RSX 11/IAS SIG DECUS

THE MULTI-TASKER

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The Newsletter of the RSX-11/IAS Special Interest Group

Contributions should be sent to: Editor, The Multi-Tasker, c/o DECUS, One Iron Way, MR2-3/E55, Marlboro, MA 01752

European members should send contributions to: Colin A. Mercer, Tennant Post, High Street, FAREHAM, PO16 7BQ, Hants, England

Members in Australia or New Zealand should send contributions to: Clive Edington, CSIRO, Computing Research 314 Albert St., East Melbourne, VIC 3002, Australia

Letters and articles for publication are requested from members of the SIG. They may include helpful hints, inquiries to other users, reports on SIG business, summaries of SPR's submitted to Digital or other information for the members of RSX-11/IAS SIG.

All contributions should be "camera-ready copy" e.g. sharp black type in a 160x240 mm area (8 1/2" x 11" paper with 1" margins) and should not include xerox copies. If you use RUNOFF to prepare your contribution the following parameters have been found to be satisfactory:

.PAPER SIZE 60,80 .LEFT MARGIN 8 .RIGHT MARGIN 72 .SPACING 1

These parameters assume output on a lineprinter with a pitch of 10 char/inch. Adjust the parameters to maintain the same margins if another pitch is used.

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FROM THE EDITOR

Surprise, there will be a September issue. I leave on vacation tomorrow (it is now August 20) and manage to get this issue pulled together. Inside you will find the usual collection of columns and articles and part 2 of the RSX/IAS SIG tape abstracts. Note, I am reprinting page 29 of the special section so everything will align correctly if you are accumulating the special section separately.

Please pay special attention to the article on the Fall 1981 DECUS Symposium in Los Angeles. The RSX/IAS SIG is planning a huge program, with sessions and papers to interest all of you. Also, see the next annoucement about how to obtain free back issues of the Multi-Tasker.

Ralph Stamerjohn
Multi-Tasker Editor

MULTI-TASKER BACK ISSUES

The RSX/IAS SIG and DECUS are offering a new, free service to our members - back issues of the Multi-Tasker. The issues can be obtained in one of two forms, either microfiche of all issues since Volume 1, No. 1 or hardcopy of the last two years (Volume 11, No. 1 to Volume 14, No. 6)

The Multi-Tasker has been published since the early 70's and once a month since 1975. Many people have asked for back issues and rightly so; the Multi-Tasker is a wealth of information. The Multi-Tasker also provides a history of the RSX/IAS SIG and tracks the development of RSX-11D, IAS, RSX-11M, and RSX-11M Plus. It is also interesting to see how some things never change, like SPR service and Fortran interactive debuggers.

If you want the back issues, please fill out the form at the end of this issue and return to the DECUS office. Note, the back issues are being funded by the U.S. RSX/IAS SIG and are not currently available to users outside the United States. The other chapters will announce their plans in the future.

Ralph Stamerjohn
Multi-Tasker Editor

SOFTWARE CLINIC VOLUNTEERS

We are now organizing the Software Clinic for the Fall 1981 DECUS Symposium in Los Angeles from December 7 to Decemer 11. Once again, we need volunteers to man the clinic room whenever you have free time. If you will be attending the Fall symposium and can help out, please fill out the Black Book form at the end of this newsletter and return to Ralph Stamerjohn. You will then be entered in out data base so we can generate the operating system, languages, and skill lists for the Clinic.

Note, you do not have to be a grizzled expert to be a clinic volunteer. You will be suprised at the number of questions you can answer, Also, if you have already filled out a black book form, it is not necessary to do so again. You will be contacted seperately.

Gary Beckmann
Louis Stoll
Ralph Stamerjohn

Software Clinic Chairpersons

HELP YOURSELF

"Help Yourself" is a place for you to get your tough questions answered. Each month, questions from readers will be published. If you have a question, send a letter to the Multi-Tasker at one of the addresses listed on the cover.

We would also like to publish the answers to questions. If you can help someone, send a letter to the Multi-Tasker or call Ralph Stamerjohn at (314) 694-4252. Your answer will be sent directly to the person in need and published in the next edition of the Multi-Tasker.

ANSWERS TO PREVIOUS QUESTIONS

TASK BUILDER PROBLEM

Dr. M.G. Liverman of the Max-Plank-Institut had an answer for Wayne Guerrini problem with building common regions (June 1981 Multi-Tasker). Dr. Liverman reports he had a similar problem which was solved by building the common region as position-dependent with a base of 160000. Then APR 7 could be used to map the region with no problems and the region could be a full 4 KW's large.

COPYING ADVENTURE AND DUNGEON

Dr. Liverman also had an answer for George Velez's question on reading a RT ANSI tape on a RSX-11M system. Dr. Liverman makes the following observations:

1. FLX does not support RT-11 magtapes. It doesn't believe that RT-11 is capable of creating a magtape.

2. FLX does support ANSI magtapes.

3. RT-11 magtapes (file-structured) are ANSI format; that is, you can use RSX-11M PIP to read the files or the directory from the tape.

4. RT-11 ASCII files are not organized like RSX-11M ASCII files. They are stream ASCII with embedded CR and LF.

5. You can copy from A RT-11 tape to a Files-11 disk using FLX with the /IM switch (no translation is performed). If you have .OBJ files, everything is fine since the internal format of RT-11 and Files-11 .OBJ files is the same. Copying an ASCII file from an RT-11 tape or disk results in a bastard mix. The file looks from the outside to FCS like a normal Files-11 file, but has the internal ASCII stream format of RT-11!. You can copy the using PIP without error - either to another file or to your terminal. The terminal output looks OK also (I'll qualify that in a minute). However, if the file is a Fortran or Macro-11 source and you attempt to feed it to the appropriate compiler, the compiler will give you all sorts of error messages! The reason - the ASCII stream format of the file. It looks OK on the terminal because the terminal is an ASCII stream device. You can change the format very easily using TECO. Just open the file and write to another one! Now the compilers will be happy...except for what happens when a RT-11 ASCII record crossed a block boundary. FLX will insert a record terminator at the end of every block. If an ASCII record crosses the block boundary, it gets cut into two pieces. As you might imagine, this plays havoc with your favorite compiler. So, go into TECO again and put the separate record back together again. With some knowledge of the language that the file is written in it is not too hard to figure out where these errors are. In any case, they occur no more often then once every 512 characters so you will have no more of these errors in a file then the number of blocks in the file. Also, running the file through the compiler before editting it will help you find the little devils.

This brings me to my procedure which involves the use of a second disk drive. This procedure works quite well and does not require that you must edit the file.

1. Using FLX, initialize your second drive in RT-11 format.

2. Using FLX with the /IM switch, copy the file from the tape to the newly initialized RT-11 disk.

3. Using FLX without the /IM switch, copy the files from the RT-11 disk to the Files-11 disk. The file will now be correct.

THIS MONTH'S QUESTIONS

IAS SYSTEM ACCOUNTING APPLICATION

We are looking for a system accounting application that will operate under IAS version 3.1. This application should generate data reflecting terminal utilization, disk storage utilization, user connect time, number of log-ons and log-offs and other pertinent information.

Edmond Luster, Naval Air Rework Facility, Naval Air Station, Jacksonville, Florida 32212. (904) 772-2161/2163.

Tektronix IEEE-488 Device Driver

I am looking for a RSX-11M device driver for a Tektronix IEEE-488 (GPIB) controller. Tektronix calls this piece of hardware a "CP1100/IEEE 488, INTERFACE 021-0230-00". It is a DMA device and equivalent cards are offered for both the Q-Bus and Unibus. I would appreciate hearing from anyone who knows where I can beg, borrow, or buy such a driver. Tektronix offers one for RT-11, but seems uninterested in supplying one for RSX-11M.

Dr. M.G. Liverman, Max-Planck-Institut fuer Quantenoptik, Forschungsgelaende, D-8046 Garching bie Muenchen, West Germany. Phone (089) 3299-736/756.

HINTS AND THINGS

"Hints and Things" is a monthly potpouri of helpful tidbits and rumors. Readers are encouraged to submit items to this column. Any input about any way to make life easier on RSX/IAS is needed. Please beware that items in this column have not been checked for accuracy.

SRD COMMAND FILE PROBLEM

The following article is from Bob Turkelson, Goddard Space Flight Center, Greenbelt, Maryland 20771.

There is a problem with the command file [373,4]SRD.CMD on the Spring 1981 Miami RSX SIG Tape, used to build SRD Version 6. Typing an <ESCAPE> to get help while in the section asking for the default switches desired may result in a wrong initial switch setting. (This happens if the response to the previous question was Yes.) My suggestion is to answer N to the question "Do you want to continue?" if you needed to get help for any switch setting question, and then

start the command file again. An alternative is to print the command file first in order to read the help text.

This program was submitted to the SIG tape by Phil Stephensen-Payne, who combined the features of separate versions of SRD, adding many nice ones of his own. I found this SRD straightforward to build for our RSX-11M system, and it is working well.

TU10 ERROR HANDLING

The following article is from Dr. M.G. Liverman, Max-Plank-Institut fuer Quantenoptik, Forschungsgelaende, D-8046 Garching bie Muenchen.

The following is an account of how to fix the TU10 magtape driver (MTDRV) to retry a read when a bad block on the tape is encountered. I was getting a number of errors when I attempted to read DOS tapes with FLX or DSC tapes with DSC. No errors were being reported for writes. FLX reported a bad block error (I/O error code -56.). A look in the error log file indicated that the tape hardware was reporting a bad tape error (BTE) and that this error was not recovered after zero retries. The remedy for this problem was to manually attempt to read the tape again. Usually, about 95% of the time, this retry succeeded on the first attempt and it never took more than two retries. I then got a little ticked off at the driver for giving up without retrying the operation. A quick look in the driver source ([11,10]MTDRV.MAC on the DRVSRC disk) showed that the driver would only retry CRC errors and not bad tape errors. It was very little work to change one branch statement to get the driver to branch to the retry code on BTE instead of returning the error code. After that the driver very nicely retried the operation after a BTE error and FLX and DSC no longer get error messages and aborted operations. Best of all, I don't have to retry the thing myself! The error logger shows that the driver requires no more than 3 retries to accomplish a read from a so-called bad block and it usually does it one. The patch to MTDRV is given below:

1. Locate the following code in MTDRV.MAC

```
RDBLK:  MOV     #IE.BBE&377,R0
        BIT     #DS.BTE,R1
        BNE     490$
```

2. Change the code to read as follows:

```
RDBLK:  MOV     #IE.BBE&377,R0
        BIT     #DS.BTE,R1
        BNE     420$            ;<- Change!
```

3. Rebuild the driver, unloaded the old driver and load the new one.

I am not really sure that this is an error in the driver. We have a TU10 that might be one of the first off the Digital assembly lines as the documentation contains many handwritten figures and is a photocopy of a poorly typed manual. It is possible that the hardware is reporting bad tape error when it should be reporting a CRC error. With this patch, I don't really care.

SOFTWARE PERFORMANCE REPORTS

This section contains SPR's submitted to the Multi-Tasker by users. SPR's should always be sent to DIGITAL. However, if you feel that a report should be published in the Multi-Tasker, you may send a duplicate copy to the editor at the addresses listed on the cover. Publication of an SPR in the Multi-Tasker does not imply endorsement by the SIG. Implementation of suggested fixes must be at the reader's own risk. The SPR's published in this column may be abstracts of the original submission and have not been checked for accuracy.

The following SPR on RSX-11M V3.2, FORTRAN IV V2.5 was submitted by C.J. de Groot, (Computing Centre, Agricultural University, Hollandseweg 1, 6706 KN Wageningen, The Netherlands). Mr. de Groot also submitted the answer he recieved from Digital. The response stated "It is not our intention to publish this SPR." Therefore, the Multi-Tasker will.

