THE mini-tasker

DECUS
RT-11 SIG NEWSLETTER

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FROM THE CHAIRMAN

1976 FALL DECUS SYMPOSIUM AT LAS VEGAS

More than 130 users of RT-11 preregistered for the 1976 Fall DECUS Symposium. Sessions of interest to users of RT-11 included presentations by DIGITAL on the RT-11 product, RT-11 High Level Command Language, RT-11 Extended Memory Support, DECNET-RT, PDP-11 Languages and Utilities, Mass Storage Peripheral Panel, LDP Product Panel, Software Distribution Center Product Panel, Software Services, Support for Self-Maintenance Customers, New PDP-11 Instructions, Terminals, Displays and Printers, LSI-11 Microcomputer Applications, and tutorials on MACRO-11 and BASIC PLUS II. Field Service maintained a suite and met by appointment with many users to discuss their interests. There was an informal session on a user wish list for new hardware.

Presentations by users included the RT-11 SIG session, RT-11 User Application Panel, CTS-300 Tweekers Workshop, and a paper on the use of TECO Macros to modify RT-11 BASIC. There was an informal session on Small System Timesharing.

At the SIG meeting a wide range of issues were discussed, including the plight of local user groups and the DECUS Library, the promises made by DEC regarding V3 at Las Angeles, and the creation of an installation survey to be made available to users participating in the survey.

1977 SPRING DECUS SYMPOSIUM AT BOSTON

For the Spring DECUS Symposium in Boston, RT-11 users are urged to submit papers concerning any aspect of RT-11 application or extension. If you are not up to a formal presentation, plan to participate in the User Application Panel, and spend 5 or 10 minutes discussing what you are doing with RT-11. Users should also plan to bring software for exchanges, as plans to provide media transfer are being made.

SYMPOSIUM REPORTS

REPORT ON RT-11 SIG MEETING

SESSION E9.1, WEDNESDAY, DECEMBER 8, 1976

DECUS, LAS VEGAS

THE ATTENDANCE WAS 60, INCLUDING 6 FROM DIGITAL. THIS MAY BE ATTRIBUTED TO THE FOLLOWING SESSIONS, WHICH WERE SCHEDULED IN CONFLICT WITH THE SIG MEETING: DECNET/E, MICROPROGRAMMING PDP-11'S, SIGIG PAPERS, DATASYSTEMS-300 (NEW PRODUCT), STRUCTURED PROGRAMMING PAPER, MUSIG PAPERS, RSX NETWORK PAPERS. THIS REPORT WILL ATTEMPT TO SUMMARIZE THE HIGH POINTS OF THE DISCUSSION. WE ARE INDEBTED TO FRANK CHALFONT, PRESIDENT OF CHALFONT COMMUNICATIONS, 73-680 HIGHWAY 111, PALM DESERT, CA 92260, FROM WHOSE NOTES THIS REPORT WAS PREPARED.

INSTALLATIONS: INFORMATION ABOUT OTHER RT-11 USERS AND THEIR INSTALLATIONS HAS PROVEN VERY VALUABLE TO USERS IN THE PAST. RICHARD SHAY, OF BENDIX FIELD ENGINEERING CORP., GRAND JUNCTION, COLORADO VOLUNTEERED TO HEAD UP AN EFFORT TO GATHER THIS INFORMATION AND DISSEMINATE IT TO THOSE CONTRIBUTING TO IT. FORMS HAVE BEEN OBTAINED FROM THE M. I. T. PDP-11 USERS GROUP TO BE MODIFIED TO MORE CLOSELY REFLECT RT-11 INSTALLATIONS. THESE FORMS WILL BE DISTRIBUTED VIA THE MINITASKER TO ALL USERS. THE FORMAT OF THE SURVEY FORMS ALLOWS CHECKING OFF HARDWARE AND SOFTWARE OPTIONS AND FILLING IN PARAGRAPH DESCRIPTIONS OF APPLICATIONS AND USER-WRITTEN SOFTWARE. THIS SHOULD MINIMIZE EFFORT AND MAXIMIZE RETURN OF THE FORMS. A BOX WILL BE AVAILABLE TO CHECK IF THE USERS WISHES HIS INSTALLATION NAME AND/OR LOCATION WITHHELD. THE RESULTS WILL BE SUMMARIZED, CROSS-REFERENCED, AND REDISTRIBUTED TO THOSE SUBMITTING SURVEY FORMS. RESULTS ARE TO BE CONSIDERED CONFIDENTIAL, FOR USE ONLY BY INSTALLATIONS.

SIG MEMBERSHIP: IT WAS NOTED THAT OUT OF A POSSIBLE 5000 + INSTALLATIONS, THERE ARE ONLY ABOUT 2000 ON THE SIG MAILING LIST. BILL MUNSON OF DIGITAL WILL SEE THAT ANY REQUESTS MADE TO HIM WILL CAUSE A USER TO BE ENTERED IN THE SIG'S LISTS. ANY ATTENDEES OF THE SYMPOSIUM WHO CHECKED OFF RT-11 INTEREST ON THEIR REGISTRATION FORMS WILL BE SENT APPLICATION FORMS FOR SIG MEMBERSHIP IF THEY ARE NOT ALREADY SIG MEMBERS. THE POSSIBILITY OF INCLUDING SIG APPLICATION FORMS WITH DISTRIBUTION KITS IS BEING LOOKED INTO. IF YOU DO NOT RECEIVE THIS NEWSLETTER, YOU ARE NOT ON THE SIG MEMBERSHIP LIST. AT THESE SIG MEETINGS EVERY 6 MONTHS, WE NOTE THAT ABOUT 50% OF THOSE WHO THINK THEY HAVE JOINED THE SIG HAVE NOT MADE IT TO THE MAILING LIST.

LIBRARY: MARTY ROTH IS REPLACING DAVE SYKES AS OUR DECUS LIBRARY REPRESENTATIVE. RIC DAVIES INTRODUCED DEC'S CHUCK CONLEY AS BEING LIBRARY LIASON MAN. (MAYNARD PK3/E55). THEY REPORTED ON EFFORT TO GET A PDD-12 FOR MEDIA TRANSFERS. THE GROUP EXPRESSED A DESIRE FOR A PDP-11 WITH ALL THE RT-11 DECUS LIBRARY PROGRAMS AND DOCUMENTATION IN MACHINE READABLE FORM. HOPEFULLY SUCH A PDP-11 WOULD BE AVAILABLE 16 HOURS PER DAY AT THE BOSTON SPRING AND SAN DIEGO FALL MEETINGS.

BOB ECKSTROM STATED HIS PROBLEMS WITH THE LIBRARY OPERATION:
1. HIS OUTFIT HAD TO ISSUE ITS OWN P.O.'S.
2. HE WAS RESPONSIBLE FOR MAINTAINING HIS OUTFIT'S PROGRAMS WHICH ARE WRITTEN BY OTHERS WITH VARYING DEGREES OF DOCUMENTATION. HE COULD NOT VOUCH FOR THEM AND COULD NOT UNDERTAKE THE TASK OF EXPLAINING THEM TO ALL THE DECUS MEMBERS.
THERE WAS DISCUSSION OF THE POSSIBILITY THAT SUCH PROGRAMS BE SUBMITTED WITHOUT A NOTATION OF THE SOURCE. BOB SAID THAT THE INDIFFERENT DEGREE OF DOCUMENTATION MIGHT MAKE THEM WORTHLESS. THERE WAS AN UNRESOLVED SUGGESTION THAT PROGRAMS OF THIS TYPE MIGHT BE RELEASED ON THE BASIS OF QUESTIONS GOING TO THE LIBRARY REVIEW BOARD WHO COULD FUNNEL THEM TO THE SOURCE AFTER APPROPRIATE SCREENING.

