


```

IIIIII  NN      NN  DD/DDDDDD  EEEEEEEEE  XX      XX
IIIIII  NN      NN  DDDDDDDDD  EEEEEEEEE  XX      XX
II      NN      NN  DD          DD  EE          XX      XX
II      NN      NN  DD          DD  EE          XX      XX
II      NNNN     NN  DD          DD  EE          XX      XX
II      NNNN     NN  DD          DD  EE          XX      XX
II      NN  NN   NN  DD          DD  EEEEEEEEE  XX      XX
II      NN  NN   NN  DD          DD  EEEEEEEEE  XX      XX
II      NN      NNNN DD          DD  EE          XX      XX
II      NN      NNNN DD          DD  EE          XX      XX
II      NN      NN   DD          DD  EE          XX      XX
II      NN      NN   DD          DD  EE          XX      XX
IIIIII  NN      NN  DDDDDDDDD  EEEEEEEEE  XX      XX
IIIIII  NN      NN  DDDDDDDDD  EEEEEEEEE  XX      XX

```

```

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
LLLLLLLLLLLL IIIIII  SSSSSSSS
LLLLLLLLLLLL IIIIII  SSSSSSSS

```

(1)	2	COPYRIGHT NOTICE
(1)	29	PROGRAM DESCRIPTION
(2)	58	DECLARATIONS
(3)	69	STORAGE DEFINITIONS
(4)	95	READ-ONLY DATA DEFINITIONS
(5)	105	DUMMY_INDEX -- PRINT DUMMY TABLE OF CONTENTS
(6)	148	PRINT_INDEX -- PRINT TABLE OF CONTENTS PAGE
(7)	200	SET_HEADING -- SET A NEW PAGE HEADING

```

0000 1      .TITLE INDEX TABLE OF CONTENTS FOR LISTING
0000 2      .SBTTL COPYRIGHT NOTICE
0000 3      .IDENT 'V04-000'
0000 4      :
0000 5      :*****
0000 6      :
0000 7      :*  COPYRIGHT (c) 1978, 1980, 1982, 1984 BY
0000 8      :*  DIGITAL EQUIPMENT CORPORATION, MAYNARD, MASSACHUSETTS.
0000 9      :*  ALL RIGHTS RESERVED.
0000 10     :*
0000 11     :*  THIS SOFTWARE IS FURNISHED UNDER A LICENSE AND MAY BE USED AND COPIED
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0000 17     :*
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0000 20     :*  CORPORATION.
0000 21     :*
0000 22     :*  DIGITAL ASSUMES NO RESPONSIBILITY FOR THE USE OR RELIABILITY OF ITS
0000 23     :*  SOFTWARE ON EQUIPMENT WHICH IS NOT SUPPLIED BY DIGITAL.
0000 24     :*
0000 25     :*
0000 26     :*****
0000 27     :

```

0000	29	.SBTTL	PROGRAM DESCRIPTION
0000	30	::++	
0000	31	:	FACILITY
0000	32	:	
0000	33	:	SYSTEM DUMP ANALYZER
0000	34	:	
0000	35	:	ABSTRACT
0000	36	:	
0000	37	:	LISTING TABLE OF CONTENTS
0000	38	:	
0000	39	:	ENVIRONMENT
0000	40	:	
0000	41	:	NATIVE MODE, USER MODE
0000	42	:	
0000	43	:	AUTHOR
0000	44	:	
0000	45	:	TIM HALVORSEN, JULY 1978
0000	46	:	
0000	47	:	MODIFIED BY
0000	48	:	
0000	49	:	V002 KEK0004 K. E. Kinnear 30-July-1981
0000	50	:	Change default addressing mode to longword.
0000	51	:	
0000	52	:	V001 MTR0001 Mike Rhodes 22-Jun-1981
J000	53	:	Remove references to \$SDAMSGDEF macro.
0000	54	:	
0000	55	::--	

	0000	58	.SBTTL	DECLARATIONS	
	0000	59	:		
	0000	60	:	SYMBOL DEFINITIONS	
	0000	61	:		
	0000	62	\$FABDEF		; FILE ACCESS BLOCK (FAB)
	0000	63	\$RABDEF		; RECORD ACCESS BLOCK (RAB)
	0000	64			
0000002D	0000	65	MAX HEADINGS = 45		; MAX. 45 HEADINGS
00000036	0000	66	HEADING SIZE = 54		; LENGTH OF EACH SLOT
	0000	67	:	EACH ASCII HEADING IS PRECEDED BY A LONGWORD PAGE NUMBER.	

