PROGRAM ABSTRACT COVER SHEET

1) User Group: FOCUS □, VIM □ (INCOSL □)

2) Contributing Organization
   Central Data Corporation
   Installation Name: Bethesda, Maryland
   City and State

3) Author Identification
   John N. McCRANEDY
   Programmer/Submitter (up to 19 characters)
   Revisor:

4) Catalog Identification
   N.2 (D.C. SYSDUMP 12)

5) Operating System and Version
   S.C.P.C. 3.3/3.4

6) Languages and Dialects (up to 21 characters)
   FOR

7) Configuration
   VPC, COLE, LOWER, CYBER
   Computer: Other Information

8) Descriptive Title (up to 56 Characters Including Blanks)
   SYSMDUMP V2.0 SCALE 3.3/3.4 DEAD START DUMP ANALYZER

9) Program Materials Submitted
   Write-Up
   Page: Count
   Source
   Record
   Other (up to 44 characters)
   UPDATE PROGRAM LIBRARY
   (AC BLOCKS IN LENGTH)

10) Date Written
    Original: Revised

11) Restricted: No □, Yes □ (Requires ordering information)
    Reason: Classified □, Geographic □, Other □

12) Required Library Routines

13) Entry Point Names
    SYSMDUMP (MAIN ENTRY), PAR, PPL/4K (PRIMARY OVERLAYS)

14) Original/Revised Program Abstract
    To FORMAT and ANALYZE DEAD START DUMP TAPES FROM SYSP 3.3
    AND HIGHER SYSTEMS. REDUCES ANALYSIS TIME FOR DUMPS
    CONSIDERABLY. FEATURES PPU BIT PATTERN SEARCH AND
    TRACE FOR RETURN DUMPS. FORMATS CMR TABLES INTO
    LOGICAL DISPLAY BLOCKS, SUCH AS FNT.S ATTACHED TO A
    CONTROL POINT, THE CONTROL POINT'S DAY FILE, AND CONTROL
    POINT AREA. FEATURES VERB DRIVEN INPUT ROUTINE. THE
    INTERCOM BUFFER AREA FEATURES USER TABLE ANALYSIS.

15) Nature of Revision □
    Proprietary Ordering Information □
    Additional Information □
    SUBMITTER WILL ACT AS COORDINATOR FOR NEW FEATURES,
    MODIFYING CODE SUBMITTED. SUBMITTER WILL NOT CREATE
    MODIFYING CODE normally.
TO:  R. A. WILLIAMS
FROM:  R. W. MCCRANEY
       BETHDQ
       EXT. 407
       CC:  W. J. CORNEWELL
       BETHDQ

SUBJECT:  SYS_DUMP V2.0

The attached listing is a copy of the first five pages of the object code listing of SYS_DUMP V2.0. The program was written in FORTRAN under FTN Version 3.

Dependent on the PSR level of the compiler, OPT=2 compilations may give bad binaries. Therefore, I suggest initial trial runs to be compiled at OPT=1.

I noticed, embarrassing enough, that the documentation fails to note the input tape (the deadstart dump tape) is referenced as TAPE1.