ALTHOUGH THE RESULTS OF THE NEXT LIBRARY COMMITTEE MEETING ARE NOT YET OFFICIALLY AVAILABLE, IT SEEMS THEY WILL ASK FOR A PDP-12, SINCE SUCH A REQUEST HAS A CONSIDERABLY GREATER CHANCE OF BEING GRANTED, AND SUCH A COMPUTER WILL HANDLE MEDIA FROM A LARGER NUMBER OF DEC MAINFRAMES. A SUBSCRIPTION SERVICE MAY ALSO BE INVESTIGATED. THIS WOULD SOLVE THE PROBLEM OF P.O'S BY PROVIDING AN ANNUAL CHARGE FOR ALL APPLICABLE LIBRARY PROGRAMS. WE WILL HAVE TO HOPE LDP AGAIN BRINGS A PDP-11 TO THE SYMPOSIUM IF WE WANT PIP CAPABILITY IN EXCHANGE OF USER SOFTWARE. THANKS TO THE EFFORTS OF BILL MUNSON OF DIGITAL AND DAVE SYKES, AN RK COPY OF ALL RT-11 PROGRAMS FROM THE DECUS LIBRARY WAS AVAILABLE AT LAS VEGAS FOR COPY. WE HOPE WE CAN REPEAT THIS AT FUTURE MEETINGS.

SPR'S: PROBLEMS DISCUSSED WERE: 1. DEC'S SOLUTIONS CAME SO LATE THAT USERS' SOLUTIONS WERE THE PRACTICAL RESULTS. 2. OTHER USERS WHO WOULD RUN INTO THE SAME PROBLEMS WERE NOT AWARE THAT THE PROBLEMS EXISTED. DEC'S BOB BEAN SAID THEY WOULD CONSIDER THESE PROBLEMS EVEN IF THEY HAD NO IMMEDIATE SOLUTIONS. - TOM PROVOST REQUESTED THAT COPIES OF SPR'S BE SENT BY USERS TO THE LOCAL SOFTWARE SUPPORT PEOPLE AND TO JOHN RASTED FOR PUBLISHING IN THE MINITASKER.

LUG'S THE MANY DESIREABLE FEATURES OF LUG'S WERE DISCUSSED. TOM PROVOST SAID THERE WERE LOCAL PEOPLE WHO WOULD PUT TOGETHER SUCH UNITS BUT SOME NATIONAL PERSON WAS NEEDED TO COORDINATE, ASSIST, AND STIMULATE SUCH EFFORT. ED WONG, 660 44TH AVE., SAN FRANCISCO 94121 (RES) - WORK PHONE - 415-565-8589, VOLUNTEERED TO DO THIS.

NEWSLETTER: MORE CONTRIBUTIONS REQUESTED.

RT-11 PRODUCT: ENHANCEMENTS REQUESTED AT LOS ANGELES IN SPRING OF '75 WERE REVIEWED, WITH THE VERY HIGH DEGREE OF ACCOMPLISHMENT BY DEC NOTED.

FEES: THE GROUP SHOWED A WILLINGNESS TO SUPPORT A $10/YEAR MEMBERSHIP FEE TO SUPPORT NEWSLETTER, NOTICES, A PDP-11 AND OTHER LIBRARY ACTIVITY. THIS WAS AN INFORMATIONAL POLL, AND WE ARE STILL SEEKING USER COMMENTS ON FEES.

TIMESHARE: TOM PROVOST DREW ATTENTION TO THE GROWING GROUP OF PEOPLE OUTSIDE OF DEC DEVELOPING RT-11 TIME SHARING SYSTEMS. IN PARTICULAR THERE ARE A GROWING NUMBER OF USERS RESORTING TO THE RT-11 EMULATOR TASK WHICH RUNS UNDER RSX-11M, AND TO TSX, A COMMERCIALLY AVAILABLE TIMESHARING TASK WHICH RUNS UNDER RT-11. THE RT-11 EMULATOR IS AVAILABLE FROM TOM PROVOST AND INFORMATION ABOUT TSX MAY BE OBTAINED BY CONTACTING PHIL SHERROD, SH COMPUTER LEASING CO., 3709 TRIMBLE ROAD, NASHVILLE, TENN. 37215, (615) 297-6474.

LAB APPLICATIONS: PHIL HEINTZ, RADIATION ONCOLOGY CENTER, 5271 F STREET, SACRAMENTO, CA 95819, AGREED TO COORDINATE THE SUBSET OF RT-11 SIG MEMBERS AND TOPICS CONCERNED WITH LAB APPLICATIONS HARDWARE AND SOFTWARE.

SOFTWARE DISPATCH: DEC REPRESENTATIVES SAID THERE WOULD BE SOFTWARE MAINTENANCE SERVICE AVAILABLE WITH A SOFTWARE DISPATCH FOR RT-11 SPR'S.

REPORT ON LAB DATA PRODUCTS PANEL

SESSION E12.3, WEDNESDAY, DECEMBER 8, 1976

DECUS, LAS VEGAS

CHAIRMAN: JOHN MUCCI, LDP MARKETING MANAGER (DEC-MAYNARD)

FOUR GENERAL TOPICS WERE DISCUSSED FOCUSING ON THE 11/03 AND 11/34 DECLAB SYSTEMS: LABORATORY PERIPHERALS, DECLAB 11/03 AND 11/34, PEAK-11, AND AN LDP SOFTWARE OVERVIEW.

JESSE LIPCON DESCRIBED SEVERAL ADCS AND OTHER LAB PERIPHERAL PROCUCTS, CONCENTRATING ON LABORATORY APPLICATIONS (TYPICALLY LESS THAN 64 CHANNELS OF HIGH SPEED DATA) AS OPPOSED TO INDUSTRIAL APPLICATIONS (TYPICALLY LARGE NUMBERS OF SLOW SPEED CHANNELS).

THE AR-11 HAS BEEN ON THE MARKET ABOUT TWO YEARS. IT CONSISTS OF 16 CHANNELS OF 10 BITS WITH SAMPLE AND HOLD, A REAL-TIME CLOCK, SCOPE CONTROL, UNIBUS INTERFACE AND ANALOG POWER SUPPLY.

THE AD11-K IS A 12 BIT CONVERTER WITH SWITCH SECLECTABLE MUX (16 CHANNELS SINGLE ENDED OR 8 DIFFERENTIAL). CONVERSIONS CAN BE TRIGGERED BY PROGRAM CONTROL, CLOCK OVERFLOW OR EXTERNAL INPUT. THE INPUT VOLTAGE RANGE IS JUMPER SELECTABLE AND EITHER BI-POLAR OR UNI-POLAR.

THE AM11-K IS AN EXPANDER FOR THE AD11-K TO 48 CHANNELS (ACTUALLY THREE INDEPENDANT GROUPS OF 16 CHANNELS WHICH CAN BE INDEPENDENTLY SET TO SINGLE-ENDED OR DIFFERENTIAL, AND INDEPENDENTLY GAIN CONTROLLED).

THE KW11-K IS A DUAL PROGRAMMABLE CLOCK (ONE 16 BIT AND ONE 8 BIT), WITH INDIVIDUAL COUNTER AND PRESET BUFFERS, PROGRAM SELECTABLE RATES AND MODES, AND THREE EXTERNAL SCHMIDTT TRIGGERS.

THE AA11-K IS A 4 CHANNEL, 12 BIT DAC WITH SCOPE CONTROLLER LOGIC FOR DISPLAYS. ALSO MENTIONED WAS THE DR11-K, A GENERAL PURPOSE DIGITAL I/O INTERFACE.