	0000	69	.SBTTL	STORAGE DEFINITIONS	
	0000	70	:		
	0000	71	:	STORAGE DEFINITIONS	
	0000	72	:		
	0000	73	:		
	00000000	74	.PSECT	SDADATA,NOEXE,WRT	
	0000	75			
	0000	76	INDEX_RFA:		
00000006	0000	77	.BLKW	3	; RFA OF DUMMY INDEX
	0006	78			
	0006	79	CUR_HEADING::		
FFFFFFFF	0006	80	.LONG	-1	; CURRENT HEADING NUMBER
	000A	81			
	000A	82	SUB_HEADING::		
00000012	000A	83	.BLKL	2	; DESCRIPTOR OF CURRENT HEADING
	0012	84			
	0012	85	HEADING_ROUTINE::		
00000016	0012	86	.BLKL	1	; ADDRESS OF HEADING ROUTINE
	0016	87			
	0016	88	HEADINGS:		
FFFFFFFF	0016	89	.LONG	-1	; ADDRESS OF HEADINGS BUFFER
	001A	90			
	00000000	91	.PSECT	INDEX,EXE,NOWRT	
	0000	92			
	0000	93	.DEFAULT	DISPLACEMENT, LONG	

```
0000 95 .SBTTL READ-ONLY DATA DEFINITIONS
0000 96
0000 97 :
0000 98 : READ-ONLY DATA DEFINITIONS
0000 99 :
0000 100
0000 101 INDEXCTL1:
0000 102 STRING <!38* !32AC ....!4UL>
0000050 001B 103 LINE_LENGTH = 1+79 ; MAXIMUM LENGTH OF EACH LINE
```



```

001B 105 .SBTTL DUMMY_INDEX -- PRINT DUMMY TABLE OF CONTENTS
001B 106 :---
001B 107 :
001B 108 DUMMY_INDEX
001B 109 :
001B 110 THIS ROUTINE PRINTS A PAGE FULL OF EMPTY RECORDS
001B 111 TO THE LISTING FILE TO BE LATER WRITTEN OVER WHEN
001B 112 THE TABLE OF CONTENTS BECOMES AVAILABLE.
001B 113 :
001B 114 INPUTS:
001B 115 NONE
001B 116 :
001B 117 OUTPUTS:
001B 118 NONE
001B 119 :
001B 120 :
001B 121 :
001B 122 :---
001B 123 :
001B 124 DUMMY_INDEX::
000C 001B 125 .WORD ^M<R2,R3>
001D 126
001D 127 CLRL PAGE NUMBER ; RESET PAGE NUMBER
00000000'EF D4 0023 128 MNEGL #1,COR HEADING ; RESET HEADING INDEX
00000006'EF 01 CE 002A 129 CLRQ SUB HEADING ; AND CLEAR ANY SUBHEADING
0000000A'EF 7C 0030 130 SKIP PAGE
0037 131 SKIP 3
0040 132 PRINT 0,<!35* !15* Table of Contents>
004D 133 PRINT 0,<!35* !15* ----->
005A 134 SKIP 2
53 00000000'EF DE 0063 135 MOVAL LIST,R3
22 A3 0050 8F B0 006A 136 MOVW #LINE_LENGTH,RAB$W_RSZ(R3)
00000000'EF 00 FB 0070 137 CALLS #0,PUT_LINE ; OUTPUT DUMMY RECORD
50 00000000'EF 9E 0077 138 MOVAB INDEX_RFA,R0
80 10 A3 D0 007E 139 MOVL RAB$W_RFA(R3),(R0)+ ; SAVE CURRENT POSITION
60 14 A3 B0 0082 140 MOVW RAB$W_RFA+4(R3),(R0)
52 2C D0 0086 141 MOVL #MAX_READINGS-1,R2 ; ITERATION COUNT
0089 142 10$:
22 A3 0050 8F B0 0089 143 MOVW #LINE_LENGTH,RAB$W_RSZ(R3)
00000000'EF 00 FB 008F 144 CALLS #0,PUT_LINE ; OUTPUT RECORD
FO 52 F5 0096 145 SOBGT R2,10$ ; LOOP UNTIL DONE
04 0099 146 RET