The following job stream will get the user of SYS_DUMP off the ground:

```
JOB,CM75000,MT2,T400.
REQUEST OLDPL,E.
UPDATE,E.
FTN,I=COMPILE,OPT=1, R=3.
REQUEST TAPE1,E.

LGO.

8 EOR

/*

*/

*C SYS_DUMP

7

8 EOR

COMMENT. ADD ANY INPUT PARAMETERS

COMMENT.

COMMENT. IN THIS RECORD...

L

8 EOF

If compiling for SCOPE 3.4, then the user may replace card number 180 with:

*DEFINE SCP34

Other options selected at UPDATE time are:

DECDUMP, an octal/alphanumeric dump is produced for relative dumps. Warning - this option is very slow during execution.
ONEFILE, binaries are produced on one file for use by OVERLAY.

INTERCOMP2, Intercom V2 code is assembled {this option was never checked out}

In all cases, the option is triggered via the "*DEFINE, id" UPDATE directive.

Please note that I only plan to add new features to SYSDUMP as I require them. However, if any user wishes to provide new mods that are checked out, I will be happy to maintain a base-line program library, which in turn will be provided to the VIM library on a timely basis.

/kff

Attachments
TO: S. J. GARDNER  SVLOPS
FROM: BETHDO EXT. 407

CC: D. D. COFFEY HVLDSD W. A. RUEFER RKVPKE
    W. J. CORNUELL BETHDO W. W. SEDR BETHDO
    J. M. DONACHY HMLNG D. E. STAHL BETHDO
    T. L. ROZANSKI DTNFAC

SUBJECT: SYSDUMP V 2.0

SYSDUMP is a FORTRAN EXTENDED program intended to aid the analysis of deadstart dumps from SCOPE 3.3 and later systems. As you are aware, the timely analysis of a system problem is very important, and SYSDUMP is an attempt to reduce the amount of time required to identify the problem.

This is done by using the deadstart dump tape produced by SCOPE and formatting the data into a more readable fashion as well as limited analysis of certain pointers and data contained in the dump. The output produced by SYSDUMP is a composite of the more critical CMR tables, the RBT chains, PPU data summaries, and the PPU dumps.

The program is currently being used at over six installations with a gratify reduction in analyst time per system problem. We estimate that the average reduction in analysis time is approaching 50%.

A verb driven input section allows the control of what portions of the dump are actually printed and provides the capability to mask all PPUs for a 5-byte bit pattern, which aids in the detection of erroneous writes by a PPU to central memory. Also certain CMR pointers, such as the fwa of the FNT, may be inputed via the input file rather than gained from the deadstart tape or the default values assumed by SYSDUMP.

SYSDUMP was recently {January, 1974} added to the VIM library, and thus is available for use by any member of VIM.

A brief description of the output from SYSDUMP follows:

Central Memory Section:
  Low CMR Pointers
  Channel Status Table
  PP Status Words
  Control Point Summary {JOB NAME, RA, FL, STATUS, etc.}
  PP Communications Area
  Equipment Status Table
  Intercom Multiplexor Table
  Device Activity Table
  Request Stack
  RBR Header Word Pairs
  Device Status Table
  APF Table
Intercom Pointer/Buffer Area {Optional, also you may list only user tables}

RBT Chain

And For Each Active Control Point:
Dayfile Buffer
Files Attached To The Control Point
Control Point Area {with display of last dayfile and control card buffer}
Relative Dump {optional}

The PPU Section Produces:
List Of Last Overlays Loaded At Normal Load Addresses
Last Call To PP Resident Entry Points
List Of Contents Of The Direct Cells
List Of Contents Of The Communications Area
List Of All Return Jumps Made With A Flag For Non-Standard
Returns
List Of All Locations Containing A 5-Byte Pattern
