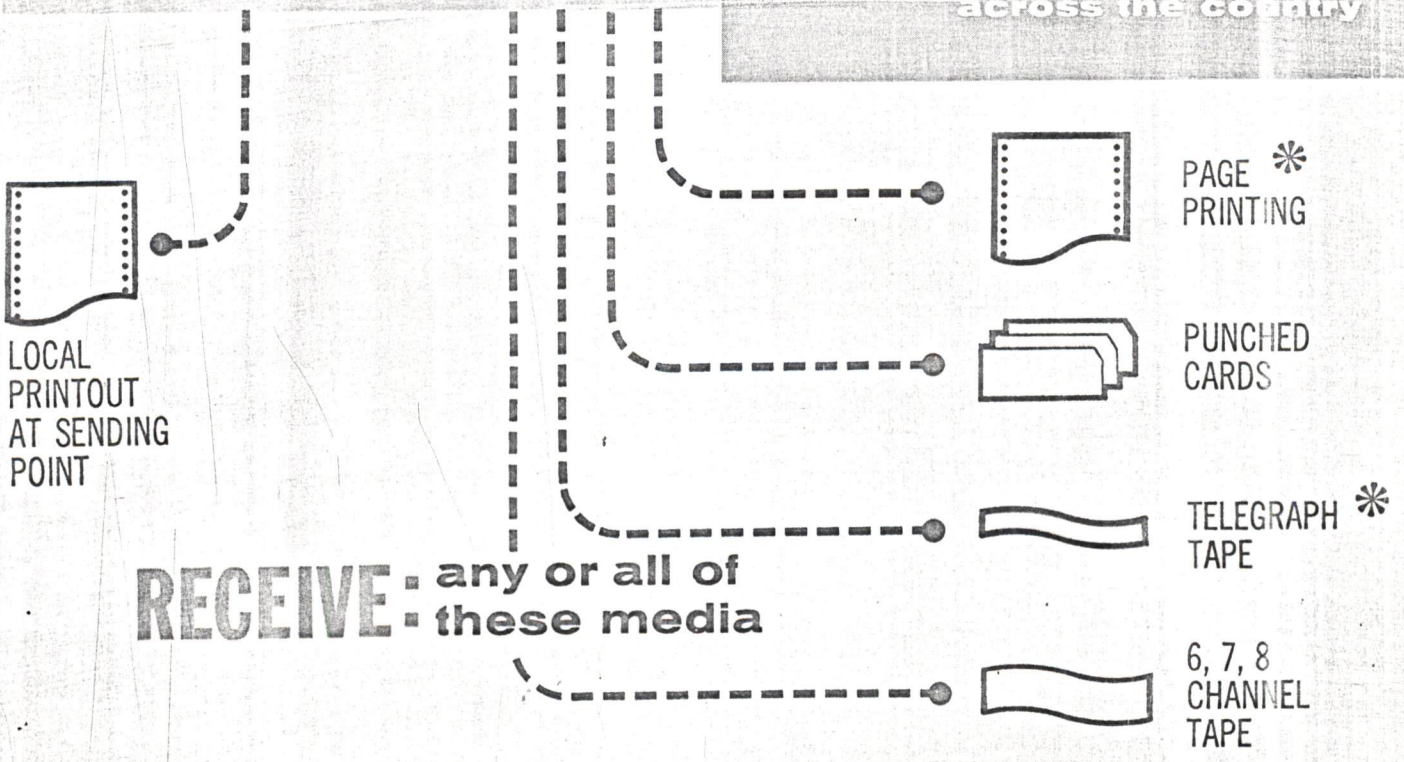
... AND REMOVABLE PLUGBOARD PROGRAMMING FLEXIBILITY.

THE TELEPUNCH CONCEPT



STANDARD TELETYPEWRITER TRANSMISSION FACILITIES

* intra-plant, within a city, across the country



THE TELEPUNCH CONCEPT

Telepunch is a family of data transmission machines made by Systematics. These machines reflect the industry's most extensive experience-in-depth in machine to machine interconnection, plus more than 100,000 hours of on-line customer operating experience.

Telepunch ties standard private-wire teletypewriter systems into machines which read and punch IBM cards and 6, 7, or 8-channel paper tapes, used for integrated data processing. We call this approach user-oriented. A user-oriented system is one which fits itself to the user's problem, instead of requiring the user to re-work his methods until they fit a particular machine.

Here's what the user-oriented Telepunch concept means to data transmission situations:

SEND WHAT YOU WANT--

- Punched cards (direct, without off-line conversion)
- 5-channel telegraph tape
- 6, 7, or 8-channel IDP tape
- Keyboard sending from a teletypewriter

...WITH PROGRAMMING FLEXIBILITY, ON-LINE--

- Control, check, edit, and modify data as you send it. Telepunch brings the flexibility to data transmission equipment which is expected and demanded in data processing equipment.

...TO ANY DESTINATION--

- Telegraph switching systems direct the flow of data anywhere--from room to room or across the country; to a single receiving point or to many.

...AND RECEIVE THE DATA IN WHATEVER FORM MAKES SENSE TO YOUR SYSTEMS REQUIREMENTS

- Punched cards (direct; without off-line conversion), or...
- Printed copy, or...
- 5-channel telegraph tape, or...
- 6, 7, or 8-channel IDP tape, or...

...any combination of these media, simultaneously.

Telepunch is a fact, not a promise. Deliveries are off-the-shelf. Details start on the following page.

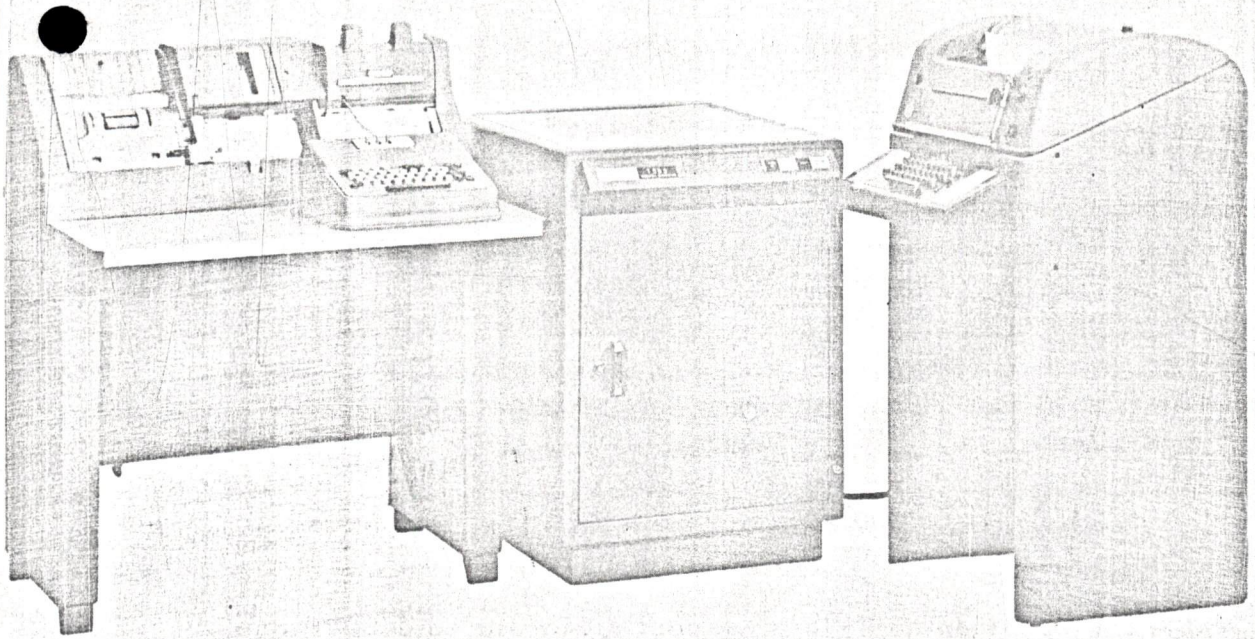


Figure 1. T 585 Telepunch Transmitter.

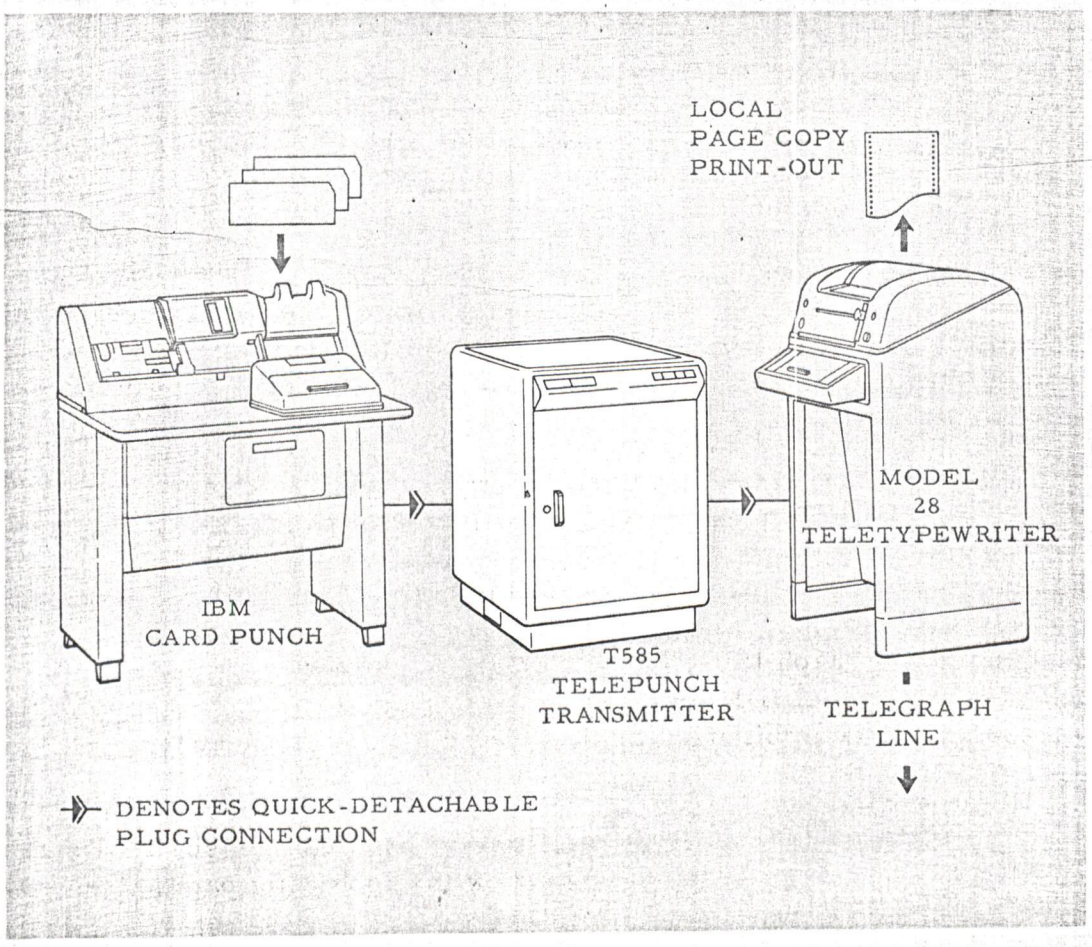


Figure 2. T 585 Telepunch System Block Diagram.

T 585 TELEPUNCH CARD TRANSMITTER

General Description

The T 585 is a machine-language translator and editor which makes it possible to send punched card information over conventional teletypewriter equipment and circuits. As it translates from IBM language to telegraph language, the T 585 simultaneously edits the transmission, controlling the content and format of the outgoing message stream. Appearance of a complete T 585 transmitting station is shown in Figure 1 on the opposite page. The diagram below shows how the system works.

A standard IBM 24 or 26 Card Punch operates as an automatic card reader. (Any card punch may be used; the Read In/Read Out optional feature is not required.) The T 585 connector cable brings IBM-coded data read from cards into the Telepunch Transmitter. The T 585 accepts all IBM alpha-numeric codes and special characters.

Card data is edited by the T 585 through wiring on a removable plugboard. The plugboard is the key to the unique versatility of the Telepunch concept. Its use is explained in detail below.

After editing the input punched card data through plugboard wiring, the T 585 translates the information to 5-level telegraph code signals. The signals are fed through a second connector cable to a Model 28 Teletype-writer which sends the signals over a telegraph line. The system also provides local print-out of the transmitted message, as shown in the diagram.

Systems Versatility

Because a Telepunch message consists of standard telegraph signals sent over standard telegraph lines, the transmission can be processed and received by many types of communications and data handling equipment:

- Systematics Telepunch Punched Card Receivers
- Systematics Telepunch Punched Tape Receivers
- Teletype Page Printers
- Teletype Punched Tape Reperforators
- Teletype Tape Relay equipment
- Teletype selective calling and automatic transmitter start arrangements...

AND

- ...combinations of these devices. Telepunch will send punched card data directly and simultaneously to any number of receiving stations, or drops, on a single circuit or several circuits. "Back to back" arrangements of individual sending and receiving machines are eliminated.

Speed

Telepunch sends card data at the top speed of the teletypewriter system to which it is connected: 60, 75, or 100 words per minute. An IBM Card Punch, capable of reading at the rate of 200 words per minute (20 characters per second) is paced to the maximum speed of wire transmission by the T 585. The teletypewriter triggers timing circuits in the T 585 which operate at any of the three telegraph speeds. The machine may be shifted to a higher or lower speed circuit without changes or adjustments of any kind.

Actual card transmission rates depend on both the speed of the teletypewriter equipment and the number of columns in each card to be transmitted. Approximate transmission rates, sending 80 columns per card, are as follows:

Telegraph Circuit Speed	80 Column Cards/Minute
60 WPM	4
70 WPM	5.5
100 WPM	7

The cards-per-minute rates increase as the number of columns sent from each card is reduced.

Programming Flexibility

The programming flexibility of conventional punched card data processing machines is explained partly by extensive "built-in" programming capacity, and partly by the use of removable plugboards which present that capacity to the programmer. This combination enables use of a single general purpose machine over a wide range of specific jobs.

The large programming capacity of Telepunch, accessible through a removable plugboard, brings the same degree of flexibility to data transmission equipment already familiar in data processing equipment.

The plugboard is shown in Figure 3. Wiring on the plugboard controls the operation of the T 585 system. Wires are easily changed when the requirements of a specific application change. To shift from one job to another, the operator simply inserts a different plugboard.

Briefly stated, the basic programming capacity of the T 585 enables the machine to selectively accept, ignore, or recode raw data read from IBM cards; to internally generate and transmit data which is needed in the output message but is not present in the punched cards; to recognize which of several different cards in a multi-card set is being read and adjust other control functions accordingly; and to screen for certain types of errors in the input cards.