```

```

009A 148 .SBTTL PRINT_INDEX -- PRINT TABLE OF CONTENTS PAGE
009A 149 :---
009A 150 :
009A 151 PRINT_INDEX
009A 152 :
009A 153 THIS ROUTINE OVERWRITES THE PREVIOUSLY OUTPUT DUMMY
009A 154 RECORDS WITH THE TABLE OF CONTENTS LISTING AND ZERO
009A 155 THE REMAINING RECORDS.
009A 156 :
009A 157 INPUTS:
009A 158 :
009A 159 HEADINGS HOLDS THE LIST OF SUB_HEADINGS AND PAGE NUMBERS
009A 160 :
009A 161 OUTPUTS:
009A 162 :
009A 163 NONE
009A 164 :
009A 165 :---
009A 166 :
009A 167 PRINT_INDEX::
009A 168 .WORD ^M<R2,R3>
009C 169 :
53 00000000'EF DE 009C 170 MOVAL LIST,R3
50 00000000'EF 9E 00A3 171 MOVAB INDEX,RFA,R0
10 A3 80 D0 00AA 172 MOVL (R0)+,RAB$W,RFA(R3) ; RESET CURRENT POSITION
14 A3 60 B0 00AE 173 MOVW (R0),RAB$W,RFA+4(R3)
1E A3 02 90 00B2 174 MOVB #RAB$C,RFA,RAB$B,RAC(R3) ; SHIFT TO RANDOM ACCESS
00B6 175 $FIND (R3) ; LOCATE FIRST DUMMY LINE
00BF 176 SIGNAL RMS,(R3)
1E A3 00 90 00D1 177 MOVB #RAB$C,SEC,RAB$B,RAC(R3) ; BACK TO SEQUENTIAL ACCESS
52 D4 00D5 178 CLRL R2 ; CURRENT SUB HEADING INDEX
00000006'EF D5 00D7 179 TSTL CUR_HEADING ; ANY HEADINGS?
01 18 00DD 180 BGEQ 10$ ; BRANCH IF SO
04 00DF 181 RET
00E0 182 10$:
00E0 183 $GET (R3)
00E9 184 SIGNAL RMS,(R3)
51 50 36 52 C5 00FB 185 MULL3 R2,#HEADING_SIZE,R0 ; OFFSET TO SLOT
00000016'FF40 9E 00FF 186 MOVAB @HEADING$[R0],R1 ; ADDRESS OF SLOT
81 DD 0107 187 PUSHL (R1)+ ; PAGE NUMBER
61 9F 0109 188 PUSHAB (R1) ; ADDRESS OF ASCII STRING
00000000'EF 7F 010B 189 PUSHAQ LINE_DESCR ; BUFFER DESCRIPTOR
00 DD 0111 190 PUSHL #0 ; RESULT STRING LENGTH
FEE9 CF 9F 0113 191 PUSHAB INDEXCTL1 ; CONTROL STRING
00000000'GF 05 FB 0117 192 CALLS #5,G^SYSS$FAO ; FORMAT STRING