Complete PPU Dump {optional}

If SYSDUMP determines a CMR word has been violated, i.e. Word 0 is non-zero, then the PPU masking for the 5-byte pattern is automatically enabled.

The verb driven input routine allows the specification of type of dumps to be listed, areas of central memory to be listed, and override of pointers in the dump that SYSDUMP uses to locate certain tables, as well as an override of the selection of the masking pattern.

SYSDUMP was written originally for SCOPE 3.1.6 and does have the capability to produce dumps for SCOPE 3.1.6 and SCOPE 3.2 if modified {slightly}. SCOPE 3.3 is the default system assumed, and SCOPE 3.4 binaries are obtained by the inclusion of an *DEFINE, SCP34 card at UPDATE time.

We who have used SYSDUMP are very convinced that it is an analysis tool that can save the field analyst much time and grief.

Please mention its existence in the PSI EXCERPTS. I would like to see it made part of the installation and maintenance facilities provided with each future SCOPE release.

Thank you.

/kff

Attachment
THIS PROGRAM WAS ORIGINALLY DEVELOPED FOR SCOPE 3.2 BUT IS WRITTEN SUCH THAT CONVERSION TO FUTURE SCOPE SYSTEMS SHOULD BE RELATIVELY SIMPLE. THE FOLLOWING ITEMS SHOULD BE REVIEWED DURING ANY CONVERSION ATTEMPT.

1. IN *SYSUMP* ITSELF, THE SECTION WHICH DEFINES THE VARIOUS INSTALLATION PARAMETERS SHOULD BE REVIEWED.

2. THE SUBROUTINE *LOWCORE* CAN BE MODIFIED TO SAVE ANY ADDITIONAL LOW CORE POINTERS. ALSO BEWARE OF POINTER CHANGES.

3. THE ARRAY *MT* IN SUBROUTINE *PPSTAT* MUST BE CHANGED TO REFLECT ANY NEW (***) MONITOR CALLS.

4. THE *TABLE* SUBROUTINE IS FAIR GAME FOR ANYONE WITH A DESIRE TO INCLUDE NEW ONES. DURING INTEGRATION INTO SCOPE 3.3, THAT THE ABSOLUTE DUMP CAPABILITY PROVIDES THE TOOL TO DUMP MOST OF THE TABLES AND THAT THE CONSTANT CHANGING OF FORMAT AND CONTENT WAS A SUFFICIENT DETERRENT TO IMPLEMENTING THE 3.3 TABLE DUMP, TO INCLUDE A NEW TABLE, ONE MUST MODIFY *LOWCORE* TO SAVE THE POINTERS, AND THEN ADD SOME STUFF TO *TABLES* TO PROCESS THE DATA.

5. THE TABLE *PPRES* IN *PPLOCK* SUBROUTINE MUST BE MODIFIED TO REFLECT CHANGES IN PF RESIDENT. NOTE ALSO THERE IS A HARD-CODED CC+LCP FOR THE LENGTH OF THE *PPRES* ARRAY WHICH MUST BE CHANGED.

6. VARIOUS PORTIONS OF THE COPPASS UTILITY ROUTINE MAY REQUIRE MODIFICATION. CALLS ARE MADE DIRECTLY TO PP ROUTINES TO AVOID LOADING *EPS* THE VARIOUS ENTRY POINTS MERELY PERFORM *CECODES* MUCH FASTER THAN KRACKER AND NEED BE CHANGED ONLY IF THE TAPE FORMAT CHANGES.

7. THE MACRO *UNIVREPT* MAY REQUIRE CHANGING IF RUN/FTN EVER GET TOGETHER ON THEIR CALLING SEQUENCE. THE MACRO PROVIDES OBJECT TIME DETECTION OF WHO CALLED AND SETS UP A STANDARD CALLING SEQUENCE DEFINED BY THE USER.

8. IF USING THIS PROGRAM FOR DEAD-START DUMPS FROM SCOPE 3.3,
THEN THE SOURCE MUST BE OBTAINED FROM THE PROGRAM LIBRARY WITH SYS DUMP.

SYSDUMP DEFAULTS THE ABSOLUTE BINARIES TO THREE FILES. THE LEVEL ZERO OVERLAY TO =SYS DUMP=, AND THE PRIMARY OVERLAYS TO =AP= AND =PLCOK=, IF YOU WISH ALL BINARIES ON THE FILE =SYS DUMP=, DEFINE =CNFILE AT UPDATE TIME.

***

THIS PROGRAM EXTRACTS SELECTED INFORMATION FROM A SCOPE.

DEAD START DUMP TAPE. THE TAPE SHOULD CONTAIN ALL OF CENTRAL.

MEMORY FROM ABSOLUTE WORD ZERO TO THE LMA OF CENTRAL, FOLLOWED BY =OC DUMP=, IF DUMPING SCOPE 3, the EXCHANGE PACKAGE DUMPS.

MAY BE PLACED ANYWHERE ON THE TAPE, AND ECS DUMPS SHOULD BE LAST. THE DUMP TAPE IS READ ONCE, AND THE INFORMATION IS FORWARDED IN A MODE DESIGNED TO EASE ANALYSIS, AND THEREFORE, REFORMAT THE TIME SPENT PER INDIVIDUAL DUMP.

