


```

PPPPPPPP      AAAAAA      SSSSSSSS      BBBB8888      IIIIII      NN      NN
PPPPPPPP      AAAAAA      SSSSSSSS      BBBB8888      IIIIII      NN      NN
PP      PP      AA      AA      SS      BB      BB      II      NN      NN
PP      PP      AA      AA      SS      BB      BB      II      NN      NN
PP      PP      AA      AA      SS      BB      BB      II      NNNN      NN
PP      PP      AA      AA      SS      BB      BB      II      NNNN      NN
PPPPPPPP      AA      AA      SSSSSS      BBBB8888      II      NN      NN
PPPPPPPP      AA      AA      SSSSSS      BBBB8888      II      NN      NN
PP      AAAAAAAAAA      SS      BB      BB      II      NN      NNNN
PP      AAAAAAAAAA      SS      BB      BB      II      NN      NNNN
PP      AA      AA      SS      BB      BB      II      NN      NN
PP      AA      AA      SS      BB      BB      II      NN      NN
PP      AA      AA      SSSSSSSS      BBBB8888      IIIIII      NN      NN
PP      AA      AA      SSSSSSSS      BBBB8888      IIIIII      NN      NN

```

```

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 0001 0 MODULE PASSBIN ( %TITLE 'Convert value in base 2 to string'
2 0002 0 IDENT = '1-001' ! File: PASBIN.B32 Edit: SBL1001
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
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25 0025 1 *
26 0026 1 *
27 0027 1 *****
28 0028 1
29 0029 1
30 0030 1 ++
31 0031 1 FACILITY: Pascal Language Support
32 0032 1
33 0033 1 ABSTRACT:
34 0034 1
35 0035 1 This module contains PASSBIN which implements the
36 0036 1 VAX-11 Pascal BIN procedure.
37 0037 1
38 0038 1 ENVIRONMENT: User mode - AST reentrant
39 0039 1
40 0040 1 AUTHOR: Steven B. Lionel, CREATION DATE: 1-April-1981
41 0041 1
42 0042 1 MODIFIED BY:
43 0043 1
44 0044 1 1-001 - Original. SBL 1-April-1981
45 0045 1 --
46 0046 1

```

```

: 48 0047 1 %SBTTL 'Declarations'
: 49 0048 1
: 50 0049 1 : PROLOGUE DEFINITIONS
: 51 0050 1
: 52 0051 1
: 53 0052 1 REQUIRE 'RTLIN:PASPROLOG'; . Externals, linkages, PSECTs, structures
: 54 0116 1
: 55 0117 1
: 56 0118 1 : TABLE OF CONTENTS:
: 57 0119 1
: 58 0120 1
: 59 0121 1 FORWARD ROUTINE
: 60 0122 1 PASSBIN: NOVALUE; ! Convert value in base 2
: 61 0123 1
: 62 0124 1
: 63 0125 1 : MACROS:
: 64 0126 1
: 65 0127 1 : NONE
: 66 0128 1
: 67 0129 1 : EQUATED SYMBOLS:
: 68 0130 1
: 69 0131 1 : NONE
: 70 0132 1
: 71 0133 1 : FIELDS:
: 72 0134 1
: 73 0135 1 : NONE
: 74 0136 1
: 75 0137 1 : OWN STORAGE:
: 76 0138 1
: 77 0139 1 : NONE
: 78 0140 1
: 79 0141 1
: 80 0142 1 !! If this is for a V2 system, redefine OTSS$CVT_L_TB as PASS$CVT_L_TB.
: 81 L 0143 1 %IF %VARIANT
: 82 U 0144 1 %THEN
: 83 U 0145 1 UNDECLARE
: 84 U 0146 1 OTSS$CVT_L_TB;
: 85 U 0147 1 EXTERNAL ROUTINE
: 86 U 0148 1 PASS$CVT_L_TB;
: 87 U 0149 1 BIND ROUTINE
: 88 U 0150 1 OTSS$CVT_L_TB = PASS$CVT_L_TB;
: 89 0151 1 %FI