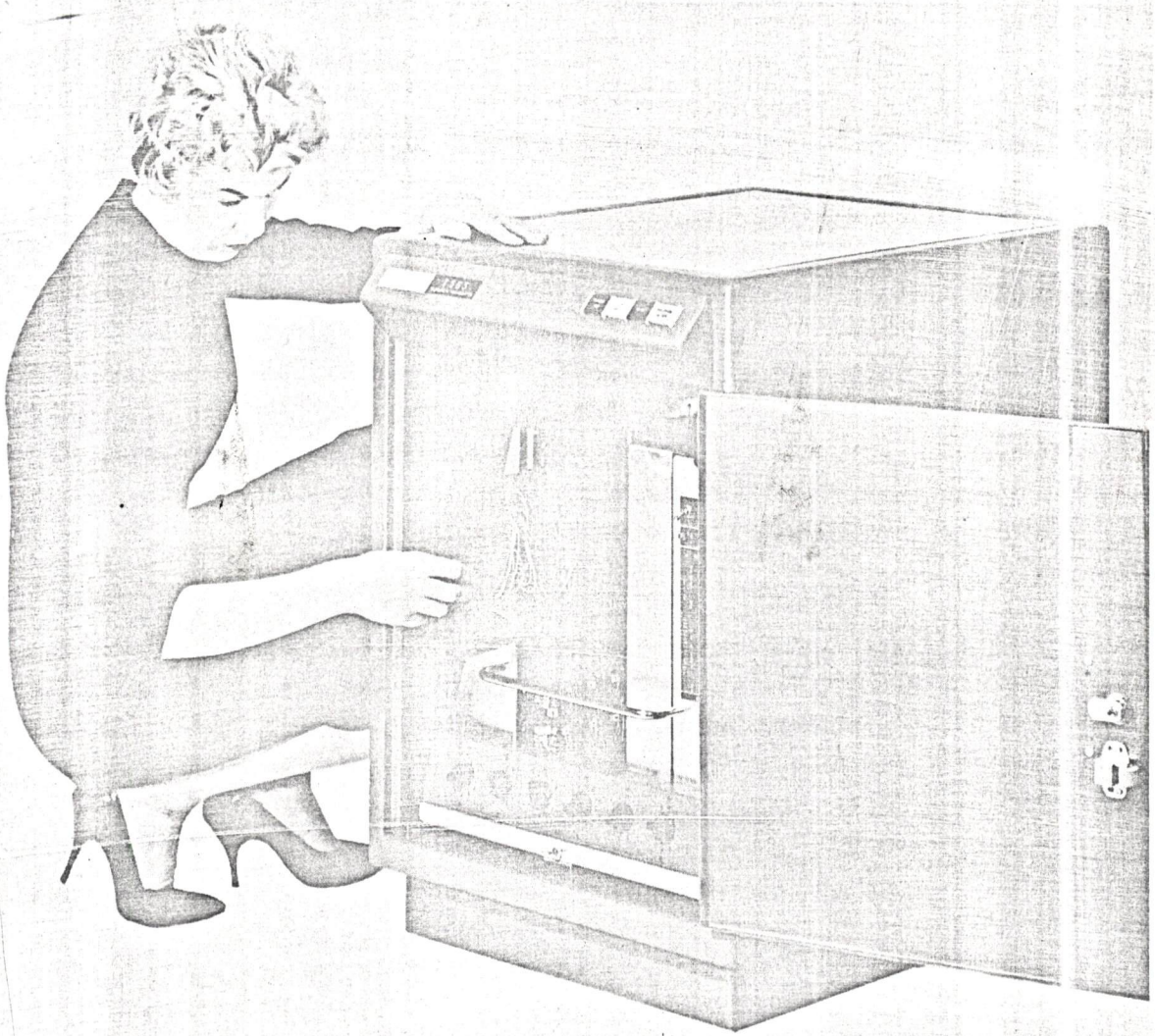


Figure 3. Changing plugboards completely reprograms the T 585 to shift from one job to another. The change takes only a few seconds.

T 585 Programming Features and Functions: Detailed Specifications

Automatic Telegraph Code Emitting-

The standard T 585 incorporates a 120-step character emitting program. Each step is accessible at a hub on the removable plugboard. The program emits telegraph codes which are required in the message format but cannot be read from the input punched cards. Up to 20 codes may be emitted in a single sequence. Individual sequences--or parts of sequences--may be re-used as many times as desired during the transmission of a card or group of cards.

T 585 Programming Features and Functions: (continued)

Code emitting is started by either a column impulse when the card being read reaches a pre-determined card column, or by a special code read from the card itself.

Common uses of programmed character emitting include:

TELETYPEWRITER PRINTING FORMAT CONTROL

The T 585 automatically supplies Space, Tabulation, Punctuation, Carriage Return, Line Feed, and Form Feed-out codes.

SELECTIVE CALLING OF RECEIVING TELETYPEWRITERS

The T 585 emits Call Directing Codes, End of Address Codes, and End of Message Codes. Selective calling with Telepunch is illustrated on P. 23 of this Data Bulletin.

AUTOMATIC TELETYPEWRITER COLUMN SELECTION

The T 585 will automatically generate varying-length sequences of teletypewriter tabulation codes (usually FIGS G) to control columnar printing on receiving page printers. The information read from a single card field may be printed in one of several columns on a form in the receiving machine. A 1-digit column indicator code, read from the card, causes transmission of the required number of tabulation signals before the print-out data is sent.

Card Read Control Functions

T 585 programming functions modify or edit raw data read from cards before releasing the data for transmission. Typical card read control functions are:

CARD CODE EXITS

An individual plugboard exit hub is provided for each IBM alpha-numeric character and for twelve special characters (Period, Comma, Dash, &, ␣, $, *, /, %, #, @, and the double-punch 0/11). As it reads from the card, Telepunch analyzes each code to determine whether the code is a letter, number, or special character. The T 585 then automatically emits Figures and Letters Shift codes wherever necessary.

COLUMN CODE

An extra set of Card Code Exits is provided for the digits zero through nine, 11, and 12. At a pre-assigned card column (usually Column 1), digits read through these exits are used to identify which of several card types in a multi-card message is being read.

COLUMN SPLIT

At pre-determined card columns, an X or 12-overpunch may be read independently of the underpunched digit. This function is essential for recognizing and transmitting the punched card indication of a minus or credit figure.

CONSECUTIVE BLANK COLUMNS

The T 585 will recognize consecutive blank columns in the unused portion of a variable length card field. This feature is used to skip the card rapidly over the blank columns and simultaneously emit tabulation codes to tabulate a receiving teletypewriter.

CODE SUPPRESSION

The system automatically skips card fields not needed for transmission. In addition, the T 585 will selectively ignore individual codes appearing at fixed columnar positions or at random in the cards.

SELECTORS AND DISTRIBUTORS

Ten 2-position selectors and ten 2-position distributors are standard. Ten more of each available as an option.

COMPLETE TELEGRAPH CODE VOCABULARY

The T 585 will transmit all of the 58 telegraph characters and control codes. An individual plugboard entry hub is provided for each of the 32 five-level code combinations. (The T 585 controls shifting between Figures and Letters Shift conditions automatically.) After editing through plugboard wiring, outgoing codes are wired to these entry hubs and fed to the teletypewriter.

Programming capacity combined with change-the-board-to-change-the-job flexibility can save money. Some possibilities are shown on the inside back cover of this Bulletin.

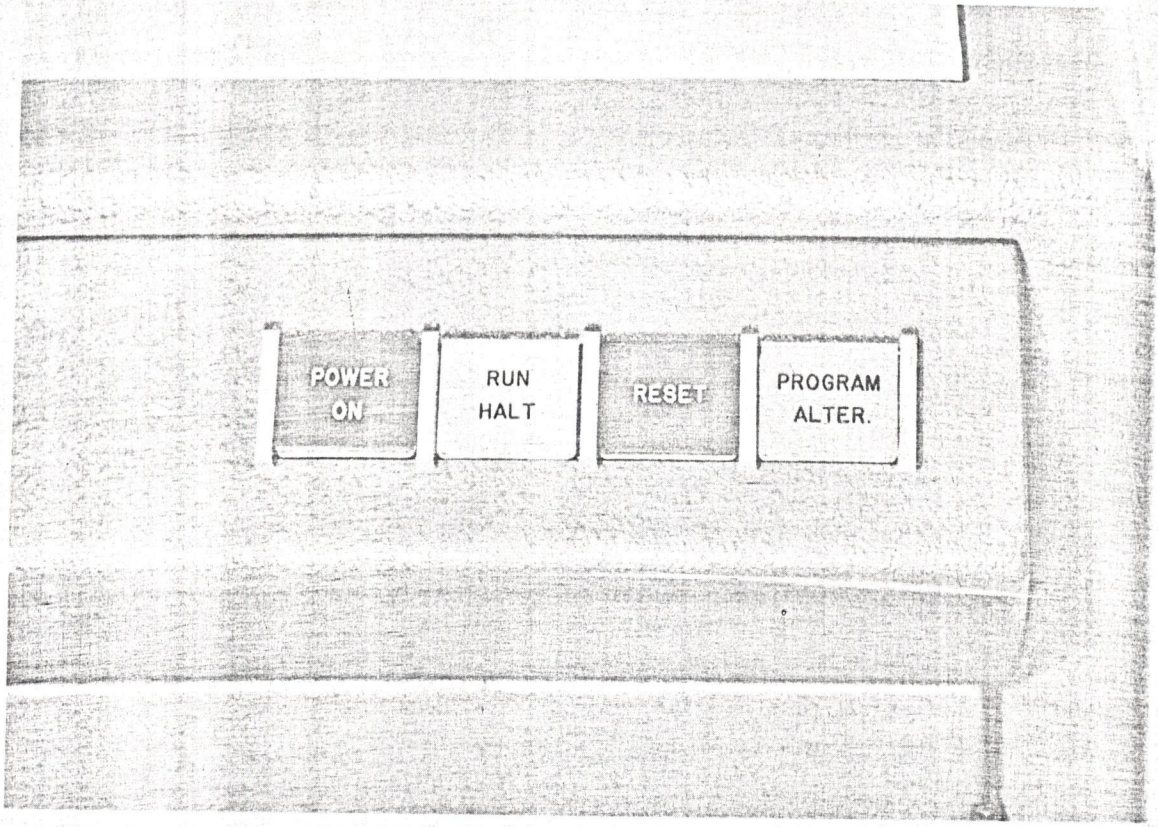


Figure 4. T585 System Control Switches

System Controls and Indicators

The T585 control switches, shown in Figure 4, are located on the front of the console. Status of the system is indicated by signal lights built into each switch. The switches are "press-on, press-off" controls. Successive depressions first start, then stop, the associated function.

POWER ON	Push to turn on T 585 power. (IBM Card Punch must be on for this control to operate.) Shows green light.
RUN HALT	Push to start transmitting. Shows white light. Second depression stops transmission at end of card.
RESET	Stops transmission immediately. Resets 120-step program.
PROGRAM ALTER	Set-up change switch. Push to transfer PROG. ALTER. contacts on plugboard. Modifies program wired on plugboard without changing plugboard itself. Shows yellow light until second depression restores program to normal.

Code Display Panel

The code display panel, located inside the console door on the right side of the T 585, is shown in Figure 5. Lights on the panel indicate the code being released to the teletypewriter for transmission. Characters are displayed in the conventional 5-level telegraph code pattern. A built-in code chart simplifies character decoding.

The display panel also incorporates a single-cycle pulse button. By throwing the mode switch to TEST, the entire T 585 system may be operated one character at a time, sending a single code for each depression of the pulse button. This procedure facilitates maintenance routines and check-out of new programs.

The lights show the code which will be transmitted by the next depression of the pulse button. SHIFT CONDITION lights indicate whether the system is in Figures or Letters shift.

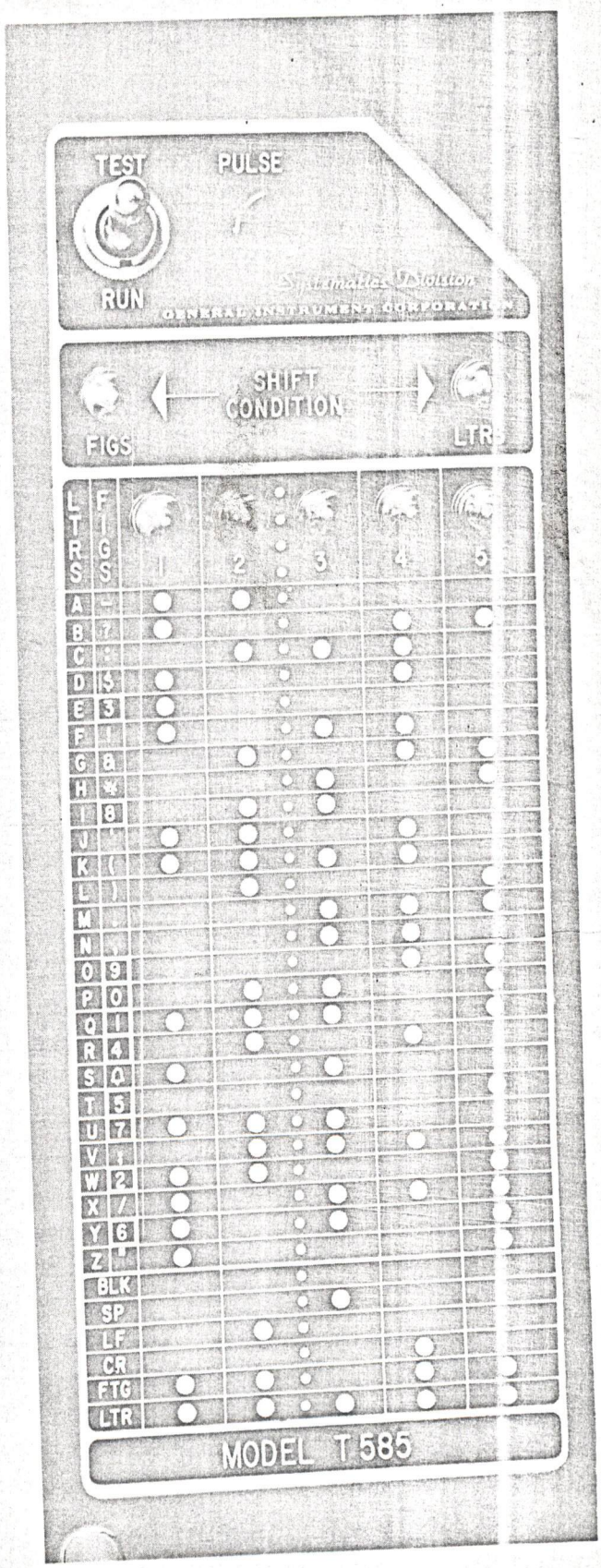


Figure 5. Code Display Panel.

TELETYPEWRITER AND IBM EQUIPMENT For Use With The T 585

The T 585 Card Transmitter is connected through an 8-foot quick-disconnect cable supplied by Systematics to a demarcation strip on any of these teletypewriter sets:

Model 28 Keyboard Send-Receive Teletypewriter (KSR)
Model 28 Receive-Only Teletypewriter (RO)
Model 28 Automatic Send-Receive Teletypewriter (ASR)

The teletypewriter must be equipped with a Model 28 Multi-Contact Distributor. Further information on this device appears on P. 20 under Teletypewriter Equipment, Additional Information and References.

Any IBM 24 or 26 Card Punch-- leased or customer-owned-- may be used with Telepunch. The card punch must be equipped with the Auxiliary Duplication and Alternate Program options. The T 585 is compatible with other card punch special features which can substantially increase the speed and versatility of the total system. Such devices include High Speed Skip and the Variable Length Card Feed Device.

Card punch and teletypewriter connections to the T 585 are made in the field at the time of installation. Use of Telepunch does not interfere with normal operation of Teletype or IBM equipment. Both machines may be used independently at any time by switching off the T 585.

T 785 TELEPUNCH TAPE TRANSMITTER

The T 785 reads information from punched paper tape and sends directly to teletypewriter equipment. The T 785 accepts 6, 7, and 8-channel tape of any code structure. Each code is translated to a 5-level telegraph character, selected by wiring on a removable plugboard. Figures and Letters Shift codes are inserted automatically.

The T 785 is similar in appearance to the T 585 Card Transmitter, with the addition of a tape reader mounted on the Telepunch console. Programming capabilities are basically similar to those in the T 585. However, "card column indication" is not feasible in a tape reading system, and control codes must be punched in the input tape to initiate programming functions. Output of the T 785 is transmitted on-line by a cable-connected Model 28 KSR, RO, or ASR Teletypewriter, equipped with Model 28 Distributor.

The T 785 enjoys the same degree of systems versatility as the T 585 Card Transmitter. Messages sent from tape by the T 785 go on line as standard telegraph codes. At receiving terminals the information can be translated directly into punched cards, punched tape, page copy, or combinations of these media. Off-line conversion is eliminated.