THERE IS SOME VALIDITY CHECKING PERFORMED BY SYS DUMP, ESPECIALLY IN THE ROUTINE =LOWCORE=. THE VALIDITY OF CERTAIN CMR POINTERS IS CHECKED AS TO WHETHER OR NOT THEY ARE PRESENT. IF NOT, THEN DEFAULT VALUES ARE USED. THE DATA STATEMENT IN ROUTINE =LOWCORE= IS USED TO CONTROL THESE DEFAULT VALUES.

IF A FILE VALUE IS FOILED-UP, THEN YOU MAY OVER-RIDE IT VIA THE =DEF= VERB (SEE ROUTINE =PAR=, WHICH IS AT THE END OF THE LISTING)

OF THE PROGRAM.

SEVERAL OPTIONS ARE PRESENT TO THE USER. THESE OPTIONS ARE ENABLED/DISABLED VIA THE APPROPRIATE INPUT VERB, THE INPUT ROUTINE IS =PAR=, AND A COMPLETE LIST OF THE INPUT OPTIONS AND THEIR USE IS PRESENT IN THE COMMENTS THERE. NOTE THAT ONE OPTION IS THE =MASK= VERB, WHICH ALLOWS THE SEARCH OF ALL THE PP MEMORIES.

FOR A PARTICULAR BIT PATTERN. THIS OPTION, IF NOT ENABLED VIA THE INPUT STREAM, WILL AUTOMATICALLY BE ENABLED FOR =CMRBAC= CONDITION.

AS DETERMINE BY ROUTINE =LOWCORE=.

EXPLAIN 2

EXPLAIN 3

EXPLAIN 4

EXPLAIN 5

EXPLAIN 6

EXPLAIN 7

EXPLAIN 8

EXPLAIN 9

EXPLAIN 10

EXPLAIN 11

EXPLAIN 12

EXPLAIN 13
INSTRUCTIONS AND EXAMPLES.

THIS ROUTINE PROVIDES A FREE FORM INPUT CAPABILITY FOR SYSDEMP, WHERE
INPUT IS ASSUMED TO BE PLACED ANY WHERE ON THE CARD, WITH THE
LIMITATION OF ONE VERB PER CARD, AND NO OVERFLOW CAPABILITY.
THE VERBS ARE DESCRIBED BELOW, WITH SUB-VERBS AND OR PARAMETERS
THAT ARE LEGAL FOR THE PARTICULAR VERB INDICATED.

LEADING BLANKS PRIOR TO THE VERB ARE IGNORED, THE FIRST BLANK ENCOUNTERED AFTER FINDING THE VERB IS CONSIDERED A DELIMITER,


ALL NUMERIC VALUES INPUTTED MUST BE OCTAL. OCTAL VALUES MAY HAVE A # DESCRIPTOR, JUST TO MAKE SYSDEMP CONSISTENT WITH CMR AND THE COMPILER, IE, 777777.

DEFAULT VALUES ARE LISTED IN THE SECOND INPUT CARD EXAMPLE.

VERB PARAMETER OPTION(S) COMMENTS

COM ALLOWS A COMMENT TO BE PLACED IN THE INPUT STREAM. THE VERB MAY BE SPELLED --COMMENT--. THE ENTIRE CARD IS TREATED AS A COMMENT.

LOW YES / NO IS LOWER CENTRAL MEMORY ( 0 - 778 ) TO BE DUMPED.

171 YES / NO / QUICK
PPU DUMP OPTIONS. IF =YES=,
THEN DUMPS AND QUICK-LOOK WILL BE
PERFORMED. IF =NO=, THEN NEITHER
QUICK-LOOK NOR DUMPS WILL BE DONE
AND IF =QUICK=, ONLY THE QUICK-
LOOK WILL BE PRODUCED.

180 YES / NO
IS ECS TO BE DUMPED.

185 OCTAL VALUES
SPECIFY RANGE OF ABSTRACT CM TO
DUMP. THAT IS, IF YOU WISH TO DUMP
FROM 32000B TO 54000B, THIS CARD
MAY BE USED TO SPECIFY THE RANGE.
MULTIPLE ENTRY IS ALLOWED BY USE OF EXPLAIN
DELIMITERS BETWEEN RANGES. OH YES, EXPLAIN
A SINGLE ENTRY IS INTERPRETED AS
AMZ ( 0 ) TO THAT VALUE, AND THE
ENTRY 0,0 IS IGNORED. OVERLAP OF
RANGES IS NOT CHECKED FOR, AND WILL
MERELY TAKE UP SPACE IN A TABLE
THAT ONLY ALLOWS SIX RANGES. THE EXPLAIN
LEGAL DELIMITERS ARE -- DOLLAR ($), EXPLAIN
SLASH (/), AND ASTERICK (*).
MAXIMUM OF SIX RANGES PER DUMP MAY
BE SPECIFIED.

190 OCTAL VALUES
ALLWS THE MASCING OF A SPECIFIC
BIT PATTERN WITHIN PPU MEMORIES.

200 YES / NO
IS THE CENTRAL MEMORY LIBRARY AREA
( PMT AND OR RESIDENT BODIES ) TO
BE DUMPED.

205 YES / NO
ALL / PART / USER
IS THE INTERCOM BUFFER AREA TO BE
DUMPED, AND IF SO, ALL, OR PARTIAL,
WHERE PARTIAL INDICATES JUST USER
TABLES WILL BE DUMPED ( AS DOES
THE SUB-VERB -USER- ).

210 DEF
ALLOWS AN ABSOLUTE OVER-RIDE OF THE
DEFAULT PARAMETERS USED BY SYS_DUMP
TO VERIFY CMR POINTERS, OR CERTAIN
RANGES SYS_DUMP USES IN PROCESSING.
THE SUB-VERB IS FOLLOWED BY AN
EQUAL SIGN (= ) AND AN OCTAL VALUE
THAT REDEFINES THE ADDRESS OR RANGE
OF THAT VARIABLE, IE, FHAFNT=4620.

215 OCTAL VALUES

220
EXAMPLES OF INPUT, WHERE THE DOLLAR SIGN REPRESENTS START OF
THE INPUT CARD. NOTE THAT PERICLES TERMINATE THE SCAN, AND
INFORMATION FOLLOWING IS TREATED AS COMMENTS.

### EXAMPLE SET ONE ###

? CARD COLUMN ONE
INCN,200,52326