If a command line or FORTRAN reads as follows:

```
FOR NL:TEST,SY:TEST=TEST
```

the message "OPEN FAILURE ON INPUT FILE" is returned.

Digital Response: We thank you for bringing this problem to our attention. This problem affects the file storage region (FSR) of the compiler, which does not have enough space to allocate the buffer for the input file. The compiler task build file FOR11M.CMD should be modified to include the following line as an additional task builder option:

```
EXTSCT=$$FSR1:2200
```

The compiler should be rebuilt according to the FORTRAN IV INSTALLATION GUIDE. Please note this option will increase the compiler task size by 96 words.

PDP-11 TO INTELLEC LINK

Schumann Rafizadeh
Micro-Base Associates
Columbus, Ohio

Farzin Firoozmand
Toledo Scale
Westerville, Ohio

Multitude of cross assemblers, better text editors, linkers, librarian and multiprogramming are some of the features which makes a PDP11 a better microprogram development system than the smaller systems such as Intellec. However; for testing the hardware and real time emulation one still needs the development systems. These and many other reasons have brought about the need for interconnection (networking) of the development systems (Intellec) and the host machine (PDP11). The standard solution for this networking can be solved thru optional RJE support for PDP (RSTS only) and IBM Bisynch optional support for Intellec. This solution is too expensive, limited (1 link only), and an overkill. The most common current technique is that of transferring files via punched paper tape from PDP11 to MDS, which is too time consuming and unreliable.

This paper discusses a much simpler, versatile and flexible solution for the above problem called TRANS. TRANS will need no additional hardware and the control software may be developed or obtained from MBA. No Modem support is required for local links.

NOTE

FROM THE EDITOR Further information on the programs discussed in this article can be obtained from Mr. Rafizadeh by writing him at Micro-Based Associates, 3477 East Livingston, Columbus, Ohio. 43227. The programs may be submitted to the SIG tapes or the DECUS library.

1.0 SYSTEM DESCRIPTION AND CABABILITIES

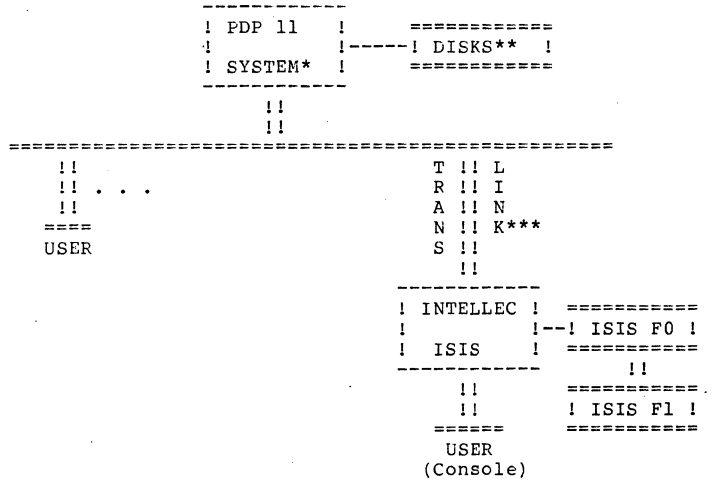
TRANS consists of a serial interface (20MA and/or RS232) between PDP11 and INTELLEC MDS and a set of software utilities on both ends to facilitate the communication and file conversion and transfer capabilities.

User may link as many INTELLECs to the PDP11 as there are serial lines on his PDP11 (DH11, DZ11 or DL11). From the INTELLEC side, the user will be able to log in upline and transfer the required file(s) and log out of the PDP11.

Using the 20MA rather than RS232, user will be able to connect the two systems over a distance of more than a mile. Using either mode with modem support, user can dial up the PDP-11 for remote link up.

The software utilities on the PDP will convert the PDP object and task file to the ISIS Hexadecimal format. Other standard PDP utilities are used such as PIP, SET (TTYSET) and LOGIN to perform other vital functions.

The TRANS utility on the ISIS performs user prompting and all other necessary steps for transfering the file to ISIS and storing it on disk.



OVERALL PDP11-INTELLEC INTERCONNECT

* RSTS/E, RSX11/M OR RT11
** ONLINE DISK SYSTEM
*** DH11, DZ11, DL11, DLV11

2.0 HARDWARE CONFIGURATIONS

2.1 Equipment Used

TRANS is designed to perform the file transfer at speeds from 110 to 9600 baud, using the standard DEC XON-XOFF protocal over an asynchronous line (each link). Notice that the lines used on PDP11 should have special characteristics SET to ensure proper communication between the systems (see later sections).

The Modem support is not required, since it is not provided on standard PDP11 communication options.

This set up is very easy to test and verify and does not require significant experty to install, maintain, or support.

2.2 System Configurations

The INTELLEC's to be tied to PDP must have at least one floppy drive and ISIS operating system. The serial line (CHAN 0) will be used in 20MA Current Loop or EIA (RS232) form to link MDS to PDP11.

*** IMPORTANT NOTES ***

1. If connecting the 20MA PDP11 serial line (DL11-WA, DZ11-C or D and DH11-AA or AC) to INTELLEC channel 0 20MA port, an Opto-Isolator circuit must be inserted into the link, since both systems are ACTIVE and conversion to PASSIVE is required.

2. If connecting an EIA (RS232) on one side to a 20MA Current Loop on the other side a conversion circuitry must be inserted to provide proper link.

3.0 SYSTEM DESIGN DEVELOPMENT CONSIDERATION

3.1 Overview

TRANS may be LOADed as a utility or run thru SUBMIT. Using SUBMIT the command file will use the parameters for filename and extension of the file to be downline loaded.

TRANS allows LOGIN to a user account and LOGOUT upon completion of the session. Then it will inquire user for input file and device specification and output file and device specification before directing the transfer of data from source file to the destination (output) file.

TRANS should check the destination for existing files to prevent destruction of existing files and optionally allow deletion (overwrite) and append to existing

files and/or skip the command. TRANS can also optionally delete the source file copy.

3.2 PDP11 Files

PDP11 files format depend on the operating system under which they are generated. RSX11 uses the FILES11 structure and RSTS uses RSTS/FIP on disk structure. RT11 file structure is a simple single directory .structure, while RSTS and RSX file structures are based on disk directory (MFD, FILES11) and user account directories (UFD, UIC) multi-level structures.

Any file may be transfered from PDP11 to the ISIS system such as source programs, documents and ISIS Hexadecimal, since the communication is using 8-bit characters.

3.3 ISIS Files

ISIS files have different formats than their corresponding counterparts on PDP systems as they have different formats even under different OS's on the PDP's.

For all practical purposes all the conversions from PDP formats to ISIS formats are done on the PDP prior to transmmission of the files. For this purpose there are two utilities available on the PDP for converting PDP11 objects and tasks to ISIS object format and PDP11 task formats to ISIS binary formats (these are explained in more detail later on). No conversion is required for document and source program files.

Notice that once an ISIS Hexadecimal file has been downline loaded; user will have to run HEXOBJ (like any normal .HEX file) to convert it to ISIS Hexadecimal format. HEXOBJ will cause a second checking on the data integrity of the transmitted file by its checksum and end-of-file tests.

3.4 TRANS Algorithm

Following is the algorithm used for TRANS utility program to run on ISIS. This algorithm outlines the process of user communication for file creation (or append) on the ISIS as well as creation of the command to be sent upline to PDP11.


```
MAIN:
    INITIALIZE CONSTANTS AND SPECIAL CHARACTERS,
    SETUP DEVICE STATUS AND DATA REGISTER ADDRESSES,
    INITIALLIZE THE 8251 TRANSMITTER AND RECEIVER CONTROL BYTES,

        SET UP THE SIO PORT (CHANNEL 0) FOR 10 BIT,
        NOPARITY, BAUD CLOCK AND SPEED,

        LOGIN ON PDP11;
        INPUT FILENAME FROM USER TERMINAL,
        INPUT UNIT NUMBER FOR ISIS OUTPUT DEVICE,
        DISPLAY MESSAGE RECEIVING FILE FROM PDP,

        CHECK THE FILENAME ON ISIS; IF IT EXISTS;
        ASK USER TO APPEND, DELETE OR EXIT,

APPEND: OPEN FILE IN APPEND MODE;
EXIT:   EXIT BACK TO ISIS;
DELETE: DELETE EXISTING FILE ON ISIS;

        OPEN THE NEW FILE ON ISIS,
                MAKE THE PDP COMMAND,
                SEND THE COMMAND UPLINE,
                PREPARE FOR RECEIVING ON SIO PORT,

                DO;
                        GET A BYTE FROM LINK,
                        CHECK IT FOR TRANSFER TERMINATION;
                                IF SO CALL SAVDSK;
                                ELSE SAVE THE BYTE IN THE BUFFER;
                                        IF BUFFER FULL CALL SAVDSK;
                                TAKE CARE OF BUFFER POINTER,
                                TAKE CARE OF BYTE COUNT,

                DOEND;
                (OPTIONALLY DELETE THE FILE ON PDP11),

DONE:
        LOGOUT OF THE PDP11;

SAVDSK: OUTPUT THE BUFFER INTO THE DISK FILE ON SPECIFIED UNIT,
                RETURN;

    SET UP THE CONSTANT MESSAGE STRINGS AND I/O CONTROL BLOCKS
    FOR ISIS,

    SET UP BUFFER SPACE FOR DATA,

END MAIN:
```

3.5 PDP11 Characteristic Set Up

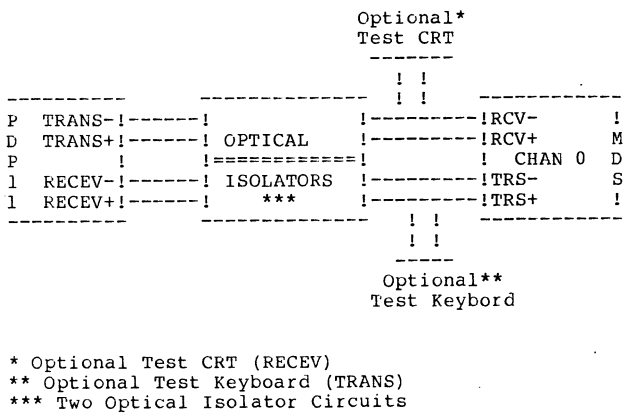
The PDP11 line connected to the INTELLEC must have particular transmission characteristics SET to provide the proper link and data transfer formats.

Since binary data would be sent on the line, the characteristics of the line should be set in such a way that the PDP11 I/O handler does not modify the data sent out on the line. This means that data should be sent as eight bit code with no parity, no echo, no control characters manipulation, no form control conversions and no lower case to upper case translation; all of which are normally done by the keyboard handler when communicating with an asynchronous ASCII terminal.

3.6 Physical Link

The physical connection between the PDP11 and each INTELLEC may be thru 20MA current loop or EIA RS232 type connection. This would mainly depend on the type of communication interface available on the PDP11.

If the PDP11 lines are 20MA then user may use a 20MA to RS232 converter (or directly tie the lines to the 20MA port (CHAN 0)) on the Intellec MDS. IF a 20MA link is desired, then user should also use an optical isolator to convert the active circuits to passive on both transmit and receive loops. Following diagram illustrates a 20MA link.



* Optional Test CRT (RECEV)
** Optional Test Keyboard (TRANS)
*** Two Optical Isolator Circuits

In the above diagram, the optional items depict the lines to be broken up in order to insert a test terminal for software testing.

Notice that optical isolators may be obtained as off-the-shelf or built for a

few dollars.

3.7 PDP11 Utilities

PDP files need to be converted to ISIS file formats prior to transfer to INTELLEC. (This conversion can also take place after transfer. However, programming these file conversions are much less complicated using the high level language of your choice.)

The most important file conversions necessary are PDP objects to Intel .HEX and PDP task files to Intel .HEX files.

