

N O T I C E

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IN THE INTEREST OF MAKING AVAILABLE AS MUCH
INFORMATION AS POSSIBLE

NASA CONTRACTOR REPORT 177384

Crossref for the Cray

Clayton J. Guest



(NASA-CR-177384) CROSSREF FOR THE CRAY
(Informatics General Corp.) 77 p
HC A05/MF A01

N86-13913

CSSL 09B

G3/61 Unclass
 02938

CONTRACT NAS2-11555

November 1985

NASA

Crossref for the Cray

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Prepared for
Ames Research Center
Under Contract NAS2-11555

November 1985



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Section 1

INTRODUCTION

1.1 PURPOSE

CROSSREF is a tool to assist a user in obtaining information about the contents of a library which was generated with a BUILD statement on the CRAY Computer under the CRAY OPERATING SYSTEM (COS). It develops several alphabetized listings and tables which yield information about each member of a library. It also produces statistics about the library.

1.2 FEATURES

CROSSREF produces the following:

1. List of all modules contained within a library.
2. Summary table by modules containing module size, module ENTRY POINTS, referenced COMMONS and required EXTERNALS.
3. List of all ENTRY POINTS.
4. List of UNSATISFIED EXTERNALS.
5. Summary table of ENTRY POINTS and optionally EXTERNALS.
6. List of COMMONS.
7. Summary table of COMMONS.
8. Table of Statistics
9. Table of Contents
10. Optionally allows output to be formatted to 8 1/2 inch vertical printer paper or CRT display.

Section 2

INPUT AND OUTPUT

2.1 INPUT DATA STRUCTURE

The input data is the last record of a library file which was generated by COS when the library was generated with a BUILD statement in the CRAY's JCL. The user has no control over this last record but will ACCESS it as shown in the Usage section of this document. For more information regarding this record see CRAY document COS Table Description (Internal Reference Manual SM-0045 under the loader directory table "DFT").

2.2 OUTPUT FILE STRUCTURE

Printed lists and tables are the only forms of output from this program. It requires an output device which is capable of 132 print positions unless the option for a CRT is used.

Section 3

LIMITATIONS AND TIMING

3.1 LIMITATIONS OF TABLES

CROSSREF has the following limitations of its internal tables:

Maximum of 4096 modules per library.

Maximum of 4096 ENTRY POINTS and/or EXTERNALS per library.

Maximum of 4096 COMMONS per library.

Maximum of 1024 ENTRY POINTS and/or EXTERNALS per module.

Maximum of 1024 COMMONS per module.

3.2 TIMING CONSIDERATIONS

No absolute benchmarks for timing of CROSSREF have been established. However, using the CRAY default of eight seconds should under normal conditions, be more than adequate for most libraries.

Section 4

USAGE

4.1 OPTIONS

CROSSREF normally defaults to format its output on eleven (11) inch vertical paper of sixty one (61) lines and 132 characters wide. Also, it defaults to exclude CRAY systems EXTERNALS in its lists and summaries (i.e., modules with special characters in the name).

The above defaults can be overridden by setting sense switches. They are:

SWITCH 1 ON to include CRAY systems EXTERNALS.

SWITCH 2 ON to format the output for eight and one half (8 1/2) inch vertical paper of fifty one (51) lines and 132 characters wide.

SWITCH 3 ON to format the output to a CRT. (80 characters wide by 24 lines vertical).

4.2 EXAMPLES OF JOB CONTROL LANGUAGE

In the following examples:

eod - Cards use 7/8/9 in column one.

Mercury or Jupiter VAX use /EOF.

VAX's except Jupiter or Mercury use %%EOR.

eo1 - Cards use 6/7/8/9 in column one.

Mercury or Jupiter VAX use /EOF.

VAX's except Jupiter Mercury use %%EOF.

Example A:

To list information contained within a library and accepting CROSSREF's defaults.

```
JOB,JN=jobname,US=user,PW=password.  
ACCOUNT,AC=user account.  
ACCESS, DN=XREF, PDN=CROSSREF, ID=SOFTLIB.  
ACCESS, DN=LIBN, PDN=name of library, ID=user id.  
SKIPD, DN=LIBN.  
SKIPF, DN=LIBN, NF=-1.  
COPYF, I=LIBN, O=TAPE1.  
REWIND, DN=TAPE1.  
ASSIGN, DN=TAPE1, A=FT01.  
LDR, DN=XREF.  
eod  
eoi
```

Example B:

To list information contained within a library fromatted for 8 1/2 inch vertical output and with systems EXTERNALs.

```
JOB,JN=jobname,US=user,PW=password.  
ACCOUNT,AC=user account.  
ACCESS, DN=XREF, PDN=CROSSREF, ID=SOFTLIB.  
SWITCH, 1=ON.  
SWITCH, 2=ON.  
ACCESS, DN=LIBN, PDN=name of library, ID=user id.  
SKIPD, DN=LIBN.  
SKIPF, DN=LIBN, NF=-1.  
COPYF, I=LIBN, O=TAPE1.  
REWIND, DN=TAPE1.  
ASSIGN, DN=TAPE1, A=FT01.  
LDR, DN=XREF.  
eod  
eoi
```

Section 5

ERROR MESSAGES

All error messages appear in the CRAY systems logfile. When an error is encountered, the job aborts.

ERROR WRONG TYPE INPUT

Will be displayed when a library file was not ACCESSEd, positioned with SKIPF, SKIPD and COPYF. or ASSIGNED correctly. See the JCL section.

All other error messages are of the form:

XXX
TABLE OVERFLOW

Where XXX is the table which exceeded the limits stated in the Limitation section.

... A

SAMPLE PRINTOUT ... FOR 11 1/2" paper

Printout from CROSSREF when set up for eleven inch
printer stock and set up to include systems routines.

GENERAL INFORMATION

SEE LAST PAGE FOR TABLE OF CONTENTS.
SEE DAYFILE FOR NAME OF LIBRARY SELECTED.
I.E. ATTACH, TAPE1, XXXXXX, ETC.
OR
SEE LOGFILE FOR NAME OF LIBRARY SELECTED.
I.E. ACCESS, DM=XXXXXX, PDM=ZZZZZZ, ETC.
ALL NUMERIC VALUES ARE RADIX TEN (10).
UNLABELED COMAKN IS DENOTED BY TWO SLASHES (//).
SYSTEMS EXTERNAL WITH SPECIAL CHARACTERS WILL BE EXCLUDED.
DEFAULT PRINTER STOCK SIZE IS 11 INCH.

• • • • •
• THE LIBRARY CROSS REFERENCE SYSTEM WAS DEVELOPED FOR THE
• NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA) AT
• AMES RESEARCH CENTER, MOFFETT FIELD, CALIFORNIA 94035.
• UNDER CONTRACT NUMBER: MAS2-9891.
•
• CRAY VERSION 1.0 RELEASE DATE: JUNE 1984
•
• • • • •