THIS AREA IS A COMMENT.
373,74200,32200,375000,377777
GET CP1 AND RTL FL S
IMSK 1234
LOOK FOR PPU WITH FOUR BYTES 0, THEN 1234.
L LOW,YES
DUMP LOW CM
DEF,FWAFNT=4633,FWAFNT=7630
REDEFINE FMT POINTERS
INT YES
DUMP INTEROP BUFFER AREA, USING DEFAULT
DUMP INTEROP, DUMP PARAMETERS FOR INTERCOM
CP,PACK=2,PACK=15,FL=4
SELECT CF OPTIONS

### EXAMPLE SET TWO ###

? CARD COLUMN ONE
L LOW,YES
SELECT LOW CMF AREA DUMP
FPU,YES
SELECT PPU DUMPS
LIB,NO
DO NOT DUMP LIBRARY AREA
INT,YES,USER,DUMP INTERCOM AREA, USER TABLES ONLY.
KOS NO
DO NOT DUMP ECS
IFLCE=360,NODEVICE=8,NCF=15,NPFL=24
COMMENT. THERE ARE NO DEFAULT ABSOLUTE DUMPS DEFINED.

=====================================================================

A BRIEF WORD ABOUT FILE BUFFER ALLOCATION. SYS_DUMP WAS
INTENDED TO EXECUTE IN THE BATCH ENVIRONMENT, THEREFORE, CM IS
AN ASSET THAT IS WATCHED CAREFULLY. THE BUFFER ALLOCATIONS ARE
QUIET SMALL FOR THIS REASON. ALTHOUGH =TAPE= IS A FILE READ
VIA THE =BUFFER IN= MECHANISM, THE =FNT= LIBRARY IN USE AT THE
TIME WOULD NOT ALLOW THE REDUCTION ENEWHI A =PRU+1= FOR THE
FILE. AS SOON AS THE =PSR= IS SATISFACTORY ANSWERED THIS
ALLOCATION MAY REDUCED.

YOU ARE NOW ON YOUR OWN. I WISH YOU MUCH SUCCESS AND HAPINESS
AND HOPE YOU DON'T NEED THIS THING TOO OFTEN.

C *****
DATE: November 9, 1973

TO: K. J. Wanger/Distribution

FROM: S. K. Kwok

LOCATION: SVL192A

SUBJECT: Deadstart Dump Tape Analyzer

A deadstart dump tape analyzer written to analyze deadstart dump tapes has been updated. Changes were made in various installation parameters, system pointers and status tables. In addition, an ECS dump option has been introduced.

Enclosed are the PL of the analyzer (labelled "MODIFIED SYSDUMP. ANALYZER") and a listed (labelled "SYSDUIC"). The listing contains the update deck list, the source deck listing and a complete output produced by the analyzer. The output consists of various CM tables, dayfile buffers, type A control point areas, field length dumps and instruction scan information. Also, 200K CM, all PPUs and ECS dumps are included. Immediately preceding the PPU dumps is a quick look at PP residence.

The analyzer (SYSDUMP) is designed as a debugging aid for CDC on-site analysts and Sunnyvale personnel. It will not be supported as an official product set program. The code for SYSDUMP is being submitted under PTR S00000022 for installation into the earliest possible ALPHA cycle deadstart and OSPL tapes.

The analyzer has been designed to analyze a "Z" option deadstart dump which has been output to tape. The deadstart dump should contain all of CM, all PP's and program-selected areas of ECS. The analyzer also works for the "Y" option of deadstart dump which contains all of CM and all PP's. In this case, ECS dumps option must be inhibited by specifying on the data card described below.

Control cards used to execute the analyzer are also enclosed. The control card "SYSDUMP," will start the execution of the analyzer. Input data cards specifying various options provided by the analyzer are read from the 'INPUT' file. If no option is selected, these cards should not be present.

The following is a representative job deck arrangement:

SKWOK, OM65000, T1000. (26 in col. 79-80)
SYSDUMP.
7-8-9
DATA CARDS
...
6-7-8-9

If present, data cards must appear in the order shown below.
<table>
<thead>
<tr>
<th>Card No.</th>
<th>Card Columns</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1-4</td>