THREE PRODUCTS SPECIFICALLY FOR THE LSI-11 WERE PRESENTED:

THE ADV11-A - - A 12 BIT ADC, JUMPERABLE 16 CHANNEL SINGLE-ENDED OR 8 CHANNEL QUASI-DIFFERENTIAL (A TERM DEC DID NOT DEFINE), +/- 5.12 V. INPUT; CONVERSION TRIGERED BY PROGRAM CONTROL, CLOCK OVERFLOW, OR EXTERNAL TRIGGER. THE ADV11-A HAS BUILT-IN TEST FEATURES - - A RAMP WAVEFORM AND VERNIER OFFSET D/A.

THE KWV11-A IS A PROGRAMMABLE 16 BIT CLOCK WITH TWO SCHMIDTT TRIGGERS, 5 CRYSTAL BASED RATES, LINE AND EXTERNAL FREQUENCIES.

THE AAV11-A IS 4 INDEPENDENT 12 BIT CHANNEL DAC WITH JUMPERABLE RANGE EITHER BI- OR UNI-POLAR.

DEC NOTED THAT THE COST TREND OF REAL-TIME I/O HARDWARE HAS BEEN DECREASING OVER THE PAST FEW YEARS. COMMENTS WERE MADE FROM AUDIENCE THAT CLOCK FREQUENCIES SHOULD BE MADE AVAILABLE FOR USE BY USER EQUIPMENT AND MORE THAN 2 CHANNELS OF SAMPLE AND HOLD WOULD BE USEFUL.

RON MASULLA PRESENTED A BRIEF DESCRIPTION OF THE DECLAB 11/03 AND DECLAB 11/34. THE 11/03 SYSTEM COMES IN A FEW FLAVORS BUT GENERALLY CONSISTS OF A PDP-11/03 LSI PROCESSOR, 32K BYTES MEMORY (EXPANDABLE TO 64K), EIS AND FIS CHIP SET, PROGRAMMABLE CLOCK, ADCS, DAC, DISK STORAGE (FLOPPY), DECWRITER, VT-55 POINT-PLOT GRAPHICS AND RT-11 AND FORTRAN IV SOFTWARE. PRICED FROM $14,000 TO $18,000 DEPENDING ON FLAVOR.

THE DECLAB 11/34 IS BUILT AROUND A PDP-11/34 PROCESSOR, 32K BYTES (FULLY EXPANDABLE), PROGRAMMABLE CLOCK, DIGITAL I/O, ADCS, 512K (TO 7M) BYTES DISK STORAGE (FLOPPY OR RK05), DECWRITER, CRT DISPLAY AND LIGHT PEN, AND FORTRAN IV WITH CHOICE OF RT-11 OR RSX11-M. PRICED FROM $22,000 TO $23,000.

A COMMENT WAS MADE FROM THE AUDIENCE THAT POINT-PLOT GRAPHICS HARD/SOFTWARE IS NOT ADEQUATE FOR REAL LIFE DATA WAVEFORMS BECAUSE THE DOTS DO NOT RESOLVE THE SHAPE OF THE WAVE ACCURATELY. IT WAS SUGGESTED THAT DEC CONSIDER USING VECTOR MODE GRAPHICS AS WELL.

BILL AVERY SPOKE ON THE INCOMPATIBILITY OF THE LSI-11'S Q BUS AND THE UNIBUS. DEC DOES PLAN TO MAINTAIN TWO BUSES, USING THE Q BUS FOR PRODUCTS UNDER $20,000. A BRIDGE MODULE IS UNDER DEVELOPMENT TO ALLOW INTERFACING OF Q BUS PERIPHERALS TO THE UNIBUS (HOWEVER, NO PLANS ARE IN DEVELOPMENT TO BRIDGE THE OTHER DIRECTION OR INTERFACE THE LSI TO OTHER PROCESSORS). IN THE COURSE OF THE ENSUING AUDIENCE COMMENTS, IT WAS MENTIONED THAT A PRODUCT IEC-11 (THE IEEE STANDARD HP BUS INTERFACE) IS AVAILABLE FROM DEC'S SPECIAL SYSTEMS GROUP).

PEAK-11, A LABORATORY SYSTEM FOR CHROMATOGRAPHS, WAS ANNOUNCED IN AUGUST AND IS BEING CURRENTLY RUN BY FIVE EAST COAST SITES. THE SYSTEM CONSISTS OF AN 11/34 WITH 32K MEMORY, THE LPS (LAB PERIPHERAL SYSTEM) HARDWARE WITH A SPECIAL LOW PASS FILTER, RT-11 F/B, MULTI-USER BASIC, AND PEAK-11 SOFTWARE (CAT B SUPPORT). THE ADC HAS 16 INDEPENDENT CHANNELS WITH THROUGHPUT TO MASS STORAGE. INPUT PARAMETERS TO THE PEAK SYSTEM ARE: SAMPLE RATE, BASELINE SENSITIVITY FACTOR, PEAK SENSITIVITY FACTOR, AND MINIMUM PEAK HEIGHT. PEAK OUTPUTS INCLUDE: THE AREA UNDER THE PEAK, POSITION OF THE PEAK, PEAK HEIGHT, WIDTH AT HALF MAX, PEAK TYPE, LEADING TIME, AND TRAILING TIME. THERE ARE TWO FLAVORS: PK11-AB FOR $33,905 AND PK11-CB FOR $44,575.

THE SESSION WAS CONCLUDED BY HARRY KELLER WHO PRESENTED LAB RELATED SOFTWARE. FDT IS A FORTRAN DEBUG TECHNIQUE PACKAGE FOR FORTRAN IV UNDER RT-11. IT ALLOWS AT EXECUTION TIME BREAKPOINTS, CHANGING VARIABLES, PROGRAM STEPPING, ETC. UNDER RSTS/E AND RT-11, APL-11 WILL BE RELEASED. THIS WILL BE A CORPORATE PRODUCT RATHER THAN AN LDP PRODUCT. QUERIES CAME FROM THE AUDIENCE ABOUT POSSIBLE IMPLEMENTATION UNDER RSX11-M. LA-11 MODULES FROM THE LAB APS PACKAGE ARE BEING MADE FORTRAN CALLABLE UNDER RT AND RSX11-M. THERE WAS SOME DISCUSSION ABOUT REMOTE - - DEC IS PLANNING ANOTHER RELEASE (AFTER RT V3?). ALSO THERE WERE QUESTIONS ABOUT IMPLEMENTING REMOTE-LIKE SOFTWARE UNDER RSX.

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REPORT ON NEW PDP-11 ISTRUCTIONS

SESSION C11.1, WEDNESDAY, DECEMBER 8, 1976

DECUS, LAS VEGAS

THIS SESSION WAS PRESENTED IN TWO SEGMENTS: RALPH PLATZ (DEC-MAYNARD) PRESENTED IN CONSIDERABLE DETAIL THE GENERAL ARCHITECTURAL OVERVIEW OF THE IMPLEMENTATION OF THE EXTENDED INSTRUCTION SET; THEN LLOYD DICKMAN (DEC-MAYNARD) PRESENTED SPECIFIC AND DETAILED EXAMPLES OF CIS, THE NEW INSTRUCTION SET DESIGNED FOR THE COMMERCIAL ENVIRONMENT.

THE OP CODES CHOSEN FOR THE EXTENDED INSTRUCTION SET RANGE FROM 076000 TO 076777. THEY ARE CONSIDERED TO BE GROUPED INTO 64 GROUPS OF 8 INSTRUCTIONS EACH. CODES 07600X TO 07657X COVER 48 GROUPS FOR GENERAL PDP-11 USAGE. CODES 07660 TO 07667X COVER 8 GROUPS WHICH ARE EARMARKED FOR PROCESSOR SPECIFIC INSTRUCTIONS. THE CODES FROM 07670X TO 07677X HAVE BEEN RESERVED BY DEC FOR CUSTOMER USAGE.