THE FOLLOWING MODULES ARE MEMBERS OF THE SELECTED LIBRARY

| MEMO NAME | 76-LENGTH | 76-LENGTH | 500-LENGTH | 200-LENGTH | 82-LENGTH | 99-LENGTH | 154-LENGTH | 76-LENGTH | 76-LENGTH | 76-LENGTH | 518-LENGTH | 178-LENGTH | 100-LENGTH |
|-----------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|--------------------------------------------------|-------------|----------------|
| CFAA | 1 ENTRY POINT | 1 ENTRY POINT | 1 ENTRY POINT | 1 ENTRY POINT | 1 ENTRY POINT | 1 ENTRY POINT | 1 ENTRY POINT | 1 ENTRY POINT | 1 ENTRY POINT | 1 ENTRY POINT | 11 ENTRY POINTS | 3 EXTERNALS | 1 ENTRY POINT |
| DPTUN | SAME AS MODULE | SAME AS MODULE | SAME AS MODULE | SAME AS MODULE | SAME AS MODULE | SAME AS MODULE | SAME AS MODULE | SAME AS MODULE | SAME AS MODULE | SAME AS MODULE | ENTRY1 ENTRY2 ENTRY3 ENTRY4 ENTRY5 ENTRY6 ENTRY7 | FUNCTIONAL | SAME AS MODULE |
| EYEOH1 | | | | | | | | | | | | | |
| EYEOH2 | | | | | | | | | | | | | |
| FUNCTIONA | | | | | | | | | | | | | |
| FUNCTIONB | | | | | | | | | | | | | |
| FUNCTIONC | | | | | | | | | | | | | |
| IMP | | | | | | | | | | | | | |
| LF | | | | | | | | | | | | | |
| RF | | | | | | | | | | | | | |
| SUBRT | | | | | | | | | | | | | |
| SUBRT0 | | | | | | | | | | | | | |
| SUBRT1 | | | | | | | | | | | | | |
| SUBRT2 | | | | | | | | | | | | | |
| SUBRT3 | | | | | | | | | | | | | |
| SUBRT4 | | | | | | | | | | | | | |
| SUBRT5 | | | | | | | | | | | | | |
| SUBRT6 | | | | | | | | | | | | | |
| SUBRT7 | | | | | | | | | | | | | |
| SUBRT8 | | | | | | | | | | | | | |
| SUBRT9 | | | | | | | | | | | | | |
| SUBRT10 | | | | | | | | | | | | | |
| SUBRT11 | | | | | | | | | | | | | |
| SUBRT12 | | | | | | | | | | | | | |
| SUBRT13 | | | | | | | | | | | | | |
| SUBRT14 | | | | | | | | | | | | | |
| SUBRT15 | | | | | | | | | | | | | |
| SUBRT16 | | | | | | | | | | | | | |
| SUBRT17 | | | | | | | | | | | | | |
| SUBRT18 | | | | | | | | | | | | | |
| SUBRT19 | | | | | | | | | | | | | |
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| SUBRT23 | | | | | | | | | | | | | |
| SUBRT24 | | | | | | | | | | | | | |
| SUBRT25 | | | | | | | | | | | | | |
| SUBRT26 | | | | | | | | | | | | | |
| SUBRT27 | | | | | | | | | | | | | |
| SUBRT28 | | | | | | | | | | | | | |
| SUBRT29 | | | | | | | | | | | | | |
| SUBRT30 | | | | | | | | | | | | | |
| SUBRT31 | | | | | | | | | | | | | |
| SUBRT32 | | | | | | | | | | | | | |
| SUBRT33 | | | | | | | | | | | | | |
| SUBRT34 | | | | | | | | | | | | | |
| SUBRT35 | | | | | | | | | | | | | |
| SUBRT36 | | | | | | | | | | | | | |
| SUBRT37 | | | | | | | | | | | | | |
| SUBRT38 | | | | | | | | | | | | | |
| SUBRT39 | | | | | | | | | | | | | |
| SUBRT40 | | | | | | | | | | | | | |
| SUBRT41 | | | | | | | | | | | | | |
| SUBRT42 | | | | | | | | | | | | | |
| SUBRT43 | | | | | | | | | | | | | |
| SUBRT44 | | | | | | | | | | | | | |
| SUBRT45 | | | | | | | | | | | | | |
| SUBRT46 | | | | | | | | | | | | | |
| SUBRT47 | | | | | | | | | | | | | |
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| SUBRT50 | | | | | | | | | | | | | |
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| SUBRT58 | | | | | | | | | | | | | |
| SUBRT59 | | | | | | | | | | | | | |
| SUBRT60 | | | | | | | | | | | | | |
| SUBRT61 | | | | | | | | | | | | | |
| SUBRT62 | | | | | | | | | | | | | |
| SUBRT63 | | | | | | | | | | | | | |
| SUBRT64 | | | | | | | | | | | | | |
| SUBRT65 | | | | | | | | | | | | | |
| SUBRT66 | | | | | | | | | | | | | |
| SUBRT67 | | | | | | | | | | | | | |
| SUBRT68 | | | | | | | | | | | | | |
| SUBRT69 | | | | | | | | | | | | | |
| SUBRT70 | | | | | | | | | | | | | |
| SUBRT71 | | | | | | | | | | | | | |
| SUBRT72 | | | | | | | | | | | | | |
| SUBRT73 | | | | | | | | | | | | | |
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| SUBRT75 | | | | | | | | | | | | | |
| SUBRT76 | | | | | | | | | | | | | |
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| SUBRT93 | | | | | | | | | | | | | |
| SUBRT94 | | | | | | | | | | | | | |
| SUBRT95 | | | | | | | | | | | | | |
| SUBRT96 | | | | | | | | | | | | | |
| SUBRT97 | | | | | | | | | | | | | |
| SUBRT98 | | | | | | | | | | | | | |
| SUBRT99 | | | | | | | | | | | | | |
| SUBRT100 | | | | | | | | | | | | | |

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*** SUMMARY OF MODULES ***
ATTRIBUTES