<td>Number of low CM words (System Pointer area starting from word 0) to be dumped (in octal). Maximum = 57</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>Field length dump for CP 1.</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Field length dump for CP 2.</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Field length dump for CP 3.</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Field length dump for CP 4.</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Field length dump for CP 5.</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>Field length dump for CP 6.</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>Field length dump for CP 7.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>NOTE:</strong> On columns 1 through 7, a '1' in the appropriate column selects the field length dump option for that control point. A '0' does not select the option.</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td>Instruction scan for CP 1.</td>
</tr>
<tr>
<td>9</td>
<td></td>
<td>Instruction scan for CP 2.</td>
</tr>
<tr>
<td>10</td>
<td></td>
<td>Instruction scan for CP 3.</td>
</tr>
<tr>
<td>11</td>
<td></td>
<td>Instruction scan for CP 4.</td>
</tr>
<tr>
<td>12</td>
<td></td>
<td>Instruction scan for CP 5.</td>
</tr>
<tr>
<td>13</td>
<td></td>
<td>Instruction scan for CP 6.</td>
</tr>
<tr>
<td>14</td>
<td></td>
<td>Instruction scan for CP 7.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>NOTE:</strong> On columns 8 through 14, a '1' in the appropriate column selects the instruction scan option for that control point. A '0' does not select the option.</td>
</tr>
<tr>
<td>15</td>
<td></td>
<td>Dump of the control point package of CP 1.</td>
</tr>
<tr>
<td>16</td>
<td></td>
<td>Dump of the control point package of CP 2.</td>
</tr>
<tr>
<td>17</td>
<td></td>
<td>Dump of the control point package of CP 3.</td>
</tr>
<tr>
<td>18</td>
<td></td>
<td>Dump of the control point package of CP 4.</td>
</tr>
<tr>
<td>19</td>
<td></td>
<td>Dump of the control point package of CP 5.</td>
</tr>
<tr>
<td>20</td>
<td></td>
<td>Dump of the control point package of CP 6.</td>
</tr>
<tr>
<td>21</td>
<td></td>
<td>Dump of the control point package of CP 7.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>NOTE:</strong> On columns 15 through 21, a '1' in the appropriate column selects the control point package dump for that control point. A '0' does not select the option. The control point package contains control point area, dayfile and FET entries.</td>
</tr>
<tr>
<td>3 to 3 + n - 1</td>
<td></td>
<td>These n cards are present only if scan option on card 2 is selected. Data cards 3 to 3+n-1 apply to all control points specified on card 2 (columns 8-14).</td>
</tr>
<tr>
<td>3</td>
<td>1-3</td>
<td>Mnemonic of the first instruction selected for scanning. This can be left or right justified since it is used for output purpose only.</td>
</tr>
<tr>
<td>4</td>
<td>1-3</td>
<td>Octal function value of the first instruction selected. This should be left justified.</td>
</tr>
<tr>
<td></td>
<td>4-6</td>
<td>Mnemonic of the second selected instruction.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Octal function value of the second instruction (left justified).</td>
</tr>
</tbody>
</table>
| 3 + n - 1 | 1-3          | This card indicates no more instructions are selected for scanning. The first three columns
<table>
<thead>
<tr>
<th>Card No.</th>
<th>Card Columns</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 + n</td>
<td>1</td>
<td>must contain an 'END'. There is no limit on the number of instructions selected for scanning. ECS dumps option. A '1' in the column specifies ECS dumps extracted from the deadstart dump tape are wanted. A '0' does not select this option. PP memory dumps. A '1' in the column dumps PP memory from the deadstart dump tape. A '0' does not select the option.</td>