EACH OP CODE IS A FULL 16 BITS IN LENGTH; SHOULD AN OPERAND NEED EXPLICIT SPECIFICATION IT WILL BE IN SUBSEQUENT MEMORY LOCATIONS. THE EXTENDED INSTRUCTION SET WILL INCLUDE OP CODES HAVING IMPLICITLY SPECIFIED OPERANDS, I.E. AN INSTRUCTION TO DIDDLE R1 WOULD REQUIRE THE PROGRAMMER TO HAVE APPROPRIATELY PREPARED R1 PREVIOUS TO THE INSTRUCTION.

EACH INSTRUCTION IS EITHER SUSPENDABLE (I.E., EXECUTION CAN BE INTERRUPTED MID-INSTRUCTION AND CONTINUED LATER) OR NON-SUSPENDABLE (I.E. EITHER INSTRUCTION COMPLETES BEFORE AND INTERRUPT IS SERVICED OR THE INSTRUCTION EXECUTION IS ABORTED AND RESTARTED LATER). THIS CONDITION IS FLAGGED BY THE HIGH BYTE OF R4 BEING NON-ZERO. RALPH PLATZ EXPLAINED, THEREFORE, THE PROGRAMMER MUST CLEAR R4(HIGH) BEFORE EXECUTING A SUSPENDABLE INSTRUCTION. (IF THE INSTRUCTION EXECUTION IS INDEED INTERRUPTED, THE HIGH BYTE OF R4 IS AUTOMATICALLY FLAGGED AND CLEARED UPON RESUMPTION OF THAT INSTRUCTION.)

IN THE SECOND HALF OF THE SESSION, LLOYD DICKMAN PRESENTED LSI-11 CIS (COMMERCIAL INSTRUCTION SET). THE DESIGN ISSUES HE PRESENTED INCLUDED:

1) INCREASED -11 PERFORMANCE IN COMMERCIAL ENVIRONMENTS
2) -11 ARCHITECTURE TO SUPPORT CHARACTER STRING AND DECIMAL DATA TYPE
3) DEFINED ARCHITECTURE WHICH CAN BE IMPLEMENTED ACROSS THE -11 FAMILY
4) TRANSPARENT TO OPERATING SYSTEMS (I.E., TO NOT CHANGE NATIVE STATES OF THE MACHINE) AND TO HIGH LEVEL LANGUAGES.

CONCERNING CHARACTER TYPE DATA, THERE WERE THREE CONCEPTS PRESENTED: THE INDIVIDUAL CHARACTER (BYTE LENGTH AND THE SAME AS ALWAYS ON THE

-11), THE CHARACTER STRING (LENGTH 0.LE. LENGTH.LE.65535, AND ADDRESS OF FIRST CHARACTER IN STRING CONTAINED IN DESCRIPTOR), AND CHARACTER SET (256 BYTE TABLE AND MASK). EXAMPLES OF CHARACTER STRING INSTRUCTIONS PRESENTED ARE:

MOVC	DST FROM SRC (LEFT JUSTIFIED)
MOVRC	DST FROM SRC (RIGHT JUSTIFIED)
CMPC	SRC1-SRC2 (CONDITION CODES SET)
LOCC	(IMPLIED CHARACTER C AND STRING S) LOCATES C IN S AND RETURNS DESCRIPTOR AND SETS CONDITION CODES
SKPC	LOCATES FIRST CHARACTER IN S .NE. C RETURNS DESCRIPTOR AND SETS CONDITION CODES
SCANC	AS LOCC EXCEPT SEARCH S ON MORE THAN ONE CHARACTER
SPANC	AS SKPC EXCEPT SEARCH ON MORE THAN ONE CHARACTER

THESE INSTRUCTIONS HAVE IMPLIED OPERANDS WHICH ARE LOCATED IN THE GERERAL PURPOSE REGISTERRS (E.G., IN CASE OF MOVC, R0 AND R1 CONTAIN THE LENGTH AND STARTING ADDRESS, RESPECTIVELY, OF THE SOURCE STRING; R2, R3 CONTAIN CORRESPONDING DESCRIPTOR OF DESTINATION STRING.)

DECIMAL DATA TYPES ARE SIMILARLY TREATED AS A STRING OF DECIMAL DIGITS OF LENGTH 1 .LE. LENGTH .LE. 31. THE SIGN-MAGNITUDE NUMBER IS CONTAINED IN THE LOW BYTE; THE HIGH BYTE OF EACH WORD CONTAINS THE ASCII CODE FOR THE DIGIT; BIT 6 OF THE LEAST SIGNIFICANT DIGIT WORD IS THE SIGN BIT.

EXAMPLE INSTRUCTIONS ARE:

ADDN	DST FROM SRC1 + SRC2
SUBN	DST FROM SRC2 - SRC1
CMPN	SRC1 - SRC2 (CONDITION CODES SET)
CVTNL	CONVERT SRC1 TO 32 BIT INTEGER

THE GENERAL PURPOSE REGISTERS ARE USED AS OPERAND FIELDS (E.G. CVTNL USES R0 AND R1 AS SOURCE DESCRIPTORS, AND R2 AND R3 AS THE DESTINATION FOR THE 32 BIT INTEGER).

GENERALLY, THE CONDITION CODES ARE SET BY THE TRADITIONAL PDP-11 CRITERIA; NON-EXTENDED INSTRUCTION ERRORS TRAP TO THE USUAL VECTORS, XFC CODES TRAP TO VECTOR 10; A STACK OF POTENTIAL DEPTH OF 40 WORDS CAN BE GENERATED BY THE EXTENDED INSTRUCTION SET. THE CIS IS AVAILABLE ON THE EIS CHIP FOR THE LSI-11.

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REPORT ON DECNET/RT

SESSION G10.2, WEDNESDAY, DECEMBER 8, 1976

DECUS, LAS VEGAS

DICK LOVELAND OF DEC DESCRIBED THE DECNET SOFTWARE WHICH WILL RUN UNDER RT-11, SUMMARIZED HEREWITH:

DECNET/RT WILL BE RELEASED ABOUT THE SAME TIME AS RT-11 V3. PERHAPS A LITTLE LATER. IT WILL RUN UNDER THE FB MONITOR (MAPPED OR UNMAPPED), BUT NOT UNDER SJ. IT WILL ALSO RUN ON V2C (FB) SYSTEMS.

DECNET/RT WILL PROVIDE TASK-TO-TASK COMMUNICATION AND FILE TRANSFER CAPABILITIES WITH OTHER SYSTEMS RUNNING DECNET SOFTWARE: PDP-11'S (IAS, RSX-11 (D,M,S), RT-11 RSTS/E), DECSYSTEM-10'S AND -20'S, AND EVEN PDP-8'S (RTS/8).

THE FOLLOWING COMMUNICATIONS INTERFACES WILL BE SUPPORTED:

SYNCHRONOUS: DU, DUP, DMC; DUV
ASYNCHRONOUS: DL; DLV

FORTRAN AND MACRO-11 PROGRAMS WILL INTERFACE TO THE DECNET SOFTWARE VIA A SET OF SUBROUTINE CALLS.

THE DDCMP LINE PROTOCOL WILL BE HANDLED BY A DEVICE HANDLER FOR THE COMMUNICATIONS INTERFACE BEING USED (APPROX. 1.0 K WORDS FOR DMC, 1.5 - 2.0 K FOR OTHERS). THE NSP AND DAP FUNCTIONS ARE PERFORMED BY ROUTINES WHICH ARE LINKED WITH THE USER PROGRAM (3.0 K FOR NSP, 1.5 K FOR DAP).

ALSO PROVIDED WILL BE:

NFT -- NETWORK FILE TRANSFER PROGRAM
NIP -- NETWORK INFORMATION PROGRAM (ERROR COUNTS, ETC.)
TLK -- PROGRAM TO SEND MESSAGES TO TERMINALS ON OTHER NODES OF THE NETWORK.

BAD NEWS: AT LEAST INITIALLY, DECNET/RT WILL SUPPORT ONLY ONE PHYSICAL LINK, AND ONLY ONE LOGICAL LINK OVER THAT PHYSICAL LINK.

