```
RRRRRRRRRRR      MMM          MMM     SSSSSSSSSSS
RRRRRRRRRRRR     MMM          MMM     SSSSSSSSSSS
RRRRRRRRRRRR     MMM          MMM     SSSSSSSSSSS
RRR         RRR  MMMMMM    MMMMMM  SSS
RRR         RRR  MMMMMM    MMMMMM  SSS
RRR         RRR  MMMMMM    MMMMMM  SSS
RRR         RRR  MMM   MMM   MMM   SSS
RRR         RRR  MMM   MMM   MMM   SSS
RRR         RRR  MMM   MMM   MMM   SSS
RRRRRRRRRRR      MMM          MMM     SSSSSSSSS
RRRRRRRRRRRR     MMM          MMM     SSSSSSSSS
RRRRRRRRRRRR     MMM          MMM     SSSSSSSSS
RRR   RRR        MMM          MMM             SSS
RRR   RRR        MMM          MMM             SSS
RRR   RRR        MMM          MMM             SSS
RRR      RRR     MMM          MMM             SSS
RRR      RRR     MMM          MMM             SSS
RRR      RRR     MMM          MMM             SSS
RRR         RRR  MMM          MMM  SSSSSSSSSSS
RRR         RRR  MMM          MMM  SSSSSSSSSSS
RRR         RRR  MMM          MMM  SSSSSSSSSSS
```

```
RRRRRRRR     MM        MM     333333     PPPPPPPP     RRRRRRRR       000000     BBBBBBBB     EEEEEEEEEE
RRRRRRRR     MM        MM     333333     PPPPPPPP     RRRRRRRR       000000     BBBBBBBB     EEEEEEEEEE
RR       RR  MMMM    MMMM  33        33  PP       PP  RR       RR  00      00  BB       BB  EE
RR       RR  MMMM    MMMM  33        33  PP       PP  RR       RR  00      00  BB       BB  EE
RR       RR  MM  MM  MM            33   PP       PP  RR       RR  00      00  BB       BB  EE
RR       RR  MM  MM  MM            33   PP       PP  RR       RR  00      00  BB       BB  EE
RRRRRRRR     MM      MM          33     PPPPPPPP     RRRRRRRR     00      00  BBBBBBBB     EEEEEEEE
RRRRRRRR     MM      MM          33     PPPPPPPP     RRRRRRRR     00      00  BBBBBBBB     EEEEEEEE
RR   RR      MM      MM            33   PP           RR   RR      00      00  BB       BB  EE
RR   RR      MM      MM            33   PP           RR   RR      00      00  BB       BB  EE
RR     RR    MM      MM  33        33   PP           RR     RR    00      00  BB       BB  EE                ....
RR     RR    MM      MM  33        33   PP           RR     RR    00      00  BB       BB  EE                ....
RR       RR  MM      MM    333333     PP           RR       RR    000000     BBBBBBBB     EEEEEEEEEE        ....
RR       RR  MM      MM    333333     PP           RR       RR    000000     BBBBBBBB     EEEEEEEEEE        ....

LL             IIIIII      SSSSSSSS
LL             IIIIII      SSSSSSSS
LL               II      SS
LL               II      SS
LL               II      SS
LL               II      SS
LL               II        SSSSSS
LL               II        SSSSSS
LL               II              SS
LL               II              SS
LL               II              SS
LL               II              SS
LLLLLLLLLL     IIIIII    SSSSSSSS
LLLLLLLLLL     IIIIII    SSSSSSSS
```