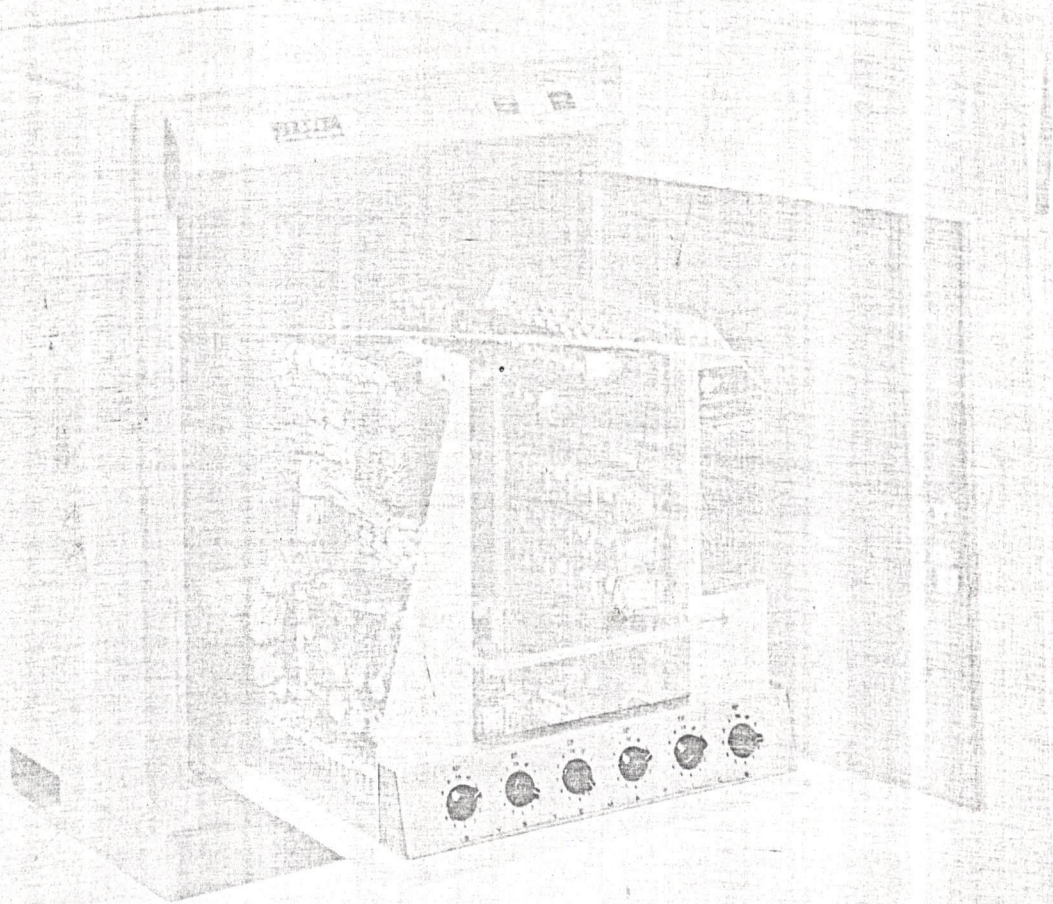


Figure 6. T585 Transmitter, Showing Dial-Switch Code Emitter

DIAL-SWITCH CODE EMITTER (Optional Feature)

Semi-variable information can be conveniently pre-set in the T585 Card Transmitter through the Dial-Switch Code Emitter. Each of six switches, shown in Figure 6, may be set to emit any digit from zero through nine, Space code, or Figures Shift code. Information set in any or all of the switches is transmitted as part of the Telepunch message from steps in the 120-step program, controlled by plugboard wiring.

The switches are particularly useful for transmitting the current date in remote document writing applications. This eliminates a make-ready keypunching or gang-punching operation at the sending station.

The Dial-Switch Code Emitter is also available as an option on the T785 Tape Transmitter.

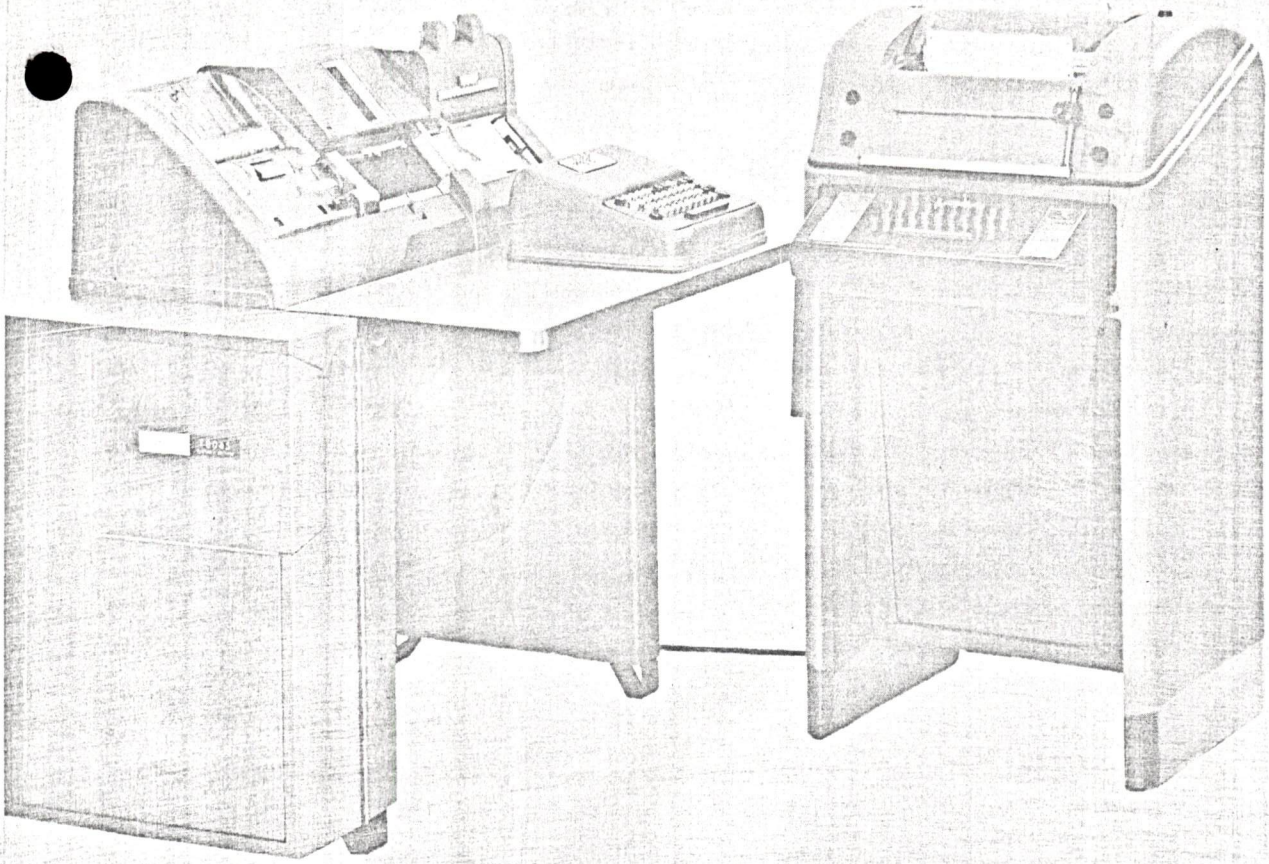


Figure 7. T 8045 Telepunch Receiver.

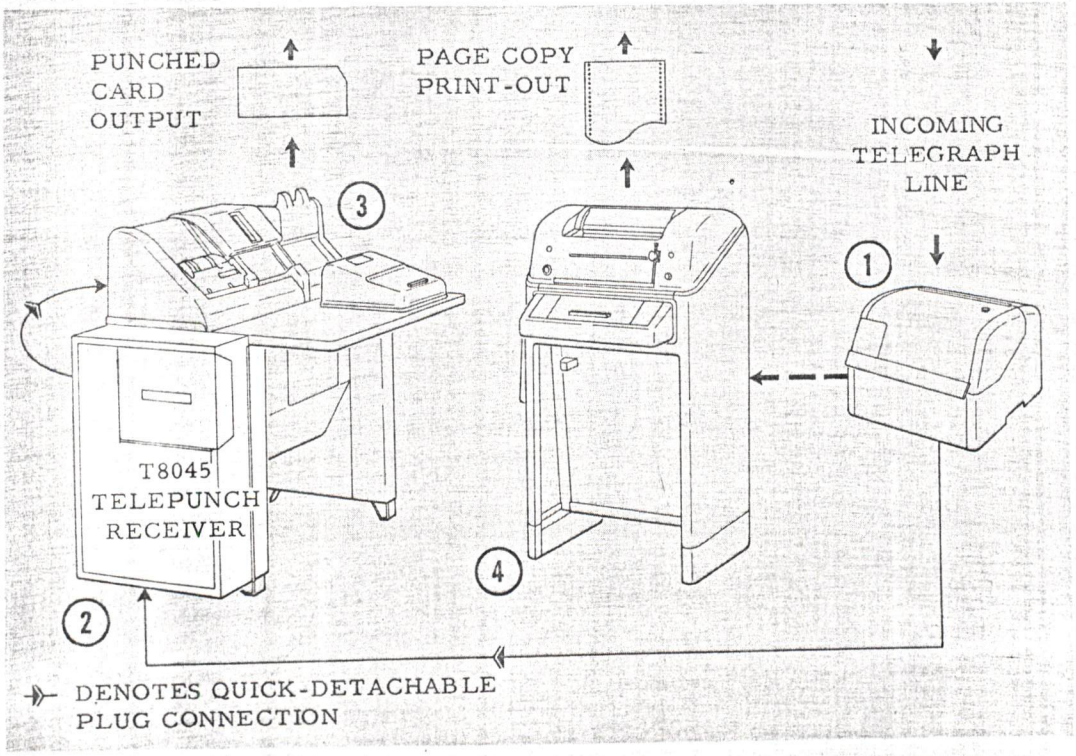


Figure 8. T 8045 System Block Diagram.

T 8045 TELEPUNCH CARD RECEIVER

General Description

The T 8045 Card Receiver provides automatic IBM card punching of incoming telegraph messages, on-line. Information is edited before punching through wiring on a plugboard, which is removable for rapid changes of the programming set-up. The T 8045 is shown in Figure 7. The diagram below shows the flow of data within the system, which operates as follows:

(1) Incoming telegraph codes are received by a Model 28 Receiving Only Typing Reperforator, or ROTR. The ROTR converts the serial telegraph coding to parallel form and presents the codes to the cable-connected T 8045 Telepunch Receiver. (The ROTR is shown in the diagram; not shown in the photograph.) The ROTR also produces a printed 5-channel punched tape record of the message if desired.

(2) The T 8045 converts 5-level telegraph codes from the ROTR into IBM card codes. The code impulses are then fed to . . . .

(3) . . . . a standard IBM Card Punch. The T 8045 modular cabinet is clamped to the left end of the card punch on a "swinging gate" mount. The gate mounting permits ready access to all components when the module is swung out for maintenance.

(4) A Model 28 Teletypewriter may be included in the system to produce a printed record of received messages. Though not essential for receiving punched cards, experience has shown that page copy is valuable as a monitor of over-all system operation.

Systems Versatility

Since the T 8045 accepts standard telegraph codes, incoming messages may be originated in several ways, depending on system requirements:

Original Transmitted Media		Sending Equipment
IBM Punched Cards	→	T 585 Telepunch Card Transmitter
5-Channel Punched Tape	→	Teletype Transmitter-Distributor
6, 7, or 8-Channel Punched Tape	→	T 785 Telepunch Tape Transmitter
Operator Keyboard Sending	→	Keyboard Sending Teletypewriter

Speed

The T 8045 drives the card punch at the top speed of the associated telegraph equipment: 60, 75, or 100 words per minute. These rates correspond to 6, 7.5, and 10 card columns per second, respectively. (Rated speed of the 24 Card Punch is 20 columns per second.)

Actual production rates vary, based on "dead time" introduced by card punch functions such as skipping, duplicating, and feeding, and on the frequency of non-punching telegraph codes, such as Figures and Letters Shift.

Programming Flexibility

Wiring on a removable plugboard applies the built-in programming capacity of the T 8045 to specific job requirements. The plugboard is accessible through a door in the T 8045, as shown in Figure 9.

Incoming telegraph codes appear at exit hubs on the plugboard. A separate hub is provided for each of the 58 telegraph codes. This provision gives the programmer unrestricted flexibility in assigning the IBM card code to be punched by each telegraph code.

An entry hub leading to the card punch is provided for each IBM alphabetic and numeric code, and for the special characters Dash and Ampersand. Other special characters may be punched by plugboard wiring through distributors. Ten 2-position distributors and ten 2-position selectors are furnished as standard. Ten additional of each are available as an option.

Programming functions available through plugboard wiring are generally similar to those on an off-line tape to card converter. These include:

- Card Punch ON and OFF hubs, to ignore portions of the telegraph message which do not need to be punched.
- Card skipping, duplicating, and releasing. These functions may be initiated either by punches in the card punch program card, or by control codes in the message itself.
- Emitted gang-punching of card codes which are required in the output cards, but are not read from the received telegraph message.
- Character recoding, to punch a received telegraph code as a different IBM card code.
- Other programming functions which provide variable card format control when punching complex, multiple card sequence routines.

Figure 9. Removable Plugboard In T 8045 Telepunch Card Receiver.

TELETYPEWRITER AND IBM EQUIPMENT For Use With The T 8045

The T 8045 is connected through a quick-disconnect cable supplied by Systematics to a demarcation strip on a Teletype Model 28 Receiving Only Typing Reperforator (ROTR). The ROTR must be equipped with the auxiliary code reading contacts feature. Further information on the code reading contacts feature appears on P. 20, under Teletypewriter Equipment, Additional Information and References. The T 8045 may also be connected to the reperforator in a Model 28 Automatic Send-Receive machine.

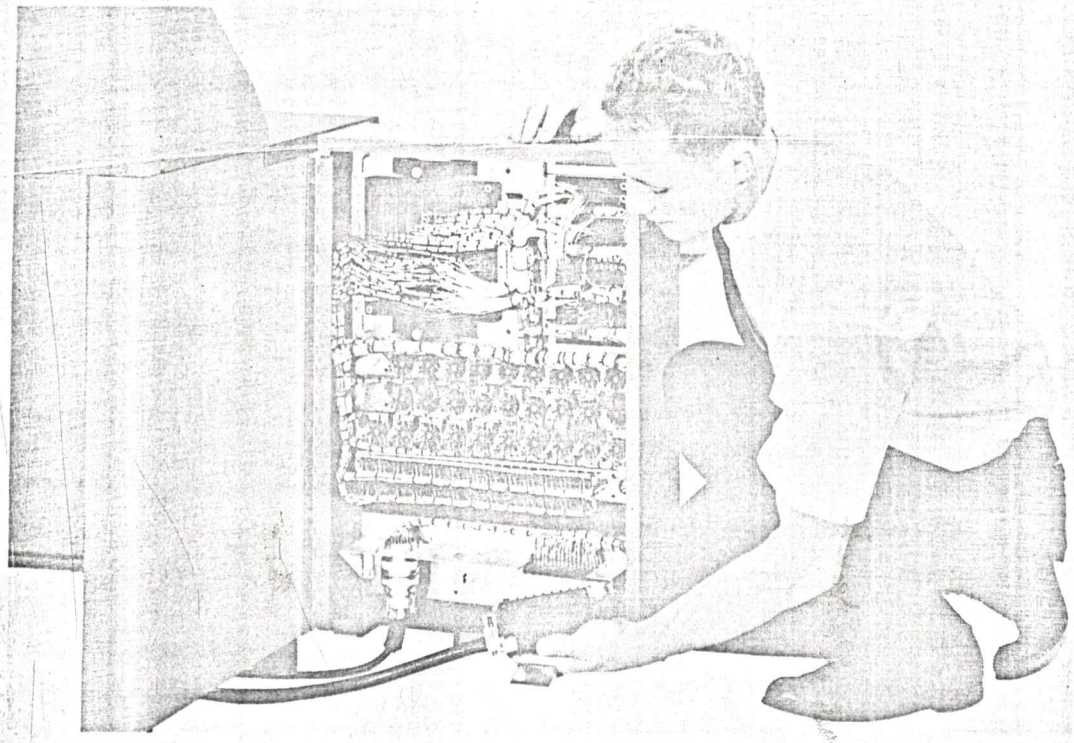


Figure 10. T 8045 Card Receiver. Modular Gate Swung Out Showing Cable Plugs to Card Punch and Telegraph Equipment.