011E 193 $UPDATE (R3)
0127 194 SIGNAL RMS,(R3)
00000006'EF 52 D6 0139 195 INCL R2 ; INCREMENT HEADING NUMBER
52 D1 013B 196 CMLP R2,CUR_HEADING ; CHECK IF LAST HEADING
9C 15 0142 197 BLEQ 10$ ; CONTINUE UNTIL DONE
04 0144 198 RET
    
```

```

0145 200 .SBTTL SET_HEADING -- SET A NEW PAGE HEADING
0145 201 :---
0145 202 :
0145 203 SET_HEADING
0145 204 :
0145 205 THIS ROUTINE ACCEPTS THE DESCRIPTOR OF A STRING AND
0145 206 SAVES THE SUB-HEADING IN THE HEADING ARRAY TO BE USED
0145 207 FOR THE INDEX.
0145 208 :
0145 209 INPUTS:
0145 210 :
0145 211 4(AP) = ADDRESS OF STRING DESCRIPTOR OF HEADING
0145 212 :
0145 213 OUTPUTS:
0145 214 :
0145 215 NONE
0145 216 :
0145 217 :---
0145 218 :
0145 219 SET_HEADING::
003C 0145 220 .WORD ^M<R2,R3,R4,R5>
0147 221 :
0147 222 TSTL HEADINGS ; SEE IF STORAGE ALLOCATED YET
014D 223 BCTR 5$ ; BRANCH IF OK
014F 224 PUSHL #MAX_HEADINGS*HEADING_SIZE ; LENGTH OF HEADING BUFFER
0155 225 CALLS #1,ALLOCATE ; ALLOCATE STORAGE
015C 226 MOVL R1,HEADINGS ; SAVE ADDRESS OF BUFFER
0163 227 5$:
0163 228 MOVAB SUB_HEADING,R2
016A 229 MOVAB CUR_HEADING,R3
0171 230 CLRL HEADING_ROUTINE ; NO HEADING ROUTINE BY DEFAULT
0177 231 MOVQ @4(AP),R2 ; SET NEW HEADING
017B 232 CMPL (R3),#MAX_HEADINGS ; CHECK IF ENOUGH ROOM
017E 233 BLSS 10$ ; IF STILL ROOM TO STORE
0180 234 RET
0181 235 10$:
0181 236 INCL (R3) ; INCREMENT HEADING NUMBER
0183 237 MULL3 (R3),#HEADING_SIZE,R0 ; OFFSET TO SLOT
0187 238 MOVAB @HEADINGS[R0],R1 ; ADDRESS OF SLOT
018F 239 ADDL3 PAGE_NUMBER,#1,(R1)+ ; STORE PAGE NUMBER
0197 240 MOVB (R2),(R1)+ ; STORE LENGTH
019A 241 MOVCL (R2),@4(R2),(R1) ; STORE STRING
019F 242 RET