```

```

91 0152 1 %SBTTL 'PAS$BIN - Convert value in base 2 to string'
92 0153 1 GLOBAL ROUTINE PAS$BIN (
93 0154 1     RESULT: REF VECTOR [, BYTE],
94 0155 1     TOTAL_WIDTH: WORD SIGNED,
95 0156 1     NBITS,
96 0157 1     VALUE,
97 0158 1     MIN_DIGITS: SIGNED
98 0159 1 ): NOVALUE =
99 0160 1
100 0161 1 ++
101 0162 1 | FUNCTIONAL DESCRIPTION:
102 0163 1 |
103 0164 1 |     This procedure implements the VAX-11 Pascal BIN function. It
104 0165 1 |     converts a value to an ASCII representation in base 2 and stores
105 0166 1 |     that result in a string.
106 0167 1 |
107 0168 1 | CALLING SEQUENCE:
108 0169 1 |
109 0170 1 |     CALL PAS$BIN (RESULT.wt.r, TOTAL_WIDTH.rw.v, NBITS.rl.v, VALUE.rz.r
110 0171 1 |                   [, MIN_DIGITS.rl.v])
111 0172 1 |
112 0173 1 | FORMAL PARAMETERS:
113 0174 1 |
114 0175 1 |     RESULT           - The string into which the result will be placed.
115 0176 1 |
116 0177 1 |     TOTAL_WIDTH     - Total field width.
117 0178 1 |
118 0179 1 |     NBITS           - The size of VALUE in bits.
119 0180 1 |
120 0181 1 |     VALUE           - The address of the value to write.
121 0182 1 |
122 0183 1 |     MIN_DIGITS     - Optional. The minimum number of digits to appear
123 0184 1 |                     in the result. Defaults to the minimum necessary
124 0185 1 |                     to represent every bit of the value.
125 0186 1 |
126 0187 1 | IMPLICIT INPUTS:
127 0188 1 |
128 0189 1 |     NONE
129 0190 1 |
130 0191 1 | IMPLICIT OUTPUTS:
131 0192 1 |
132 0193 1 |     NONE
133 0194 1 |
134 0195 1 | ROUTINE VALUE:
135 0196 1 |
136 0197 1 |     NONE
137 0198 1 |
138 0199 1 | SIDE EFFECTS:
139 0200 1 |
140 0201 1 |     NONE
141 0202 1 |
142 0203 1 | SIGNALLED ERRORS:
143 0204 1 |
144 0205 1 |     NEGDIGARG - negative "digits" argument to BIN, HEX or OCT is not allowed
145 0206 1 |
146 0207 1 | --
147 0208 1

```

```

: 148 0209 2 BEGIN
: 149 0210 2
: 150 0211 2 LOCAL
: 151 0212 2 ACTUAL_DIGITS, : Number of digits actually used
: 152 0213 2 ACTUAL_NBITS, : Value size actually used
: 153 0214 2 DESCR: "BLOCK [8, BYTE]; : String descriptor
: 154 0215 2
: 155 0216 2 LITERAL
: 156 0217 2 M_SIZE_IN_BITS = 'X'04'; : Flags argument for
: 157 0218 2 : convert routine
: 158 0219 2 BUILTIN
: 159 0220 2 ACTUALCOUNT;
: 160 0221 2
: 161 0222 2 !+
: 162 0223 2 ! Set initial values for conversion.
: 163 0224 2 !-
: 164 0225 2
: 165 0226 2 ACTUAL_NBITS = .NBITS;
: 166 0227 2 ACTUAL_DIGITS = .ACTUAL_NBITS;
: 167 0228 2
: 168 0229 2 !+
: 169 0230 2 ! Create result string descriptor with actual width.
: 170 0231 2 !-
: 171 0232 2
: 172 0233 2 DESCR [DSC$B_CLASS] = DSC$K_CLASS_S;
: 173 0234 2 DESCR [DSC$B_DTYPE] = DSC$K_DTYPE_T;
: 174 0235 2 DESCR [DSC$A_POINTER] = RESULT [0];
: 175 0236 2
: 176 0237 2 IF ACTUALCOUNT () GEQU 5
: 177 0238 2 THEN
: 178 0239 3 BEGIN
: 179 0240 3 ACTUAL_DIGITS = .MIN_DIGITS;
: 180 0241 3 IF .ACTUAL_DIGITS LSS 0
: 181 0242 3 THEN
: 182 0243 3 SIGNAL_STOP (PASS$_NEGDIGARG); : Negative "digits" argument to BIN, HEX or OCT is not allow
: 183 0244 2 END;
: 184 0245 2
: 185 0246 2 DESCR [DSC$W_LENGTH] = .TOTAL_WIDTH;
: 186 0247 2 !+
: 187 0248 2 ! Will TOTAL_WIDTH truncate the value?
: 188 0249 2 !+
: 189 0250 2 IF .TOTAL_WIDTH LSSU .ACTUAL_NBITS
: 190 0251 2 THEN
: 191 0252 2 ACTUAL_NBITS = .TOTAL_WIDTH;
: 192 0253 2
: 193 0254 2 IF .ACTUAL_DIGITS GTRU .TOTAL_WIDTH
: 194 0255 2 THEN
: 195 0256 2 ACTUAL_DIGITS = .TOTAL_WIDTH;
: 196 0257 2
: 197 0258 2 !+
: 198 0259 2 ! Do the conversion. We assume it won't fail.
: 199 0260 2 !-
: 200 0261 2
: 201 0262 2 OT$CVT_L_TB (.VALUE, DESCR, .ACTUAL_DIGITS, .ACTUAL_NBITS,
: 202 0263 2 M_SIZE_IN_BITS);
: 203 0264 2
: 204 0265 2 RETURN;