Any IBM 24 or 26 Card Punch-- leased or customer-owned-- may be used with the T 8045. The card punch must be equipped with the Auxiliary Duplication and Alternate Program options. The T 8045 is compatible with other card punch optional features which can substantially increase the speed and versatility of the total system. Such devices include High Speed Skip and the Variable Length Card Feed Device.

Card punch and telegraph connector cables are shown above in Figure 10. Both cables are approximately 8 feet long. All connections are made in the field at the time of installation. Use of Telepunch does not interfere with normal operation of Teletype or IBM equipment, which may be used independently at any time by switching off the T 8045.

T 8075 TELEPUNCH PUNCHED TAPE RECEIVER

The T 8075 accepts received telegraph codes and punches 6, 7, or 8-channel tape, of any code structure. Programming capacity, comparable to that of the T 8045 Card Receiver, permits message editing before output punching. The T 8075 is similar in appearance to the T 585 Card Transmitter, with the addition of a tape punch mounted on top of the Telepunch console. The T 8075 connects to a Teletype Model 28 Receiving Only Typing Reperforator equipped with code reading contacts.

OPTIONAL SYSTEM FEATURES: Validity Check Error Detection

Telepunch units operate with a high degree of reliability, comparable to that of conventional punched card equipment. Use of Telepunch on a telegraph circuit does not affect transmission accuracy; circuit reliability is the same with Telepunch as without it. Situations exist, however, which require a positive check on transmission accuracy. Validity Check is an answer-back verifier of accurate card-to-card transmission. The device must be installed on both the T585 Transmitter and on the T8045 Receiver.

Validity Check consists of computing circuits in the Telepunch Transmitter and Receiver. The circuits compute a check character as each block of data--usually 80 characters, or less--is transmitted. At end of block the Transmitter sends its check character to the Receiver, then stops sending. The Receiver compares the incoming check code with one developed in its own check computer. If they are the same, the Receiver responds with a pre-assigned answer-back code which restarts the Transmitter. If the two check codes do not match, the Receiver remains silent and the Transmitter remains stopped. The system is fail safe.

The check character computing formula assigns a weighting factor to each of the twelve levels of the IBM card code. This approach avoids weaknesses of some parity checking systems and of simple bit-counting systems, which have a considerably higher susceptibility to compensating errors.

Validity Check also fits multiple address systems where one transmitter sends to several receivers simultaneously. Each Receiver responds in turn with its own answer-back code. An operator display at the Transmitter instantly pin-points any Receiver not replying with its expected answer-back, thereby signalling an error.

Tape Restart Option

When a T8045 Card Receiver is punching messages sent by a Teletype Tape Transmitter, time must be allowed for card skipping, duplicating, and feeding. The interval will depend on the length of skipped or duplicated fields, and on transmission speed. The necessary delay may be introduced in either of two ways; by inserting extra Figures and Letters Shift codes in the message, or by the optional Tape Restart feature. When using Tape Restart, the tape transmitter is stopped by the code in the input tape which also initiates a card punch function at the Telepunch Receiver.

Tape Restart is an answer-back generator in the T8045. It operates when the card punch function--skip, duplicate, or feed--has been completed and the system is again ready to accept telegraph codes. The answer-back code, interpreted by the stunt box at the transmitting station, restarts the Telegraph tape transmitter.

TELETYPEWRITER EQUIPMENT, Additional Information and References

Model 28 Multiple Wire Distributor (Used with Telepunch Transmitter)

In Telepunch Transmitter installations, a Model 28 Multiple Wire Distributor operates as a parallel-to-serial converter. The M 28 Distributor accepts parallel (multi-wire) 5-level input signals from the Telepunch unit and transmits the information serially (sequentially) over the telegraph line. The M 28 Distributor is approximately 5 inches high, 4 inches deep, and 4 inches wide, and mounts inside a Model 28 Teletypewriter. All wiring from the M 28 Distributor to a demarcation strip or connector plug is installed by the communications company. No wiring changes or modifications of any kind are made by Systematics personnel.

Different models of M 28 Distributor are specified for use at different telegraph speeds and for mounting in various types of teletypewriters:

M 28 Distributor Type	Circuit Speed	M 28 Mounted In:
28 A-1	60 and 75 wpm	28 KSR and 28 RO
28 A-2	60 and 75 wpm	28 ASR (M 28 Distributor mounts on T-D base)
28 D-1	100 wpm	28 KSR and 28 RO
28 D-2	100 wpm	28 ASR (M 28 Distributor mounts on T-D base)

A complete description of the M 28 Distributor appears in Teletype Corporation Bulletin 234B, Model 28 Multiple Wire Distributor, (LD). Suggested circuit connections to the T 585 Telepunch Transmitter appear on Systematics Drawings E 14247B and E 54218.

Model 28 ROTR Code Reading Contacts (Used With Telepunch Receiver)

In Telepunch Receiver installations, code reading contacts mounted on a Model 28 Receiving Only Typing Reperforator (Tape Punch) operate as a serial-to-parallel converter. The contacts, operated by the punch slides, provide 5-level parallel input to the Telepunch Receiver. Wiring from the contacts to a demarcation strip or connector plug is installed by the communications company.

A detailed description of the code reading contacts appears in Teletype Corporation Specification 5886S, Instructions For Installing . . . Code Reading Contact Modification Kit . . . For Model 28 Reperforators and Perforators. Suggested wiring connections to the Telepunch Receiver appear on Systematics Drawing E44007D.

TELEPUNCH APPLICATIONS

Telepunch merges wire transmission and the conversion of data from one form to another into a single, integrated, on-line operation. Most Telepunch installations exploit this capability by accepting one kind of input at the sending point and delivering a different kind of output at the receiver. Sending from punched cards directly to printed copy is a common example.

Telepunch can be applied in many situations where a conflict exists between the form in which data is originated and the desired form of the transmitted end product. Typical applications which lend themselves to the Telepunch concept of eliminating off-line conversion are:

Order and Invoice Writing-- Telepunch can be used effectively at various stages of the cycle: order entry, production order, shipping order, invoice.

Production Control-- Data processing inquiry and response systems involving both man-readable and machine-readable communications are now common in the production control field. Telepunch is already being exploited in this area in such industries as aircraft and missile production, automobile manufacturing, and steel, oil, and chemical processing.

Railroad Car Movement Reporting-- Transmission of train consists, wheel reports, hump yard switch lists; transmission of car tracing and accounting data to the processing center.

Stock Brokerage Confirmations

Payroll Applications-- Collection of payroll source data from field locations; on-line check printing on receiving teletypewriters.

Purchasing and Receiving Reporting and Control

Airline Communication Systems-- Reservations, ticketing, flight information data collection, spare parts ordering in mechanized operator-to-manufacturer systems.

APPLICATION: On-Line Document Writing From Punched Card Sending

The shipping order application on the following page shows how Telepunch automatically edits punched card data as it transmits. The order starts as a set of punched cards in a central data processing location. The information in the cards is transmitted via Telepunch to a receiving teletypewriter in the warehouse from which shipment is to be made. The teletypewriter prints out a shipping order on-line as cards are transmitted from the center. Notice how T 585 programming flexibility contributes to a more legible document, faster transmission, and reduced make-ready at the processing center.

(1) SELECTIVE CALLING- Controlled by a 1- or 2-column code in the first card of the order set, Telepunch emits Call Directing Codes. Codes set up telegraph switching connections to warehouse "BC".

(2) MULTIPLE LINE PRINTING- The entire Sold To name and address is punched in a single card. Telepunch emits Line Feed and Carriage Return codes to produce conventional line-by-line print format.

(3) AUTOMATIC DATE EMITTER- An optional feature automatically transmits the date from settings on dial switches in the T 585.

(4) HIGH ORDER ZERO-TO-SPACE CONVERSION- Insignificant high order zeros to the left of Quantity and other amount figures are converted to spaces. This produces a more legible document.

(5) EMITTED SPACES BETWEEN ADJACENT COLUMNS- The T 585 emits a Space at the end of designated card fields to provide separation between adjoining columns on the form.

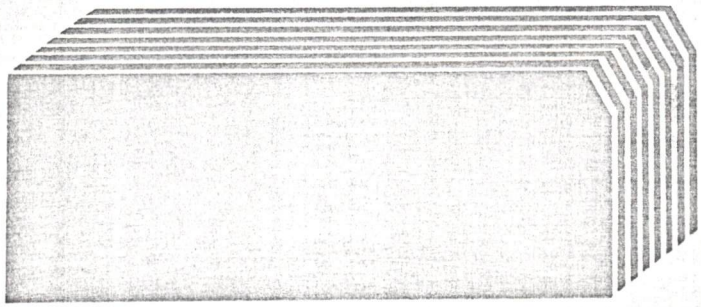
(6) AUTOMATIC DECIMAL POINT- The decimal point is automatically generated by Telepunch; it need not be punched in the card.

(7) CONSECUTIVE BLANK COLUMN SKIPPING- Telepunch initiates card skipping and teletypewriter tabulation over unused positions in the Description field. This saves telegraph transmission time.

(8) CREDIT INDICATION- Telepunch converts X-overpunch credit indication in card to a minus sign following dollar amount on form.

(9) CODE EXPLOSION- Telepunch reads 1-digit Unit of Measure code in card; explodes code to 1- or 2-character symbol for transmission.

(10) AUTOMATIC FORM FEED-OUT- After sending last card, Telepunch recognizes first card of next order set and breaks control. Control break in T 585 emits teletypewriter Form Feed-out code. Paper in teletypewriter advances rapidly to first line of next form.



SEND

RECEIVE

SHIPPING ORDER

ANY MANUFACTURING COMPANY

HAWTHORNE, CALIF.

SHIP FROM WAREHOUSE	BC	(1)

SOLD TO	XYZ EQUIPMENT CO 12345 BOULEVARD WAY (2) ENDICOTT N Y
SHIP TO	XYZ EQUIPMENT CO FIELD OPERATIONS MELBOURNE FLA

SHIPPING INSTRUCTIONS
URGENT VIA AIR - EXPORT PACK

DATE	CUST. ORD. NO.	CUST. NO.	SLSMN	ORDER NO.
(3) 12 14 60	KM 14009	3574	118	77013

QTY	STOCK NO. (5)	DESCRIPTION	U/M	PRICE
(4) 60	130049	CONNECTOR LOCK ASSY.	EA	13.75
300	117824	TERMINAL BLOCK	EA	(6) .95
1000	53027	CABLE, AN/XXX-X (7)	FT	3.00
5	361094	SEALING COMPOUND	LB	12.50
12000	22843	RECEPTACLE	M	40.00
	999996	CONTAINER ALLOWANCE	(9)	5.00- (8)

CONTENTS

Printed in U.S.A.

Form 661/502
(Supersedes Form 1060/451
which is obsolete.)

ORGANISATION EUROPÉENNE POUR LA RECHERCHE NUCLÉAIRE
CERN EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH

Téléphone : 34 20 50 (10 lignes)
32 00 40 (10 lignes)

Télégramme : CERNLAB-GENÈVE
Télex : GENÈVE - 2 25 48

Adresser la correspondance :
CERN Genève 23

Digital Equipment Corporation
Main Street
Maynard (Mass.)
USA

Votre référence :
Notre référence : ADM/Achats/I-2916/DD

Meyrin-Genève, le 10th October, 1963.

Re : Inquiry No. I-2916/DD -

Dear Sirs,

Please find enclosed the specification for a small High Speed Computer.

The specification should be self-explanatory, but we are, of course, at your disposal in case you would care to ask for further details.

For any technical queries, please contact Mr. Lipps or Mr. Marcer, and for any commercial matters, the writer.

We ask you please to let us have your offer not later than

the 9th November, 1963.

Yours faithfully,

F. Schou Olsen
Purchasing Officer

Encl. mentioned

7267/FSO/gf

CERN - DD/CO/FN14
25 September 1963

Specification for Small High Speed Digital Computers

Preamble

As a result of the working party report on the On-line and Off-line Computing Requirements of the Nuclear Physics Division at CERN, and the work of the Continuing Committee for the Future Computing Needs of CERN, the need is recognised at CERN for the acquisition in the near future of one or more small modern high speed digital computers for the "on-line" recording and treatment of nuclear data.

In this document CERN asks computer manufacturers to make offers of computers which they have available or will have available in the immediate future and which they consider could meet the CERN computing needs as outline below. After study of these offers CERN will discuss details with manufacturers and may then make changes in the specification. In this sense the offers can be regarded as preliminary, but manufacturers are asked to give full and definite information whenever possible as this will speed up the procedure. The manufacturer is requested to make his information available in the form of replies or comments to the clauses of the specification attached.

An expenditure in the order of a 1,000,000 Swiss francs is envisaged, possibly spread over more than 1 year, and it is so far undecided as to whether it should all be spent on one machine serving several users or split between two or three. Therefore computers over a rather wide range of size will be considered, and the specification has been drawn up to make this possible.

1. Minimum requirements of the Computing System as a whole

The computer shall be a stored programme, general purpose, digital computer of modern design. It must use only solid-state components, carefully packaged for resistance to thermal, mechanical and electrical disturbances; capable of operating reliably for 24 hours a day, 7 days a week with the minimum of maintenance. The equipment will operate in the usual office environment or on the experimental floor, possibly in a mobile trailer and should require no extensive air-conditioning. It must have general facilities to connect to the input-output system at least one special purpose real time device.

7314/ga

Figures from Jack Richardson on MTBF

The proposal should therefore include statements about the mean error-free time for the equipment and the extent of the air conditioning system required.

O.K (order supplies 50cls for displays)

A power supply of 220 volts, 50 cycles is required (or 380 V 3 phase).

2. Minimum System Characteristics

2.1 A central processor capable of performing addition, multiplication and division, together with logical and input-output operations. The computer word shall be binary and the number of bits per word is not of crucial importance provided an accuracy of the order 10^{-7} is available. A word length which facilitates the input of 24 bit numbers from the standard CERN scalers (attached to many present experimental devices) would be an advantage.

what does 10^{-7} mean

Probably 6 decade BCD scalers

Information is required on the following points:

Arithmetic speeds for fixed point, and floating point addition, subtraction, multiplication and division, and to what extent the arithmetic is by hardware or by programme. The times for the execution of such subroutines as sine, cosine, exponential etc.

Easy for PDP1 in central system

Arithmetic speeds for fixed point working of the order of addition $\sim 10\,\mu s$, multiplication $\sim 50\mu$ are desirable.

(SDS) 2.2 A memory capacity equivalent to 2000 24 bit words of directly addressable magnetic core is the absolute minimum, but 4000 words is considered very desirable. The core cycle-time should be of the order of $5\mu s$. The input of 24 bit words to memory from an external on-line device is required in the order of $20\,\mu s$.

O.K is absolute minimum should have 8K (PDP1)

O.K. but are they BCD

Use PDP1 as input device to convert to BCD to Bin

2.3 The ability to have connected simultaneously a number (4 or more) input/output devices with at least two working asynchronously.

Easy!

2.4 Magnetic tape units compatible with IBM 700 series tape systems, with a transfer rate of at least 15,000 characters per second. Quotations for 1, 2 or 3 units are required.

O.K.

Ours is better than SDS

2.5 An operator-maintenance console with a display of internal registers and with facilities for manual program intervention.

2.6 Interrupt facilities.

O.K.

(outline size & number of systems installed.)

2.7 Facilities for the direct electronic connection of an external input-output equipment to the central processor via a plug. Available to the external equipment from the plug shall be data lines, along which may pass one computer word at a time in parallel mode. Appropriate sense and control connections must also be provided.

2.8 Input-output typewriter.

2.9 A proper tape reader -punch combination or a card reader-punch combination for input-output, which ever is the manufacturers standard equipment.

3. Further desirable system features

The manufacturer should give information on the following items stating whether the features mentioned are standard or optional on his machine.

3.1 The execution of floating point arithmetic by hardware.

3.2 Internal logic to indicate arithmetic overflow.

3.3 An index register.

3.4 Indirect addressing.

3.5 Computer design permitting easy expansion of memory size, preferably directly addressed. Please quote a price for additional memory modules.