```

INDEX
V04-000

J 4
TABLE OF CONTENTS FOR LISTING
SET_HEADING -- SET A NEW PAGE HEADING

16-SEP-1984 01:31:11 VAX/VMS Macro V04-00
5-SEP-1984 03:32:42 [SDA.SRC]INDEX.MAR;1

Page 9
(9)

LOCK
V04-

01A0 244
01A0 245 .END

21 2
21 2
20 2
21 2
20 2
20 2
41 2
21 2
21 2
20 2
2F 2
21 2
20 2
2F 2
20 2
65 7
63 6
6F 6
72 6
28 6
72 6
6E 6

INDEX
Symbol table

TABLE OF CONTENTS FOR LISTING

K 4

16-SEP-1984 01:31:11 VAX/VMS Macro V04-00
5-SEP-1984 03:32:42 [SDA.SRC]INDEX.MAR;1

Page 10
(9)

\$\$TMP1	= 00000001		
\$\$TMP2	= 0000C063		
ALLOCATE	*****	X	03
CUJ HEADING	00000006	RG	02
DUMMY_INDEX	00000018	RG	03
FABSL_STV	= 0000000C		
HEADINGS	00000016	R	02
HEADING_ROUTINE	00000012	RG	02
HEADING_SIZE	= 00000036		
INDEXCT1	00000000	R	03
INDEX_RFA	00000000	R	02
LIBSSIGNAL	*****	X	03
LINE_DESCR	*****	X	03
LINE_LENGTH	= 00000050		
LIST	*****	X	03
MAX_HEADINGS	= 0000002D		
NEW_PAGE	*****	X	03
PAGE_NUMBER	*****	X	03
PRINT	*****	X	03
PRINT_INDEX	0000009A	RG	03
PUT_LINE	*****	X	03
RABSB_RAC	= 0000001E		
RABSC_RFA	= 00000002		
RABSC_SEQ	= 00000000		
RABSW_RFA	= 00000010		
RABSW_RSZ	= 00000022		
SET HEADING	00000145	RG	03
SKIP_LINES	*****	X	03
SUB HEADING	0000000A	RG	02
SYSSFAO	*****	X	03
SYSSFIND	*****	GX	03
SYSSGET	*****	GX	03
SYSSUPDATE	*****	GX	03

! Psect synopsis !

PSECT name	Allocation	PSECT No.	Attributes
. ABS .	00000000 (0.)	00 (0.)	NOPIC USR CON ABS LCL NOSHR NOEXE NORD NOWRT NOVEC BYTE
\$ABSS	00000000 (0.)	01 (1.)	NOPIC USR CON ABS LCL NOSHR EXE RD WRT NOVEC BYTE
SDADATA	0000001A (26.)	02 (2.)	NOPIC USR CON REL LCL NOSHR NOEXE RD WRT NOVEC BYTE
INDEX	000001A0 (416.)	03 (3.)	NOPIC USR CON REL LCL NOSHR EXE RD NOWRT NOVEC BYTE
LITERALS	00000046 (70.)	04 (4.)	NOPIC USR CON REL LCL NOSHR EXE RD NOWRT NOVEC BYTE

! Performance indicators !

Phase	Page faults	CPU Time	Elapsed Time
Initialization	29	00:00:00.04	00:00:00.54
Command processing	110	00:00:00.41	00:00:02.64
Pass 1	188	00:00:02.60	00:00:09.27
Symbol table sort	0	00:00:00.22	00:00:02.10
Pass 2	57	00:00:00.61	00:00:02.71

LOC
V04-
63
6F

7
20
72

Symbol table output	5	00:00:00.03	00:00:00.04
Psect synopsis output	2	00:00:00.01	00:00:00.01
Cross-reference output	0	00:00:00.00	00:00:00.00
Assembler run totals	393	00:00:03.93	00:00:17.31

The working set limit was 1350 pages.
 20609 bytes (41 pages) of virtual memory were used to buffer the intermediate code.
 There were 20 pages of symbol table space allocated to hold 326 non-local and 9 local symbols.
 2.5 source lines were read in Pass 1, producing 18 object records in Pass 2.
 18 pages of virtual memory were used to define 16 macros.

 ! Macro library statistics !

Macro library name	Macros defined
-\$255\$DUA28:[SDA.OBJ]SDALIB.MLB;1	4
-\$255\$DUA28:[SYS.OBJ]LIB.MLB;1	0
-\$255\$DUA28:[SYSLIB]STARLET.MLB;2	9
TOTALS (all libraries)	13

456 GETS were required to define 13 macros.

There were no errors, warnings or information messages.

MACRO/LIS=LIS\$:INDEX/OBJ=OBJ\$:INDEX MSRC\$:INDEX/UPDATE=(ENH\$:INDEX)+EXECML\$/LIB+LIB\$:SDALIB/LIB

The image displays a grid of 15 columns and 10 rows of small technical diagrams and code snippets. Several cells contain larger, more prominent text labels:

- Row 2, Column 4: HANDLER LIS
- Row 3, Column 1: DUMP LIS
- Row 4, Column 8: MAIN LIS
- Row 5, Column 1: EXAMPS LIS
- Row 7, Column 13: MMG LIS
- Row 8, Column 2: INDEX LIS
- Row 8, Column 3: LOCK LIS
- Row 8, Column 15: PARSE LIS

The diagrams consist of vertical bars, lines, and small text blocks, typical of early computer system documentation.