MARK BARTELT

PDP-11 FUTURE HARDWARE WISH-LIST SESSION - DECUS FALL SYMPOSIUM

THIS UNSCHEDULED SESSION ATTRACTED ONLY 5-10 USERS (PRIMARILY LAB USERS) BUT FEATURED 12-15 DEC PERSONNEL OF VARIOUS RANK. THE FORMAT WAS BASICALLY 'YOU TELL US WHAT YOU WANT TO SEE.

USER REQUESTS WERE:

1) A CHEAPER, SLOW LSI-11 AND PERHAPS HIGHER PRICED, BUT FASTER LSI-11

2) MORE COMPLETE LINE OF LSI-11 Q-BUS INTERFACES, IN PARTICULAR A Q-BUS TO UNIBUS INTERFACE AND A PARALLEL INTERFACE S/W COMPATIBLE WITH THE DLV11. DEC PROMISED MORE INTERFACES, BUT NOT NECESSARILY THOSE MENTIONED.

3) WRITABLE CONTROL STORE FOR THE 11/40 OR 11/34, WITH ABOUT AN ORDER OF MAGNITUDE INCREASE IN SPEED AND SUPPORTED WITH SOME S/W DEVELOPMENT TOOLS. THIS WAS SECONDED BY MOST USERS PRESENT, BUT MET SOME RESISTANCE FROM DEC. USERS WITH SPECIFIC REQUESTS AND NEEDS IN THIS AREA WERE INVITED TO CONTACT:

BILL MAGERS
DIGITAL EQUIPMENT CORPORATION
ML3-3/E69
148 MAIN STREET
MAYNARD, MA. 01754

ALONG THE SAME LINES, MICROPROGRAMMED DIAGNOSTICS IN ROM WERE REQUESTED.

4) MUCH HIGHER UNIBUS BANDWIDTH - 1 TO 2 ORDERS OF MAGNITUDE WERE MENTIONED, BUT DEC SAID MORE THAN AN ORDER OF MAGNITUDE INCREASE COULD NOT REASONABLY BE EXPECTED DUE TO MEMORY SPEED CONSTRAINTS.

5) MEGAWORD ADDRESSING ABILITY FOR LARGE PDP-11'S AND MEMORY MANAGEMENT FOR LSI-11'S. DEC IS WELL AWARE INTERNALLY OF THE NEED FOR EXTENDING MAIN MEMORY ADDRESSING. FOR LSI-11'S, HOWEVER, THEIR POLICY HAS BEEN THAT SLOWER, CHEAPER CPU'S WOULD NOT NEED MEMORY MANAGEMENT.

6) ACOUSTICALLY QUIETER SYSTEMS HAVING A MORE INTEGRATED MECHANICAL DESIGN AMONG SUBSYSTEMS RATHER THAN THE 'EVERYONE IN HIS CLOSED BOX WITH LOTS OF FANS' APPROACH TO CPU AND PERIPHERAL DESIGN. DEC STATED THAT A QUIET VERSION OF THE 11/34 IS AVAILABLE FROM LDP GROUP, BUT THAT IT HAS REDUCED AMBIENT TEMPERATURE SPECS AND THAT IN GENERAL THEY EXPECT A SYSTEM TO BE ABLE TO OPERATE ANYWHERE, HENCE THE NEED FOR LOTS OF FANS.

COMPLAINTS:

1) AN OEM USER COMPLAINED OF POOR ADHERENCE TO UNIBUS TIMING SPECIFICATIONS AMONG VARIOUS CPU'S AND PERIPHERALS. DEC AGREED THAT IT HAS BEEN A PROBLEM BUT THEY HAVE ESTABLISHED A NEW UNIBUS TESTING FACILITY AND A RIGOROUS TEST PROCEDURE THAT ALL NEW PRODUCTS MUST MEET. ECO'S HAVE BEEN ISSUED FOR THE UNIBUS AND VARIOUS TERMINATORS, BUT ALL OLD PRODUCTS WILL NOT BE ECO'D. FIELD SERVICE IS SUPPOSED TO HAVE ACCESS TO A UNIBUS TESTER WITH WHICH THEY CAN CHECK OUT A USER'S SYSTEM.

2) ONE USER REPORTED VERY POOR RELIABLITY IN A BATCH OF 20 VT52'S AND SEVERAL 11/34'S. DEC REPORTED THAT SOME 11/34'S WITH 32K OF CORE AND SEVERAL DL11'S DO NOT HAVE ENOUGH DC POWER IN THE CPU CHASSIS AND THAT THE POWER SUPPLIES CAN AND DO FAIL. THIS WAS THE EXPERIENCE OF THE USER.

3) ONE USER COMPAINED OF POOR RESISTANCE TO RAPID TEMPERATURE CHANGES IN DEC MOS MEMORY. DEC ACKOWLEDGED THAT THE MS11 MOS MEMORY FOR 11/45'S HAS RELIABILITY PROBLEMS BUT THAT NEWER DESIGNS ARE IMPROVED. DEC ASKED FOR USERS' VIEWS ON MOS VS. CORE AND GOT MIXED RESPONSES. A HARSH ENVIRONMENT USER (HUMIDITY AND VIBRATION) REPORTED THAT MOS HAS BEEN MORE RELIABLE THAN CORE AND CAN BE MORE EASILY REPAIRED IN THE FIELD.

DEC REPORTED ON MEMORY DEVELOPMENTS. THEY ARE WORKING ON MUCH FASTER MOS MEMORIES, APPROACHING BIPOLAR SPEEDS. A 16K MOS BOARD IS COMING FOR THE LSI-11. THEY ARE INVESTIGATING BEAM ADDRESSABLE MEMORIES AND FEEL THEY ARE ABOUT 3-5 YEARS AWAY. THEY HAVE CONDUCTED RELIABILITY TESTS ON MOS AND CORE, MEASURING RESISTANCE TO STATIC DISCHARGE AND ELECTRIC FIELDS, AND HAVE FOUND THE TWO TO BE ABOUT EQUALLY RESISTANT. BOTH ARE MUCH MORE RESISTANT THAN THE CPU'S, WHICH ALWAYS QUIT FIRST. ONE USER REPORTED THAT WHEN 20KV WAS APPLIED TO THE SYSTEM GROUND OF AN LSI-11, THE CORE WAS BLOWN OFF THE BOARD BUT THE CPU SURVIVED.

RT-11 HIGH LEVEL COMMAND LANGUAGE

The upcoming new release of RT-11, version 3, will have a significant number of new and useful features. Perhaps most visible will be a high level command language. These are commands to the keyboard monitor, in addition to the present ones, which greatly simplify the use of the system. For instance, the deletion of all files from DK: with the extension .LST can be accomplished with the command:

```
.DELETE *.LST
```

as well as with the present

```
.R PIP
**.LST/D
*^C
.
```

Some of the other commands are:

```
COPY     -  Copies file(s)
RENAME   -  Renames file(s)
PRINT    -  Lists file(s) on line printer
TYPE     -  Lists file(s) on terminal
DIRECT   -  Lists device directory
SQUEEZE  -  Compacts the files (squish or squash - /S of PIP)
EDIT     -  Call EDIT program
BASIC    -  Run BASIC
FOCAL    -  Run FOCAL
COMPILE  -  Compile FORTRAN, MACRO or DIBOL programs
            The default is selected by the SET command
```

Not all command characters need be typed in but only enough to differentiate the commands.

QUALIFIERS — Each command has a set of unique qualifiers, analogous to the system program switches (/L, etc.) which modify or qualify the particular command. For example, the command to copy a set of files in ASCII mode might be

```
.COPY/ASCII *.MAC *.NEW
```

Like the commands themselves, the number of characters typed for a qualification need only be enough to differentiate the various qualifiers.