OBJHEX is a utility that converts the object file formats to ISIS HEX file format. Notice that the ISIS standards has to be followed or the transferred file can not be used on Intellec.

TSKHEX is a utility that converts PDP Task files to ISIS HEX formatted files. Again it is important to follow the ISIS format for HEX files or the transferred files can not be used on ISIS.

The HEX files after transfer to ISIS should be converted using the HEXOBJ utility of ISIS. This not only generates a runable code for ISIS but also checks the validity of the transmmission recalculating the checksums and testing the record formats, as well as premature EOF (incomplete transmmission).

4.0 CONCLUSION

Using this technique it is possible to interconnect PDP11's to Intel Micro Development Systems very efficiently and economically. This is a very practical link which can significantly reduce development time and improve your productivity and micro-program development process. This solution does not require complex hardware or software and as a result does not require any maintenance.

FALL 1981 DECUS SYMPOSIUM

Ralph W. Stamerjohn
Multi-Tasker Editor

Now is the time to start planning to attend the Fall 1981 DECUS Symposium in Los Angeles. For the first time, the symposium will run for five days, from Monday, December 7 to Friday, December 11. The RSX/IAS Special Interest Group will take full advantage of the additional day. Todate, 54 sessions spanning over 60 hours have been scheduled by the SIG. And remember, our sessions are just one

set of the 15 parallel sessions going on at any one point in time.

This will be an important symposium. Digital will be annoucing RSX-11M V4.0, RSX-11M-PLUS V2.0, and FORTRAN-77. Sessions are planned to cover functional and internal details of these products. There will also be field test reports on all three.

The SIG is also expanding the sessions given by users. In the past, the SIG typcially offered three hour tutorials on subjects such as ACP's, Files-11, or FCS. The only problem with such sessions was the wide range of material prevented matching the session to the skill level of the attendee. Also, finding someone with enough time to prepare a three hour session is no small trick. At this symposium, an assortment of 30 minute tutorials on very specific topics is being offered instead. As you can see below, this allows us to offer a very wide range of topics.

The following is a synposis of the currently planned sessions. For additional information see the preliminary program which should be available by the time you see the newsletter.

- o RSX/IAS BUSINESS SESSIONS

  * RSX-11/IAS SIG ROADMAP SESSION

    The Roadmap session decsribes the week's activities and provides tips on how to survive the week. Sessions sponsored by the SIG will be highlighted, as well as other sessions that may be of interest to members. The session will be oriented for first time attendees, however, it is a good idea for all members to attend, since we will point out any last minute changes. (1 hour, Orientation: General)

  * RSX-11/IAS SIG OPENING SESSION

    This session will introduce the SIG to new members and summarize various SIG activities over the last six months. Agenda items include: introduction of the new SIG Steering Committee, introduction of the Digital representatives, reports on current SIG activities, and a policy question and answer session. (1 hour, Orientation: General)

  * RSX-11/IAS SIG CLOSING SESSION

    The purpose of this session will be to report on, discuss, and evaluate the past week's symposium. All SIG members are urged to attend as this is the time to bring up suggestions and comments. Your inputs are inportant as they will be used for both future Symposia and SIG planning. Also, at the end, a final question and answer session will he held with both SIG Steering Committee members and Digital representatives available. (1 hour, Orientation: General)

  * RSX-11/IAS SIG MENU SESSION

    The RSX/IAS SIG conducts a yearly balloting to determine the most

    important issues afftecting its members. The 1980-1981 balloting cycle is complete and the current voting results will be reviewed. (1.5 hours, Orientation: General)

  * RSX-11/IAS SIG WORKING GROUPS SESSION

    This will be an informal session during which all of the existing working groups sponsored by the RSX/IAS SIG will meet in parallel. The meeting will start with brief reports from the working groups. Then each group will move to a part of the room and conduct their own meeting. Anyone is welcome to join a workign group or form a new one. (1 hour, Orientation: General/Technical)

- o QUESTION AND ANSWER SESSIONS

  * RSX-11M AND RSX-11M-PLUS QUESTION AND ANSWER SESSION

    During this session, a panel of Digital developers will attempt to answer all technical questions related to RSX-11M, RSX-11M-PLUS, and layered products. This session complements the Software Clinic, providing a public forum for technical and policy interchange with Digital personnel, as opposed to the private consultation provided in the Clinic. (3+ hours, Orientation: Technical)

  * IAS QUESTION AND ANSWER SESSION

    This session is the high point of the symposium for the serious IAS user. Several IAS experts and a room full of experienced users respond to questions from the floor. Bring your IAS problems, questions, and experiences to this valuable session. (3+ hours, Orientation: Technical)

  * RSX-11M MAGIC

    This session is a free-wheeling discussion on the use of RSX-11M by Wizards and Apprentices alike. The RSX-11M Magic Session brings out the true personality of the RSX user: a person who oftentimes bends the operating system to his or her will, sometimes in a subtle fashion, sometimes using a bludgeon. Many traditions are associated with this session and all will be properly observed. (3+ hours, Orientation: Technical/Intermediate-Advanced)

  * IAS MAGIC

    With the annoucement of IAS system maturity, IAS users may rely on an unchanging base for development and application of their magical ideas. This session is a forum for ALL IAS users to learn of programs, both nwe and old, and to compare experiences and ideas with many people. (3+ hours, Orientation: Technical/Intermediate-Advanced)

* RSX/IAS SIG SOFTWARE CLINIC

  The RSX/IAS SIG SOFTWARE CLINIC is the place for the attendee to bring their specific problems. As you walk in, a triage team will assess your problem and assign you to the doctor best able to answer your question. The clinic's "doctors" are experienced RSX/IAS application programmers, system programmers, and Digital developers. The clinic is open to all users, especially first-time DECUS attendees and novice RSX/IAS users. No problem is considered too small. For specific problems, it is critical that you bring sufficient information (program listings, maps, CDA output, etc.)

  The clinic is an informal, one-on-one session. You may come anytime that the clinic is open (it will be open a total of eight hours). However, please be advised that in the past, the rush has occured when the Software Clinic first opened. The room will be equipped with complete Documentation sets, current Software Dispatches, and RSX-11M and IAS microfiche listings. (8 hours, Orientation: General/Technical)

o DIGITAL SPONSORED SESSIONS

* RSX-11 PRODUCT PANEL

  An overview of the new releases of the RSX-11 family will be presented. This will a relatively non-techical presentation, with more technical details available at other sessions. (1 hour, Orientation: General)

* IAS PRODUCT PANEL

  Digital Product Management will present the current status of IAS. This will be followed by a question and answer session for questions related to policy issues and other areas of general interest. (30 minutes, Orientation: General)

* HOW TO WRITE AN SPR

  Writing an SPR can be difficult. Providing enough information is essential, otherwise, both Digital and the submitter get frustrated. This will be a presentation on how to produce an SPR with the best chance of getting a satisfactory response. (30 minutes, Orientation: General)

* FUNCTIONAL DETAILS OF RSX-11M V4.0

  This session will be a more detailed presentation of the functionality of RSX-11M V4.0 than was presented at the RSX-11 Product Panel. (1 hour, Orientation: Technical)

* FUNCTIONAL DETAILS OF RSX-11M-PLUS V.20

  This session will be a more detailed presentation of the functionality of RSX-11M-PLUS V2.0 than was presented at the RSX-11

  Product Panel. (1 hour, Orientation: Technical)

* INTRODUCING PDP-11 FORTRAN-77

  The latest version of PDP-11 FORTRAN IV-PLUS has a new name to match its new capabilities. Digital software engineers will present PDP-11 FORTRAN-77, an upward compatible version of FORTRAN IV-PLUS. The new FORTRAN contains all the features specified for the subset level FORTRAN as defined in the latest ANSI FORTRAN standard (X3.9-1978). Major new features include the CHARACTER data type, block IF constructs, and substring capabilities. (1 hour, Orientation: Technical)

* PDP-11 FORTRAN-77 INTERNALS

  Members of Digitals Technical Language Development group will discuss the implementation of the latest release of PDP-11 FORTRAN IV-PLUS, now known as FORTRAN-77. In particular, migration of applications to the new version will be addressed. (1 hour, Orientation: Technical)

* INTRODUCTION TO DCL

  This session is a brief description of the DCL command language to be provided with RSX-11M V4.0 and RSX-11M-PLUS V2.0. This language is easy to use and highly compatible with the DCL implementations on other Digital operating systems. (30 minutes, Orientation: General)

* WRITING A DESPOOLER

  This will be a presentation, by a person who has written a couple, on how to write a Despooler to interface with the current Queue Manager (1 hour, Orientation: Technical)

* NEW FEATURES IN THE TASK BUILDER

  This session will describe two new features of the RSX-11 Task Builder. The first is Cluster Libraries, which is useful to both RSX-11M and RSX-11M-PLUS systems. For programs using multiple libraries, this is a way of decreasing the amount of logical address space used by the libraries. The second feature is support for user mode I/D space on RSX-11M-PLUS systems. (30 minutes, Orientation: Technical)

* IAS TERMINAL HANDLER

  This is a technical session of the IAS terminal handler (1.5 hours, Orientation: Technical)

* IAS NODE POOL

  This is a technical session on the use of IAS node pool (1.5 hours, Orientation: Technical)

o FIELD TEST REPORTS

* RSX-11M V4.0 FIELD TEST REPORT

  The RSX-11M V4.0 Field Test sites will discuss their impressions of the new features and functionality of RSX-11M V4.0. Time will be allocated for questions and answers (1 hour, Orientation: General/Technical)

* RSX-11M-PLUS V2.0 FIELD TEST REPORT

  The RSX-11M-PLUS V2.0 Field Test sites will discuss their impressions of the new features and functionality of RSX-11M V2.0. Time will be allocated for questions and answers (1 hour, Orientation: General/Technical)

* PDP-11 FORTRAN-77 FIELD TEST REPORT

  The FORTRAN-77 Field Test sites will discuss their impressions of the new features and functionality of FORTRAN-77. In particular, the panel will cover the differences between FORTRAN-77 and FORTRAN IV-PLUS, differences between FORTRAN-77 and the ANSI-standard definitions, known bugs and discrepancies, and general exeriences. Time will be allocated for questions and answers (1 hour, Orientation: General/Technical)

o PANELS AND WORKSHOPS

* RSX-11M/RSX-11M-PLUS SYSTEM TUNING AND PERFORMANCE WORKSHOP

  Anyone responsible for a RSX-11M system invariably wonders if it is possible to get improved performance out of their existing hardware or wonders what hardware/software is really needed to do the job adequately. Topics to be discussed by the panelist include tuning a RSX-11M V4.0 system, tuning a RSX-11M-PLUS V2.0 system, and disk seek optimization for RSX-11M-PLUS. (2 hours, Orientation: Technical)

* RSX MAGTAPE PANEL

  Basic magtape concepts and procedures under RSX-11M, RSX-11M-PLUS, and IAS will be presented, including ANSI and foreign tape formats, the ANSI magtape ACP, MCR and DCL commands for tape processing, reading and writing tapes from FORTRAN, file processing, and useful Digital and user utilities. Time will be available for questions from the floor. (1.5 hours, Orientation: Technical)

* BEST OF THE SIG TAPES

  Starting with the Fall 1977 DECUS Symposium, the RSX/IAS SIG have collected and distributed a collection of software called the SIG tapes. To date, the collection contains over 250,000 blocks of software. The purpose of this session is for you to call attention to programs on the past tapes that you have found useful. (1.5

hours, Orientation: General)

o USER TUTORIALS AND PAPERS

* FILES-11 LEVEL 1 TUTORIAL

  RSX-11M, RSX-11M-PLUS, and IAS use a common file system called Files-11 Level 1 (On-Disk Structure 1 or ODS1). VAX/VMS uses a file system called ODS2, which is an extension and enhancement of ODS1. This tutorial will go into the details of ODS1 only and how the various components of the I/O mechanism interact with each other. The presentation will cover the static on-disk structure of Files-11, the interaction of F11ACP with this structure when a volume is mounted and a files is created, and proper maintenance of Files-11 volumes. Also, the weak points of ODS1 will be discussed along with techniques to recover from various types of corrupted volumes. (2 hours, Orientation: Technical)