3.6 The ability to address a unique one of several external equipments.

3.7 Input-output direct to memory via a special buffer register as well as via the accumulator of the CPU.

3.8 Sense switches, sense lights or sense lines.

3.9 A standard CRT display.

3.10 Input of 5-hole paper tape.

4. Programming

4.1 An adequate symbolic assembly program must be available.

4.2 The provision of a symbolic language with facilities comparable to FORTRAN, ALGOL, AUTOCODE is desirable.

The proposal should therefore include descriptions of the assembly program, compilers, library routines (such as tape loaders, and floating point arithmetic routines) and equipment diagnostic routines.

Final programming manuals, assembly listings, flow charts and debugged programs shall be delivered with the computer.

4.4 It should be stated what training facilities CERN personnel might expect to receive.

5. Price quotations and conditions

CERN is a pure academic research laboratory giving facilities for research to persons of all European Universities leading to their high degrees. It expects the appropriate commercial conditions for this type of use.

With regard to the conditions of sales and operation would the manufacturer please state:

5.1 Price quotations for the purchase of the equipment, specified item by item and price quotations for hire of equipment item by item. Prices should be for equipment delivered at the factory and any transportation and installation charges should be given separately.

5.2 The delay between placing a firm order and the completion of on-site installation and the earliest data by which the equipment will be available, if ordered soon enough.

5.3 Information on the present status of the hardware and software proposed.

5.4 Hire purchase conditions for a period of 2 or 3 years.

5.5 Price quotations and conditions of a maintenance contract for the equipment supplied.

This should include the cost of an on-site engineer if the company is willing to supply one.

If not, where will the nearest consultant engineer be situated, how often would routine visits be made, and what training will CERN maintenance personnel receive before the arrival of the computer.

The cost of component testing equipment, and basic spare parts, and the supply and availability of spare parts.

5.6 A complete set of circuit schematics, logic diagrams and other engineering information for servicing and modifying the equipment must be delivered with the equipment.

UNIVERSITY OF PITTSBURGH
PITTSBURGH 13, PENNSYLVANIA

DEPARTMENT OF PSYCHOLOGY

October 7, 1963

Mr. H. Anderson
Digital Equipment Corporation
Maynard, Massachusetts

Dear Mr. Anderson:

I want to thank you for the telephone conversation we had on October 4 and to inform you that our visit in the Boston area on the 22nd appears to be crowded to the point that I don't think we will be able to visit your company. It is possible that we may at some future date want to talk with you again and I hope that if such is the case, we will be able to see you at that time.

Thank you again for the information you gave over the telephone.

Sincerely yours,

William W. Ramage

William W. Ramage
Project Associate for Engineering
Learning Research & Development Center

WWR:rar

THE INDUSTRIAL OFFICER

EDWARD J. ALOFS

OF THE

MINISTRY OF ECONOMIC AFFAIRS

WISHES TO ANNOUNCE THAT

THE OFFICE IS NOW LOCATED AT THE

CONSULATE GENERAL OF THE NETHERLANDS

10 ROCKEFELLER PLAZA

NEW YORK 20, N. Y.

WHERE THE ACTIVITIES WILL BE

CONTINUED WHICH WERE FORMERLY HANDLED BY THE

NETHERLANDS INDUSTRIAL INSTITUTE

OCTOBER 15, 1963

CIRCLE 6-1429

H. Anderson

October 16, 1963

Mr. L. J. Crowhurst
National Computing Division
Elliott Brothers (London) Ltd.,
Elstree Way
Borehamwood
Herts
ENGLAND

Dear Mr. Crowhurst:

At the recent Canadian Electronics Conference in Toronto, I met Mr. R. McLellan of your M. & E. I. Division, and he suggested I visit your Company when next in the U. K. Mr. John J. O'Connell, Jr., of our Maynard plant, suggested I visit you at that time as you were in the process of using our circuit modules.

If such a call is convenient, then I could be at your plant on Thursday, December 5.

I look forward to hearing from you.

Yours very truly,

J. Leng
Manager of Engineering, Ottawa

JL/nh

CC: H. Anderson
G. Huewe
R. McLellan

H. Anderson

October 16, 1963

Mr. Leighton Davies
Development Director of Digital Computers
Solartron Electronics Group Ltd.
Victoria Road
Farnborough
Hants
ENGLAND

Dear Mr. Davies:

Following a visit to your Company recently, of Mr. A. de Vitry of our Board of Directors, it was suggested that I visit with either yourself or Mr. Reginald Catherall when next in the U. K.

Our Comapny will have a computer on demonstration at the Paris Mesucora Show from November 14-21st and I'll be on the stand periodically during this period. In addition, I'll be visiting the U. K. for a short period during December and could visit you at Farnborough on December 4, if this is convenient.

Looking forward to hearing from you as to the suitability of this visit.

Yours very truly,

J. Leng
Manager of Engineering, Ottawa

JL/nh

CC: A. de Vitry
H. Anderson
S. Olsen
G. Huewe

H. Anderson

BOLT BERANEK AND NEWMAN INC
CONSULTING DEVELOPMENT RESEARCH

50 MOULTON STREET
CAMBRIDGE 38, MASSACHUSETTS
TELEPHONE 491-1850

Ted Johnson
C-F-C members

15 October 1963

Mr. Gordon Bell
Digital Equipment Corporation
Maynard, Massachusetts

Re: BBN Proposal No. P64-IS-3

Dear Gordon:

I. Bolt Beranek and Newman Inc. is pleased to submit the following proposal with regard to the Drum Diagnostic/Troubleshooting Package, which we discussed in our telephone conversation of 11 October 1963.

The Drum Diagnostic/Troubleshooting Package is designed for acceptance testing, diagnostic testing, and troubleshooting of the DEC standard drum.

The system will operate in a free-running mode upon read-in, generating error print-outs as errors are detected. In addition, it will be possible for the user to execute a wide variety of tests, under typewriter control. These tests will involve the reading, writing, and swapping of data to and from the drum in various ways. The user will be able to specify, from the typewriter, the specific tests and data sets desired. The tests include the reading, writing, and swapping of fixed-length blocks and of variable length-blocks. All location on the drum are, of course, involved. The data sets include all zeroes, all ones, random words, various checkerboards, and "same-name data"; other data sets may also be specified from the typewriter. Since the tests include, among other things, full-field transfers, the program requires a system configuration with at least two fields of core memory.

The proposed system has evolved through our own need to cope with the problems of acceptance testing, diagnostic testing, and troubleshooting of the drum. As a result of our experience, we feel confident that the system we propose encompasses a set of tests of a variety and thoroughness to meet these needs most adequately and conveniently.

If you desire, we shall be pleased to give a technical presentation on the details of the proposed system.

II. Bolt Beranek and Newman Inc. will provide:

1. Operating manual for the Diagnostic/Troubleshooting Package. This manual will follow the format of the MAINDEC series. Three (3) copies of the manual will be provided.

2. Symbolic tape of Drum Diagnostic/Troubleshooting Package.

3. Binary tape of Drum Diagnostic/Troubleshooting Package.

III. Delivery will be made as soon as the system becomes available, but not later than six months after receipt of contract. It is expected, but not guaranteed, that the system will be available within four months.

IV. We propose to accomplish the above on a straight fixed price basis of $15,000.

Sincerely yours,

BOLT BERANEK AND NEWMAN INC.

Thomas Marill

Thomas Marill
Head, Information Systems Department

TM:jm

cc: Mr. Harlan Anderson

To Andy from Jack Atwood 10/24/63

PRESSING QUESTION

Research: Is It Worth The Money?

By Edwin Darby
Sun-Times Financial Editor

Something like $15 billion a year is being poured into research of one kind or another by the government, the universities and private industry. Now the question is being asked more and more frequently: Are the results worth this huge expenditure of money?

One place it is being asked is in corporate board rooms as the directors examine profit factors. Very shortly, a congressional committee is going to be asking the same question repeatedly as it pursues a full-scale investigation of government spending on research.

The answer to the question is not easy to come by. At some point in any attempt to judge research values the judge has to try to put a dollar sign on genius. The intangibles are many. Accident has been responsible for thousands of discoveries that have benefited the world. But the accident has occurred because conditions were right; research of some kind was being conducted, an effort was being made. The ancestor who invented the wheel may have been working day and night trying to make a round coffee table to fit in with the other furniture his wife had assembled in the cave.

The Human Equation

THAT FANCIFUL IDEA rings up a couple of human questions that are relevant. Would the man have invented the wheel if his wife had been standing around all the time nagging him?

Maybe he'd have thrown up his hands and gone out for a drink with the boys before he got the thing straight in his head. Then, again, without proper encouragement he might have rolled the finished wheel into a corner and forgotten about it.

I've been talking to Dr. Vernon R. Alden, the bright, young and energetic president of Ohio University. He's had a lot of experience with the subject of research, both in the classroom and in business. He used to be associate dean of the Harvard Graduate School of Business. In that capacity he was closely involved with the famed wedding of academic and business brains that produced Boston's great Route 128 development of research-minded growth companies. Although he now lives in Athens, Ohio, home of Ohio University, he's still a director of four of the Boston companies (e.g., the Digital Equipment Corp.)

Right now he's very much involved with a significant and worthwhile effort to shed light on the problems of research. As he says, he's promoting research on research. Specifically, Ohio University is sponsoring with the Battelle Memorial Institute a two-week seminar at Battelle in Columbus, Ohio, under the title "Research and Research Management." Designed for the scientist who finds himself the business manager of a research project and the business manager who finds himself bossing research scientists, the seminar opens Oct. 6. Battelle and Ohio University staff people, with assists from Harvard, M.I.T., and such corporate leaders as Donald C. Power, chairman of General Telephone, will be on the platform talking to "students" representing everyone from General Motors to NASA.

A Dramatic Background

BATTELLE IS peculiarly well qualified to participate in such a seminar. It's the world's largest research consulting firm and it was directly involved in one of the most dramatic research stories of modern corporate history.

Battelle staffmen were responsible for conducting the long, frustrating years of research that turned an idea into practicality and made possible the fabulous success story of the Xerox Corp. As a non-profit organization, Battelle let go of most of the stock it once held as payment for its services. But the organization has held on to a small chunk. The last time I looked at the price of Xerox stock, up from 87 to something like 280 since 1962 alone, the Battelle stock was worth approximately $50,000,000.

Certainly, research can be profitable.

But, as Dr. Alden says, there's a growing recognition that ways must be found to manage research efforts more efficiently. Dollars must be controlled without damaging morale and output. "My hope," says Dr. Alden, "is that research on research management will produce guides to the means of increasing the productivity of research while at the same time reducing costs."

dec INTEROFFICE MEMORANDUM

DATE October 14, 1963

SUBJECT MACRO 6.4

TO PDP-6 List

FROM Harris Hyman

MACRO6.4 is a MACRO6 Assembler which will soon be running on the PDP-4, assembling programs for the "6". It's language is somewhat more restricted than the language described in the MACRO6 memo.

The explicit differences:

1) It will only assemble from teletype paper tapes.

2) Statements may contain only 50 characters (those beyond 50 are ignored).

3) Symbols must begin with a letter, which may not be O.

4) Symbols may be combined to form expressions using only the operators + and -.

5) Literals are not included.

6) I/O instructions are not included (they may be included later).

7) Octal and Decimal numbers must be unsigned integers.

8) The following pseudo ops are not included in the modified language:

IOWORD
ALPHA
REPEAT
CONDITIONAL ASSEMBLY
PASS 2
DITTO
LISTING CONTROL

9) = must be used for EQUALS and must not be followed by a comma.

Examples:

x:=y+1, x and y+1 have the same location .

10) A new pseudo-op Z is defined. This assembles as one word filled with zeros, and has no operands.

Example:

temp: Z, temporary storage.

HH/nbh

LYBRAND, ROSS BROS. & MONTGOMERY

COOPERS & LYBRAND
IN AREAS OF THE WORLD
OUTSIDE THE UNITED STATES

80 FEDERAL STREET
BOSTON 10

October 14, 1963

Dear Mr. Anderson:

The House recently passed the President's proposed new tax rates and regulations. If the bill is successful in passing the Senate, it is expected that the effective date for such lower tax rates and regulations will be as of January 1, 1964.

With this in mind, we would like to point out to you that it might be advisable for you to review your present income and deduction position. Under the new law it is proposed that in addition to an overall rate reduction, some deductions will be disallowed and others will be curtailed by limitations.

A cash basis taxpayer may, under ordinary circumstances, pre-pay certain presently deductible items or expenses. These would be offset against 1963's higher tax rate. At the same time the taxpayer may, if feasible, defer the receipt of income until 1964 when such income would be taxed at the proposed lower rates.

It is also proposed to change the capital gains tax rate and holding periods for long term capital gains. With this in mind you may wish to review your security holdings or other capital assets that could be affected by the new proposed law.

We are bringing to your attention the proposed new tax law because it should be borne in mind when you are reviewing your financial position with respect to year end tax planning.

We enclose a partial listing of some of the proposed changes as reported in the summary section of the Report of the Committee on Ways and Means.

If we can be of any assistance to you in this matter, please call upon us.

Very truly yours,

Lybrand, Ross Bros. & Montgomery

JPF:BFB
JGA

Enclosure:
Summary

Edited Excerpts from

"BRIEF SUMMARY OF PRINCIPAL PROVISIONS OF HR8363"

"THE REVENUE ACT OF 1963"

A - Rate Reductions

Under this bill individual income tax rates are reduced, from the present rates of 20 to 91 percent, to rates ranging from 14 to 70 percent in 1965. Rates ranging from 16 to 77 percent make about two-thirds of this reduction available for 1964. Closely related to the individual income tax rate reduction is the minimum standard deduction provided by the bill which, in effect, when coupled with personal exemptions, sets an income floor. Individuals with income levels below the specified amounts will have no income tax payments to make.

The tax rate for corporations in 1964 is reduced from 52 to 50 percent and is further reduced in 1965 to 48 percent. In addition, the rate applicable to the first $25,000 of corporate income beginning in 1964 is reduced from 30 percent to 22 percent. Furthermore, corporations are placed on a full pay-as-you-go basis so that ultimately all of their tax liability above $100,000 is to be payable in the year in which it is earned. This is achieved over a 7-year period.

B - Structural Changes

1. Dividend credit and exclusion. The 4-percent dividend received credit is reduced by the bill to 2 percent for 1964, and repealed for subsequent years. The $50-dividend exclusion is increased to $100 (usually $200 in the case of married couples) for 1964 and subsequent years.

2. Group term insurance. The bill limits the employee exclusion for premiums on group term insurance furnished through the employer to premiums paid for the first $30,000 of coverage; it also provides a special deduction for employees who are in effect paying part of someone else's insurance costs in the case of coverage above $30,000.

3. Reimbursed medical expenses. The bill includes, in gross income, reimbursed medical expenses to the extent the reimbursement exceeds the actual medical expenses incurred with respect to the illness or accident.

4. Sick pay exclusion. The bill restricts the sick pay exclusion, of up to $100 a week, to those who are out of work for more than 30 days (and makes the exclusion only for the period beyond that time).

5. Sale of residence by aged taxpayer. The bill provides an exclusion from the tax base for the gain on up to $20,000 of the sales price of a personal residence in the case of an individual aged 65 or over.

6. Deduction of certain State and local taxes. The bill denies a deduction in computing income subject to Federal tax for State and local taxes other than property, income, and general sales taxes (the principal taxes for which a deduction is denied are gasoline, auto license, alcoholic beverage, cigarette, and selected excise taxes).

7. Casualty loss deduction. The deduction for personal casualty and theft losses is limited to the amount in excess of $100 per loss (similar to "$100 deductible" insurance).

8. Charitable contribution deduction. Several changes are made in the charitable contribution deduction: (a) The 30-percent maximum deduction is made available generally for contributions to organizations other than private foundations; (b) the 2-year carryover of charitable contributions for corporations is extended to 5 years; and (c) charitable contributions deductions for future interests in tangible personal property are denied until the gifts are completed except where the property is retained for the life or lives of the donor or donors.

9. Medical expense deduction. The 1-percent limitation, or floor, on medicines and drugs which must be taken into account in determining deductible medical expenses is made inapplicable where the taxpayer and his wife are over 65 and also to their parents where they are over 65.