SUBRT2 90-LENGTH: 1 ENTRY POINT: SAME AS MODULE

1 COMMON: ACOMMON

1 EXTERNAL: SUBRT3

SUBRT3 90-LENGTH: 1 ENTRY POINT: SAME AS MODULE

1 COMMON: ACOMMON

1 EXTERNAL: SUBRT4

SUBRT4 94-LENGTH: 1 ENTRY POINT: SAME AS MODULE

2 COMMONS: ACOMMON COM1N4

1 EXTERNAL: SUBRT5

SUBRT5 152-LENGTH: 1 ENTRY POINT: SAME AS MODULE

2 COMMONS: ACOMMON COM1N4

3 ENTRY POINTS: ENTRY ENTRYA SUBRTA

36 COMMONS: // ACOMMON

COM1N1 COM1N2 COM1N3 COM1N4

COM1N5 COM1N6 COM1N7 COM1N8

COM1N9 COM1N10 COM1N11 COM1N12

COM1N13 COM1N14 COM1N15 COM1N16

COM1N17 COM1N18 COM1N19 COM1N20

COM1N21 COM1N22 COM1N23 COM1N24

COM1N25 COM1N26 COM1N27 COM1N28

COM1N29 COM1N30 COM1N31 COM1N32

COM1N33 COM1N34 COM1N35 COM1N36

COM1N37 COM1N38 COM1N39 COM1N40

COM1N41 COM1N42 COM1N43 COM1N44

COM1N45 COM1N46 COM1N47 COM1N48

COM1N49 COM1N50 COM1N51 COM1N52

COM1N53 COM1N54 COM1N55 COM1N56

COM1N57 COM1N58 COM1N59 COM1N60

COM1N61 COM1N62 COM1N63 COM1N64

COM1N65 COM1N66 COM1N67 COM1N68

COM1N69 COM1N70 COM1N71 COM1N72

COM1N73 COM1N74 COM1N75 COM1N76

COM1N77 COM1N78 COM1N79 COM1N80

COM1N81 COM1N82 COM1N83 COM1N84

COM1N85 COM1N86 COM1N87 COM1N88

COM1N89 COM1N90 COM1N91 COM1N92

COM1N93 COM1N94 COM1N95 COM1N96

COM1N97 COM1N98 COM1N99 COM1N100

PAGE 2

PAGE 2

MOD NAME SUMMARY BY MODULES
ATTRIBUTES

SUBRTO CONTINUED FROM PAGE 2

| SUBRTE | 102=LENGTH | 2 ENTRY POINTS | FUNCTION | SUBRT6 | SUBRT4 | SUBRTE | UNSATO |
|--------|------------|----------------|----------|---------|---------|--------|--------|
| | | | ACOMMON | COMMON4 | COMMON4 | | |
| | | | UNSATO | | | | |
| | | | SUBRTF | | | | |
| | | | ACOMMON | COMMON4 | COMMON4 | | |
| | | | UNSATO | | | | |
| | | | SUBRTG | | | | |
| | | | ACOMMON | COMMON4 | COMMON4 | | |
| | | | UNSATO | | | | |
| | | | SUBRTH | | | | |
| | | | ACOMMON | COMMON4 | COMMON4 | | |
| | | | UNSATO | | | | |
| | | | SUBRTI | | | | |
| | | | ACOMMON | COMMON4 | COMMON4 | | |
| | | | UNSATO | | | | |
| | | | SUBRTJ | | | | |
| | | | ACOMMON | COMMON4 | COMMON4 | | |
| | | | UNSATO | | | | |
| | | | SUBRTK | | | | |
| | | | ACOMMON | COMMON4 | COMMON4 | | |
| | | | UNSATO | | | | |
| | | | SUBRTL | | | | |
| | | | ACOMMON | COMMON4 | COMMON4 | | |
| | | | UNSATO | | | | |
| | | | SUBRTL | | | | |
| | | | ACOMMON | COMMON4 | COMMON4 | | |
| | | | UNSATO | | | | |
| | | | SUBRTM | | | | |
| | | | ACOMMON | COMMON4 | COMMON4 | | |
| | | | UNSATO | | | | |

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MOD NAME SUMMARY BY MODULES
ATTRIBUTES

SUBRTM 126-LENGTH 2 ENTRY POINTS: ENTRY SUBRTM
COMMON COMMON

SUBRTM 126-LENGTH 2 ENTRY POINTS: ENTRY SUBRTM
COMMON COMMON

SUBRTO 174-LENGTH 2 ENTRY POINTS: ENTRY SUBRTO
COMMON COMMON

SUBRTP 188-LENGTH 2 ENTRY POINTS: ENTRY SUBRTP
COMMON COMMON

SUBRTO 122-LENGTH 2 ENTRY POINTS: ENTRY SUBRTO
COMMON COMMON

SUBRTR 188-LENGTH 2 ENTRY POINTS: ENTRY SUBRTR
COMMON COMMON

SUBRTS 122-LENGTH 2 ENTRY POINTS: ENTRY SUBRTS
COMMON COMMON

SUBRTT 122-LENGTH 2 ENTRY POINTS: ENTRY SUBRTT
COMMON COMMON

SUBRTU 122-LENGTH 2 ENTRY POINTS: ENTRY SUBRTU
COMMON COMMON

PAGE 4

| ENT PT | REFERENCING MODULE(S) | SUMMARY BY ENTRY POINTS |
|-----------------|-----------------------------------------|-------------------------|
| ENTRYN (SUBRTH) | 1 MODULE: SUBRTH | |
| ENTRYI (SUBRTI) | 1 MODULE: SUBRTH | |
| ENTRYJ (SUBRTJ) | 1 MODULE: SUBRTH | |
| ENTRYK (SUBRTK) | 1 MODULE: SUBRTH | |
| ENTRYL (SUBRTL) | 1 MODULE: SUBRTH | |
| ENTRTM (SUBRTM) | 1 MODULE: SUBRTH | |
| ENTRYN (SUBRTN) | 1 MODULE: SUBRTH | |
| ENTRYO (SUBRTO) | 1 MODULE: SUBRTH | |
| ENTRYP (SUBRTP) | 1 MODULE: SUBRTH | |
| ENTRYQ (SUBRTO) | 1 MODULE: SUBRTH | |
| ENTRYR (SUBRTR) | 1 MODULE: SUBRTH | |
| ENTRYS (SUBRTS) | 1 MODULE: SUBRTH | |
| ENTRYT (SUBRTT) | 1 MODULE: SUBS. TR | |
| ENTRYU (SUBRTU) | 1 MODULE: SUBRTH | |
| ENTRYV (SUBRTV) | 1 MODULE: SUBRTH | |
| ENTRYW (SUBRTW) | 1 MODULE: SUBRTH | |
| ENTRYX (SUBRTH) | 1 MODULE: SUBRTH | |
| ENTRYY (SUBRTY) | 1 MODULE: SUBRTH | |
| ENTRYZ (SUBRTZ) | 1 MODULE: SUBRTH | |
| EYEOH1 | 1 MODULE: SUBRTH | |
| EYEOH2 | 1 MODULE: SUBRTH | |
| FUNCTIONA | 4 MODULES: FUNCTION SUBRT SUBRTA SUBRTO | |
| FUNCTIONB | 3 MODULES: SUBRT SUBRTA SUBRTO | |
| FUNCTIONC | 1 MODULE: SUBRT | |
| SUBRTB | 4 MODULES: SUBRTA SUBRTH SUBRTO SUBRTZ | |
| SUBRTI | 3 MODULES: SUBRTH SUBRTA SUBRTO | |
| SUBRTJ | 2 MODULES: SUBRTI SUBRTA | |

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***** SUMMARY BY ENTRY POINTS *****
 ***** REFERENCING MODULE(S) *****

PAGE 8
 ENT PT
 SUBRT3
 SUBRT4
 SUBRT5
 SUBRTB
 SUBRTC
 SUBRTD
 SUBRTE
 SUBRTF
 SUBRTG
 SUBRTH
 SUBRTI
 SUBRTJ
 SUBRTK
 SUBRTL
 SUBRTM
 SUBRTN
 SUBRTO
 SUBRTP
 SUBRTO
 SUBRTR
 SUBRTS
 SUBRTT
 SUBRTU
 SUBRTV
 SUBRTW
 SUBRTX
 SUBRTY
 SUBRTY
 PAGE 8

2 MODULES: SUBRT2 SUBRTB
 4 MODULES: SUBRT3 SUBRTA SUBRTB SUBRTD
 2 MODULES: SUBRT4 SUBRTA
 1 MODULE: SUBRTA
 1 MODULE: SUBRTB
 2 MODULES: SUBRTB SUBRTC
 1 MODULE: SUBRTD
 1 MODULE: SUBRTE
 1 MODULE: SUBRTF
 1 MODULE: SUBRTG
 1 MODULE: SUBRTI
 1 MODULE: SUBRTJ
 1 MODULE: SUBRTK
 1 MODULE: SUBRTL
 1 MODULE: SUBRTM
 1 MODULE: SUBRTN
 1 MODULE: SUBRTO
 1 MODULE: SUBRTP
 1 MODULE: SUBRTO
 1 MODULE: SUBRTR
 1 MODULE: SUBRTS
 1 MODULE: SUBRTT
 1 MODULE: SUBRTU
 1 MODULE: SUBRTV
 1 MODULE: SUBRTW
 1 MODULE: SUBRTX
 1 MODULE: SUBRTY