* INDIRECT AS A PROGRAMMING TOOL

  With the release of RSX-11M V3.2, IND (or AT.) became much more usable by providing the following undocumented and unsupported features: parameter passing, .TESTFILE command, reading from text files, error status returns, and .PARSE command. The new commands, together with the documented features, give IND all the functions of a programming language. This sessions will describe techniques for using IND as development tool. (30 minutes, Orientation: Technical)

* USING TRAPS FOR FAST I/O

  The QIO mechanism, while fairly easy to use, has the disadvantage of being relatively slow. This tutorial discusses techniques for using the PDP-11's hardware trap instructions for doing very fast I/O. It will include a short presentation on how trap-driven I/O is used to provide a highly interactive interface to a number of high performance graphics systems. The systems was implemented with IAS, but similar techniques could be used with RSX-11M or RSX-11M-PLUS. (30 minutes, Orientation: Technical)

* WHAT RESIDENT LIBRARIES CAN DO FOR YOU

  After an introduction to the mapping of task virtual memory to physical memory, the general features of resident librraies will be discussed. The space savings ins three areas will be documented: size of task image files on disk, memory occupied by resident task, utilization of checkpoint files. The critical information necessary to generate your own resident library will be presented. (30 minutes, Orientation: Technical)

* BETTER COMPUTING THROUGH FCS RESIDENT LIBRARIES

  This tutorial is concerned with the proper construction and use of FCS resident libraries. It has been stated that "...use of an FCS

resident library is probably the single most important thing you can do to improve the performance of your RSX systems" and an attempt will be made to justify that statement. This session natturally follows the session above. (30 minutes, Orientation: Technical)

* DOING FAST I/O WITH FORTRAN IV-PLUS

This tutorial is for FORTRAN IV-PLUS programmers who are interested in improving their program's I/O throughput without learning assembly languages. A comparision of the usual FORTRAN I/O mechanisms (formatted versus unformatted) will be discussed as well as doing your own QIO's (30 minutes, Orientation: Technical)

* RSX-11M SYSTEM ACCOUNTING TUTORIAL

The RSX-11M System Performance and Accounting Wording Group has available a very versatile system accounting and performance measurement package for RSX-11M. While this package does not attempt to convert RSX-11M into a time-sharing system, it does provide a means for accounting the usage of system resources as well as providing statistics for evaluating system performance. This tutorial will provide an overview of what the package does and how to use it. (30 minutes, Orientation: General/Technical)

* CCL TUTORIAL

CCL for RSX-11M is a user-tailorable Console Command Language. It allows each user to define a set of commands which will be converted by CCL into MCR commands and passed to the operating system. Use of CCL speeds up program development, reduces needless typing, and helps to free up pool by keeping tasks non-installed when not in use. This tutorial will explain how to use and tailor CCL. (30 minutes, Orientation: General/Technical)

* MATCHING THE CARD READER DRIVER TO YOUR KEYPUNCH

The RSX-11M card reader driver contains provisions for translating 026 and 029 keypunch codes into ASCII. This session will provide an inside look at the driver to see how it translates codes and how to add a third translation table for your own keypunch. (30 minutes, Orientation: Technical)

* A HIGH PERFORMANCE, MULTI-KEY ISAM FILE SYSTEM FOR RSX-11

This paper presents the design and implementation of a new indexed file system adapted for RSX-11M. The file system is a dynamic B-tree based on multi-key indexed file system. It provides automatic index reorganization and reclamation of deleted data records. Using the Files-11 record locking facility, it provides fill multiple write access capabilities. (30 minutes, Orientation: Technical)

* WHAT IS AN ACP?

Legends of black magic often accompany discussions of Ancillary Control Processors for RSX-11M. It is time to dispel these myths. The session will discuss the reasons for using an ACP, where to find documentation, and what, if any executive modifications are needed. (30 minutes, Orientation: Technical)

* REAL TIME INTERRUPT HANDLING USING FORTRAN IV-PLUS UNDER RSX-11M

The Los Alamos Meson Physics Facility is a linear accelerator with a pulse every 8.33 millseconds. A program was written to get data from the accelerator during the pulses. FORTRAN IV-PLUS and RSX-11M were chosen and tecnhniques developed to process the data with the required low overhead and fast response. (30 minutes, Orientation: Technical)

* USING IAS WITH A DIGITAL WS200 WORD PROCESSING SYSTEM AT NADC

The Naval Air Development Center (NADC) us using a Digital WS200 word processor which is linked to a IAS system using the DX/IAS software package. This paper will discuss the techniques used by the system for document control and retrieval as well as the use of an OCR unit for bulk entry. (30 minutes, Orientation: Technical)

* ACCOUNTING ENHANCEMENTS TO IAS/PDS

The existing IAS system has two weaknesses that make implemenation of an in-house timesharing service difficult: the fact that IAS ties security and accounting tightly together and the inadequate amount of resource utilization statistics that are captured. This paper describes enhancements for the IAS accounting that allow accounting on a project basis and collect enough additional information for adequeate accounting. (30 minutes, Orientation: Technical)

* A WALK THROUGH RSX-11M

The RSX-11M executive makes fascinating reading. A knowledge of what is located where in the executive will help you solve problems faster and design your applications better. This session will present a reader's guide to the executive listings. The contents of each module will be briefly covered and some must read sections mentioned. (30 minutes, Orientation: Technical)

* WHAT IS A VIRTUAL DISK?

A virtual disk is a file which RSX-11M treats as a disk. Since the original submission on the Spring 1978 SIG tape, many other sites have used the package for a wide variety of reasons. This session will cover the basic concept or a virtual disk, how sites use them, and extensions that others have implemented. (30 minutes, Orientation: General/Technical)

* MULTIPLE WRITERS TO A FCS FILE

In the RSX-11M system generation, a question is asked concerning support for RMS-11 record locking. If this feature is selected, RMS will support multiple writers to a file. An undocumented feature of FCS is that the same support can be used for FCS files. This session will cover how to open and manipulate a FCS file to allow multiple writers and how blocks can be locked for read-update access. (30 minutes, Orientation: Technical)

* USING XDT AND OPE

Everybody knows how to use ODT for debugging, but what do you do when your want to debug a device driver, you want to debug a task too large for ODT, or your system goes haywrire. This session will cover some tricks that can be done using the OPE commands and XDT to solve many of the problems that occur on RSX-11M. (30 minutes, Orientation: Technical)

* THEORY OF DEBUGGERS ON PDP-11'S

This presentation will be geared to the intermediate-to-advanced programmers and will discuss internals of debug aids on PDP-11's. Topics will include breakpoint handling, single stepping, memory modifications, and scenarios for system-wide (multi-task) debuggers. Various strategies for preserving or generating source language constructs at run-time will be surveyed, and techniques for splitting debug aids from their target contexted will be discussed. (30 minutes, Orientation: Technical)

* INTRODUCTION TO DDT

DDT is a symbolic debug package for PDP-11's which runs on most Digital operating systems. It is used similarly to ODT, but its command syntax is different from ODT and must be explained for effective use by programmers. This session is aimed at the beginner and will give an introduction to a subset of DDT commands. (30 minutes, Orientation: Technical)

* MANAGEMENT OF SHARED DATA BASES WITH DEADLOCK AVOIDANCE

Many applications require data base management without the need for an entire data base management system. Also, most simple locking mechanisms are not adequate for real time data acquisition and control applications. This paper presents a basic resource management mechanism which acts as a "traffic cop" to control access to shared data bases. This mechanism makes use of a deadlock avoidance algorithm to resolve allocation conflicts. (30 minutes, Orientation: Technical)

* RECOVERING FROM DISK DISASTERS

In this talk, various problems that can happen with a Files-11 disk volume with be discussed and some programs available to help you recover from such problems described. (30 minutes, Orientation:

Technical)

* INTEGRATION OF AN APPLICATION COMMAND LANGUAGE INTO RSX-11M

This paper details how a application command language (STOL) was integrated into RSX-11M to provide users one of two choices for a command processor (MCR or STOL). (30 minutes, Orientation: Technical)

* REDUCING THE SIZE OF A FORTRAN PROGRAM

This presentation will cover various techniques for reducing the size of a FORTRAN program to gain additional addressing space and reduce the amount of system resources used. (30 minutes, Orientation: Technical)

* RSX-11M DEVICE COMMON

This tutorial dicussess the use of device commons in RSX-11M and the procedure to follow to build a device common and link a program to it. (30 minutes, Orientation: Technical)

- o VMAG (V3MAG, VMAGD, V3MAGD) gets the magnitude of a vector.
- o VMOV (V3MOV, VMOVD, V3MOVD) moves one vector to another.
- o VSCL (V3SCL, VSCLD, V3SCLD) multiplies a vector times a scalar.
- o VSUB (V3SUB, VSUBD, V3SUBD) subtracts one vector from another.

1979 - Fall - San Diego

[301,030] XMITR

XMITR is a task to allow your computer to emultate a terminal on some remote computer system. It also allows file transfers to and from the remote computer to your system.

1979 - Fall - San Diego

[301,031] POOLFL

POOFL is a RSX-11M system program to take a snapshot of pool and output a visual map of the data structures.

1979 - Fall - San Diego
1980 - Spring - Chicago
1980 - Fall - San Diego

[301,032] TSPAWN

TSPAWN is a Fortran callable routine to allow IAS time-sharing tasks to spawn other programs using the timesharing control services (TCS) rather than the real-time directives.

1980 - Spring - Chicago

[301,033] CPA

CPA is a companion to POOFL in [301,21]. It outputs a visual dump of pool taken from a crash system dump.

1980 - Spring - Chicago
1980 - Fall - San Diego

[301,034] DVC

DVC is a RSX-11M system task to display device driver data base addresses and contents.

1980 - Fall - San Diego

[301,035] CON

CON is a replacement for SET /UIC=. It allows the use of names in specifing UIC's and matches the name to the UIC's given in a data file.

1980 - Fall - San Diego

[301,036] JPL SUBMISSIONS

This account has descriptions of the submissions from [301,37] to [301,46]. These submissions are from the Jet Propulsion Laboratory in Pasedena, California.

1980 - Fall - San Diego

[301,037] MCR PATCHES

This account has some patches to RSX-11M V3.2 MCR to allow multiple copies of a task to be run from a terminal, one and two character MCR tasks, and a kill-all enhancement to TKTN.

1980 - Fall - San Diego

[301,040] MP
[301,040] TTY
[301,040] "C" RUNTIME SYSTEM

This account has three entries, all related to the JPL submissions. The entries include the following:

- o MP is a macro-preprocessor that is used for assembling some of the other JPL submissions.
- o TTY is a RSX-11M system task that displays the status of a terminal.

- "C" RUNTIME SYSTEM is a set of runtime routines to interface "C" programs to RSX.

1980 - Fall - San Diego

[301,041] LS

LS is a "C" program that combines the older lc (directory lister) and grep (pattern matcher) to allow directories to be performed and various file selection options applied.

1980 - Fall - San Diego

[301,042] GED
[301,042] BED
[301,042] VSED
[301,042] UED

This account has versions of Conroy's "C" editor. The current versions include GED (get-command line version), BED (big file editor), VSED (screen editor for VT100's) and UED (screen editor for Tele-Rays).

1980 - Fall - San Diego

[301,043] KILL

KILL is a program to abort all programs running from a terminal except some special few. It uses the TKTN patch found in [301,37]

1980 - Fall - San Diego

[301,044] SND/REC

This account has a set of programs to transfer files between two RSX-11M systems using the full-duplex terminal driver.