FILE ORDER — The order, of which files are input files and which are output files, is the more logical left for input right for output. Thus, the above command copies all files *.MAC to new output files *.NEW.

PROMPTING — The system will prompt a user when it knows a user has omitted a required parameter. For instance,

```
User types       .COPY
System responds  FROM?
User types       A.MAC
System responds  TO?
User types       B.MAC
```

The system will then execute the command

```
.COPY A.MAC B.MAC
```

WILD CHARACTER — In addition to the present wild card facility "*", a wild character, to be denoted by %, is available with many system commands. For example, the following command will delete all files on DK: beginning with the characters TEMP.

```
.DELETE TEMP%%.*
```

Thus, files of the type TEMP1.MAC, TEMP.FOC, TEMP32.BAS would all be deleted.

INSTALLING NEW DEVICE HANDLERS — For RT-11 version 3, either user-written or, system device handlers can be installed without modification of the system tables. Three new commands facilitate these actions.

```
.INSTALL CR      Installs card reader handler
.INSTALL KB      Installs user KB handler
.REMOVE LP       Removes line printer handler
.SHOW DEVICES    Lists currently installed devices.
```

The INSTALL/REMOVE commands operate on the in core monitor only. Thus, a re-boot will re-initialize the original set of devices.

INDIRECT COMMAND FILES — RT-11 version 3, will also support indirect command files. These are files formatted exactly like terminal input commands but which can be called and executed from the keyboard monitor. For example, a utility file might be created with EDIT, called CLEAN, to do a cleanup of the files on DK:. The file would contain the following characters.

```
.DELETE *.OBJ,*.TMP,TEMP%%.*,*.BAK
```

This command could then be invoked, say at the end of each session, by the simple command.

```
.@CLEAN
```

The "@" sign specifies that what follows is a filename - the contents of which are to be interpreted as commands to the keyboard monitor.

This new high level command language is a new standard which will ultimately be made available on all of DEC's operating systems.

SPRS

SYSTEM PROGRAM AND VERSION (OR DOCUMENT)	MONITOR AND VERSION	DATE
FORTRAN V01C	RT-11 V02C-02	20-OCT-76

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DEC OFFICE: San Diego

SUBMITTED BY: William B. Fincke PHONE: (714) 452-2378

LIST ATTACHMENTS: Patch listing

REPORT TYPE
- [XXX] LOGIC/CODING ERROR
- [ ] DOCUMENTATION ERROR
- [ ] SUGGESTION
- [ ] INQUIRY
- [ ] FOR YOUR INFORMATION

PRIORITY
- [ ] LOW
- [XXX] STANDARD
- [ ] HIGH

CAN THE PROBLEM BE REPRODUCED AT WILL?
- [XXX] YES
- [ ] NO

CPU TYPE	SERIAL NO.	SYSTEM DEVICE	MEMORY SIZE	DISTRIBUTION MEDIUM
11/40	8451	RK05	28K	RK05

PROBLEM: In response to our SPR #11-8773 concerning erroneous integer overflow caused by converting -32768. from real to integer with the NHD library, DEC supplied a patch to NHD.OBJ (not published in Digital Software News as of 10/76) that corrected the original problem, but created two more:

1) converting any negative real number in the range -1 to 0 to integer now gives integer overflow, and
2) if SETERR has been called to ignore integer overflow, any occurrence of the error causes the program to loop forever.

DIAGNOSIS: The supplied patch was not tested over all ranges of real numbers.

SOLUTION: A substitute patch is supplied that corrects the original problem and converts all real numbers correctly.

```
*MESSAGE  DEC PATCH FOR NHD PROBLEM WITH -32768

R PATCH0
*OPEN
ENTER INPUT  FILE NHD.V1C
ENTER OUTPUT FILE NHD.DEC
*POINT CONV2
*WORD 40=#221
*WORD 104=#404
*WORD 116=#42703
*WORD 120=#77777
*WORD 122=#60003
*WORD 124=#-77031
*WORD 126=#10046
*WORD 130=#134
*EXIT
ENTER CHECKSUM: 24557
```

```
*MESSAGE  MPL PATCH FOR NHD PROBLEM WITH -32768

R PATCH0
*OPEN
ENTER INPUT  FILE NHD V1C
ENTER OUTPUT FILE NHD MPL
*POINT CONV2
*WORD 40=#221
*WORD 104=#5700
*WORD 106=#403
*WORD 116=#1404
*WORD 120=#42703
*WORD 122=#77777
*WORD 124=#60003
*WORD 126=#-77032
*WORD 130=#10046
*WORD 132=#134
*EXIT
ENTER CHECKSUM: 101345
```

SYSTEM PROGRAM AND VERSION (OR DOCUMENT)	MONITOR AND VERSION	DATE
MONITR.SYS FB V02C-02	RT-11 FB V02C-02	22-OCT-76

NAME: Dr. C.D.Lowenstein
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LIST ATTACHMENTS
Patch listing

DEC OFFICE
San Diego

REPORT TYPE
- ☐ LOGIC/CODING ERROR
- ☐ DOCUMENTATION ERROR
- ☒ SUGGESTION
- ☐ INQUIRY
- ☐ FOR YOUR INFORMATION

PRICRITY
- ☒ LOW
- ☐ STANDARD
- ☐ HIGH

CAN THE PROBLEM BE REPRODUCED AT WILL?
☒ YES ☐ NO

CPU TYPE	SERIAL NO.	SYSTEM DEVICE	MEMORY SIZE	DISTRIBUTION MEDIUM
11/40	8451	RK05	28K	RK05

PROBLEM: The monitor SET command accepts only decimal numbers as input. It would be nice if octal numbers could be used. This need arose when we desired to change vectors and register addresses in locally-written handlers without reassembling the handlers.

DIAGNOSIS: The KMON SET command calls the USR subroutine DECNUM to read numeric input. It could just as easily enter the subroutine at CVTNUM to read either decimal or octal numbers.

SOLUTION: A binary patch is supplied that will allow the user to specify octal numbers by preceding the number with a double quote ":

```
SET XYZ PARAM="175610
```

The default is decimal if no quote appears:

```
SET TTY WIDTH=80
```

```
PATCH TO RT-11 FB V02C-02 TO ALLOW MONITOR 'SET' COMMAND
TO INTERPRET NUMBERS PRECEDED BY A " AS OCTAL:

.R PATCH
FILE NAME--
*MONITR.SYS/M
*200000:OR
*0,45750/        10500    4767<LF>
0,45752/         5300     466<CR>
*0,45256/        11514    11512<CR>
*0,45742/        XXXXXX   10500<LF>
0,45744/         XXXXXX   4467<LF>
0,45746/         XXXXXX   177754<LF>
0,45750/         XXXXXX   42<LF>
0,45752/         XXXXXX   20005<LF>
0,45754/         XXXXXX   101001<LF>
0,45756/         XXXXXX   261<LF>
0,45760/         XXXXXX   10500<LF>
0,45762/         XXXXXX   5300<LF>
0,45764/         XXXXXX   207<CR>
*E
```

NOTE THAT VALUE INSERTED AT 0,45750 (42 ABOVE) IS THE ASCII CODE FOR THE CHARACTER DENOTING AN OCTAL VALUE, AND COULD BE ANY CHARACTER USER WISHES

SYSTEM PROGRAM AND VERSION (OR DOCUMENT)	MONITOR AND VERSION	DATE
FORTRAN V01C-03E+	RT-11 V02C-02	22-OCT-76

DEC OFFICE: San Diego

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LIST ATTACHMENTS: Compiler listing, patch log

REPORT TYPE
- [XX] LOGIC/CODING ERROR
- [ ] DOCUMENTATION ERROR
- [ ] SUGGESTION
- [ ] INQUIRY
- [ ] FOR YOUR INFORMATION

PRIORITY
- [ ] LOW
- [ ] STANDARD
- [XX] HIGH

CAN THE PROBLEM BE REPRODUCED AT WILL?
- [XXX] YES
- [ ] NO

CPU TYPE	SERIAL NO.	SYSTEM DEVICE	MEMORY SIZE	DISTRIBUTION MEDIUM
11/40	8451	RK05	28K	RK05

PROBLEM: After installing FORTRAN compiler patch to update from V01C-03D+ to V01C-03E+ (DSN Sept. 76) the compiler no longer accepts a subscripted array element as a target for ENCODE.