ORIGINAL MODULES
 OF POOR QUALITY

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ENT PT SUMMARY BY ENTRY POINTS
REFERENCING MODULE(S)

| SUBRTZ | 5 MODULES | SUBRTB | SIGRTV | SUBRTW | SUBRTX | SUBRTY |
|----------------------|------------|------------------|----------------------------------------------------------------------------------------|------------------|--------|--------|
| UNSA7A (UNSATISFIED) | 2 MODULES | SUBRTA | SUBRTC | | | |
| UNSA7B (UNSATISFIED) | 1 MODULE | SUBRTA | | | | |
| UNSA7C (UNSATISFIED) | 1 MODULE | SUBRTA | | | | |
| UNSA7D (UNSATISFIED) | 1 MODULE | SUBRTA | | | | |
| UNSA7E (UNSATISFIED) | 1 MODULE | SUBRTA | | | | |
| UNSA7F (UNSATISFIED) | 1 MODULE | SUBRTA | | | | |
| UNSA7G (UNSATISFIED) | 1 MODULE | SUBRTA | | | | |
| UNSA7H (UNSATISFIED) | 1 MODULE | SUBRTA | | | | |
| UNSA7I (UNSATISFIED) | 1 MODULE | SUBRTA | | | | |
| UNSA7J (UNSATISFIED) | 1 MODULE | SUBRTA | | | | |
| UNSA7K (UNSATISFIED) | 1 MODULE | SUBRTA | | | | |
| UNSA7L (UNSATISFIED) | 1 MODULE | SUBRTA | | | | |
| UNSA7M (UNSATISFIED) | 1 MODULE | SUBRTA | | | | |
| UNSA7N (UNSATISFIED) | 1 MODULE | SUBRTA | | | | |
| UNSA7O (UNSATISFIED) | 11 MODULES | SUBRTA SUBRTK | SUBRTB SUBRTC SUBRTD SUBRTE SUBRTF SUBRTG SUBRTH SUBRTI SUBRTJ | SUBRTX SUBRTY | | |

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ORIGINAL DOCUMENT
OF POOR QUALITY

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DATE 05/07/85

• • • • • SUMMARY BY COM 3-MS • • • • •
MODULE(S) USING THE COMMON

| | | | | | |
|----------|-----------|--------|--------|--------|--------|
| COM100 | 1 MODULE | SUBRTA | | | |
| COM10P | 1 MODULE | SUBRTA | | | |
| COM10Q | 1 MODULE | SUBRTA | | | |
| COM10R | 1 MODULE | SUBRTA | | | |
| COM10S | 5 MODULES | SUBRTA | SUBRTB | SUBRTC | SUBRTD |
| COM10T | 1 MODULE | SUBRTA | | | |
| COM10U | 1 MODULE | SUBRTA | | | |
| COM10V | 1 MODULE | SUBRTA | | | |
| COM10W | 1 MODULE | SUBRTA | | | |
| COM10X | 1 MODULE | SUBRTA | | | |
| COM10Y | 1 MODULE | SUBRTA | | | |
| COM10Z | 1 MODULE | SUBRTA | | | |
| WR11COMA | 2 MODULES | EYEDM1 | EYEDM2 | SUBRTA | SUBRTD |

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. STATISTICS

MODULE 43
ENTRY POINTS 01
COMMENTS 34
UNSAT EXTERNALS 15

RELOCATABLE DIRECTORY LENGTH 59^
WORDS REQUIRED TO LOAD ALL
RELOCATABLE MODULES IN THE
SELECTED LIBRARY 17400 OCTAL

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| 1 | SUMMARY BY MODULES |
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| 10 | SUMMARY BY COMPIERS |
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APPENDIX B

SAMPLE PRINTOUT FORMATTED FOR CRT DISPLAY CROSSREF

Setup to format for a CRT and set up to include systems routines.

* * * * *
*
* THE LIBRARY CROSS REFERENCE SYSTEM WAS DEVELOPED FOR THE *
* NATIONAL AFRONAUTICS AND SPACE ADMINISTRATION (NASA) AT *
* AMES RESEARCH CENTER, MOFFETT FIELD, CALIFORNIA 94035. *
* UNDER CONTRACT NUMBER: NAS2-2891. *
*
* CRAY VERSION 1.0 RELEASE DATE: JUNE 1984 *
*
* * * * *

MOD. NAME SUMMARY BY MODULES
 ATTRIBUTES

EYEOH1 CONTINUED FROM PAGE 1
 13 EXTERNALS: \$EOFW \$SRB \$REWF
 \$RFF \$RFI \$RFV%
 \$RUF \$RUI \$RUV%
 \$WB \$WFF \$WFI
 \$WFV%

EYEOH2 208-LENGTH 1 ENTRY POINT: SAME AS MODULE
 1 COMMON WRITCOMA
 3 EXTERNALS: \$CLS \$OPN \$WB

FUNCTNA 82-LENGTH 1 ENTRY POINT: SAME AS MODULE
 PAGE 2

MOD. NAME * * * * * SUMMARY BY MODULES * * * * *
 ATTRIBUTES

| FUNCTNB | 96-LENGTH | 1 ENTRY POINT | SAME AS MODULE | 1 EXTERNAL: | SQRT% | FUNCTNA | SIN% |
|---------|------------|----------------|----------------|--------------|-------|---------|------|
| FUNCTNC | 154-LENGTH | 1 ENTRY POINT: | SAME AS MODULE | 4 EXTERNALS: | SQRT% | | |
| INF | 76-LENGTH | 1 ENTRY POINT: | SAME AS MODULE | | | | |
| LF | 76-LENGTH | 1 ENTRY POINT: | SAME AS MODULE | | | | |
| RF | 76-LENGTH | 1 ENTRY POINT: | SAME AS MODULE | | | | |

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MOD. NAME * * * * * SUMMARY BY MODULES * * * * *
ATTRIBUTES

SUBRT 518=LENGTH 11 ENTRY POINTS: ENTRY1 ENTRY10 ENTRY2 ENTRY5
ENTRY3 ENTRY4 ENTRY7 ENTRY6 ENTRY8 ENTRY9 SUBRT

1 COMMON: ACOMMON

3 EXTERNALS: FUNCTNA FUNCTNB FUNCTNC

SUBRTO 170=LENGTH 2 ENTRY POINTS: ENTRYO SUBRTO

1 COMMON: ACOMMON

3 EXTERNALS: \$WFF \$WFI SUBRT1

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MOD. NAME SUMMARY BY MODULES
ATTRIBUTES

| | | | | | | |
|--------|------------|---|--------------|----------------|---------|---------|
| SUBRT1 | 106-LENGTH | 1 | ENTRY POINT: | SAME AS MODULE | | |
| | | 5 | COMMONS: | ACOMMON | COMMON1 | COMMON2 |
| | | | | COMMON3 | COMMON4 | |
| | | 1 | EXTERNAL: | SUBRT2 | | |
| SUBRT2 | 90-LENGTH | 1 | ENTRY POINT: | SAME AS MODULE | | |
| | | 1 | COMMON: | ACOMMON | | |
| | | 1 | EXTERNAL: | SUBRT3 | | |
| SUBRT3 | 90-LENGTH | 1 | ENTRY POINT: | SAME AS MODULE | | |
| | | 1 | COMMON: | ACOMMON | | |

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MOD. NAME * * * * * SUMMARY BY MODULES * * * * *
ATTRIBUTES

SUBRT3 CONTINUED FROM PAGE 5

1 EXTERNAL: SUBRT4

SUBRT4 94-LENGTH 1 ENTRY POINT: SAME AS MODULE

2 COMMONS: ACOMMON COMMON4

1 EXTERNAL: SUBRT5

SUBRT5 152-LENGTH 1 ENTRY POINT: SAME AS MODULE

2 COMMONS: ACOMMON COMMON4

3 EXTERNALS: \$RFF \$RFI \$RFV%

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SUMMARY BY MODULES
ATTRIBUTES

MOD. NAME

| SUBRTA | 862-LENGTH | 3 ENTRY POINTS: | ENTRY | ENTRYA | SUBRTA |
|--------|------------|-----------------|---------|---------|----------|
| | | 30 COMMONS: | // | ACOMMON | COMMON |
| | | | COMMONA | COMMONB | COMMONC |
| | | | COMMOND | COMMONE | COMMONF |
| | | | COMMONG | COMMONH | COMMONI |
| | | | COMMONJ | COMMONK | COMMONL |
| | | | COMMONM | COMMONN | COMMONO |
| | | | COMMONP | COMMONQ | COMMONR |
| | | | COMMONS | COMMONT | COMMONU |
| | | | COMMONV | COMMONW | COMMONX |
| | | | COMMONY | COMMONZ | WRITCOMA |