1980 - Fall - San Diego

[301,045] LPK

LPK is a RSX-11M system task that can delete entries from the PRT... send/receive queue.

1980 - Fall - San Diego

[301,046] AVDX

AVDX is a modification to the virtual disk package in [346,100] that allows virtual disks to be created starting at a specific block on the disk. This is useful for optimizing disk I/O or for using large disks not support by Digital. It also allows a read-only virtual disk to be setup for the entire volume.

1980 - Fall - San Diego

[301,047] UTAB

UTAB is a program to remove tabs from a file and replace with spaces.

1980 - Fall - San Diego

[301,050] DUNGEON

DUNGEON is a game that defy's description. This version is patched to allow the data files to be placed in a standard account so each user does not have to have their own copy.

1980 - Fall - San Diego

[301,051] FORTH

FORTH is a popular language. This version allows generation of RSX-11M, IAS, RT-11, and standalone versions.

1980 - Fall - San Diego

[301,052] DOB

DOB is a disassembler for Macro-11 objects or libraries. It includes support for EIS, FIS, and FPP instructions.

1980 - Fall - San Diego

[301,053] HLP

The account has patch files to extract the help feature from RSX-11M

V3.2 HELLO task and turn it into a Fortran callable subroutine.

1981 - Spring - Miami

[301,054] CCLDSP
[301,054] CLEAR
[301,054] FLABEL
[301,054] GETMCL
[301,054] HELPDSP
[301,054] HELP FILES
[301,054] MAG
[301,054] RID
[301,054] SCR
[301,054] SHIPS

This account has a variety of small utility tasks and useful subroutines for RSX-11M V3.2. It also has a rather extensive collection of help files for RSX-11M. Included in the account are the following:

- o CCLDSP is a utility to read CCL command file(s) and print a sorted and formatted listing of available commands.
- o CLEAR is a task to clear the screen of any 24-line CRT.
- o FLABEL is a program to plot 'fancy' character labels on a HP-7221 plotter.
- o GETMCL is a Fortran callable subroutine for command line processing.
- o HELPDSP is a utility to read HELP.HLP for all top level entries and output a sorted and formated listing of available commands.
- o HELP FILES are a wide variety of help files for RSX-11M and its utilities.
- o MAG is a set of Fortran callable magtape subroutines.
- o RID is a utility to convert source programs files, primarily Fortran. It can convert tabs to blanks, blank to tabs, delete trailing spaces, and delete sequence numbers.
- o SCR reads the screen of a Teleray-12 terminal to a file.
- o SHIPS is a video game for Teleray-12 terminals.

1981 - Spring - Miami

[301,055] SUBTASK

SUBTASK is a set of Fortran callable subroutines to interface with the IAS time-sharing control primitives.

1981 - Spring - Miami

[301,056] MP
[301,056] "C" RUNTIME SYSTEM

This account has the latest version of the MP macroprocessor. MP implements a structured 'C'-like macro language and comes with extensive documentation. The account also includes a runtime library which implements the UNIX standard I/O package.

1981 - Spring - Miami

[301,057] JPL

JPL is a front-end processor for command lines. It allows commands to be saved, edited, and invoked using control characters.

1981 - Spring - Miami

[301,060] LIBCPY
[301,060] ROCPY

This account has two programs to aid the creation of RSX-11M V3.2 multiuser programs. The programs help implement the procedure documented in the February 1981 issue of the Multi-Tasker.

1981 - Spring - Miami

[301,061] PS

This account has a help file for the Evans and Sutherland PS2 routines.

1981 - Spring - Miami

[302,001] SEATTLE SUBMISSIONS

This account has general information about the [302,*] accounts.

These accounts are from the Seattle LUG. The account usually has a short description of what is on the tapes.

1978 - Fall - San Francisco
1979 - Spring - New Orleans
1979 - Fall - San Diego

[302,002] FLCVRT
[302,002] PUNCH

This account has two programs related to absolute loader format files. FLCVRT converts TKB task images into absolute loader format. PUNCH emulates a high-speed paper tape punch and outputs absolute loader format files to any terminal-like device.

1978 - Fall - San Francisco

[302,010] CALL
[302,010] MCRTSK

This account has two entries for IAS. CALL is a MCR command to read a file and execute each line as a MCR command. MCRTSK receives a MCR command from a task (using subroutine MCR) and executes it.

1977 - Fall - San Diego

[302,011] SCAN

SCAN is a IAS system task to read the system tables and write a summary of system activity to the terminal or line-printer.

1977 - Fall - San Diego

[302,012] DUMP

DUMP is a IAS system program to dump specified areas of core in octal. If DUMP is requested to display a task, it freezes the task in core while it is dumping it.

1977 - Fall - San Diego

[302,013] FILHDR

FILHDR is a program to delete, unlock, or determine the status of a file. It is driven by the send/receive mechanism from another task.

1977 - Fall - San Diego

[302,014] PATCH

PATCH is a program to reset the EOF of a file locked by an aborted task. It scans the locked file and resets the file attributes based on its best guess.

1977 - Fall - San Diego

[302,015] CPU

This account has three IAS programs to aid in measuring CPU idle time. The tasks CPU and COUNTR work together to measure idle time and record it to either the console lights, a terminal, or a disk file. MONIT only records to a disk file.

1977 - Fall - San Diego

[302,016] CROSS

CROSS is a cross reference program for Fortran IV Plus.

1977 - Fall - San Diego

[302,017] MOVE

MOVE is a MCR task to change the partition of an excuting task. If the task is excuting, MOVE checkpoints it first. Once checkpointed, or if already checkpointed, MOVE changes the MRL the task is on.

1977 - Fall - San Diego

[302,020] MAZE

MAZE is a game which draws a maze on a CRT and accepts inputs to move the cursor up, down, right, or left. The program will not let you cross walls and the object is to reach the exit.

1977 - Fall - San Diego

[302,021] CHASE
[302,021] LEM

This account has two games, LEM and CHASE.

1977 - Fall - San Diego

[302,022] CHESS

CHESS is a chess-playing program written for the HP 3000 Fortran. It must be converted for PDP-11's.

1977 - Fall - San Diego

[302,023] ASG
[302,023] CANALL
[302,023] COR
[302,023] CTLIMP
[302,023] LP
[302,023] NOLOCK
[302,023] XREF

This account has a variety of submissions. Included are the following:

- o ASG is a system task to assign LUN's of non-installed tasks.
- o CANALL is a system task to cancel scheduled request for a task from all terminals.
- o COR is a core dump analysis system.
- o CTLIMP is a Fortran callable subroutine to set a file for implied carriage control.
- o LP is a multiple line printer handler.
- o NOLOCK is a Fortran callable subroutine to set a file for no lock on improper close.
- o XREF is a Fortran cross reference utility.

1977 - Fall - San Diego

[302,024] BOEING SUBROUTINES
[302,024] VOLNAM

This account has several submissions. VOLNAM is a program to change the name of a disk volume. The other entries are various Fortran callable subroutines:

- o MAGTA is a subroutine to perform magtape I/O.
- o DKERR is a routine which defines a common containing disk error codes.
- o DRERR is a routine which defines a common containing directive error codes.
- o IOFUNS is a routine which defines a common containing I/O function codes.
- o MTERR is a routine which defines a common containing magtape error codes.

1977 - Fall - San Diego

[302,025] FRG

FRG is a task that will list the disk fragmentation on a volume. This is a modified version of the FRG found in [300,37]. It supports RSX-11D systems and large disks.

1978 - Spring - Chicago

[302,026] DEMO

This is an enhanced version of the distributed RSX-11D or IAS DEMO program. This version supports display of the IAS swap file and the Beehive 100 terminal.

1978 - Spring - Chicago

[302,027] TSMCR

TSMCR (time-share MCR) is a pseudo IAS CLI that allows up to 5 time-sharing tasks to be run from one terminal. It functions similarly to MCR, but it adheres to the constraints of the IAS time-sharing control primitives.

1978 - Spring - Chicago

[302,030] FLCVRT
[302,030] PUNCH

This account has two programs related to absolute loader format files. FLCVRT converts TKB task images into absolute loader format. PUNCH emulates a high-speed paper tape punch and outputs absolute loader format files to any terminal-like device.

1978 - Spring - Chicago

[302,031] IAS PATCHES

This account has a patch for the IAS V2.0 executive to solve checkpointing problems of real-time tasks. The patch will allow inactive or suspended real-time tasks to be checkpointed.

1978 - Spring - Chicago

[302,100] CALL
[302,100] MCRTSK

This account has two entries for IAS. CALL is a MCR command to read a file and execute each line as a MCR command. MCRTSK receives a MCR command from a task (using subroutine MCR) and executes it.

1978 - Fall - San Fransico

[302,101] DUMP

DUMP is a IAS system program to dump specified areas of core in octal. If DUMP is requested to display a task, it freezes the task in core while it is dumping it.

1978 - Fall - San Fransico

[302,102] FILHDR

FILHDR is a program to delete, unlock, or determine the status of a file. It is driven by the send/receive mechanism from another task.

1978 - Fall - San Fransico

[302,103] PATCH

PATCH is a program to reset the EOF of a file locked by an aborted task. It scans the locked file and resets the file attributes based on its best guess.

1978 - Fall - San Francisco

[302,104] CPU

This account has three programs to aid in measuring CPU idle time. The tasks CPU and COUNTR work together to measure idle time and record it to either the console lights, a terminal, or a disk file. MONIT only records to a disk file.

1978 - Fall - San Francisco

[302,105] MOVE

MOVE is a MCR task to change the partition of an excuting task. If the task is excuting, MOVE checkpoints it first. Once checkpointed, or if already checkpointed, MOVE changes the MRL the task is on.

1978 - Fall - San Francisco

[302,106] CHASE
[302,106] LEM
[302,106] MAZE

This account has three games, MAZE, CHASE and LEM.

1978 - Fall - San Francisco

[302,107] ASG
[302,107] CANALL
[302,107] CTLIMP
[302,107] COR
[302,107] LP
[302,107] NOLOCK
[302,107] XREF

This account has a variety of submissions. Included are the following:

- o ASG is a system task to assign LUN's of non-installed tasks.
- o CANALL is a system task to cancel scheduled request for a task from all terminals.
- o CTLIMP is a Fortran callable subroutine to set a file for implied carriage control.
- o COR is a core dump analysis system.
- o LP is a multiple line printer handler.
- o NOLOCK is a Fortran callable subroutine to set a file for no lock on improper close.
- o XREF is a Fortran cross reference utility.

1978 - Fall - San Fransico

[302,110] FRG

FRG is a task that will list the disk fragmentation on a volume. This is a modified version of the FRG found in [300,37]. It supports RSX-11D systems and large disks.

1978 - Fall - San Francisco

[302,111] MACRO

MACRO has something to do with listing Macro libraries.

1978 - Fall - San Francisco

[302,112] INDEX

INDEX is a program to cross reference Fortran source files.

1978 - Fall - San Francisco

[302,201] DEMO

This is an enhanced version of the distributed RSX-11D or IAS DEMO program. This version supports display of the IAS swap file and the Beehive 100 terminal.

1978 - Fall - San Francisco

[302,202] TSMCR

TSMCR (time-share MCR) is a pseudo IAS CLI that allows up to 5 time-sharing tasks to be run from one terminal. It functions similarly to MCR, but it adheres to the constraints of the IAS time-sharing control primitives.

1978 - Spring - San Francisco

[302,203] SCAN

SCAN is a IAS system task to read the system tables and write a summary of system activity to the terminal or line-printer.

1978 - Spring - San Francisco

[302,204] IAS PATCHES

This account has a patch to the IAS V3.0 executive to allow PLAS remapping with I/O in progress.