RM3
V04

```
;     1          0001  0 MODULE RM3PROBE (LANGUAGE (BLISS32),
;     2          0002  0                   IDENT = 'V04-000'
;     3          0003  0                   ) =
;     4          0004  1 BEGIN
;     5          0005  1 !
;     6          0006  1 !**************************************************************************
;     7          0007  1 !*                                                                        *
;     8          0008  1 !*  COPYRIGHT (c) 1978, 1980, 1982, 1984 BY                              *
;     9          0009  1 !*  DIGITAL EQUIPMENT CORPORATION, MAYNARD, MASSACHUSETTS.                *
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;    15          0015  1 !*  COPIES THEREOF MAY NOT BE PROVIDED OR OTHERWISE MADE AVAILABLE TO ANY  *
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;    17          0017  1 !*  TRANSFERRED.                                                           *
;    18          0018  1 !*                                                                        *
;    19          0019  1 !*  THE INFORMATION IN THIS SOFTWARE IS  SUBJECT TO CHANGE WITHOUT NOTICE  *
;    20          0020  1 !*  AND  SHOULD  NOT  BE  CONSTRUED AS  A COMMITMENT BY DIGITAL EQUIPMENT  *
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;    22          0022  1 !*                                                                        *
;    23          0023  1 !*  DIGITAL ASSUMES NO RESPONSIBILITY FOR THE USE  OR  RELIABILITY OF ITS  *
;    24          0024  1 !*  SOFTWARE ON EQUIPMENT WHICH IS NOT SUPPLIED BY DIGITAL.                *
;    25          0025  1 !*                                                                        *
;    26          0026  1 !*                                                                        *
;    27          0027  1 !**************************************************************************
;    28          0028  1
;    29          0029  1 !++
;    30          0030  1 !
;    31          0031  1 ! FACILITY:     RMS32 Index Sequential File Organization
;    32          0032  1 !
;    33          0033  1 ! ABSTRACT:
;    34          0034  1 !                Subroutines to probe large structures
;    35          0035  1 !
;    36          0036  1 !
;    37          0037  1 ! ENVIRONMENT:
;    38          0038  1 !
;    39          0039  1 !                VAX/VMS Operating System
;    40          0040  1 !
;    41          0041  1 !--
;    42          0042  1
;    43          0043  1 !
;    44          0044  1 ! AUTHOR:        Wendy Koenig     CREATION DATE:              11-JUL-78  11:27
;    45          0045  1 !
;    46          0046  1 !
;    47          0047  1 ! MODIFIED BY:
;    48          0048  1 !
;    49          0049  1 !       V03-003 MCN0001         Maria del C. Nasr       15-Mar-1983
;    50          0050  1 !               Reorganize linkages
;    51          0051  1 !
;    52          0052  1 !       V03-002 KBT0227         Keith B. Thompson       23-Aug-1982
;    53          0053  1 !               Reorganize psects
;    54          0054  1 !
;    55          0055  1 !       V03-001 KPL0001         Peter Lieberwirth       22-Mar-1982
;    56          0056  1 !               Change probe length to 512 from 1024 since 1024 could hit
;    57          0057  1 !               first page of three, last page of three, and omit middle.
```

```
;    58          0058  1 !
;    59          0059  1 !       V02-004 REFORMAT        Maria del C. Nasr       24-Jul-1980
;    60          0060  1 !
;    61          0061  1 !
;    62          0062  1 !*****
;    63          0063  1
;    64          0064  1 LIBRARY 'RMSLIB:RMS';
;    65          0065  1
;    66          0066  1 REQUIRE 'RMSSRC:RMSIDXDEF';
;    67          0131  1
;    68          0132  1 ! define default psects for code
;    69          0133  1 !
;    70          0134  1 PSECT
;    71          0135  1     CODE = RM$RMS3(PSECT_ATTR),
;    72          0136  1     PLIT = RM$RMS3(PSECT_ATTR);
;    73          0137  1
;    74          0138  1 ! Linkages
;    75          0139  1 !
;    76          0140  1 LINKAGE
;    77          0141  1     L_JSB;
;    78          0142  1
;    79          0143  1
```

```
;    81          0144  1 GLOBAL ROUTINE RM$NOREAD_LONG (SIZE, ADDR, MODE) : RL$JSB =
;    82          0145  1
;    83          0146  1 !++
;    84          0147  1 !
;    85          0148  1 ! FUNCTIONAL DESCRIPTION:
;    86          0149  1 !
;    87          0150  1 !       subroutine to perform a long or short probe
;    88          0151  1 !
;    89          0152  1 ! CALLING SEQUENCE:
;    90          0153  1 !       bsbw rm$noread_long (size,addr,mode)
;    91          0154  1 !
;    92          0155  1 ! INPUT PARAMETERS:
;    93          0156  1 !       size of structure to be probed