42 EXTERNALS:

| | |
|--------|---------|
| \$RFF | \$RFV% |
| COS% | ENTRY1 |
| ENTRY2 | ENTRY3 |
| | ENTRY4 |
| | ENTRY10 |

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MOD. NAME SUMMARY BY MODULES ATTRIBUTES

SUBRTA CONTINUED FROM PAGE 7

| | | | |
|-----------|--------|-----------|---------|
| ENTRY7 | ENTRY6 | ENTRY5 | ENTRY7 |
| ENTRY8 | ENTRY9 | ENTRY8 | ENTRY8 |
| EYEOH1 | EYEOH2 | EYEOH1 | FUNC1NA |
| FUNCTIONB | SIN% | FUNCTIONB | SUBRTO |
| SUBRT1 | SUBRT2 | SUBRT1 | SUBRT4 |
| SUBRT5 | SUBRTB | SUBRT5 | TAN% |
| UNSATA | UNSATB | UNSATA | UNSATC |
| UNSATD | UNSATF | UNSATD | UNSATF |
| UNSATG | UNSATH | UNSATG | UNSATI |
| UNSATJ | UNSATK | UNSATJ | UNSATL |
| UNSATM | UNSATN | UNSATM | UNSATO |

| | | | | | |
|--------|------------|---|---------------|--------|---------|
| SUBRTB | 580=LENGTH | 2 | ENTRY POINTS: | ENTRYB | SUBRTB |
| | | 8 | COMMONS: | // | ACOMMON |
| | | | | | COMMONA |

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MOD. NAME SUMMARY BY MODULES
 ATTRIBUTES

SUBRTB CONTINUED FROM PAGE 8

| COMMONB COMMONC | COMMONC COMMONC | COMMONC COMMONC | COMMONC COMMONC |
|--------------------|--------------------|--------------------|--------------------|
| \$RFF | \$RFI | \$RFV% | |
| COS% | ENTRYC | ENTRYD | |
| ENTRYE | ENTRYF | ENTRYG | |
| ENTRYH | ENTRYI | ENTRYJ | |
| ENTRYK | ENTRYL | ENTPYM | |
| ENTRYN | ENTRYO | ENTRYP | |
| ENTRYQ | ENTRYR | ENTRYS | |
| ENTRYT | ENTRYU | ENTRYV | |
| ENTRYW | ENTRYX | ENTRYY | |
| ENTRYZ | SIN% | SUBRTO | |
| SUBRTI | SUBRT3 | SUBRT4 | |
| SUBRTC | SUBRTD | SUBRTZ | |

37 EXTERNALS:

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MOD. NAME SUMMARY BY MODULES
ATTRIBUTES

SUBRTB CONTINUED FROM PAGE 9

| SUBRTC | 192-LENGTH | 2 ENTRY POINTS: | ENTRYC | SUBRTC |
|--------|------------|-----------------|---------|----------|
| | | | UNSATO | |
| | | 7 COMMONS: | // | ACOMMON |
| | | | COMMONB | COMMONC |
| | | | COMMONS | COMMOND |
| | | 5 EXTERNALS: | COS% | SUBRTD |
| | | | UNSATO | |
| | | 2 ENTRY POINTS: | ENTRYD | SUBRTD |
| | 388-LENGTH | 6 COMMONS: | // | ACOMMON |
| | | | COMMONB | COMMONS |
| | | | | COMMONA |
| | | | | WRITCOMA |

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MOD. NAME SUMMARY BY MODULES
 ATTRIBUTES

SUBRTD CONTINUED FROM PAGE 10

| | | | | |
|--------|---------------|-----------------|---------|---------|
| | 13 EXTERNALS: | \$RFF | \$RFI | \$RPF% |
| | | \$WFF | \$WFI | COS% |
| | | FUNCTNA | FUNCTNB | SIN% |
| | | SUBRTO | SUBRT4 | SUBRTE |
| | | UNSATO | | |
| ----- | | | | |
| SUBRTE | 182-LENGTH | 2 ENTRY POINTS: | ENTRYE | SUBRTE |
| | | 5 COMMONS: | // | ACOMMON |
| | | | COMMONB | COMMONS |
| | | 4 EXTERNALS: | COS% | SIN% |
| | | | UNSATO | SUBRTF |

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MOD. NAME SUMMARY BY MODULES
ATTRIBUTES

| | | | | | | | |
|--------|------------|---|---------------|---------|---------|---------|---------|
| SUBRTF | 240-LENGTH | 2 | ENTRY POINTS: | ENTRYF | SUBRTF | COMMON | COMMONA |
| | | 3 | COMMONS: | // | ACOMMON | | |
| | | 7 | EXTERNALS: | \$RFF | \$RPI | \$RFV% | |
| | | | | COS% | SIN% | SUBRTG | |
| | | | | UNSATD | | | |
| ----- | | | | | | | |
| SUBRTG | 142-LENGTH | 2 | ENTRY POINTS: | ENTRYG | SUBRTG | ACOMMON | COMMON4 |
| | | 4 | COMMONS: | // | ACOMMON | | |
| | | | | COMMONA | | | |
| | | 2 | EXTERNALS: | SUBRTH | UNSATD | | |

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MOD. NAME SUMMARY BY MODULES ATTRIBUTES

| | | | | | | | |
|--------|------------|---|---------------|--------|---------|---------|---------|
| SUBRTH | 142-LENGTH | 2 | ENTRY POINTS: | ENTRYH | SUBRTH | ACOMMON | COMMON4 |
| | | 4 | COMMONS: | // | COMMONA | | |
| | | 2 | EXTERNALS: | SUEA21 | UNSAT0 | | |
| SUBRTI | 192-LENGTH | 2 | ENTRY POINTS: | ENTRYI | SUBRTI | ACOMMON | COMMON4 |
| | | 4 | COMMONS: | // | COMMONA | | |
| | | 4 | EXTERNALS: | \$WFF | \$WFI | | SUBRTJ |
| | | | | UNSAT0 | | | |

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MOD. NAME * * * * * SUMMARY BY MODULES * * * * *

ATTRIBUTES

SUBRTJ 142-LENGTH 2 ENTRY POINTS: ENTRYJ SUBRTJ COMMON4

4 COMMONS: // COMMON4

2 EXTERNALS: SUBRTK UNSATO

SUBRTK 138-LENGTH 2 ENTRY POINTS: ENTRYK SUBRTK

3 COMMONS: ACOMMON COMMON4 COMMON4

2 EXTERNALS: SUBRTL UNSATO

SUBRTL 192-LENGTH 2 ENTRY POINTS: ENRYL SUBRTL

2 COMMONS: ACOMMON COMMON4

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MOD NAME * * * * * SUMMARY BY MODULES * * * * *
ATTRIBUTES

SUBRTL CONTINUED FROM PAGE 14

| | | | \$RFF | \$RFI | \$RFV% |
|---|--------|-----------------|-----------------|---------|--------|
| | | 4 EXTERNALS: | \$RFF | \$RFI | \$RFV% |
| | | | SUBRTM | | |
| 4 | SUBRTM | 126-LENGTH | 2 ENTRY POINTS: | SUBRTM | |
| | | | ACOMMON | COMMON4 | |
| | | 1 EXTERNAL: | SUBRTN | | |
| | | 2 ENTRY POINTS: | ENTRYN | SUBRTN | |
| | | 2 COMMONS: | ACOMMON | COMMON4 | |
| | | 1 EXTERNAL: | SUBRTO | | |

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* * * * * SUMMARY BY MODULES * * * * *
ATTRIBUTES