1978 - Fall - San Francisco

[302,205] COST
[302,205] CSI
[302,205] GET
[302,205] MAIL

This account has several entries for IAS. Included are the following:

- o COST will read the PDSUPF.DAT file and calculate a usage "cost".
- o CSI is a Fortran callable version of the Digital CSI routines.
- o GET is a MCR task that allows groups to have their own system area. When a 'GET file' is typed, GET looks in [x,x] where "x" is the group number. If 'GET $file' is typed, GET looks in [100,100].
- o MAIL is a mail system for IAS.

1978 - Fall - San Francisco

[302,206] DEMO

DEMO is a system status display program for IAS and RSX-11D. This account includes the source to DEMO.

1979 - Spring - New Orleans

[302,207] QUEUE

QUEUE is a Fortran callable subroutine to make queue entries for IAS systems. It supports disposition, copies, and forms parameters.

1979 - Fall - San Diego

[302,210] HANGUP

HANGUP is a privilege IAS task that runs periodically and hangs up modems for inactive, logged out terminals.

1979 - Fall - San Diego

[302,211] TMON

TMON is a set of IAS system programs to monitor the execution of a selected task and produce a PC histogram.

1981 - Spring - Miami

[302,300] MULTI-TREK

MULTI-TREK is a Star Trek type game for IAS that allows up to eight players to play against themselves instead of imaginary enemies. This is a less sophisticated version for sites without CRT terminals.

1978 - Fall - San Francisco
1979 - Spring - New Orleans

[302,301] MULTI-TREK

MULTI-TREK is a Star Trek type game for IAS that allows up to eight players to play against themselves instead of imaginary enemies. This is a more sophisticated version with CRT support.

1978 - Fall - San Francisco
1979 - Spring - New Orleans

[302,302] GREP

GREP is a program that will search a set of files for a string output the names of files the string is found in and the lines string occurs in.

1979 - Spring - New Orleans
1979 - Fall - San Diego

[302,303] IOEHLP

IOEHLP is a utility program which given a octal or decimal I/O error code will output a description of the error.

1979 - Fall - San Diego

[302,304] INDEX

INDEX is a Fortran cross referencing program with many options including a super-index freature to allow multiple sources to be cross-referenced together. This is one of the Fortran cross referencers that should be considered if you are looking for one.

1981 - Spring - Miami

[303,001] COLOSSAL

This account has documentation on how to build "colossal" programs which are too large for the task builder.

1978 - Fall - San Francisco

[303,040] MB

MB is a RSX-11M or IAS device driver/handler that supports the exchange of large messages between two tasks. The account also has Fortran interface routine and test tasks.

1980 - Spring - Chicago

[303,041] TREK

This account has a version of the Star Trek game.

1980 - Fall - San Diego

[303,111] FPE

FPE is a floating point emulator for RSX-11D (a RSX-11M version is also included but not debugged). It attaches to the illegal instruction trap and processes FPP instructions.

1977 - Fall - San Diego

[304,020] FOMSG
[304,020] RSXERR
[304,020] SW

This account has three entries:

- o FOMSG is a patch to the MO handler to add conversion of unsigned decimal numbers and system time.
- o RSXERR is a subroutine to process I/O and FCS errors using QIOSYM.MSG.
- o SW is a RSX-11D or IAS device handler to handler the DT03 or DT07 UNIBUS switch. A MCR task SW0 is included to switch the UNIBUS.

1980 - Fall - San Diego

[304,100] NAME
[304,100] STB
[304,100] STRUCT

This account has three entries:

- o NAME is a set of programs to setup a global common area to map UIC's to names.
- o STB is a program that will generate a STB file from a task map. This can then be used by DDT to define symbols.
- o STRUCT is a set of macros which implement a structured language approach for Macro-11. The other programs in the account are written using STRUCT.

1977 - Fall - San Diego

[305,001] COPEUS SUBMISSIONS

This account has information about the [305,*] submissions. These are from the Central Oklahoma PDP-11 Users Group (COPEUS).

1979 - Spring - New Orleans

[305,100] RUNOFF

RUNOFF is a text preparation tool that takes fre-formatted text and commands and produces a formatted, paginated, and justified output file. It is useful for generating documentation. The [305,*] accounts probably have the best versions of RUNOFF.

1977 - Fall - San Diego
1978 - Spring - Chicago
1979 - Fall - San Diego
1980 - Spring - Chicago

[305,101] RUNOFF

RUNOFF is a text preparation tool that takes fre-formatted text and commands and produces a formatted, paginated, and justified output file. It is useful for generating documentation. The [305,*] accounts probably have the best versions of RUNOFF.

1978 - Spring - Chicago

[305,102] SUBTAS

This account has a set of Fortran callable routines to interface IAS programs to the time sharing services. This allows subtasking programs to be written for IAS.

1978 - Spring - Chicago

[305,201] SUBTAS

This account has a set of Fortran callable routines to interface IAS programs to the time sharing services. This allows subtasking programs to be written for IAS. This account is updated for IAS V3.0.

1979 - Spring - New Orleans

[305,202] FLECS

FLECS is a popular language that adds structured programming constructs to Fortran. It is implemented as a pre-processor to the Digital compilers.

1979 - Spring - New Orleans

[305,301] RUNOFF

RUNOFF is a text preparation tool that takes fre-formatted text and commands and produces a formatted, paginated, and justified output file. It is useful for generating documentation. The [305,*] accounts probably have the best versions of RUNOFF.

1979 - Spring - New Orleans

[306,100] EDI PATCHES

This account has patches for the RSX-11D V6.2 EDI editor. The patches clean up how EDI handles the temporary file so not so much disk space is used.

1977 - Fall - San Diego

[306,200] INDEX1
[306,200] INDEX2
[306,200] INDEX3

This account has a listing of the RSX-11M V3.0 microfiche. The file is sorted in three different ways. INDEX1.V03 is sorted by fiche number. INDEX2.V03 is sorted by program name. INDEX3.V03 is sorted by module name.

1979 - Spring - New Orleans

[306,202] EDI PATCHES

This account has patches for the IAS V3.0 editor. The patches clean up how EDI handles temporary files so not so much disk space is used. See also [306,100].

1980 - Spring - Chicago

[306,203] FOF

FOF is a modified Digital LBR that allows any files to be stored in a library type "File of Files"

1980 - Spring - Chicago

[307,001] BAYLUG SUBMISSIONS
[307,001] FLECS

This account has general information about the [307,*] accounts. These accounts are from the BAYLUG (San Francisco area). Also, the Spring 1978 tape has a version of FLECS in this account.

1978 - Spring - Chicago
1979 - Spring - New Orleans
1979 - Fall - San Diego

[307,002] LOG

LOG is an alternate form of the SET /UIC and ASN command. It allows both the account and SY: assignment to be changed with a single command.

1978 - Spring - Chicago
1979 - Spring - New Orleans
1979 - Fall - San Diego

[307,003] DDT

DDT is a symbolic debugger similar to ODT but with many extensions. It knows how to output PDP-11 instructions and supports the use of STB files for global symbols definitions.

1978 - Fall - San Francisco
1979 - Spring - New Orleans

[307,004] ATT
[307,004] FRG
[307,004] IND PATCHES
[307,004] MAIL
[307,004] MC2
[307,004] MCR PATCHES
[307,004] PSDRV
[307,004] RSX-11M PATCHES

[307,004] RTDRV
[307,004] TTDRV PATCHES
[307,004] WHO

This account has many different items for RSX-11M V3.1. Included in the account are the following:

- o ATT is a file utility to change file attributes.
- o FRG is a disk utility to list the free space on a disk.
- o INDIRECT MCR PATCHES are patches to RSX-11M V3.1 IND for:
  - * Parameter passing on the command line.
  - * A .ENABLE/.DISABLE SILENT command is added to control the display of MCR commands.
- o MAIL is a RSX-11M mail system.
- o MC2 is a MCR catch-all task.
- o MCR PATCHES are various enhancements to MCR:
  - * BRO is modified so ALL: and LOG: and non-privileged
  - * CLQ is modified to be non-privileged.
  - * The slash is optionaly for SET commands.
  - * New SET commands (LOGGED-OUT, OFFLINE, ABSCAN, DISABLED, and CARRIER-WAIT) are added for dial-in line support (see TTDRV patches).
  - * LOG is now legal for HELLO.
  - * The restriction of only one activation of a task per terminal is removed.
  - * Support is added for MC2.
- o PSDRV is a Evans and Sutherland picture system device driver.
- o RSX-11M PATCHES are various enhancements to RSX-11M.
  - * REQSB is modified so a higher priority task which will not fit into memory will not block lower priority tasks.
  - * LPDRV is modified to ignore form feeds if it knows it already paged the printer.
- o RTDRV is a DECNET based virtual terminal driver and associated tasks.
- o TTDRV patches are patches the the RSX-11M V3.1 terminal driver for a variety of functions:
  - * Autobaud support for DH11's is implemented (300, 1200, or 2400 baud).

  - * Control-O will break a Control-S.
  - * Dial-up handling is improved for the DH11.
  - * DL11 interrupt enable is reset on all transmits and receives.
  - * The lower case and buffer size are not reset when a remote line hangs-up.
  - * A Control-Y will abort the task with I/O currently outstanding to the terminal
- o WHO is a RSX-11M system task to display terminal users and their current task status.

1979 - Spring - New Orleans

[307,005] CETUS SUBROUTINES

This account has the CETUS subroutine library. This is a huge library of Fortran callable routines. It includes routines for arithmetic expression parsing, bio-data base manipulation, file manipulation, sequence parsing, sorting, string handling, and terminal I/O. Included in the library are the following modules.

- o ARITHMETIC EXPRESSION EVALUATION
  - * ARTDEF - Used in overlaying the arithmetic routines
  - * EVALAE - Evaluates expressions parsed by PARSAE
  - * GETVAL - Looks up variables in symbol table
  - * MATHER - Common containing error counters and flags
  - * PARSAE - Parses arithmetic expressions at run time
  - * SETVAL - Adds or changes values in the symbol table
- o BIO-DATA BASE SUBROUTINES
  - * BACKUP - Backs up to the previous level of the tree.
  - * BLDHDR - Initializes the root block for a new file.
  - * CLOSBF - Syncs and closes the database file.
  - * DELKEY - Deletes current key and all its offspring.
  - * FILEID - Inverse of BLDHDR, returns info from root block.
  - * FNDKEY - Finds the next key that matches your pattern.
  - * GETKEY - Returns the currently active key.
  - * KEYAGE - Returns age of currently active key.
  - * LEVELD - Returns info about current level.
  - * MATCHK - Finds the next key that matches your pattern.
  - * MODKEY - Modifies a database key.
  - * OPENBF - Opens a data base file.
  - * PUSHLV - Pushes down to next level of tree.
  - * RESETB - Resets search to first sibling.
  - * SYNCBF - Forces the disk file to match the core image.
  - * WRTELE - Writes an element (no check for duplicates.)