```

PASSBIN
1-001

Convert value in base 2 to string
PASSBIN - Convert value in base 2 to string

D 13
16-Sep-1984 01:28:24
14-Sep-1984 12:51:20

VAX-11 Bliss-32 V4.0-742
[PASRTL.SRC]PASBIN.B32;1

Page 5
(3)

PAS
1-C

: 205
: 206

0266 2
0267 1 END;

! End of routine PASSBIN

```

          000C 00000
          5E      08 C2 00002
          53      0C AC D0 00005
          52      53 D0 00009
          02 AE 010E 8F B0 0000C
          04 AE 04 AC D0 00012
          05      6C 91 00017
          13      1F 0001A
          52      14 AC D0 0001C
          0D      18 00020
          00000000G 00 00000000G 8F DD 00022
          50      08 AC 32 00028 1$:
          6E      50 B0 00033
          53      50 D1 00036
          03      1E 00039
          53      50 D0 0003B
          50      52 D1 0003E 2$:
          52      03 1B 00041
          04      DD 00046 3$:
          0C      0C BB 00048
          10      AE 9F 0004A
          00000000G 00 AC DD 0004D
          05      FB 00050
          04      04 00057

          .TITLE PASSBIN Convert value in base 2 to string
          .IDENT \1-001\
          .EXTRN PASSBIN, PASS_NEGDIGARG
          .EXTRN OTSSCVT_L_TB
          .PSECT _PASSCODE,NOWRT, SHR, PIC,2
          .ENTRY PASSBIN, Save R2,R3
          SUBL2 #8, SP
          MOVL NBITS, ACTUAL_NBITS
          MOVL ACTUAL_NBITS, ACTUAL_DIGITS
          MOVW #270, DESCR+2
          MOVL RESULT, DESCR+4
          CMPB (AP), #5
          BLSSU 1$
          MOVL MIN_DIGITS, ACTUAL_DIGITS
          BGEQ 1$
          PUSHL #PASS_NEGDIGARG
          CALLS #1, LTB$STOP
          CVTWL TOTAL_WIDTH, R0
          MOVW R0, DESCR
          CMPL R0, ACTUAL_NBITS
          BGEQU 2$
          MOVL R0, ACTUAL_NBITS
          CMPL ACTUAL_DIGITS, R0
          BLEQU 3$
          MOVL R0, ACTUAL_DIGITS
          PUSHL #4
          PUSHR #*M<R2,R3>
          PUSHAB DESCR
          PUSHL VALUUF
          CALLS #5, OTSSCVT_L_TB
          RET

```

; Routine Size: 88 bytes, Routine Base: _PASSCODE + 0000

: 207
: 208 0268 1
0269 1 !<BLF/PAGE>

PASSBIN
1-001

Convert value in base 2 to string
PASSBIN - Convert value in base 2 to string

E 13
16-Sep-1984 01:28:24 VAX-11 Bliss-32 V4.0-742
14-Sep-1984 12:51:20 [PASRTL.SRC]PASBIN.B32;1

: 210 0270 1 END
: 211 0271 1
: 212 0272 0 ELUDOM

. End of module PASSBIN

.EXTRN LIB\$STOP

PSECT SUMMARY

| Name | Bytes | Attributes |
|-----------|-------|--|
| _PASSCODE | 88 | NOVEC, NOWRT, RD, EXE, SHR, LCL, REL, CON, PIC, ALIGN(2) |

Library Statistics

| File | Total | Symbols Loaded | Percent | Pages Mapped | Processing Time |
|--|-------|----------------|---------|--------------|-----------------|
| _\$255\$DUA28:[SYSLIB]STARLET.L32;1 | 9776 | 6 | 0 | 581 | 00:01.0 |
| _\$255\$DUA28:[PASRTL.OBJ]PASLIB.L32;1 | 427 | 3 | 0 | 33 | 00:00.4 |

COMMAND QUALIFIERS

BLISS/CHECK=(FIELD,INITIAL,OPTIMIZE)/NOTRACE/LIS=LIS\$:PASBIN/OBJ=OBJ\$:PASBIN MSRC\$:PASBIN/UPDATE=(ENH\$:PASBIN)

: Size: 88 code + 0 data bytes
: Run Time: 00:04.4
: Elapsed Time: 00:17.3
: Lines/CPU Min: 3700
: Lexemes/CPU-Min: 8081
: Memory Used: 52 pages
: Compilation Complete

0293 AH-BT13A-SE
VAX/VMS V4.0

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