SYSTEM PROGRAM AND VERSION (OR DOCUMENT)	MONITOR AND VERSION	DATE
FORTRAN IV V01C-03A	RT-11 FB V02C-02C	22-Oct-76

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LIST ATTACHMENTS: program listing & output

REPORT TYPE
- [X] LOGIC/CODING ERROR
- [ ] DOCUMENTATION ERROR
- [ ] SUGGESTION
- [ ] INQUIRY
- [ ] FOR YOUR INFORMATION

PRIORITY
- [ ] LOW
- [X] STANDARD
- [ ] HIGH

CAN THE PROBLEM BE REPRODUCED AT WILL?
- [X] YES
- [ ] NO

CPU TYPE	SERIAL NO.	SYSTEM DEVICE	MEMORY SIZE	DISTRIBUTION MEDIUM
11/40	8451	RK05	28k	RK05

FORTRAN does not generate correct code when a logical expression compares a byte variable with an immediate constant.

The attached listing shows examples (both correct and incorrect) for the relationship .LT. Similar errors occur for .LE. .GT. and .GE. The code is correctly generated for .EQ. and .NE.

SOFTWARE PERFORMANCE REPORT

FIELD #:	SPR #:
FOR DEC USE ONLY	

44316

SYSTEM PROGRAM AND VERSION (OR DOCUMENT)	MONITOR AND VERSION	DATE
SYSLIB V06	RT-11 FB V026-02	22-OCT-76

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REPORT TYPE
- ☐ LOGIC/CODING ERROR
- ☐ DOCUMENTATION ERROR
- ☒ SUGGESTION
- ☐ INQUIRY
- ☐ FOR YOUR INFORMATION

PRIORITY
- ☐ LOW
- ☒ STANDARD
- ☐ HIGH

CAN THE PROBLEM BE REPRODUCED AT WILL?
☒ YES ☐ NO

LIST ATTACHMENTS: 2 program listings

CPU TYPE	SERIAL NO.	SYSTEM DEVICE	MEMORY SIZE	DISTRIBUTION MEDIUM
11/40	8451	RK05	28K	RK05

PROBLEM: SYSLIB subroutines GETSTR and PUTSTR as supplied with RT-11 V02C-02 do not allow the user to recover from I/O errors or end of file conditions resulting from the FORTRAN READ and WRITE statements they contain. This prevents the user, for instance, from calling GETSTR until an end of file is found to process all lines of a file. GETSTR has the additional problem that its existing error flag, used to indicate a record length error, is not initialized by the subroutine. Thus if it were set from a previous error, and the next call returns error-free, the flag is still set.

SOLUTION: Substitute versions of GETSTR and PUTSTR are enclosed that will allow the user to handle errors and that always return the error flag cleared if no errors occurred.

```
FORTRAN IV      V01C-03F+  FRI 22-OCT-76 16:31:36          PAGE 001

0001          SUBROUTINE GETSTR( LUN, STRING, MAXLEN, ERR )
        C
        C     20-OCT-76
        C       WBF
        C
        C       READS A FORMATTED ASCII RECORD FROM LOGICAL UNIT 'LUN' INTO
        C     'STRING', DELETING <CR><LF> AND APPENDING A NULL BYTE. 'MAXLEN'
        C       IS MAXIMUM NUMBER OF CHARACTERS TO BE LOADED, NOT INCLUDING THE
        C       NULL TERMINATOR.  'STRING' MUST CONTAIN AT LEAST MAXLEN+1 BYTES.
        C       LOGICAL VARIABLE 'ERR' IS .TRUE. IF AN ERROR OCCURRED, .FALSE.
        C       OTHERWISE.
        C
        C       ERROR RETURN VALUES:
        C
        C       ERR = -1     END OF FILE WAS ENCOUNTERED ON READ
        C       ERR = -2     HARDWARE ERROR OCCURRED ON READ
        C       ERR = -3     MORE THAN MAXLEN BYTES WERE CONTAINED IN RECORD
        C
```

#44316
1 of 2

```
0002          BYTE STRING(1),ERR
      C
0003          ERR =  FALSE.                          !INITIALIZE ERROR FLAG TO  FALSE
0004          READ (LUN,100,END=10,ERR=20) ICNT,(STRING(I),I=1,MAXLEN)
0005          STRING(MAXLEN+1) = 0                   !TERMINATE STRING
0006          CALL TRIM(STRING)                !GET RID OF TRAILING BLANKS
0007          IF (ICNT.GT.MAXLEN) ERR=-3       !LOOK FOR RECORD LENGTH ERROR
0009          GO TO 30
0010    10    ERR = -1                         !END OF FILE
0011          GO TO 30
0012    20    ERR = -2                         !H/W ERROR
0013    30    RETURN
0014    100   FORMAT (Q,250A1)
0015          END
```

```
FORTRAN IV      V01C-03F+  FRI 22-OCT-76 16:31:31              PAGE 001

0001          SUBROUTINE PUTSTR( LUN, STRING, CC, ERR )
      C
      C     20-OCT-76
      C      WBF
      C
      C     SUBROUTINE WRITES 'STRING' OUT TO LOGICAL UNIT 'LUN' AS A FORMATTED
      C     ASCII RECORD.  <CR><LF> ARE APPENDED, AND ASCII CHARACTER 'CC' WILL
      C     BE APPENDED AT BEGINNING OF RECORD IF IT IS NON-0.  IF IT IS 0,
      C     THE FIRST CHARACTER OF THE RECORD WILL BE THE FIRST CHARACTER OF
      C    'STRING'.  LOGICAL VARIABLE 'ERR' WILL BE  TRUE.  IF AN ERROR OCCURRED
      C
      C     ERROR RETURN VALUES:
      C
      C     ERR = -1    END OF FILE WAS ENCOUNTERED ON WRITE
      C     ERR = -2    HARDWARE ERROR OCCURRED ON WRITE
      C
0002          BYTE STRING(1),CC,ERR
      C
0003          ERR = .FALSE.                          !INITIALIZE ERROR FLAG TO .FALSE
0004          IF (CC) GO TO 1                        !BRANCH IF CC NON-0
0006          WRITE (LUN,100,END=10,ERR=20) (STRING(I),I=1,LEN(STRING))
0007          GO TO 30
0008    1     WRITE (LUN,100,END=10,ERR=20) CC,(STRING(I),I=1,LEN(STRING))
0009          GO TO 30
0010    10    ERR = -1                         !END OF FILE
0011          GO TO 30
0012    20    ERR = -2                         !H/W ERROR
0013    30    RETURN
0014    100   FORMAT (250A1)
0015          END
```

44316
2 of 2

SYSTEM PROGRAM AND VERSION (OR DOCUMENT)	MONITOR AND VERSION	DATE
FORTRAN V01C-03	RT-11 V02C-02	22-OCT-76

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DEC OFFICE: San Diego

REPORT TYPE
- ☐ LOGIC/CODING ERROR
- ☒ DOCUMENTATION ERROR
- ☐ SUGGESTION
- ☐ INQUIRY
- ☒ FOR YOUR INFORMATION

PRIORITY
- ☐ LOW
- ☒ STANDARD
- ☐ HIGH

CAN THE PROBLEM BE REPRODUCED AT WILL? ☒ YES ☐ NO

LIST ATTACHMENTS: Program listing & output

CPU TYPE	SERIAL NO.	SYSTEM DEVICE	MEMORY SIZE	DISTRIBUTION MEDIUM
11/40	8451	RK05	28K	RK05

PROBLEM: PT-11/RSTS/E FORTRAN IV User's Guide (DEC-11-LRRUA-A-D), on page A-3, states that any non-zero value in a LOGICAL*1 data element is considered .TRUE. However, FORTRAN performs bit-by-bit logical operations on logical elements, sometimes resulting in incorrect logical values.