* WRTKEY - Writes a unique key.

o FILE MANIPULATION

* ATTACH - Attaches a device to a lun
* BATDEF - Block data for standard BATCH LUN's
* DELETE - Delete a file, given it's open LUN
* DETACH - Detach an attached LUN
* GETNAM - Returns file name string given LUN
* GETVER - Finds the version number of a file
* GETYPE - Returns the file type of a file
* IMOPEN - Indicates if a LUN has an open file
* NOTFTN - Turns off fortran carriage control bit
* READR - Reads parts of directories
* RENAME - Renames and closes files
* RULES - Copies text files to terminal

o SEQUENCE PARSING ROUTINES

* EXTKEY - Allows extension of key buffer area
* NXTKEY - Returns next key in a combined key sequence
* NXTSEQ - Returns next token in a sequence
* SETDEF - Changes default key sequences
* SETKEY - Initiates a combined key sequence
* SETSEQ - Initiates a single sequence to be parsed

o SORT ROUTINES

* DSKSRT - Forces sort buffer into disk merge file
* GETSRT - Gets next sorted record from sort package
* KSORT - Quick sorts in memory only
* PUTSRT - Puts records to be sorted into package
* SETSRT - Initializes sort package for processing
* SMERGE - Sorts in core and merges with disk file

o STRING FUNCTIONS

* CHANGE - String find & change routine
* CMPS - Compares two strings
* COMMA - Encodes floating numbers with commas
* CONCAT - Concatenates two strings
* CONV - Encodes integer numbers into strings
* FINP - Decodes strings into floating numbers
* FULDAT - Returns current day and date
* INPH - Decodes strings as hexadecimal numbers
* INPI - Decodes strings as integer numbers
* INPL - Parses, space fills, and left justifies
* INPO - Decodes strings as octal numbers
* LEN - Returns the length of a string

* MATCH - Does string pattern matching
* POS - Finds position of a substring
* PRED - "Decrements" a string to get it's predisessor
* RTJUST - Right justifies a string
* SETMAX - Sets the default string maximum length
* SMATCH - MACRO callable MATCH routine
* SUCC - "Increments" a string to get it's successor
* SWAPB - Swaps the two bytes in a word
* UNDER - Underlines text for the Printronix printer
* UPCASE - Converts lower case strings to upper
* XFRC - Transfers bytes from string to string

o TERMINAL I/O ROUTINES

* ASTKEY - Unsolicited character ast routine
* CURSE - Cursor addressing routine
* GETCHR - Get single character from keyboard
* UPRINT - Prints single line on terminal
* WAL - Writes all bits to terminal

1979 - Spring - New Orleans
1980 - Fall - San Diego

[307,006] STARTREK

This account has a version of Star Trek.

1979 - Spring - New Orleans

[307,007] ADVENTURE

This account has a version of the ADVENTURE game.

1979 - Spring - New Orleans

[307,010] HOLES

HOLES is a program that will examine the bitmap of a disk and output the location and size of unused sections. A switch allows holes below a specified size to be ignored.

1979 - Spring - New Orleans

[307,011] BLA
[307,011] TEK
[307,011] V
[307,011] WORM

This account has four games. In the account are the following:

- o BLA is a Taho rules blackjack program for video terminals.
- o TEK is a buzz-word report writer.
- o V is a video ping-pong game.
- o WORM is a video terminal "worm" program.

1979 - Spring - New Orleans

[307,012] RECOVER

RECOVER is a program to "fix up" a file improperly closed. It will unlock the file and reset the EOF to the last valid record.

1979 - Spring - New Orleans

[307,013] DRDRV

DRDRV is a RSX-11M DR11-K device driver. It supports the use of a ring-buffer to handle high-speed interrupts so no information is lost.

1979 - Spring - New Orleans

[307,014] RUNOFF PATCHES

This account has all of the RUNOFF patches published in the RUNAROUND newletter.

1979 - Spring - New Orleans

[307,015] DUNGEON

This account has a version of the game DUNGEON.

1979 - Spring - New Orleans

[307,016] ALARM

ALARM is a program to allow programs that do not require user or operator interaction to be run during off hours. ALARM will accept up to 32 MCR commands that will be issued at a later time.

1979 - Spring - New Orleans

[307,020] CRASH
[307,020] CWD/PWD
[307,020] DAMMIT
[307,020] IDX
[307,020] PRINT
[307,020] RMDEMO PATCHES
[307,020] SNAP
[307,020] SQUISH
[307,020] TIMER
[307,020] TTDRV PATCHES
[307,020] UFD PATCHES
[307,020] UNDELETE
[307,020] USERMAC
[307,020] USGS SUBROUTINES
[307,020] WHO

This account has a large collection of programs from the U.S. Geological Survey. Included in the account are the following programs and routines:

- o CRASH is a MCR task which crashes the system.
- o CWD/PWD are MCR tasks to "change" and "display" the working directory. They combine the SET /UIC and ASN commands with lots of extras.
- o DAMMIT is a routine to output a cute message for when you are frustrated.
- o IDX is a Fortran cross reference program.
- o PRINT is a RSX-11M Plus style print command task for use with the old print task.
- o RMDEMO PATCHES are a set of patches that correct the display of IN: and OUT: tasks and display the system up time.
- o SNAP is a program to force a PMD dump on a running program. It fakes PMD... into thinking the dumped task requested a snapshot.
- o SQUISH is a program to compress text files by removing text beyond a specified column and trimming trailing blanks and tabs.

- TIMER is a set of subroutines to profile Fortran execution.

- TTDRV PATCHES is a set of patches to the RSX-11M V3.2 terminal driver for a variety of features. It includes auto-baud for the DH11 and DZ11, 19.2 KB support for the DZ11, control-Y as a abort task command, and some dial-up patches.

- UFD PATCHES is a patch to UFD to allow non-privilege users to create UFD's in the same group.

- UNDELETE is a system task to recover files that have been deleted.

- USERMAC is a set of Macro-11 macros used for the programs in this package. It has some macros of general usage, for example, simple terminal I/O macros.

- USGS SUBROUTINES are a collection of routines for various purposes. Included are the following:

  * GETCMD is a routine to interface to the GMCL$ package.

  * CSI, CSISV, and CSISW are routines to provide Fortran access to the CSI parsing routines.

  * STOP is a replacement for the Fortan STOP statement processor. This version does not output any messages.

  * TCLOSE is a routine that truncates a open file to the EOF and closes it.

  * TTYATA and ATATST are Fortran links to the TTDRV unsolicited input AST.

- WHO is a system task to output who is on the system and their current status.

1980 - Spring - Chicago
1980 - Fall - San Diego

[307,021] MCR PATCHES
[307,021] IND PATCHES

This account has various patches to MCR that implement a wide variety of features. Included in the account are the following patches:

- ABOOV is patched to allow non-privileged users to abort tasks initiated from another terminal if the task's UIC is the same as the user. It is also patched to allow non-privileged users to abort most of their privileged tasks.

- BYE is patched to add accounting support, reset the terminal size to a reasonable value, abort RMDEMO if it is running from the terminal, and request the cookie task on exit.

- FIXOV is patched for the MC2 task (see next account).

- HELLO is patched for accounting support, mail support, and not to display @LOGIN.CMD when it invokes it.

- INDERR and INDFDC are patched to not display "@EOF>" at the end of a command file if QUIET mode is enabled.

- INDOPN is patched to make .TESTFILE work correctly.

- INSHD, INSLB, and INSPS are patched for MC2 support (see next account).

- MCRDIS is patched to allow multiple copies of a task to be run from a terminal. It is also patched to allow "LOGIN" to be a synonym for "HELLO" and 1 or 2 character task names.

- SDSOV, SDSOVFDT, SETOV2, SPROV, and SPROVFT are patched to make the "/" optional for SET commands and to change SET /UIC to not change the login UIC for privileged tasks so the WHO command shows the correct user. Also, five new set commands are added: /LOGGED-OUT, /OFFLINE, /ABSCAN (expect autobaud character), DISABLED, and CARRIER-WAIT.

- SYSOV is patched to make the CLQ command non-privileged.

- TASOV is patched to add an optional taskname parameter to the TAS command.

- TKTN is patched to use IO.WBT for all I/O so it does not get hung up.

1980 - Fall - San Diego

[307,022] ACNTLG
[307,022] BIG
[307,022] CHECK
[307,022] COOKIE
[307,022] ERRCPY
[307,022] LAZRUS
[307,022] MC2
[307,022] READ
[307,022] REI
[307,022] RSTLOG
[307,022] UICREC
[307,022] WHO

This account has a variety of RSX-11M utilities. Most are related to

recovering delete files from a disk or checking a disk for integrity. Included in the account are the following programs:

- o ACNTLG processes accounting messages from HEL, BYE, and RSTLOG. It records the messages to an accounting file, LB:[1,2]ACOUNT.LOG.
- o BIG is a disk utility that recovers large multi-header files. It writes the file to tape.
- o CHECK performs a read check of a disk. It does not assume it knows the size of the disk and keeps reading until it gets an error.
- o COOKIE outputs a little bit of random wisdom to the users terminal.
- o ERRCPY performs a disk-to-disk copy. Like CHECK, it will keep copying until a invalid block is used.
- o LAZRUS is a disk utility that recovers deleted files from a disk.
- o MC2 is a MCR catch-all task. It implements a set of internal commands such as TYPE, DELETE, etc. and a search path for finding other tasks.
- o READ copies files written by BIG to disk from magtape.
- o REI recovers lost or deleted files from a disk. The index file is searched for the specified filename and if found, the user is prompted on the disposition of the found file.
- o RSTLOG is used with ACNTLG to log system startup.
- o UICREC recovers lost files from the current UIC.
- o WHO is a system task to display who is logged on the system and what tasks they are running

1979 - Fall - San Diego
1980 - Spring - Chicago
1980 - Fall - San Diego

[307,023] COOKIE
[307,023] IND PATCHES
[307,023] MC2
[307,023] MC3
[307,023] MCR PATCHES
[307,023] REI
[307,023] RSX-11M PATCHES
[307,023] SRI SUBROUTINES
[307,023] SRI SYSGEN
[307,023] TTDRV PATCHES

[307,023] TIMER
[307,023] WHO

This account contains many different submissions. Included in it are the following:

- o COOKIE is a program to output a little bit of randomly generated wisdom.
- o IND sources are patched to not display "@EOF>" at the end of a command file if QUIET mode is enabled, uses read with prompt for .ASK commands, implement /-LI switch for quiet mode, allow comments starting with ';' to be output in quiet mode, add .ENABLE NOMCR and NOTRACE to control state of /MC and /TR within a command file, detach on .ENABLE QUIET, .SPAWN command, and support for a library UIC.
- o MC2 and MC3 are catch-all tasks that implement some fixed commands and path searching for other requests. MC3 has most of the fixed commands in MC2 removed and some other enhancements.
- o The MCR ENHANCEMENTS include the following:
  - * ABOOV is patched to allow non-privileged users to abort tasks initiated from another terminal if the task's UIC is the same as the user. It is also patched to allow non-privileged users to abort most of their privileged tasks.
  - * BYE is patched to add accounting support, complete terminal I/O, do not abort ...CA. if it is running from the terminal, and request the cookie task on exit.
  - * DEVOV is patched to remove the 'LOADED' string and accept "ddn:' syntax in DEV command.
  - * FIXOV is patched for the MC2 task (see above)
  - * HELLO is patched for accounting support, mail support, and not to display @LOGIN.CMD when it invokes it. Also, privileged users are allowed to login when login's are disabled and login to slave accounts.
  - * INSHD, INSLB, and INSPS are patched for MC2 support (see above).
  - * MCRDIS is patched to allow multiple copies of a task to be run from a terminal. It is also patched to allow "LOGIN" to be a synonym for "HELLO" and 1 or 2 character task names.
  - * SDSOV, SDSOVFDT, SETOV2, SPROV, and SPROVFT are patched to make the "/" optional for SET commands and to change SET /UIC to not change the login UIC for privileged tasks so the WHO command shows the correct user. Also, five new set commands are added: /LOGGED-OUT, /OFFLINE, /ABSCAN (expect autobaud character), DISABLED, and CARRIER-WAIT.

  * SYSOV is patched to make the CLQ command non-privileged.
  * TASOV is patched to add an optional taskname parameter to the TAS command.
  * TKTN is patched to use IO.WBT for all I/O so it does not get hung up.