;    94          0157  1 !       address of structure to be probed
;    95          0158  1 !       mode to do probing in
;    96          0159  1 !
;    97          0160  1 ! IMPLICIT INPUTS:
;    98          0161  1 !       none
;    99          0162  1 !
;   100          0163  1 ! OUTPUT PARAMETERS:
;   101          0164  1 !       none
;   102          0165  1 !
;   103          0166  1 ! IMPLICIT OUTPUTS:
;   104          0167  1 !       none
;   105          0168  1 !
;   106          0169  1 ! ROUTINE VALUE:
;   107          0170  1 !       0 if structure is readable
;   108          0171  1 !       1 if structure is NOT readable
;   109          0172  1 !               (values are such since action is taken if the structure
;   110          0173  1 !               is not readable and so the code looks cleaner)
;   111          0174  1 !
;   112          0175  1 ! SIDE EFFECTS:
;   113          0176  1 !       none
;   114          0177  1 !
;   115          0178  1 !--
;   116          0179  1
;   117          0180  2     BEGIN
;   118          0181  2
;   119          0182  2     LOCAL
;   120          0183  2         LEN,
;   121          0184  2         START;
;   122          0185  2
;   123          0186  2     IF .SIZE<0, 16> LEQU 512
;   124          0187  2     THEN
;   125          0188  2         RETURN
;   126          0189  2
;   127          0190  2             IF PROBER(MODE, SIZE, .ADDR)
;   128          0191  2             THEN
;   129          0192  2                 0
;   130          0193  2             ELSE
;   131          0194  2                 1;
;   132          0195  2
;   133          0196  2     ! need to do long probe
;   134          0197  2     !
;   135          0198  2     START = .ADDR;
;   136          0199  2     LEN = .SIZE;
;   137          0200  2
```

```
;  138          0201  2     DO
;  139          0202  2         BEGIN
;  140          0203  2
;  141          0204  2         IF NOT PROBER(MODE, LEN, .START)
;  142          0205  2         THEN
;  143          0206  2             RETURN 1;
;  144          0207  2
;  145          0208  2         START = .START + 512;
;  146          0209  2         LEN = .LEN - 512;
;  147          0210  2         END
;  148          0211  2     UNTIL .LEN LSS 1;
;  149          0212  2
;  150          0213  2     RETURN 0
;  151          0214  2
;  152          0215  1     END;


                                                .TITLE  RM3PROBE
                                                .IDENT  \V04-000\


                                                .PSECT  RM$RMS3,NOWRT,  GBL,  PIC,2

                    0200   8F       04   AE  B1 00000 RM$NOREAD_LONG::
                                                CMPW    SIZE, #512                      ; 0186
                                            0B  1A 00006        BGTRU   1$
                08  BE       04   AE       0C  AE  0C 00008    PROBER  MODE, SIZE, @ADDR       ; 0190
                                            0D  13 0000F        BEQL    3$
                                            1B  11 00011        BRB     5$
                          50       04   AE  7D  00013 1$:      MOVQ    SIZE, LEN               ; 0199
                61        50       0C   AE  0C  00017 2$:      PROBER  MODE, LEN, (START)      ; 0204
                                            04  12 0001C        BNEQ    4$
                          50            01  D0  0001E 3$:      MOVL    #1, R0                  ; 0206
                                            05  00021         RSB
                          51  0200    C1  9E  00022 4$:       MOVAB   512(R1), START          ; 0208
                          50  FE00    C0  9E  00027           MOVAB   -512(R0), LEN           ; 0209
                                            E9  14 0002C        BGTR    2$                      ; 0211
                                            50  D4 0002E 5$:      CLRL    R0                      ; 0213
                                                05  00030         RSB                             ; 0215

; Routine Size:  49 bytes,    Routine Base:  RM$RMS3 + 0000

;  153          0216  1
```

```
;  155     0217  1 GLOBAL ROUTINE RM$NOWRT_LONG (SIZE, ADDR, MODE) : RL$JSB =
;  156     0218  1
;  157     0219  1 !++
;  158     0220  1 !
;  159     0221  1 ! FUNCTIONAL DESCRIPTION:
;  160     0222  1 !
;  161     0223  1 !       subroutine to perform a long or short probe
;  162     0224  1 !
;  163     0225  1 ! CALLING SEQUENCE:
;  164     0226  1 !       bsbw rm$nowrite_long (size,addr,mode)
;  165     0227  1 !
;  166     0228  1 ! INPUT PARAMETERS:
;  167     0229  1 !       size of structure to be probed
;  168     0230  1 !       address of structure to be probed
;  169     0231  1 !       mode to do probing in
;  170     0232  1 !