MOD. NAME 174-LENGTH 2 ENTRY POINTS: ENTFYO SUBRTO
SUBRTO 2 COMMONS: ACOMMON COMMON4
 3 EXTERNALS: \$WFF \$WFI SUBRTP

SUBRTP 188-LENGTH 2 ENTRY POINTS: ENTRYP SUBRTP
 1 COMMON: ACOMMON
 -1 EXTERNALS: \$RFF \$RFI \$LFV%

SUBRTO 122-LENGTH 2 ENTRY POINTS: ENTRYQ SUBRTO
 1 COMMON: ACOMMON

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MOD. NAME SUMMARY BY MODULES
ATTRIBUTES

SUBRTQ CONTINUED FROM PAGE 16

| | | | | |
|---|---------------|---------|--------|--------|
| 1 | EXTERNAL: | SUBRTR | | |
| 2 | ENTRY POINTS: | ENTRYR | SUBRTR | |
| 1 | COMMON: | ACOMMON | | |
| 4 | EXTERNALS: | \$RFF | \$RFI | \$RFV% |
| | | SUBRTS | | |
| 2 | ENTRY POINTS: | ENTRYS | SUBRTS | |
| 1 | COMMON: | ACOMMON | | |
| 1 | EXTERNAL: | SUBRTT | | |

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MOD. NAME * * * * * SUMMARY BY MODULES * * * * * ATTRIBUTES

| | | | | | |
|--------|------------|---|---------------|---------|--------|
| SUBRRT | 122-LENGTH | 2 | ENTRY POINTS: | ENTRYT | SUBRRT |
| | | 1 | COMMON: | ACOMMON | |
| SUBRTU | 122-LENGTH | 1 | EXTERNAL: | SUBRTU | SUBRTU |
| | | 2 | ENTRY POINTS: | ENTRYU | |
| | | 1 | COMMON: | ACOMMON | |
| | | 1 | EXTERNAL: | SUBRTV | |
| SUBRTV | 138-LENGTH | 2 | ENTRY POINTS: | ENTRYV | SUBRTV |
| | | 1 | COMMON: | ACOMMON | |
| | | 2 | EXTERNALS: | SUBRTW | SUBRTZ |

Summary by Modules Attributes

MOD. NAME

SUBRTW 130-LENGTH 2 ENTRY POINTS: ENTRYW SUBRTW

1 COMMON: ACOMMON

2 EXTERNALS: SUBRTX SUBRTZ

SUBRTX 130-LENGTH 2 ENTRY POINTS: ENTRYX SUBRTX

1 COMMON: ACOMMON

2 EXTERNALS: SUBRTY SUBRTZ

SUBRTY 122-LENGTH 2 ENTRY POINTS: ENTRYY SUBRTY

1 COMMON: ACOMMON

1 EXTERNAL: SUBRTZ

• THE FOLLOWING ENTRY POINTS ARE MEMBERS OF THE SELECTED LIBRARY •

| | | | | | | | |
|--------|--------|---------|---------|---------|---------|--------|--------|
| CFAA | DPFUN | ENTRY | ENTRY0 | ENTRY1 | ENTRY10 | ENTRY2 | ENTRY3 |
| ENTRY4 | ENTRY5 | ENTRY6 | ENTRY7 | ENTRY8 | ENTRY9 | ENTRYA | ENTRYB |
| ENTRYC | ENTRYD | ENTRYE | FJTRYF | ENTRYG | ENTRYH | ENTRYI | ENTRYJ |
| ENTRYK | ENTRYL | ENTRYM | ENTRYN | ENTRYO | ENTRYP | ENTRYQ | ENTRYP |
| ENTRYS | ENTRYS | ENTRYU | ENTRYS | ENTRYS | ENTRYS | ENTRYS | ENTRYS |
| EYEOH1 | EYEOH2 | FUNCTNA | FUNCTNB | FUNCTNC | INF | LF | RF |
| SUBRT | SUBRTO | SUBRT1 | SUBRT2 | SUBRT3 | SUBRT4 | SUBRT5 | SUBRTA |
| SUBRTB | SUBRTC | SUBRTD | SUBRTE | SUBRTF | SUBRTG | SUBRTH | SUBRTI |
| SUBRTJ | SUBRTK | SUBRTL | SUBRTM | SUBRTN | SUBRTO | SUBRTP | SUBRTQ |
| SUBRTR | SUBRTS | SUBRTT | SUBRTU | SUBRTV | SUBRTW | SUBRTX | SUBRTY |
| SUBRTZ | | | | | | | |

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* * THE FOLLOWING ENTRY POINTS ARE NOT REFERENCED BY THIS LIBRARY* *

| | | | | | | | |
|-------|--------|-------|--------|--------|-----|----|----|
| CFAA | DPFUN | ENTRY | ENTRYO | ENTRYA | INF | LF | RF |
| SUBRT | SUBRTA | | | | | | |

* * UNSATISFIED EXTERNALS REQUIRED BY MEMBERS OF THIS LIBRARY* *

| | | | | | | | | | | | | | | | |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| UNSATI | UNSATJ | UNSATK | UNSATL | UNSATM | UNSATN | UNSATO | UNSATP | UNSATQ | UNSATR | UNSATU | UNSATV | UNSATW | UNSATX | UNSATY | UNSATZ |
| | | | | | | | | | | | | | | | |

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* * SUMMARY BY ENTRY POINTS AND EXTERNALS* *
ENT. PT. & EXTERNALS REFERENCING MODULE(S)

\$CLS (CRAY LIBRARY) 1 MODULE: EYEOH2

\$EOFW (CRAY LIBRARY) 1 MODULE: EYEOH1

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* * SUMMARY BY ENTRY POINTS AND EXTERNALS * *
ENT. PT. & EXTERNALS REFERENCING MODULE(S)

| | | | | | | | | |
|--------|----------------|---|----------|--------|--------|--------|--------|--------|
| \$OPN | (CRAY LIBRARY) | 1 | MODULE: | EYEOH2 | | | | |
| \$RB | (CRAY LIBRARY) | 1 | MODULE: | EYEOH1 | | | | |
| \$REWF | (CRAY LIBRARY) | 1 | MODULE: | EYEOH1 | | | | |
| \$RFF | (CRAY LIBRARY) | 9 | MODULES: | EYEOH1 | SUBRTA | SUBRTB | SUBRTS | SUBRTT |
| | | | | SUBRTD | SUBRTL | SUBRTP | SUBRTU | SUBRTV |
| | | | | SUBRTR | | | | |
| \$RFI | (CRAY LIBRARY) | 9 | MODULES: | EYEOH1 | SUBRTA | SUBRTB | SUBRTS | SUBRTT |
| | | | | SUBRTD | SUBRTL | SUBRTP | SUBRTU | SUBRTV |
| | | | | SUBRTR | | | | |
| \$RFV% | (CRAY LIBRARY) | 9 | MODULES: | EYEOH1 | SUBRTA | SUBRTB | SUBRTS | SUBRTT |
| | | | | SUBRTD | SUBRTL | SUBRTP | SUBRTU | SUBRTV |
| | | | | SUBRTR | | | | |

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* * SUMMARY BY ENTRY POINTS AND EXTERNALS * *
ENT. PT. & EXTERNALS REFERENCING MODULE(S)

| | | | | | | | | | |
|---------|----------------|---|----------|------------------|------------------|--------|--------|--|--|
| 3WFV% | (CRAY LIBRARY) | 1 | MODULE: | EYEOH1 | | | | | |
| COS% | (CRAY LIBRARY) | 6 | MODULES: | SUBRTA SUBRTE | SUBRTB SUBRTF | SUBRTC | SUBRTD | | |
| ENTRY1 | (SUBRT) | 2 | MODULES: | SUBRTA | SUBRTZ | | | | |
| ENTRY10 | (SUBRT) | 1 | MODULE: | SUBRTA | | | | | |
| ENTRY2 | (SUBRT) | 1 | MODULE: | SUBRTA | | | | | |
| ENTRY3 | (SUBRT) | 1 | MODULE: | SUBRTA | | | | | |
| ENTRY4 | (SUBRT) | 1 | MODULE: | SUBRTA | | | | | |
| ENTRY5 | (SUBRT) | 1 | MODULE: | SUBRTA | | | | | |