- REI is a deleted file recovery program.
- RSX-11M ENHANCEMENTS are a set of executive patches. They include the following:
  * CORAL, INITL, and SYSCM are a set of patches to improve pool fragmentation by pre-allocating I/O packets from the pool.
  * DRSPW is a patch to make the spawning directives work more efficiently when used with a catch-all task (like MC2).
  * REQSB is a patch to not allow a higher priority task that will not fit into memory to prevent lower priority task from executing.
- SRI SUBROUTINES are a set of subroutines for Fortran support to the GCML$ and CSI routines and a replacement for GCML that uses read with prompt.
- SRI SYSGEN is a set of command files to make SYSGEN and VMR easier.
- TTDRV PATCHES are patches to the RSX-11M V3.2 full-duplex terminal driver for a variety of features. See [307,020].
- TIMER is a Fortran callable subroutine for getting a excution profile of a Fortran program.
- WHO is a program to display who is logged in and what tasks they are running.

1980 - Spring - Chicago
1980 - Fall - San Diego

[307,024] "C" PATCHES

This account has extensions to the Conroy "C" compiler distributed on the Spring, 1980 tape in [310,116]

1980 - Fall - San Diego

[307,025] AUTOBRU
[307,025] MEASUR
[307,025] RATLIB
[307,025] TIMER
[307,025] TRACE

This account has a variety of entries, primarily subroutine packages. Included in the account are the following:

- AUTOBRU is a set of command files for disk management.
- MEASUR is a version of TIMER that reports the number of times each subroutine is called as well as the time spent.
- RATLIB is a subroutine library written in RATFOR that has routines for string manipulation, command parsing, and file I/O.
  * EQUAL compares two strings for equality.
  * LENGTH returns the length of a string.
  * SCOPY copies a string to the specified location in another string.
  * TYPE returns the type (letter or number) of a character.
  * CTOI converts a string to the specified base (2-10) integer.
  * CHEXTI converts a string to the specified base (2-16) integer.
  * ITOC converts a integer to its ASCII string.
  * INDEX searches a string for a specified character.
  * BREAK eliminates all characters in a string that are in a specified break set.
  * MATCH returns the position of the first occurence of one string in another string.
  * ANY returns the position of the first character in a string which is also in the specified break set.
  * NOANY returns the position of the first character in a string which is not in the specified break set.
  * SHIFT removes the specified number of characters from a string.
  * RPLACE replaces all occurances of a character in a string with the specified new character.
  * TRIM removes trailing spaces and tabs from a string.
  * APPEND concatentates two strings.
  * REMOVE removes a substring from a specified string.
  * INSERT inserts a substring into a specified string.
  * LPAD inserts blanks at the beginning of a string.
  * RPAD appends blanks to the end of a string.
  * ALIGN left, right, or center justifies a string.
  * GETL inputs the next record (line).
  * GETC inputs the next character.
  * PUTL outputs a record (line).
  * PUTC outputs a character.
  * NXTMCR gets a MCR command line.
  * NXTFIL gets the next filename from an MCR command line.

* GETARG processes switches from a command line.
* MCRERR outputs error messages.

- o TIMER is a subroutine that measures the time spent in each Fortran subroutine.
- o TRACE provides a complete trace of subroutine calls.

1980 - Spring - Chicago
1980 - Fall - San Diego

[307,026] SKED

SKED is a simple resource/milestone scheduling program.

1980 - Fall - San Diego

[307,027] TAPE

TAPE is a user/terminal driven program to interactively perform tape I/O. It can be used to examine unknown tapes for their contents or prototype tape formats.

1980 - Fall - San Diego

[307,030] LBL SOFTWARE TOOLS

This is an incredible submission that defies description or indexing. The LBL SOFTWARE TOOLS is a virtual operating system for program development. This is the creation of Joe Sventek. If you loom at nothing else on the tape, look at this. The idea behind it is to setup a environment for each programmer that will not change from machine to machine. The package is written in RATFOR so it should move easily from machine to machine. Once up, programmers can do their development using the same command structure they used before.

This account has the documentation for the package. [307,31] contains the Fortran and Macro-11 sources. [307,32] has the pre-roffed manuals for all of the utilities. [307,33] has the RATFOR sources for the system and the roff input sources various documentation.

The following is a list of the utilities included in this distribution:

ar	archive file maintainer
args	concatenate standard input
asplit	salvage garnaged archived files

cat	concatenate and print text files
ccnt	character count
cd	change working directory
ch	make changes in text files
cmp	compare two files
comm	print lines common to two files
convrt	convert PIP listings to LIST carraige control
cpress	compress input files
crt	copy files to terminal
crypt	crypt and decrypt standard input
date	print the date
dc	desk calculator
detab	convert tabs to spaces
dspc	display all characters in a file
echo	echo command line arguments
ed	text editor
entab	convert spaces to tabs and spaces
expand	uncompress text files
fb	search blocks of lines for text patterns
fc	fortran compile and task build
fel	destroy process tree and return to shell
field	manipulate fields of data
find	search a file for a pattern
form	generate a form letter
incl	expand included files
intro	list on-line documentation
kwic	make keyword in context index
lam	laminate files
lcnt	line count
ld	task-build image
ll	print line lengths
ls	list contents of directory
macro	process macro definitions
mail	send/receive mail
man	runoff section of users manual
mcol	multicolumn formatting
msg	manipulate message files
msplit	salvage lost message files
mv	move or rename a file
os	overstrike
pl	print specified lines/pages in a file
postmn	see if user has mail
pr	paginate files to standard output
pwd	print working directory
rat4	ratfor preprocessor
rc	ratfor compile and task build
resolve	resolve mail users
rev	reverse lines
rm	remove files
roff	format text
sedit	stream editor
sh	shell (command line interpreter
shl	installed version of shell
sort	sort/merge text files
spell	find spelling errors

```
split    split a file into pieces
tail     print last lines of a file
tee      copy input to standard output and named file
tr       character transliteration
tsort    topologically sort symbols
uniq     strip adjacent repeated lines from a file
unrot    unrotate lines rotated by kwic
users    list valid mail users
wc       count lines, words, characters in a file
wcnt     word count
xref     make a cross reference of symbols
```

1980 - Fall - San Diego
1981 - Spring - Miami

[307,031] LBL SOFTWARE TOOLS

This account has the Fortran and Macro sources for the LBL SOFTWARE TOOLS distribution.

1980 - Fall - San Diego
1981 - Spring - Miami

[307,032] LBL SOFTWARE TOOLS

This account has the pre-roffed manuals for the LBL SOFTWARE TOOLS distribution.

1980 - Fall - San Diego
1981 - Spring - Miami

[307,033] LBL SOFTWARE TOOLS

This account has the RATFOR sources for the LBL SOFTWARE TOOLS distribution.

1980 - Fall - San Diego
1981 - Spring - Miami

[307,034] SRDRV

This account has a variable send/receive driver for RSX-11M V3.2. This driver can be used with the LBL Software Tools to provide a pipe mechanism for RSX-11M

1981 - Spring - Miami

[307,035] VADRV

This account has an implemetation of a "virtual aether". This is a device driver that permits inter-process communications on a broadcast basis. Subsets of virtual aethers include send/receives (both fixed and variable length) and pipe mechanisms. One way to view this submission is as a software Ethernet.

1981 - Spring - Miami

[307,037] MCRDIS

This account has a correction file for MCRDIS for RSX-11M V3.2. The patch allows quoted strings to be passed by MCR as is, passing of one or two character command names to the catch-all task, and multiple copies of a task running from a terminal.

1980 - Fall - San Diego

[310,001] TARLUG SUBMISSIONS

This account has general information about the [310,*] accounts. This set of UIC's contains the Toronto Area LUG (TARLUG) submissions. The account also has an annotated directory of past SIG tapes.

1978 - Fall - San Francisco
1980 - Spring - Chicago

[310,002] T

This account has an annotated directory of past SIG tapes.

1979 - Fall - San Diego

[310,101] MISCELLANEOUS

This account is documented as having incomplete programs in it and can be "safely ignored".

1978 - Fall - San Francisco

[310,103] "C" COMPILER

This account has the source for one version of Conroy's "C" compiler. It requires only standard RSX utilities to build it.

1978 - Fall - San Francisco

[310,104] "C" ASSEMBLER

This account has an assembler for PDP-11's. It is patterned after the UNIX assembler and is required for the code generated by Conroy's "C" compiler in [310,103].

1978 - Fall - San Francisco

[310,105] AS8
[310,105] GREP
[310,105] OD
[310,105] NM
[310,105] LC
[310,105] L
[310,105] TTT
[310,105] WC
[310,105] WUMPUS

This account has various programs, written mostly in "C". Included in the account are the following entries:

- o AS8 is a cross assembler for the INTEL 8080.
- o GREP is an implementation of the UNIX pattern search program.
- o OD is a replacement for DMP which has several formats and will let you dump in multiple formats.
- o NM is a program which will read object or STB files and output all the symbols it finds.
- o LC is a program to output sorted, four-column directories.
- o L is a program to output files to a terminal.
- o TTT is a three-dimensional Tic-Tac-Toe game.
- o WC is a program that reads a file and counts lines and words.
- o WUMPUS is a pre-ADVENTURE type game.

1978 - Fall - San Francisco

[310,106] "C" RUNTIME SYSTEM

This account has a runtime system for "C" programs running in RSX-11M. It includes both file I/O and executive call routines.

1978 - Fall - San Francisco

[310,107] UED

This is a version of the UNIX editor written for RSX-11M.

1978 - Fall - San Francisco

[310,111] 6800
[310,111] Z80
[310,111] DUAL
[310,111] GRAB
[310,111] GREP
[310,111] KWIK
[310,111] OD
[310,111] MC
[310,111] NM
[310,111] LC
[310,111] L
[310,111] LPR
[310,111] SORT
[310,111] TTT
[310,111] WC
[310,111] WUMPUS

This account has various programs, written mostly in "C". Included in the account are the following entries:

- o 6800 is a cross assembler for the 6800.
- o Z80 is a cross assembler for the Z80.
- o DUAL is a program to change Macro-11 sources to upper and lower case.
- o GRAB is a program to output the comments from a "C" source file.
- o GREP is an implementation of the UNIX patterm search program.
- o KWIK is a key-word-in-context generator.

- OD is a replacement for DMP which has several formats and will let you dump in multiple formats.
- MC is a program to list files in multiple column format.
- NM is a program which will read object or STB files and output all the symbols it finds.
- LC is a program to output sorted, four-column directories.
- L is a program to output files to a terminal.
- LPR is a program to output files to a line printer.
- SORT is a sort/merge program.
- TTT is a three-dimensional Tic-Tac-Toe game.
- WC is a program that reads a file and counts lines and words.
- WUMPUS is a pre-ADVENTURE type game.

1980 - Spring - Chicago

[310,112] BLD
[310,112] DCL
[310,112] DIRECTORY
[310,112] ERRORS

This account has several useful command files designed for the indirect MCR.

- BLD will build a Fortran program, remembering the last command for easy invocation.
- DCL implements a set of DCL type commands.
- DIRECTORY will aid in some directory commands like changing protection.
- ERRORS will process the error logging files.

1980 - Spring - Chicago

[310,113] "C" COMPILER

This account has the source for one version of Conroy's "C" compiler. It requires only standard RSX utilities to build it.

1980 - Spring - Chicago

[310,114] "C" ASSEMBLER

This account has an assembler for PDP-11's. It is patterned after the UNIX assembler and is required for the code generated by Conroy's "C" compiler in [310,113].

1980 - Spring - Chicago

[310,115] VT11 GAMES

This account has VT11 games from RT11 that have been mostly converted to RSX.

1980 - Spring - Chicago

[310,116] "C" RUNTIME SYSTEM

This account has a runtime system for "C" programs running in RSX-11M. It includes both file I/O and executive call routines.

1980 - Spring - Chicago

[310,117] UED

This is a version of the UNIX editor written for RSX-11M.

1980 - Spring - Chicago

[310,120] DKMM/MMDK

This set of programs lets systems with lots of disk space and one magtape to make copies of tapes by dumping the tape to disk and rewriting the disk file to tape.

1978 - Fall - San Francisco

[310,121] SUPER STAR-TREK

This is a version of Star Trek written for RT11 from the orginal RSX version.