;  171     0233  1 ! IMPLICIT INPUTS:
;  172     0234  1 !       none
;  173     0235  1 !
;  174     0236  1 ! OUTPUT PARAMETERS:
;  175     0237  1 !       none
;  176     0238  1 !
;  177     0239  1 ! IMPLICIT OUTPUTS:
;  178     0240  1 !       none
;  179     0241  1 !
;  180     0242  1 ! ROUTINE VALUE:
;  181     0243  1 !       0 if structure is writeable
;  182     0244  1 !       1 if structure is NOT writeable
;  183     0245  1 !               (values are such since action is taken if the structure
;  184     0246  1 !               is not writeable and so the code looks cleaner)
;  185     0247  1 !
;  186     0248  1 ! SIDE EFFECTS:
;  187     0249  1 !       none
;  188     0250  1 !
;  189     0251  1 !--
;  190     0252  1
;  191     0253  2     BEGIN
;  192     0254  2
;  193     0255  2     LOCAL
;  194     0256  2         LEN,
;  195     0257  2         START;
;  196     0258  2
;  197     0259  2     IF .SIZE<0, 16> LEQU 512
;  198     0260  2     THEN
;  199     0261  2         RETURN
;  200     0262  2
;  201     0263  2             IF PROBEW(MODE, SIZE, .ADDR)
;  202     0264  2             THEN
;  203     0265  2                 0
;  204     0266  2             ELSE
;  205     0267  2                 1;
;  206     0268  2
;  207     0269  2     ! need to do long probe
;  208     0270  2     !
;  209     0271  2     LEN = .SIZE;
;  210     0272  2     START = .ADDR;
;  211     0273  2
```

```
;  212          0274  2     DO
;  213          0275  3         BEGIN
;  214          0276  3
;  215          0277  3         IF NOT PROBEW(MODE, LEN, .START)
;  216          0278  3         THEN
;  217          0279  3             RETURN 1;
;  218          0280  3
;  219          0281  3         START = .START + 512;
;  220          0282  3         LEN = .LEN - 512;
;  221          0283  3         END
;  222          0284  2     UNTIL .LEN LSS 1;
;  223          0285  2
;  224          0286  2     RETURN 0
;  225          0287  2
;  226          0288  1     END;


                     0200   8F        04    AE   B1 00000 RM$NOWRT_LONG::
                                                       CMPW    SIZE, #512                      ; 0259
                                                0B   1A 00006          BGTRU   1$
                08   BE       04    AE        0C    AE   0D 00008          PROBEW  MODE, SIZE, @ADDR       ; 0263
                                                0D   13 0000F          BEQL    3$
                                                1B   11 00011          BRB     5$
                                50         04    AE   7D 00013 1$:      MOVQ    SIZE, LEN               ; 0271
                     61         50         0C    AE   0D 00017 2$:      PROBEW  MODE, LEN, (START)      ; 0277
                                                04   12 0001C          BNEQ    4$
                                50                   01   D0 0001E 3$:      MOVL    #1, R0                  ; 0279
                                                     05   00021          RSB
                                51         0200      C1   9E 00022 4$:      MOVAB   512(R1), START          ; 0281
                                50         FE00      C0   9E 00027          MOVAB   -512(R0), LEN           ; 0282
                                                     E9   14 0002C          BGTR    2$                      ; 0284
                                                     50   D4 0002E 5$:      CLRL    R0                      ; 0286
                                                     05   00030          RSB                             ; 0288

; Routine Size:  49 bytes,    Routine Base:  RM$RMS3 + 0031

;  227          0289  1
;  228          0290  1 END
;  229          0291  1
;  230          0292  0 ELUDOM


;                                PSECT SUMMARY
;
;       Name                     Bytes                          Attributes
;
;  RM$RMS3                        98  NOVEC,NOWRT,  RD ,  EXE,NOSHR,  GBL,  REL,  CON,  PIC,ALIGN(2)
```

```
;                               Library Statistics
;
;                                        --------- Symbols ---------      Pages       Processing
;       File                             Total    Loaded   Percent      Mapped      Time
;
;  _$255$DUA28:[RMS.OBJ]RMS.L32;1         3109         2         0       154         00:00.4
```

```
;                                    COMMAND QUALIFIERS

;       BLISS/CHECK=(FIELD,INITIAL,OPTIMIZE)/LIS=LIS$:RM3PROBE/OBJ=OBJ$:RM3PROBE MSRC$:RM3PROBE/UPDATE=(ENH$:RM3PROBE)

; Size:         98 code + 0 data bytes
; Run Time:         00:03.4
; Elapsed Time:     00:13.1
; Lines/CPU Min:     5229
; Lexemes/CPU-Min:   6394
; Memory Used:  31 pages
; Compilation Complete
```

RM3PROBE
LIS

RM3SIOXSP
LIS

RM3PUTERR
LIS

RM3PUTUPD
LIS

RM3SPLUDR
LIS

RM3RRV
LIS

RM3ROOT
LIS

RM3PUT
LIS