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* * SUMMARY BY ENTRY POINTS AND EXTERNALS. * *
ENT. PT. & EXTERNALS REFERENCING MODULE(S)

| | | | |
|-----------------|---|---------|--------|
| ENTRYF (SUBRTF) | 1 | MODULE: | SUBRTB |
| ENTRYG (SUBRTG) | 1 | MODULE: | SUBRTB |
| ENTRYH (SUBRTH) | 1 | MODULE: | SUBRTB |
| ENTRYI (SUBRTI) | 1 | MODULE: | SUBRTB |
| ENTRYJ (SUBRTJ) | 1 | MODULE: | SUBRTB |
| ENTRYK (SUBRTK) | 1 | MODULE: | SUBRTB |
| ENTRYL (SUBRTL) | 1 | MODULE: | SUBRTB |
| ENTRYM (SUBRTM) | 1 | MODULE: | SUBRTB |

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* * SUMMARY BY ENTRY POINTS AND EXTERNALS * *
ENT. PT. & EXTERNALS REFERENCING MODULE(S)

| | | | |
|-----------------|---|---------|--------|
| ENTRYN (SUBRTN) | 1 | MODULE: | SUBPTB |
| ENTRYO (SUBRTO) | 1 | MODULE: | SUBRTB |
| ENTRYP (SUBRTP) | 1 | MODULE: | SUBRTB |
| ENTRYQ (SUBRTQ) | 1 | MODULE: | SUBRTE |
| ENTRYR (SUBRTR) | 1 | MODULE: | SUBRTB |
| ENTRYS (SUBRTS) | 1 | MODULE: | SUBRTB |
| ENTRYT (SUBRTT) | 1 | MODULE: | SUBRTB |
| ENTRYU (SUBRTU) | 1 | MODULE: | SUBRTB |

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* * SUMMARY BY ENTRY POINTS AND EXTERNALS * *
ENT. PT. & EXTERNALS REFERENCING MODULE(S)

| | | | |
|---------------------|---|---------|---------|
| ENTRYV (SUBRTV) | 1 | MODULE: | SUBRTB |
| ENTRYW (SUBRTW) | 1 | MODULE: | SUBRTB |
| ENTRYX (SUBRTX) | 1 | MODULE: | SUBRTB |
| ENTRYY (SUBRTY) | 1 | MODULE: | SUBRTB |
| ENTRYZ (SUBRTZ) | 1 | MODULE: | SUBRTB |
| EXP% (CRAY LIBRARY) | 1 | MODULE: | FUNCTNC |
| EYEOH1 | 1 | MODULE: | SUBRTA |
| EYEOH2 | 1 | MODULE: | SUBRTA |
| PAGE 29 | | | |

* * SUMMARY BY ENTRY POINTS AND EXTERNALS * *
ENT. PT. & EXTERNALS REFERENCING MODULE(S)

| | | | | |
|-----------|--------------------|--------------------|--------|--------|
| FUNCTIONA | 4 MODULES: FUNCTNC | SUBRT | SUBRTA | SUBRTD |
| FUNCTIONB | 3 MODULES: SUBRT | SUBRTA | SUBRTD | |
| FUNCTIONC | 1 MODULE: SUBRT | | | |
| SIN% | (CRAY LIBRARY) | 7 MODULES: FUNCTNC | SUBRTA | SUBRTC |
| SQRT% | (CRAY LIBRARY) | SUBRTD | SUBRTB | SUBRTF |
| SUBRT0 | 2 MODULES: FUNCTNB | FUNC'NC | | |
| SUBRT1 | 4 MODULES: SUBRTA | SUBRTB | SUBRTD | SUBRTZ |
| SUBRT2 | 3 MODULES: SUBRTO | SUBRTA | SUBRTB | |
| PAGE 30 | 2 MODULES: SUBRT1 | SUBRTA | | |

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* * SUMMARY BY ENTRY POINTS AND EXTERNALS * *
ENT. PT. & EXTERNALS REFERENCING MODULE(S)

| ENT. PT. | REFERENCING MODULE(S) |
|----------|-------------------------------------------------|
| SUBRT3 | 2 MODULES: SUBRT2 SUBRTB |
| SUBRT4 | 4 MODULES: SUBRT3 SUBRTA SUBRTB SUBRTD |
| SUBRT5 | 2 MODULES: SUBRT4 SUBRTA |
| SUBRT6 | 1 MODULE: SUBRTA |
| SUBRTC | 3 MODULES: SUBRTB |
| SUBRTD | 2 MODULES: SUBRTB SUBRTC |
| SUBRTE | 1 MODULE: SUBRTD |
| SUBRTF | 1 MODULE: SUBRTE |

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* SUMMARY BY ENTRY POINTS AND EXTERNALS *
ENT. PT. & EXTERNALS REFERENCING MODULE(S)

| | | | |
|--------|---|---------|--------|
| SUBRTG | 1 | MODULE: | SUBRTF |
| SUBRTH | 1 | MODULE: | SUBRTG |
| SUBRTI | 1 | MODULE: | SUBRTH |
| SUBRTJ | 1 | MODULE: | SUBRTI |
| SUBRTK | 1 | MODULE: | SUBRTJ |
| SUBRTL | 1 | MODULE: | SUBRTK |
| SUBRTM | 1 | MODULE: | SUBRTL |
| SUBRTN | 1 | MODULE: | SUBRTM |

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* * SUMMARY BY ENTRY POINTS AND EXTERNALS * *
ENT. PT. & EXTERNALS REFERENCING MODULE(S)

| | | | |
|--------|---|---------|--------|
| SUBRTO | 1 | MODULE: | SUBRTN |
| SUBRTP | 1 | MODULE: | SUBRTO |
| SUBRTQ | 1 | MODULE: | SUBRTP |
| SUBRTR | 1 | MODULE: | SUBRTQ |
| SUBRTS | 1 | MODULE: | SUBRTR |
| SUBRTT | 1 | MODULE: | SUBRTS |
| SUBRTU | 1 | MODULE: | SUBRTT |
| SUBRTV | 1 | MODULE: | SUBRTU |

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* * SUMMARY BY ENTRY POINTS AND EXTERNALS * *
ENT. PT. & EXTERNALS REFERENCING MODULE(S)

| | | | | | |
|--------|------------|------------------|--------|--------|--------|
| SURRTW | 1 MODULE: | SUBRTV | | | |
| SUBRTX | 1 MODULE: | SUBRTW | | | |
| SUBRTY | 1 MODULE: | SUBRTX | | | |
| SUBRTZ | 5 MODULES: | SUBRTB SUBRTY | SUBRTV | SUBRTW | SUBRTX |
| TAN% | 1 MODULE: | SUBRTA | | | |
| UNSATB | 2 MODULES: | SUBRTA | SUBRTC | | |
| UNSATC | 1 MODULE: | SUBRTA | | | |
| UNSATC | 1 MODULE: | SUBRTA | | | |