10. Moving expense deduction. A deduction for certain moving expenses - transportation of the household goods and the persons involved, and also their meals and lodging while in transit - is allowed for employees who are not reimbursed for these expenses and also for new employees (an exclusion for these items is already available in the case of old employees who are reimbursed).

11. Taxation of capital gains. The present capital gains treatment for individuals is revised by the bill so that in the case of most assets held more than 2 years, 40 percent (rather than 50 percent) of the gain will be included in the tax base and the alternative rate of tax on this is to be 21 percent (rather than 25 percent). Certain types of income given capital gains treatment today which are not actually capital gains will continue to be treated as they are today (50 percent inclusion or 25 percent alternative rate). The bill also provides an unlimited (instead of 5-year) carryover of capital losses in the case of individuals.

12. Sale of depreciable real estate. In the case of real estate sold at a gain in the future, depreciation deductions, generally to the extent these deductions exceed depreciation allowable under the "straight line" method (to the extent of the gain), will be treated by the bill as giving rise to ordinary income. However, in the case of property held more than 20 months the amount treated as ordinary income will be reduced by 1 percent for each month of holding over 20, with the result that no amount will be treated as ordinary income in the case of real property held more than 10 years.

13. "Bank loan" insurance. An interest deduction is denied for amounts borrowed under a systematic plan to pay premiums on life insurance (certain exceptions are provided).

14. Stock options. The present tax treatment of employee stock options is further restricted, the principal additional restrictions being that (a) the stock when acquired must be held for 3 years or more; (b) the option must not be for a period of more than 5 years; (c) the option price must at least equal the market price of the stock when issued; (d) stockholders' approval for the options must be obtained; and (e) the extent to which new options may be exercised when the old options are outstanding is restricted. Separate tax treatment is provided for employee stock purchase plans which are available to all employees on a nondiscriminatory basis under rules which are substantially the same as under present law.

15. Interest on certain deferred payments. Where property is sold on an installment basis and either no, or very low, interest is charged on the installments, the bill provides that an appropriate amount of each installment is to be treated as if it were an interest payment.

16. Averaging of income. The bill in effect provides for the averaging of income over a 5-year period where the income in the current year exceeds the average of the 4 prior years by more than one-third and this excess equals at least $3,000.

BLAIR AND BUCKLES

PATENT AND TRADEMARK COUNSEL

79 MILK STREET
BOSTON 9, MASSACHUSETTS

HUBBARD 2-5161

CABLE: "EMBOVA"

October 11, 1963

Mr. Dean Pace
Systems Development Corporation
Santa Monica, California

Re: File 83-000

Dear Mr. Pace:

I am writing in connection with your recent purchase of a PDP-1 computer and associated equipment from Digital Equipment Corporation. Confirming our recent telephone discussion, it appears that you have been unable to reach a satisfactory agreement with IBM for maintenance of this computer, inasmuch as IBM refuses to use Digital's maintenance and operation manuals, which have been marked as proprietary information. We assume that IBM is perfectly within its rights in refusing to do business on this basis, although we are somewhat surprised by their attitude. Digital has in the past and still accepts similar information on a confidential basis from a number of companies operating in this field.

We fully realize that the equipment furnished by Digital must be serviced and that certain routine maintenance procedures must be undertaken. However, this problem will have to be solved by your company. Digital has fully complied with all the provisions of its contract with Systems Development Corporation. Moreover, it was not informed prior to the contract that unlimited use of heretofore proprietary information was contemplated. Accordingly, the stand taken by Digital in connection with such information is not at all unreasonable. This conclusion is supported by the fact that all previous sales of computers by Digital have been accompanied by the same restric-

tive provisions, and such provisions have never before been questioned by any customer. Also, as pointed out above, information is often made available on a confidential basis by other companies in the digital computer field.

Consequently, Digital will not agree to the unrestricted dissemination of its proprietary information, particularly since such dissemination will result in the loss of all proprietary rights in such information.

This, of course, does not mean that the PDP-1 computer purchased by your company cannot be adequately serviced and maintained. I have discussed this matter with competent personnel at Digital and they tell me that they have service representatives who can take care of the computer regardless of its connection to other equipment. It seems to me that we ought to defer to the judgment of these qualified experts and indeed this may well result in superior maintenance of the computer in view of the broad experience of Digital's service personnel with similar equipment.

Very truly yours,

Robert A. Cesari

D/mtp

Blind CC: Harlan Anderson

THE UNIVERSITY OF NEW SOUTH WALES

BOX 1, POST OFFICE, KENSINGTON, N.S.W

Telegraphic Address: UNITECH, SYDNEY

TELEPHONE: 33 0351

PLEASE QUOTE
REV/AM

cc HEA

10th October, 1963.

Mr. Gordon Bell,
Manager, Computer Engineering,
Digital Equipment Corporation,
Maynard,
MASSACHUSETTS. U.S.A.

Dear Gordon,

I am pleased to learn from your letter of the 25th September, 1963 that you will be in Australia for two weeks during December. Please let us know the dates when you have finalised the arrangements. We will be busy planning the opening of the new School on October 22nd, 1963. Sorry you cannot be here to join with us. It was a pleasure to meet Mr. Harlan Anderson but I am sorry that I had to leave so abruptly to catch a plane to Canberra on that afternoon. It is good to hear of your progress with Digital Equipment Corporation and the glowing reports of your work and standing in computing from Mr. Anderson.

No doubt we shall hear more of your computers when we see you in December.

Thank you for the publications.

Yours sincerely

R Eowels

R.E. Vowels
Professor and Head
School of Electrical Engineering.

[redacted]

Nick -
Please discuss this at the C.G.C.M. on Wed. What is our education & research plans on PDP-6

DARTMOUTH COLLEGE
Computation Center
Hanover • New Hampshire

October 9, 1963

Mr. Robert L. Lane
Digital Equipment Corporation
Maynard, Massachusetts

3070

Dear Bob:

As you know, I am very much interested in the PDP-6 Computer. We are in the process of establishing a college-wide central computation center to be operated with multiple access stations under a time-sharing principle. We are concerned with training up to 90 percent of all Dartmouth students in the elementary aspects of computing, and a large-scale, time-shared computer seems to us the only reasonable way to accomplish our aim. We are also concerned with the small research problem, the one that often does not quite reach the typical standard computer because of long turn-around times. Our guess is that we will be using the computer about 50 percent for education, 40 percent for research, and 10 percent for other college business -- all, of course, under the aegis of the time-sharing system.

I would appreciate very much your obtaining a price quotation for us on the following system, which is one that we feel would fit our needs.

Arithmetic processor 170
Memory - 1 16 K module 100
Microtape control unit
Microtape transports - 4 dual
Card reader
Card punch
Printer (300 lpm)

N. Anderson
Judy, distribute to CGC, and have it put on agenda
Ed. Disc for Dartmouth

Cathode ray tube
IBM tape control
IBM tape transport - 1
Drum
Scanner - 10 stations
Model 33 teletypes - 10

In the future, we might want to add memory and model 33's or their successors.

Thanks very much for sending the manuals - - they make very interesting reading. I look forward to an early reply from you.

Very truly yours,

Thomas E. Kurtz
Director

TEK:mv

copy sent to
Jon Fadiman 10/14

9 October, 1963

Mr. Harlan Anderson
Digital Equipment Corporation
Maynard, Mass.

Dear Andy,

This morning I received the visit of Monsieur Pierre LANTIERI, Sous Directeur of a company called "Le Materiel Electrique S. W.".

This company is owned 57% by the Schedre Group, i.e. Creusot, Banque de l'Union Européen and so on, and 43% publicly owned. In the near future it will merge with a company named Jeumont, which is owned by S.P.I.E.A. - a company controlled by the Belgian group AMPIN.

This company has relied in the past on Westinghouse's knowhow but believes that it is poorly equipped for long-term electronic development. It is active in electrical matters and process control.

Apparently Le Materiel Electrique exhibited at the Basel show a computer named PLP, which is amazingly close to our PDP4. Mr. Lantieri had heard about D.E.C. from General Doriot and appears to be quite anxious to develope some relationships between his company and D.E.C.. Ultimately, he may have in mind finding a working arrangement between the two companies. M. Lantieri also mentioned that his company has twenty patents covering the PLP and he hinted that the PDP4 may fall under some of them, but he did not want to press the point.

In any case, Le Materiel Electronique has some difficult control problems for the steel industry and the Electricité de France, and is unable to build a computer powerful enough to solve these problems. They would appreciate in the nearest future having technical contact with one of our top men. May I suggest again that if John Fadiman or Dick Mazzarese come to Europe they should contact the top technical man of Le Materiel Electrique, M. Verigny. I would be quite willing to arrange a meeting, in fact, I would love to attend it.

The address of the company is 36, Quai National in Puteaux (Seine). I would appreciate receiving news from John or Dick's coming to Europe, in order to inform M. Lantieri. Furthermore,

.../...

9 October, 1963

I have not had any answer from you about my letter related to Solartron's need for technical help.

Would you also be kind enough to mail to M. Lantieri the brochure on the PDP1, the PDP4, and the PDP6 if the last one is ready. He is going to send me information on his PLP.

Sincerely,

A. de Vitry

A. de Vitry

P. S. Monsieur Lantieri just told me that the powerful French company, Compagnie Générale de l'Electricité, has formed a joint affiliated company with S.D.S., the affiliate being named C.E.C.I.S.. Competition is intensifying in France!

SHOREHAM
4497

"BOIS GRENIER"
2 ERRINGHAM ROAD
SHOREHAM-BY-SEA. SX.

Mr. Harlan D. Anderson
Digital Equipment Corporation
146 Main Street
Maynard
Mass. U.S.A.

8th October, 1963.
KSB/BP

Dear Mr. Anderson,

I have given our discussions in Basle very careful thought and have also had the opportunity of confirming the prospects for your equipment. I believe that your products fall into three main categories:-

a) Digital Data Processors
b) Modular Logic Blocks
c) Digital Testing Systems

I'm sure it is nothing new for you to hear that a promising market now exists in the U.K. for categories a) and b). However, the position with regard to category c) is less clear. I presume that these systems are frequently custom built.

As I indicated to you previously I would very much like to be associated with the marketing of your equipment in this country. Several possibilities might be interesting, viz:-

a) through a joint company
b) as a distributor/agent
c) as a representative.

The first alternative seems to be the most practical although a combination of the first and the second

whereby a joint company might be formed eventually, could be initially less costly. I am, however, in the happy position of being able to raise considerable funds if necessary.

I do feel strongly that a form of local organisation is essential for success.

I will look forward with great interest to hearing further from you.

Kindest regards,

Sincerely yours,

Keith Burgess.

BOLT BERANEK AND NEWMAN INC
CONSULTING DEVELOPMENT RESEARCH

8221 MELROSE AVENUE
LOS ANGELES 46, CALIFORNIA
TELEPHONE OLIVE 3-0180

7 October 1963

Mr. Gordon Bell
Digital Equipment Corporation
Maynard, Massachusetts

Subject: Proposal No. P64-LA-9

Dear Gordon:

Bolt Beranek and Newman Inc. is pleased to submit the following proposal for additional programming with regard to the DECAL-BBN system. Section I of this letter will detail the items we propose to deliver; Section II the delivery schedule; Section III the cost; and Section IV the personnel who will be involved. In addition, Section V lists some of the advantages to DEC of the proposed modifications, and Section VI outlines briefly how the DDT compatability modification will work.

I. Bolt Beranek and Newman Inc. will provide modifications to Skeletal DECAL-BBN to incorporate buffered input/output using the single or multichannel sequence break system, and also modifications to provide compatability with the DDT debugging system. In particular, the following items will be provided:

1) Buffered input/output utilizing the sequence break system.

a) Binary tape of Skeletal DECAL-BBN including single channel sequence break input/output.

b) Binary tape of Skeletal DECAL-BBN including sixteen channel sequence break system.

c) Symbolic tape of changes to Skeletal DECAL-BBN to incorporate Item 1.

d) Symbolic tape of changes to Skeletal DECAL-BBN to incorporate Item 2.

e) Five copies of an addendum to the DECAL-BBN Programmer's Manual describing the operation of the two versions of Skeletal DECAL-BBN with sequence break input/output.

f) Five copies of an addendum to the DECAL-BBN Technical Manual describing the two versions of Skeletal DECAL-BBN with sequence break input/output.

2) DDT Compatability

a) Symbolic tapes of Action Operators which will modify DECAL-BBN in such a way that linking loader tapes punched out will contain additional information needed for DDT compatability. The linking loader tapes punched out will have to be loaded by a special version of the DECAL-BBN LOADER in order to exercise the DDT compatability feature. However, the present version of the DECAL-BBN LOADER will be able to load these tapes.

b) Binary tapes of HI DECAL-BBN LOADER and LO DECAL-BBN LOADER which incorporate the DDT compatability feature.

c) Symbolic tapes of the changes to the DECAL-BBN LOADER to incorporate the DDT compatability feature.

d) Five copies of an addendum to the DECAL-BBN Programmer's Manual describing the operation of the DDT compatability feature.

e) Five copies of an addendum to the DECAL-BBN Technical Manual describing the DDT compatability feature.

II. The proposed schedule of delivery is as follows:

Within sixty days of receipt of contract: Items 1-a, b, c, d, e, f, and Items 2-a, b, c, d, e.

In view of the fact that only very recently the complete DECAL-BBN and associated documentation has been delivered to DEC, we feel strongly that, if these additional advantages are desired by DEC, the early completion and dissemination of them is a most desirable situation. It is our desire and aim to deliver to DEC all the items above in forty-five days. However, since unforeseen difficulties may arise, it is necessary that we propose the schedule as above. Individual items will be delivered as they are completed if so desired by DEC.

III. We propose to provide items

1-a, b, c, d, e, f, and 2-a, b, c, d, e

for a fixed price of - $5000

IV. The majority of the proposed work will be undertaken by Mr. Craig M. Fletcher. Mr. Fletcher has participated in the programming of DECAL-BBN under BBN sponsorship since October 1962, and under DEC sponsorship since May 1963. He is responsible for the present configuration of the DECAL-BBN algebraic compiler and has worked fruitfully on most of the other parts of the compiler.

The work proposed will be under the direction of Mr. William E. Fletcher. He has been familiar with the progress of DECAL-BBN since December 1960, and has worked actively during the recent BBN and DEC supported phase of the development which has led to the current DECAL-BBN.

Mr. Richard J. McQuillin will be available as liaison between DEC Maynard and BBN Los Angeles on a day-to-day basis during the execution of this contract. It is anticipated that the close working relationship between DEC

Maynard and BBN Cambridge that presently exists will continue to exist and that, in addition, the interchange between BBN Los Angeles and DEC Los Angeles will continue to be a strong and fruitful line of communication.

V. Advantages to DEC of the proposed modifications to DECAL-BBN:

1) Buffered input/output utilizing the sequence break system.

a) First in importance to DEC probably would be the decreased wear and tear on the reader and punch. The more uniform punching speed and smooth reading is easier on the apparatus. It is worth noting that calculations and some experience with an early version of sequence break (incorporated on a DECAL some time ago and using the sequence break routines written for a sixteen channel PDP-1 in 1961) shows that the compiler speed is just about the same as the punch speed. Thus, the addition of the sequence break i/o is an ideal marriage.

b) Compile time of typical programs is reduced by a factor of about 2.

c) Ambient noise is reduced due to elimination of the clatter in the punch relay and the reader brake.

2) DDT compatability modification.

a) DDT is a highly developed and widely used debugging system. People who have used it in the past are unhappy to give it up and with good reason. Providing this link between DECAL-BBN and DDT will ease the transition of stalwart MACRO users into the DECAL fold and will allow the users of DECAL-BBN the use of the powerful features of DDT.