</tr>
<tr>
<td>4 + n</td>
<td>1</td>
<td>Octal number specifying the first word address for an absolute central memory dump wanted.</td>
</tr>
<tr>
<td>5 + n</td>
<td>1-6</td>
<td>Octal number specifying the last word address for the absolute central memory dump wanted.</td>
</tr>
<tr>
<td>through</td>
<td>7-12</td>
<td>Indicates whether a display code dump is wanted. A 'D' selects this option which causes both octal and display code dumps to appear side by side. A blank suppresses the display dump and leaves the octal.</td>
</tr>
<tr>
<td>m + n</td>
<td>13</td>
<td>NOTE: There is virtually no limit on the number of absolute central memory dumps. The first word address of every dump must be greater than or equal to zero. The last word address of a dump must be greater than or equal to the first word address of the dump. The limit for the last word address is 377777 in octal.</td>
</tr>
</tbody>
</table>

The following is an example illustrating the structure of the input data cards.

Card No. | Column: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22...
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5 7</td>
</tr>
<tr>
<td>2</td>
<td>1 1 0 1 1 0 0 0 0 0 1 1 0 0 1 1 0 1 1 0 0</td>
</tr>
<tr>
<td>3</td>
<td>F X 3 0</td>
</tr>
<tr>
<td>4</td>
<td>R J 0 1 0</td>
</tr>
<tr>
<td>5</td>
<td>E N D</td>
</tr>
<tr>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>0 0 0 0 0 0 0 0 0 4 0 0</td>
</tr>
<tr>
<td>9</td>
<td>0 3 0 0 0 0 2 0 0 0 0 0 0 0 D</td>
</tr>
</tbody>
</table>

The first data card indicates that the first 57 low CM words are to be dumped. Columns 1 to 7 on the second data card indicate that field length dumps for control points 1, 2, 4 and 5 are wanted. Columns 8 to 14 specify that instruction scan for control points 4 and 5 is desired. Columns 15 to 21 indicate that control point package dumps for control points 1, 2, 4 and 5 are wanted. Cards 3 through 5 specify the instructions selected for instruction scan. Card 3 indicates the instruction FX is selected and card 4 indicates the instruction RJ is selected. Card 5 informs the analyzer that this is the end of the instruction data cards. The sixth card inhibits ECS dumps with a '0' in.
column 1. The seventh card selects PP memory dumps. The eighth data card specifies the first set of central memory to be dumped. The range is from octal address 0 to 400. The last data card specifies a second set of CM dumps is desired. The dump is to cover the range from octal address 30000 to 200000. The last character 'D' (on column 13) indicates a display code dump for this set is wanted.

If no input data cards are present, pre-defined values will be taken. The following describes these default parameters.

- Octal number of low CM words to be dumped = 57;
- Field length dump is not selected;
- Instruction scan is not selected;
- Control point package dump is selected for every control point to which a job has been assigned;
- ECS dumps are selected;
- PP memory dumps are selected;
- One set of CM dumps is selected. The range of this dump is from octal address 0 to 200000. Display code dumps are not selected.

After the analyzer has been initiated, a dynamic request for the dump tape will be displayed on the console. The deadstart dump tape must then be assigned. The analyzer will analyze the dumps on the tape. A termination message "END OF SYS DUMP ANALYSIS" on the console indicates successful termination.

S. K. Kwok, Operating System
Systems Software - ALS

SKK:ms

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