As the attached program demonstrates, FORTRAN does not know the difference between logical and numeric values, and the user should not expect correct logical results from logical expressions unless the logical elements involved were all assigned values of either Ø (.FALSE.) or -1 (.TRUE.).

```
0001          LOGICAL*1 I,J
0002    10    TYPE 102
0003          ACCEPT 103,I,J
0004          TYPE 100,I,I,J,J,.NOT.I,.NOT.I,.NOT.J,.NOT.J,I.AND.J,I.AND.J
0005          GO TO 10
0006    100   FORMAT (' I=',6X,L,0/' J=',6X,L,0/' .NOT.I=',X,L,0/' .NOT.J=',X,
              +    ' I.AND.J=',L,0)
0007    102   FORMAT ('6I,J: ',$)
0008    103   FORMAT (2I)
0009          END
```

#20043

```
 R TEST


I,J: 0,-1

I=          F       0
J=          T  177777
.NOT.I=     T  177777
.NOT.J=     F       0
I.AND.J=    F       0

I,J: 0,-2

I=          F       0
J=          T  177776
.NOT.I=     T  177777
.NOT.J=     T       1
I.AND.J=    F       0

I,J: 1,-2

I=          T       1
J=          T  177776
.NOT.I=     T  177776
.NOT.J=     T       1
I.AND.J=    F       0

I,J: 2,-2

I=          T       2
J=          T  177776
.NOT.I=     T  177775
.NOT.J=     T       1
I.AND.J=    T       2

I,J:
```

SYSTEM PROGRAM AND VERSION (OR DOCUMENT)	MONITOR AND VERSION	DATE
BA.SYS V01-03	RT-11 FB V02C-02	16-DEC-76

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LIST ATTACHMENTS: Source and binary patches

REPORT TYPE
- [X] LOGIC/CODING ERROR
- [ ] DOCUMENTATION ERROR
- [ ] SUGGESTION
- [ ] INQUIRY
- [ ] FOR YOUR INFORMATION

PRIORITY
- [ ] LOW
- [X] STANDARD
- [ ] HIGH

CAN THE PROBLEM BE REPRODUCED AT WILL?
- [X] YES
- [ ] NO

CPU TYPE	SERIAL NO.	SYSTEM DEVICE	MEMORY SIZE	DISTRIBUTION MEDIUM
11/40	8451	RK05	28K	RK05

PROBLEM: The BATCH handler, when accepting input from the console terminal, rather than from the .CTL file, fails to read more than 2 characters from the console before reverting to the .CTL file. This allows single commands consisting of only 2 characters to execute correctly (\E, \F, or \G, for instance), but causes commands requiring more than 2 characters to fail (\jlabel?).

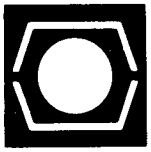
DIAGNOSIS: Handler does not check properly whether input is from the console before fetching characters past the first 2.

SOLUTION: Enclosed are listings of a source patch and binary patch to the BATCH handler.

```
R SRCCOM
*=BA03.MAC,BA03A,MAC/L:4
1)1             .TITLE RT-11 BATCH HANDLER V01-03
2)1             .TITLE RT-11 BATCH HANDLER V01-03A

1)1             .SBTTL  CONTROL CHARACTER DEFINITIONS
****
2)1             MODIFIED 12-16-76 TO FIX OPERATOR INTERACTIVE PORTIONS
2)              OF \I, \J, \K, & \L COMMANDS
2)
2)               SBTTL  CONTROL CHARACTER DEFINITIONS
**********
1)8     GETREG: JSR     PC,GETBAT       ;REGISTER NUMBER
1)              MOV     @#SYSPTR,R2     ;INITIALIZE TO MONCOM
****
2)8     GETREG: JSR     PC,GETCHR       ;REGISTER NUMBER
2)              MOV     @#SYSPTR,R2     ;INITIALIZE TO MONCOM
**********
1)9     1$:     JSR     PC,GETBAT
1)              MOVB    R0,-(R1)
1)              DEC     R3
1)              BNE     1$
1)      JGTBAT: JMP     GETBAT                  ;GET THE NEXT CHARACTER AND
1)
1)      ;"\K" PROCESS FOLLOWED BY TWO OR THREE BYTES
```

```
****
2)9      1$:     JSR     PC,GETCHR
2)               MOVB    R0,-(R1)
2)               DEC     R3
2)               BNE     1$
2)       JGTBAT: JMP     GETCHR                  ;GET THE NEXT CHARACTER AND RET
2)
2)       ;"\K" PROCESS FOLLOWED BY TWO OR THREE BYTES
**********
1)9              JSR     PC,GETBAT       ;GET DATA BYTE
1)               MOVB    R0,(R2)         ;STORE
****
2)9              JSR     PC,GETCHR       ;GET DATA BYTE
2)               MOVB    R0,(R2)         ;STORE
**********
1)13     GETCTY: SAVE    (R4)            ;SAVE BATSW1
1)               CLR     (R4)            ;GO INTO INTERACTIVE MODE
1)               MOV     #JSW,R1
1)               SAVE    (R1)
1)               BIS     #TCBIT$,(R1)    ;MAKE SURE WE DON'T GO TO SLEEP
1)               EMT     16*20           ;.TTYIN WILL GOTO RMON
1)               RESTOR  (R1)            ;RESTOR JSW
1)       RESSW1: RESTOR  (R4)            ;RESTOR BATSW1
****
  13     GETCTY: JMP     PATCH
2)               .REPT   7               ;FILL OLD PROG AREA
2)               .WORD   0
2)               .ENDR
2)       RESSW1: RESTOR  (R4)            ;RESTOR BATSW1
**********
1)16     PATCH:  .REPT   30.             ;PATCH AREA
1)               .WORD   0
****
2)16     PATCH:  SAVE    (R4)            ;SAVE BATSW1
2)               CLR     (R4)            ;GO INTO INTERACTIVE MODE
2)               SAVE    R1
2)               MOV     #JSW,R1
2)               SAVE    (R1)


 2)               BIS     #TCBIT$,(R1)    ;MAKE SURE WE DON'T GO TO SLEEP
 2)               EMT     16*20           ;.TTYIN WILL GOTO RMON
 2)               RESTOR  (R1)            ;RESTOR JSW
 2)               RESTOR  R1
 2)               JMP     RESSW1
 2)               .REPT   17.             ;REMAINDER OF PATCH AREA
 2)               .WORD   0
 **********

 ?FILES ARE DIFFERENT

 *
```

```
 R BATCH
*BATPAT
 PATCH TO FIX BA HANDLER FOR V02C MONITOR


$JOB/RT11
#TTYIO
#LET L=12

$MESSAGE PATCH TO FIX BA HANDLER FOR V02C MONITOR

R PATCH

PATCH V01-02

FILE NAME--
BA.SYS
*3200/  1056    1026
*3350/  706     656
*3376/  660     630
*4116/  11446   167
4120/   5014    660
*5002/  0       11446
5004/   0       5014
5006/   0       10146
5010/   0       12701
5012/   0       44
5014/   0       11146
5016/   0       52711
5020/   0       100
5022/   0       104340
*5024/  0       12611
5026/   0       12601
5030/   0       167
5032/   0       177104
*
$EOJ

END BATCH
```



DECUS

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ADDRESS CORRECTION REQUESTED