VI. Description of the DDT Compatability Modification.

The MACRO assembly routine punches out a specially formatted tape which contains three letter symbols from the program that was just assembled along with the definition of each symbol (its address in memory). This tape is used as input to DDT when a debugging session is underway to allow symbolic reference to registers in the program being debugged. DECAL-BBN allows two freedoms which MACRO does not. Symbols may be more than three letters long and programs may be loaded anywhere in memory by the DECAL-BBN LOADER after they are compiled. Because of the second freedom allowed by DECAL-BBN, the corollary to the tape punched out by MACRO when it assembles a program cannot be produced by DECAL-BBN until loading is accomplished. For this reason the tape to be used with DDT will be punched out by a modified DECAL-BBN loader when a program is loaded. There is no perfect solution to the three character per symbol problem. The DDT compatability feature will simply use the first three characters of symbols as equivalent to the symbol. This creates the possibility of duplicate definitions. DDT always assigns the most recent definition to a symbol.

The DDT Compatability Option for DECAL-BBN will punch on the linking loader tape information about both system symbols and program symbols. The modification to the DECAL-BBN LOADER to punch out the tape to be used as input to DDT will allow, under sense switch option, both system symbol and program symbol communication, or system symbol communication alone.

We hope that the proposal contained herein will be of interest to DEC. Please contact the undersigned or Mr. Richard J. McQuillin if there are any questions concerning this proposal. We are looking forward to working on this contract.

Sincerely yours,

BOLT BERANEK AND NEWMAN INC.

William E. Fletcher

WEF:vo

cc: Addressee
Ken Olson
Harlan Anderson
Harrison Morse

BOLT BERANEK AND NEWMAN INC
CONSULTING DEVELOPMENT RESEARCH

50 MOULTON STREET
CAMBRIDGE 38, MASSACHUSETTS
TELEPHONE 491-1850

7 October 1963

Mr. Gordon Bell
Digital Equipment Corporation
Maynard, Massachusetts

Dear Gordon:

In accordance with your Purchase Order No. 25082 of 15 April 1963 (referring to our proposal P63-IS-3, of 28 March 1963) we have transmitted to you on 30 September 1963 the following items:

1. Symbolic tape of instruction generators for procedures, subscripts, for statements. This item, together with previously delivered items, forms Complete DECAL-BBN.

2. Binary tape of Complete DECAL-BBN.

3. Symbolic tape of Subscript Interpreter Package. This package comes in two versions: (a) a high-speed version and (b) a general version.

4. Linking Loader tape of Subscript Interpreter Package.

5. Completed draft of DECAL-BBN programming manual. You will recall that the draft of the programming manual transmitted to you on 29 July 1963 pertained only to Intermediate DECAL-BBN. The one transmitted on 30 September encompasses Complete DECAL-BBN.

Your purchase order calls for the delivery of one more item, namely a complete draft of the Technical (or maintenance) Manual for Complete DECAL-BBN. As I mentioned to you in our recent telephone conversation, this item is available and can be delivered as specified. However, it was our feeling, with which you concurred, that it would be in everyone's best interests to postpone the delivery of this item to allow for a thorough review by a number of reviewers. It is expected, therefore, that this item will be delivered to you in a month's time.

With ~~this~~ exception of the matter of the Technical Manual, this constitutes full delivery on your Purchase Order No. 25082.

Sincerely yours,

Thomas Marill
Head, Information Systems Department

TM:jm

cc: Mr. Harlan Anderson
Mr. R. McQuillin

DIGITAL MAYNAD

DIGITAL OTWA

MSG. NO. OTT-27

TO HARLAN ANDERSON FROM DENNY DOYLE

WE GOT THE BOND DOWN TO A MANAGEABLE FIGURE AND OUR PROBLEM

NOW APPEARSTO BE SOLVED. THANKS

DENNY

END OR GA PLS

END LOIS

KEND JAMI

October 1, 1963

Mr. L. Kaluszyner
Société d'Applications Industrielles de la Physique
38 Rue Gabriel Crié
Malakoff (Seine) France

Dear Mr. Kaluszyner:

We thank you for your recent letter to our company. I am glad to inform you that Digital Equipment Corporation will be exhibiting a PDP-5 Computer and Digital Test Equipment at our own booth at the Mesucora show in Paris, November 14 through November 21, 1963. We hope that in the near future, you might be interested in the purchase of our computers for installations for which you are responsible. In addition, we hope that CERN may be interested in both our PDP-5 and our larger computers. The servicing of DEC computers in Europe will be undertaken by Mr. Guenter Huewe and our Munich office. We are glad to know of your interest in our equipment and hope that we may be of help to you.

Sincerely yours,

Digital Equipment Corporation

Jonathan Fadiman
Manager, Special Systems

JF/bbn
c.c.: Mr. Harlan Anderson, Vice-President, DEC

Harlan Anderson

Mr. E.J. Petherick
Engineering Manager - Systems
Division
Honeywell Controls Limited,
Hemel Plant,
Eaton Road, Hemel Hempstead
Industrial Estate, Herts.
Boxmoor 7200 / E n g l a n d

EJP/BA 10.9.1963 TJ/sie 12th September, 1963

Dear Ted,

We received your letter to Harlan Anderson this morning. I am forwarding it on and sending Robin Leaf some of the information he requested.

It was a pleasure to be with you at INEL. If we can provide any more information, please let me know. At any rate, I look forward to a future opportunity to see you again, hopefully in England.

Sincerely,

Ted G. Johnson

Ted G. Johnson
Applications Engineer

H. Anderson

Mr. Robin L e a f
Steel Mill Production Control
G.K.N. Steel Co.
East Moors,

Cardiff, Wales/England

TJ/sie September 12, 1963

Dear Robin,

It was a pleasure to spend time with you at the INEL Show and to have the opportunity to discuss your requirements with you and Mr. Petherick. Ted returned the next day and Harlan Anderson mentioned some new thoughts to him. If you are still "in-process" in your selection of equipment, we would like to continue to investigate the possibilities of matching PDP equipment to your needs. Along with the idea of a single scope, additional savings might accrue from Microtape or using a PDP-5 as a control unit for handling messages.

We also received a letter from Mr. Petherick in which he asked that we send more information on the Microtape units directly to you. The letter was to the attention of Harlan Anderson, who is now back in Maynard, Massachusetts. I am taking the liberty of sending what I have and forwarding your interests to Mr. Anderson for any thoughts or additional information he might see fit to supply.

Thank you for your interest. I hope we have an opportunity to meet again.

Sincerely,

Ted G. Johnson

Ted G. Johnson
Applications Engineer

Enc: F-13(555P)
F-13(555X)

TECHNOLOGY SQUARE

Cambridge 39, Massachusetts

September 23, 1963

Mr. Harland E. Anderson
Digital Equipment Corp.
146 Main Street
Maynard, Massachusetts

Dear Mr. Anderson:

My call was prompted by the enclosed article taken from the Boston Globe. I am sending it along to you in case your "clipping service" missed it.

May I reiterate that we would be delighted to work with you on the use of this first floor space.

Very truly yours,

CABOT, CABOT & FORBES CO.

Arthur Loring Moseley, Jr.

Arthur Loring Moseley, Jr.

ALMJr/pa

Enclosure

Page

NDAY, SEPT. 23, 1963

ontinues

e Series

AN OCTOBER BRIDE will be Miss Claire Cox, daughter of Mr. and Mrs. Joseph J. Cox of Brighton, who will marry Julio Cordero Jr. of Costa Rica. She is a graduate of Mississippi State College and Wayne University and received a B.S. at the University of Minnesota. (Cooper)

stephanotis and a veil of French silk illusion caught to a crown of pearls. Mr. and Mrs. Robert Fletcher were among the guests from here, and Dr. and Mrs. David Barrow were others, and at the wedding from Durham, Eng., was the bride's aunt, Mrs. William Hastings. After a wedding trip to Washington, Mr. Little and his bride will live in San Francisco.

Mr. Little attended the Midland School in Santa Inez Valley, Calif., and is attending the University of California. His bride is a graduate of Hoos College in Maryland, and did graduate study at Drexel University, in Phil-

Ex-Comedian

It All

LOS ANGELES — Meet Dave Chasen, owner of the busiest and most expensive restaurant in this city of surprises, who makes the best chili anywhere.

Elizabeth Taylor had 10 pounds of Dave's chili airshipped to her in Rome, Italy. Eleanor Roosevelt wrote from the White House for the recipe. And J.F.K. dined on a big bowl of chili with Dave's famous steak McNamara when he campaigned here for the presidency.

Sitting with Dave in his red leather furnished office in the posh restaurant, he tells how it all began "out there in the front lobby with just eight tables. It was 1936 and I was a vaudeville comedian out of work. My friend, Harold Ross (then editor of the New Yorker) put up $3000 and we were in business—selling chili and spareribs at a quarter a plate."

Those days Dave did the cooking, serving, dishwashing and bookkeeping himself. In New York, Ross cornered and pumped the big hotel and restaurant men . . . and talent-scouted among celebrated chefs and headwaiters. Soon the back wall was torn down and the chili place added to . . . than added to again.

Twenty-seven years later, Dave Chasen's restaurant is in such demand that customers stand three deep as late as 10:30 p.m. waiting for tables. Dave is there, short, slight and

The French C

By Julia Child

(Julia Child's cooking demonstration, "The French Chef," Channel 2, Monday 8 p.m., and repeated Friday 10 p.m., is one of our m popular local programs.

(Here are the recipes which Mrs. Child will discuss tonight.

(Mrs. Child also

The Boston Globe

A David Among Goliaths

Computer Firm Shows 11 P.C. Profit

By PETER B. GREENOUGH

(First of Two Articles)

In the computer field, said a recent Harvard Business Review, three U.S. companies are "earning a handsome return and pulling further ahead of the field."

GREENOUGH

What the piece did not say is worth mentioning. For this represents only three outstanding efforts where there are 24 American concerns heavily active.

Two of these you can easily name—IBM, naturally, and Control Data Corp. of Minneapolis, the darling in the recent market rise.

The third in this success story?

Digital Equipment Corp. of Maynard, Mass.

D.E.C. certainly would be a Wall Street sensation—if it were possible. The stock is privately held, the major share by American Research & Development Corp., of Boston. Consider these results:

NET SALES.....$9,903,000
NET PROFIT $1,158,000
(after taxes)

These figures are for the fiscal year ended June 30, 1963.

You'll go a long, cold Winter finding any domestic company that can earn an 11.7 percent profit in this era of competition and/or taxation.

A.R. & D. has risen from 16 not long ago to 30, largely on the reputed strength of another holding—High Voltage Engineering. My guess is that someone must also have had the word about D.E.C., a noble performer considering that the original A.R. & D. investment six years ago was only $70,000.

What lies behind the growth of this David in a field of Goliaths?

A highly competent force of over 500 technicians and production people, plus a pair of whirlwinds, by name, Kenneth Olsen, president, and Harlan Anderson, vice president.

Largest of the many new-[illegible] concerns occupying a sprawling complex once headquarters for the defunct Maynard Mills (wool), D.E.C. has been a godsend for that neck of the woods near Concord.

Olsen and Anderson (no, we're not back with a vaudeville team) came out of M.I.T. and the Lincoln Lab. When they wanted to strike out on their own, they sought advice from the Boston office of the Small Business Administration on a likely source of venture capital. S.B.A. suggested American Research. The pair struck oil there.

Just the two of them set up shop first in Maynard, with Olsen's brother, Stanley (now sales manager) joining forces almost immediately.

Since then, says Olsen, "we've never laid off anybody." This despite installation of more and more automated processes. Fact is, D.E.C. can use more capable people even now, at a time when electronics in these parts has been sputtering somewhat.

Both Olsen and Anderson are self-effacing individuals. "Most of the original ideas here come from our employees," according to Olsen. "We have good people, and it (the operation) runs by itself."

That's not the way I hear it.

This twosome has made a go of things by adhering to an interesting philosophy, one that is almost heretical in computer selling. They think leasing is for the birds, or I.B.M. anyway. Tomorrow's piece examines D.E.C. further.

FJCC 1963

1963

AMERICAN FEDERATION OF INFORMATION PROCESSING SOCIETIES

FALL JOINT COMPUTER CONFERENCE

YOU ARE INVITED TO HEAR .....

A panel of leading figures in the field of educational data processing. They will present papers at a special One-Day Symposium on Data Processing in the Schools, to be held on November 13 in conjunction with the 1963 Fall Joint Computer Conference in Las Vegas, Nevada.

The speakers will cover topics representing a cross-section of current developments in computer applications for the management of educational data, and will include: a report on the California project in developing a prototype for a state-wide integrated educational data processing system; a description of school modeling and a computer-based school system; a progress report on the National Defense Educational Act project; a unique method of teaching computing to secondary school students; the role of computers in education; and a demonstration of problem-solving with the computer.

Fred J. Gruenberger, the RAND Corporation, will chair the event. Scheduled panelists are: Dr. Alvin Grossman, California State Department of Education; Donald Bushnell, System Development Corporation; Dr. Murray Tondow, Palo Alto (Calif.) Unified School District; and Robert Albrecht, Control Data Corp.

School administrators and teachers interested in attending the Symposium may obtain additional information from Marjorie F. Hill, Control Data Corporation, System Sciences Division, 6060 W. Manchester Blvd., Los Angeles 45, California. There is no Conference registration fee for Symposium attendees.

The Fall Joint Computer Conference is sponsored by the American Federation of Information Processing Societies, which represents more than 20,000 computer scientists in the United States through its member societies.

LAS VEGAS CONVENTION CENTER NOVEMBER 12-14, 1963

CHAIRMAN J. D. TUPAC, RAND CORP. • **VICE CHAIRMAN** R. A. KUDLICH, AC SPARKPLUG • **ADMINISTRATOR** M. HOWARD, THOMPSON RAMO-WOOLDRIDGE, INC. • **PROGRAM** P. M. DAVIES, ABACUS INC. • **EXHIBITS** D. F. WEINBERG, SPACE TECHNOLOGY LABS. • **FINANCE** H. JACOBSOHN, PHILCO CORP. • **LOCAL ARRANGEMENTS** E. H. JACOBS, SYSTEM DEVELOPMENT CORP. • **PRINTING AND MAILING** L. H. KURKJIAN, HUGHES AIRCRAFT CO. • **PUBLIC INFORMATION OFFICER** PHYLLIS HUGGINS • **PUBLICATION** B. P. WHIPPLE, IBM CORP. • **REGISTRATION** E. S. GORDON, SYSTEM DEVELOPMENT CORP. • **SPECIAL EVENTS** MARJORIE HILL, CONTROL DATA CORP. • **LOCAL ADVISORY PANEL** G. L. HOLLANDER, IEEE; R. W. RECTOR, ACM; H. K. SKRAMSTAD, SIMULATION COUNCIL.

SOCIÉTÉ D'APPLICATIONS INDUSTRIELLES DE LA PHYSIQUE

SAIP

Bureaux et Laboratoire
38, Rue GABRIEL-CRIÉ
MALAKOFF (Seine)

TÉL.
ALÉSIA 87-20
Adresse Télégraphique :
SAIPHY-MALAKOFF

R. C. SEINE 56 B 1727
INSEE 280 75 047 0025 R

Société Anonyme au Capital de 960.000 Francs

C. C. P. PARIS 13.489-48

MALAKOFF, le September 20, 1963

NOTRE RÉF. LK/NG
VOTRE RÉF.

Mr. Andersen
D.E.C.
146, Main Street
Maynard - Massachussetts (U.S.A.)

Dear Mr. Andersen,

I just come back from a trip to CERN and for your information I can tell you that the question of using small computers is presently discussed.

At the time being, physicists and the Head of Electronic Group are reviewing all the small computers available on the market. As far as I understood, your computers and also these from Scientific Data Systems are well considered, and the possibilities of quick servicing are examined, as well as the question of renting them.

As you probably know, S.D.S. has concluded an agreement with C.G.E., one of the biggest Companies in France, and they will be in a position to servicing and also to renting the computers.

Perhaps, it would be interesting to have the possibility to offer the same facilities to CERN, and this operation could be arranged with your office and SEN in Geneva. In fact, we have the financial possibility, if necessary, to buy computers from you, then to install and rent them.

I would appreciate to have your commentson such a solution, and if you are in agreement, we could arrange contact with Mr. Gunther.