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LIBRARY CROSS REFERENCE

DATE 05/02/85

TIME 07:54:16

* SUMMARY BY ENTRY POINTS AND EXTERNALS *
ENT. PT. & EXTERNALS REFERENCING MODULE(S)

| | | |
|-----------------------|-----------|--------|
| UNSATD (UNSATISFIED) | 1 MODULE: | SUBRTA |
| UNSAT E (UNSATISFIED) | 1 MODULE: | SUBRTA |
| UNSATF (UNSATISFIED) | 1 MODULE: | SUBRTA |
| UNSATG (UNSATISFIED) | 1 MODULE: | SUBRTA |
| UNSAT H (UNSATISFIED) | 1 MODULE: | SUBRTA |
| UNSAT I (UNSATISFIED) | 1 MODULE: | SUBRTA |
| UNSAT J (UNSATISFIED) | 1 MODULE: | SUBRTA |
| UNSATK (UNSATISFIED) | 1 MODULE: | SUBRTA |

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* * COMMONS APPEARING IN THIS LIBRARY * *

| | | | | | | | |
|---------|----------|---------|---------|---------|---------|---------|---------|
| // | ACOMMON | COMMON | COMMON1 | COMMON2 | COMMON3 | COMMON4 | COMMONA |
| COMMONB | COMMONC | COMMOND | COMMONE | COMMONF | COMMONG | COMMONH | COMMONI |
| COMMONJ | COMMONK | COMMONL | COMMONM | COMMONN | COMMONO | COMMONP | COMMONQ |
| COMMONR | COMMONS | COMMONT | COMMONU | COMMONV | COMMONW | COMMONX | COMMONY |
| COMMONZ | WRITCOMA | | | | | | |

* * * * * SUMMARY BY COMMONS * * * * *

COM. NAME

MODULE(S) USING THE COMMON

| | | | | | |
|----|-------------|--------|--------|--------|--------|
| // | 10 MODULES: | SUBRTA | SUBRTE | SUBRTC | SUBRTD |
| | | SUBRTE | SUBRTF | SUBRTG | SUBRTH |
| | | SUBRTI | SUBRTJ | | |

| | | | | | |
|---------|-------------|--------|--------|--------|--------|
| ACOMMON | 33 MODULES: | SUBRT | SUBRTO | SUBRT1 | SUBRT2 |
| | | SUBRT3 | SUBRT4 | SUBRT5 | SUBRTA |
| | | SUBRTB | SUBRTC | SUBRTD | SUBRTE |

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COM. NAME SUMMARY BY COMMONS
MODULE(S) USING THE COMMON

ACOMMON CONTINUED FROM PAGE 37

| | | | |
|--------|--------|--------|--------|
| SUERTF | SUBRTG | SUBRTH | SUBRTI |
| SUBRTJ | SUBRTX | SUBRTL | SUBRTM |
| SUBRTN | SUBRTO | SUBRTP | SUBRTQ |
| SUBRTR | SUBRTS | SUBRTT | SUBRTU |
| SUBRTV | SUBRTW | SUERTX | SUBRTY |
| SUBRTZ | | | |

COMMON 1 MODULE: SUBRTA

COMMON1 1 MODULE: SUBRT1

COMMON2 1 MODULE: SUBRT1

COMMON3 1 MODULE: SUBRT1

COMMON4 12 MODULES: SUBRT1 SUBRT4 SUBRT5 SUBRTG

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COM. NAME SUMMARY BY COMMONS
MODULE(S) USING THE COMMON

COMMON4 CONTINUED FROM PAGE 38

| | | | | | |
|---------|-------------|------------------|----------------------------|----------------------------|------------------|
| COMMONA | 11 MODULES: | SUBRTH SUBRTL | SUBRTI SUBRTM | SUBRTJ SUBRTN | SUBRTK SUBRTO |
| COMMONB | 5 MODULES: | SUBRTA SUBRTE | SUBRTB SUBRTF SUBRTJ | SUBRTC SUBRTG SUBRTK | SUBRTD SUBRTH |
| COMMONC | 3 MODULES: | SUBRTA | SUBRTB | SUBRTC | SUBRTD |
| COMMOND | 3 MODULES: | SUBRTA | SUBRTB | SUBRTC | SUBRTD |
| COMMONE | 2 MODULES: | SUBRTA | SUBRTB | SUBRTC | SUBRTD |

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LIBRARY CROSS REFERENCE

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TIME 07:54:16

. SUMMARY BY COMMONS
MODULE(S) USING THE COMMON

COM. NAME

COMMONF 1 MODULE: SUBRTA

COMMONG 1 MODULE: SUBRTA

COMMONH 1 MODULE: SUBRTA

COMMONI 1 MODULE: SUBRTA

COMMONJ 1 MODULE: SUBRTA

COMMONK 1 MODULE: SUBRTA

COMMONL 1 MODULE: SUBRTA

COMMONM 1 MODULE: SUBRTA

COMMONN 1 MODULE: SUBRTA

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LIBRARY CROSS REFERENCE
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COM. NAME SUMMARY BY COMMONS
MODULE(S) USING THE COMMON

| | | | | | | |
|----------|---|-----------------|--------|--------|--------|--|
| COMMONW | 1 | MODULE: SUBRTA | | | | |
| COMMONX | 1 | MODULE: SUBRTA | | | | |
| COMMONY | 1 | MODULE: SUBRTA | | | | |
| COMMONZ | 1 | MODULE: SUBRTA | | | | |
| WRITCOMA | 4 | MODULES: EYEOH1 | EYEOH2 | SUBRTA | SUBRTD | |

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* * * * * STATISTICS * * * * *

MODULES 43

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UNSAT. EXTERNALS 15

RELOCATABLE DIRECTORY LENGTH 593

WORDS REQUIRED TO LOAD ALL
RELOCATABLE MODULES IN THE
SELECTED LIBRARY.

7972 DECIMAL

17444 OCTAL

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| 1..... | SUMMARY BY MODULES |
| 21..... | ENTRY POINTS IN THE SELECTED LIBRARY |
| 22..... | ENTRY POINTS NOT REFERENCED BY THIS LIBRARY |
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APPENDIX C

Logfile of CROSSREF when set up to include systems routine and to format output to a CRT display.

| | | | | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------|-----------------------------------------------------------------------------|------------------------------------------------------------|------------|
| 1. Report No. NASA CR- 177384 | | 2. Government Acquisition No. | | 3. Recipient's Catalog No. | |
| 4. Title and Subtitle Crossref for the Cray | | | | 5. Report Date November 1985 | |
| 7. Author(s) Clayton J. Guest | | | | 8. Performing Organization Report No. TN 84-7104-101-12 | |
| 9. Performing Organization Name and Address Informatics General Corporation 1121 San Antonio Road Palo Alto, CA 94303 | | | | 10. Work Unit No. K1707 | |
| 12. Sponsoring Agency Name and Address National Aeronautics and Space Administration Washington, D.C. 20546 | | | | 11. Contract or Grant No. NAS2-11555 | |
| | | | | 13. Type of Report and Period Covered Contractor Report | |
| | | | | 14. Sponsoring Agency Code 999-53-02 | |
| 15. Supplementary Notes Point of Contact: Robert A. Carlson (415) 694-6036 MS: 233-15 Ames Research Center FTS 448-6036 Moffett Field, CA 94035 | | | | | |
| 16. Abstract Crossref for the Cray is a tool used to obtain information about the contents of a library generated with a BUILD statement under COS. It produces a list of all modules in the library; a summary table by modules containing module size, ENTRY POINTS, referenced COMMONs, and required EXTERNALs; a list of unsatisfied EXTERNALs; a summary table of ENTRY POINTS and optionally EXTERNALs; a list of COMMONs; a table of statistics and a table of contents. The output can be formatted to 8 1/2 inch vertical paper or CRT display. | | | | | |
| 17. Key Words (Suggested by Author(s)) Alphabetized library listing, Cray cross reference, software tool | | | 18. Distribution Statement Unclassified, unlimited Star Category - 61 | | |
| 19. Security Classif. (of this report) Unclassified | | 20. Security Classif. (of this page) Unclassified | | 21. No. of Pages 73 | 22. Price* |