Sincerely yours

L. Kaluszyner
General Manager

LYBRAND, ROSS BROS. & MONTGOMERY

COOPERS & LYBRAND
IN AREAS OF THE WORLD
OUTSIDE THE UNITED STATES

80 FEDERAL STREET
BOSTON 10

September 18, 1963

TO OUR CLIENTS:

Our comprehensive letter of July 29, 1963 dealing with the final Treasury regulations on deductibility of travel, entertainment and gift expenses contains a statement on page 6 with reference to gifts to widows of corporate executives which requires elaboration to avoid being misconstrued.

Under the new law and regulations, such payments are not treated as "gifts" by the corporation to the extent they constitute tax-free death benefits received by the widow. A maximum of $5,000 in tax-free death benefits may be paid by an employer on account of the death of any employee. Any excess over this tax-free amount is nondeductible by the corporation (except to the extent of $25 per year) if the amount is viewed as a nontaxable gift to the widow. On the other hand, if the payment is construed as reasonable compensation or other necessary expense paid by the corporation, the full amount is deductible by the corporation and the widow is taxable on the excess over $5,000.

Whether such a payment is properly to be treated as "gift" or "compensation" in any given case depends upon the facts of the case. The point has been extensively litigated and the court decisions are confusing and contradictory. At one time, it appeared that the same payment might be a deductible expense to the corporation but a nontaxable gift to the widow. The new law eliminates this latter possibility.

If you wish, we shall be glad to discuss this subject with you further, or to respond to any questions you may have in connection with travel, entertainment and gift expenses.

Very truly yours,

Lybrand, Ross Bros & Montgomery

HSjr:ECB

SHOREHAM
4497

"BOIS GRENIER"
2 ERRINGHAM ROAD
SHOREHAM-BY-SEA. SX.

17. September 1963.

Dear Mr. Anderson,

I would like to thank you and your colleagues for the very enjoyable evening you gave my wife and I in Basle. We trust that you were all able to enjoy the rest of your stay in Switzerland, that the Exhib-ition proved rewarding, and that you have now recovered (your feet particularly!) after your long journey home.

As you suggested I will write to you in the course of the next few days with proposals for possible lines of any co-operation between us. Before doing this I am looking carefully into the prospects in the U.K. and will let you have my opinion of the possibilities as they appear to me.

Kindest regards.

Sincerely

Keith Burgess.

ARROWHEAD CHAPTER
OF THE
ASSOCIATION FOR COMPUTING MACHINERY

SERVING
RIVERSIDE
SAN BERNARDINO

3504 Bryce Way
Riverside, California 92506

September 11, 1963

Mr. Harlan Anderson
Computer Systems
Digital Equipment Corporation
8939 Sepulveda Boulevard
Los Angeles 45, California

Dear Mr. Anderson:

This is to thank you for so kindly providing literature and speaker for our "Random Access Mass Storage Symposium" on September 10.

Your Mr. Ron Colman helped to make this meeting interesting and informational.

Sincerely,

M. J. Garber
Chairman

Applied Dynamics, Inc. / 2275 PLATT ROAD, ANN ARBOR, MICHIGAN / AREA CODE 313 / PHONE 662-4493

September 9, 1963

Mr. Harlan Anderson
Digital Equipment Corporation
146 Main Street
Maynard, Massachusetts

Dear Andy:

Thank you for your August 28th note from the Southern Cross in Melbourne and the bid request from WRE, Salisbury. Fortunately, we had received that through our representatives, Philips, Pty., Ltd., and are preparing a bid for it. I hope your trip around the world was profitable and enjoyable. I will look forward to comparing notes with you the next time we get together.

Sincerely,

J. D. Kennedy
President

JDK:cn

copy sent to John Long 10/17

3 September, 1963

Mr. Harlan Anderson
Digital Equipment Corporation
Maynard, Mass.

Dear Andy,

Last week I visited Solartron in England. It is the company which sent you information on Mr. Ronald Payne of Australia. It is a fully owned subsidiary of Schlumberger.

John Bolton, Chairman of the company, stated to me that Solartron has lost their best digital man, who was stolen by Mal Palefski (?) of SDS. I believe that Solartron needs help on their digital problems, and particularly on a digital computer or digital system probably in connection with radar simulation.

I would appreciate it if John Faderman, Stan Olsen, or a good DEC man could call on Solartron in the hear future and get in touch with either Mr. Leighton Davies, Development Director of Digital Comuters, or Mr. Reginald Catherall, the Research Director.

I am enclosing a brochure on Solartron, which will give you some idea of their line of products. The main office is in Farnborough.

Yesterday I was in Bâle at the IFRAC meeting but could not find any DEC men around. I probably will be unable to go back to Bâle for the INEL.

Please keep me posted on your actions with Solartron. I hope that things are progressing satisfactorily with DEC.

Sincerely yours,

A. de Vitry

A. de Vitry

adv:z
dictated but not read

Netherlands Industrial Institute
(INSTITUUT VOOR NEDERLANDSCH-AMERIKAANSCHE INDUSTRIEELE SAMENWERKING)

551 FIFTH AVENUE, NEW YORK 17, N.Y.
OXFORD 7-5925

September 3, 1963

Mr. Harlan E. Anderson
Vice President
Digital Equipment Corp.
Maynard, Mass.

Dear Sir:

The Netherlands Industrial Institute has been established in 1947 as the New York branch of the Instituut voor Nederlandsch-Amerikaansche Industrieele Samenwerking, The Hague, Holland, with the object to promote American industrial investment in the Netherlands in order to revitalize the Dutch industry which had suffered heavily during the last war.

As a result of these promotional activities combined with the developing interest of American industry to obtain manufacturing facilities within the Common Market, a great number of subsidiaries of U.S. industries have been established in the Netherlands, while also many joint ventures and licensing agreements between American and Netherlands industries have been realized.

The Board of the Institute has now decided, in full agreement with the Netherlands Government, that the time has arrived to discontinue the promotional activities of the Institute as a private institution. On the 30th of September 1963 the office at 551 Fifth Avenue, New York 17, N.Y., will be closed down.

As from that date the Netherlands Ministry of Economic Affairs intends to take over the work carried out so far by the Institute and to appoint Mr. E. J. Alofs as Industrial Officer of the Netherlands Ministry of Economic Affairs attached to the Netherlands Consulate General, 10 Rockefeller Plaza, New York 20, N.Y. Consequently, all matters regarding industrial investment in the Netherlands will be handled in the same way as before.

In the opinion of the Board of the Institute the interest of the American industries with which the Institute has been in touch during the years of its existence, will be served best if the files available in the archives at the New York office would be handed over to the above mentioned Industrial Officer, and the relative documents available at the Hague Office be transferred to the Ministry of Economic Affairs, The Hague.

If, however, you should object to this procedure, your files both in New York and in the Hague, will be destroyed, provided the Institute is notified of your wish before September 30, 1963.

The undersigned trust that the pleasant relations which have existed thus far between you and the Institute will be continued in the future between you and the Industrial Officer of the Netherlands Ministry of Economic Affairs in New York.

Until further notice, the office of the Industrial Officer of the Netherlands Ministry of Economic Affairs in New York will remain at the same address, 551 Fifth Avenue, New York 17, N. Y.

Yours faithfully,
INSTITUUT VOOR NEDERLANDSCH-AMERIKAANSCHE
INDUSTRIEELE SAMENWERKING

F. Heckman
Managing Director

NETHERLANDS INDUSTRIAL INSTITUTE

E. J. Alofs
Managing Director

August 20, 1963

Mr. G. G. Smith,
Chief Engineer
Integrated Electronic Systems Division
Standard Telephones and Cables Limited
Connaught House
63 Aldwych
London, ENGLAND

Dear Geoffrey,

I am in receipt of your letter (87301/HP/AW) to H. E. Anderson wherein you requested a complete list of programs for the PDP-1.

Andy was very pleased to hear that you have a PDP-1 (ADX) in Burleigh House and asked me to assist you in obtaining the necessary programs, etc.

I feel the best way for you to stay abreast of what is going on at Digital and with the users of PDP-1 is through our user's organization -- DECUS. Therefore, I have submitted your name to Mrs. Elsa Newman, Secretary to DECUS, and you will be hearing from her in the very near future. Also I am enclosing two copies of the DECUS proceedings for 1963 and a list of the programs available through DECUS. As our program library grows, you will be advised through DECUS; however, as new information or developments occur, I will pass these along to you also.

If you are planning on attending the International Exhibition of Industrial Electronics in Basle, Switzerland on 9/2/63 - 9/7/63, please drop by our booth and say hello to Andy. He will be there and we will have a PDP-4 on display.

If I can be of any further assistance at any time, please don't hesitate to contact me. Also, please extend my best to Jeff Finch.

With best personal regards,

R. L. Lane
Computer Applications Engineer

RLL/pam
CC: Elsa Newman
H. Anderson

COPY FOR H. Anderson

August 20, 1963

Dr. J.C.R. Licklider
Advanced Research Projects Agency
Department of Defense
Washington, D. C.

Dear Dr. Licklider:

After tagging along with Dr. Newman, for the purpose of attending the AGARD Thirteenth General Assembly in Athens, I was unable (because of illness) to hear the Friday, July 19 session at which you spoke. May I please have a copy of the paper: "Man-Machine Interaction", which you presented.

I take this opportunity to mail you copies of April and May, 1963 DECUSCOPE and the 1962 DECUS Proceedings which includes papers presented at the First and Second Annual Meetings.

DECUS is having its Third Annual Meeting in Livermore, California on November 18-19, 1963. A very interesting program is planned. John McCarthy, Marvin Minsky and others will be guest speakers. May I invite you, in behalf of DECUS, to address the group. Ed Fredkin promised to contact you some time ago and it was my wish to meet you in Athens to extend the invitation. I will mail you the tentative list of speakers and topics just as soon as the Meetings Chairman releases it.

Sincerely,

Elsa Newman (Mrs.)

EN:ajc

Enclosures: April, May DECUSCOPE
1962 DECUS Proceedings

BOSTON SAFE DEPOSIT AND TRUST COMPANY

100 FRANKLIN STREET · BOSTON 6, MASSACHUSETTS
LIBERTY 2-9450

August 14, 1963

Mr. Harlan E. Anderson, Vice President
Digital Equipment Corporation
146 Main Street
Maynard, Massachusetts

Dear Mr. Anderson:

We are delighted that you and Mr. Olsen are going to be here for lunch on September 10th. As you know, Vern Alden will be here, and Bill Wolbach is also inviting Jay Forrester.

president

Why don't you plan on meeting me in my office on the third floor at twelve o'clock that day. We shall plan to get you out of here in time for your own Board meeting.

Cordially,

Guinn Smith

OGS/wan

BOSTON SAFE DEPOSIT AND TRUST COMPANY

100 FRANKLIN STREET · BOSTON 6, MASSACHUSETTS
LIBERTY 2-9450

August 8, 1963

Mr. Harlan E. Anderson, Vice President
Digital Equipment Corp.
146 Main Street
Maynard, Massachusetts

Dear Harlan:

I thought you might be interested in Diebold's answer to my letter. You know better than I, but I think their assumptions are incorrect. However, it probably isn't worthwhile arguing with them at this point.

Best regards.

Sincerely,

Louis M. Rusitzky
Investment Officer

LMR:cms

Enclosure

The Diebold Group, Inc.

Management Consultants

430 PARK AVENUE, NEW YORK 22, N. Y., PLAZA 5-0400

August 6, 1963

Dear Mr. Rusitzky:

Thank you for your letter of July 30, 1963.

A feature article is planned for December which will discuss a number of smaller companies in the computer field such as Digital Equipment Corporation.

We are aware that DEC is a profitable organization. Actually DEC was profitable before Control Data Corporation which has been widely heralded as the second company in the industry to turn a profit in computer manufacturing and sales. However, DEC is not primarily a computer company. As you probably know, the largest share of its business comes from the sale of modules. In contrast, Scientific Data Systems manufactures computers only.

The next semi-anuual industry review will contain census figures for Computer Control Company computers. The figures from them did not arrive in time for inclusion in the most recent review.

We are interested in comments and suggestions from our readers and appreciate your taking the time to write to us.

Yours very sincerely,

Dick H. Brandon, Director
Data Processing Services

Mr. Louis M. Rusitzky
Boston Safe Deposit and Trust Company
100 Franklin Street
Boston 6, Massachusetts

LYBRAND, ROSS BROS. & MONTGOMERY

COOPERS & LYBRAND
IN AREAS OF THE WORLD
OUTSIDE THE UNITED STATES

80 FEDERAL STREET
BOSTON 10

August 8, 1963

TO OUR CLIENTS

Re: Travel and Entertainment Expenses

In our letter of July 29, 1963 regarding final regulations on Travel, Entertainment and Gift Expenses, a transposition error was made in the section dealing with Expenses of Entertainment Facilities on page 5. The third paragraph, as corrected, should read as follows:

> In measuring the "over 50 per cent use" test, use of the facility for "associated with" entertainment counts as business use time (but not for purposes of allocating entertainment facility expenses). The regulations also permit use of club facilities for "quiet business meals" to count as "directly related" expenses both for purposes of computing the "over 50 per cent use" test and for purposes of allocating expenses of an entertainment facility. For example, an individual uses his social club 30 per cent of the time for "directly related" business use, 25 per cent of the time for "associated with" business use, 15 per cent for "quiet business meals", and the remainder of the time for personal use. Since the club is used more than 50 per cent of the time in furtherance of the taxpayer's business, the taxpayer may deduct 45 per cent (the 30 per cent "directly related" time plus the 15 per cent "quiet business meal" time) of the annual club dues as a "directly related" business expense. In addition, the taxpayer may also deduct the direct costs (meals, drinks, etc.) of the "directly related" and the "associated with" entertainment, without proration, provided they otherwise qualify under the new regulations.

Very truly yours,

Lybrand, Ross Bros & Montgomery

HSjr:ECB

August 8, 1963

COPY

Mr. Guenter Huewe
Digital Equipment GmbH
Maximilianstrasse 26/1
8 Munchen/ 22, West Germany

Dear Guenter:

Thank you for pointing out the flaw in my method B (your letter of August 2).

As a matter of final policy we settle on:

Domestic list X 5 FOB Munich (past customs)

or

Domestic list X 4 FOB Maynard with customer doing the importing

Good luck on the "More Value" tax.

Sincerely,

George T. O'Dea
Treasurer

GTO'D/mr

cc: H. Anderson
S. Olsen
R. Mills

BLAIR AND BUCKLES
PATENT AND TRADEMARK COUNSEL
79 MILK STREET
BOSTON 9, MASSACHUSETTS

HUBBARD 2-5161
CABLE: "EMBOVA"

August 1, 1963

Mr. Richard F. Mills, Controller
Digital Equipment Corporation
Maynard, Massachusetts

Re: Reserve for Patent Liabilities
File 83-000

Dear Mr. Mills:

The purpose of this letter is to bring up to date our opinion on patent liabilities contained in our letter of June 14, 1962.

The only liability as to which there is certainty is in connection with the Forrester patent discussed in our previous letter. The litigation between Research Corporation and RCA is still pending and, in addition, a suit has been filed against IBM. Our opinion that Research Corporation will probably prevail in the suit against RCA still stands, and we are also of the opinion that the outcome of the suit against IBM will in large measure be influenced by the RCA suit.

Research Corporation is still asking two cents per bit, and it appears that they will continue to ask for this much. However, there has been a significant development which will affect future royalties.

Specifically, MIT has cancelled its contract with Research Corporation and has reacquired the Forrester patent as of March 26, 1963. This means that as to the period following this date, the royalty figures set by MIT will be controlling. I have discussed this at some length with MIT's attorneys, and it appears that they

will settle for a rate of 1/4 cent per bit. Accordingly, while you will still incur a patent liability for manufacture and sale of magnetic core memories subsequent to March 26, 1963, the liability will be to MIT instead of Research Corporation, and the rate will be reduced from two cents to 1/4 cent per bit.

In our opinion, Research Corporation still has the right to a royalty for the period preceding March 26, inasmuch as they had title to the Forrester patent during that period. Since they have given every indication of enforcing that right, and in fact, are actively proceeding along this line, you should maintain the reserve which you have already accrued for that period.

Very truly yours,

Robert A. Cesari

D/pam

CC: Harlan E. Anderson
John Aldrich