


```
1 0001 0 MODULE RPG$DIVIDE(IDENT='1-003')=
2 0002 1 BEGIN
3 0003 1
4 0004 1
5 0005 1 *****
6 0006 1 *
7 0007 1 * COPYRIGHT (c) 1978, 1980, 1982, 1984 BY
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24 0024 1 *
25 0025 1 *
26 0026 1 *****
27 0027 1
28 0028 1
29 0029 1 ++
30 0030 1
31 0031 1 FACILITY:      RPGII SUPPORT
32 0032 1
33 0033 1 ABSTRACT:
34 0034 1
35 0035 1     This module supports RPG divides over 31 packed digits
36 0036 1
37 0037 1 ENVIRONMENT:  VAX/VMS user mode
38 0038 1
39 0039 1 AUTHOR: Shelly T. Solomon, CREATION DATE: 15-Jul-1983
40 0040 1
41 0041 1 MODIFIED BY:
42 0042 1
43 0043 1 1-001 Original.                               STS 15-Jul-1983
44 0044 1 1-002 Pass scale-data to PLI$DIV_PK_SHRT.     STS 02-Nov-1983
45 0045 1 1-003 Change reference to PLI$ routine to OTSS routine.  DG 05-Mar-1984
46 0046 1 --
47 0047 1
48 0048 1 REQUIRE 'RTLIN:RPGPROLOG';                      ! switches, psects, macros,
49 0113 1                                             ! linkages and LIBRARYs
50 0114 1
51 0115 1 ++
52 0116 1 TABLE OF CONTENTS
53 0117 1 -
54 0118 1
55 0119 1 FORWARD ROUTINE
56 0120 1     RPG$DIV_LONG : NOVALUE;
57 0121 1
```

RPG\$DIVIDE
1-003

L 11
16-Sep-1984 02:12:53
14-Sep-1984 13:04:17

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[RPGRTL.SRC]RPGDIVIDE.B32;1

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:	58	0122	1	!+	
:	59	0123	1	!	EXTERNAL REFERENCES
:	60	0124	1	-	
:	61	0125	1		
:	62	0126	1		EXTERNAL ROUTINE
:	63	0127	1		OT\$DIV_PKSHORT;
:	64	0128	1		
:	65	0129	1		BUILTIN
:	66	0130	1		ASHP;
:	67	0131	1		

```

69 0132 1 GLOBAL ROUTINE RPG$DIV_LONG(
70 0133 1     FACTOR_1: REF BLOCK[,BYTE],      ! dividend (packed dec by descriptor)
71 0134 1     FACTOR_2: REF BLOCK[,BYTE],  ! divisor (packed dec by descriptor)
72 0135 1     RESULT: REF BLOCK[,BYTE]    ! result (packed dec by descriptor)
73 0136 1     ): NOVALUE=
74 0137 1
75 0138 1  +-
76 0139 1
77 0140 1  FUNCTIONAL DESCRIPTION:
78 0141 1
79 0142 1      This routine supports RPG divides when precision and scale
80 0143 1      requirements call for precision > 31 decimal digits.
81 0144 1      It accepts as input packed decimal strings, and outputs a
82 0145 1      packed result.
83 0146 1
84 0147 1  CALLING SEQUENCE:
85 0148 1
86 0149 1      CALL RPG$DIV_LONG (factor_1.rp.ds, .factor_2.rp.ds, result.wp.ds)
87 0150 1
88 0151 1  FORMAL PARAMETERS:
89 0152 1
90 0153 1      FACTOR_1      address of descriptor of dividend for divide
91 0154 1      The allowable data type is packed.
92 0155 1
93 0156 1      FACTOR_2      address of descriptor of divisor for divide
94 0157 1      The allowable data type is packed.
95 0158 1
96 0159 1      RESULT      address of descriptor of result of the divide
97 0160 1      operation. The allowable data type is packed.
98 0161 1
99 0162 1  IMPLICIT INPUTS:
100 0163 1
101 0164 1      NONE
102 0165 1
103 0166 1  IMPLICIT OUTPUTS:
104 0167 1
105 0168 1      NONE
106 0169 1
107 0170 1  ROUTINE VALUE:
108 0171 1
109 0172 1      NONE
110 0173 1
111 0174 1  SIDE EFFECTS:
112 0175 1
113 0176 1      NONE
114 0177 1
115 0178 1  --
116 0179 2  BEGIN
117 0180 2
118 0181 2  LOCAL
119 0182 2      A,          ! additional precision needed
120 0183 2      C,          ! scale factor for dividend
121 0184 2      D,          ! scale-data for divide
122 0185 2      DIVIDEND : VECTOR[16,BYTE]; ! scaled dividend
123 0186 2  +-
124 0187 2  Note: the variables names, A,C, and D were chosen to correspond to the
125 0188 2  PLI(OTS) documentation of the run-time routine. (See the Language Support

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126 0189 2 | Reference Manual.)
127 0190 2 |
128 0191 2 |
129 0192 2 | calculate additional digits of precision required
130 0193 2 | The sign of the scale which we use is the negative of the scale which the
131 0194 2 | run-time routine is referring to, because of the way we store negative numbers.
132 0195 2 |
133 0196 2 | A = .FACTOR_1[DSC$W_LENGTH] - .FACTOR_2[DSC$B_SCALE] - .RESULT[DSC$B_SCALE]
134 0197 2 | + .FACTOR_1[DSC$B_SCALE] -31;
135 0198 2 |
136 0199 2 | +
137 0200 2 | Get scale factor needed to make the dividend a 31 digit number.
138 0201 2 |
139 0202 2 | C = 31 - .FACTOR_1[DSC$W_LENGTH];
140 0203 2 |
141 0204 2 | +
142 0205 2 | Get the data scale
143 0206 2 |
144 0207 2 | D = 31 + .FACTOR_2[DSC$B_SCALE];
145 0208 2 |
146 0209 2 | +
147 0210 2 | Move from the packed dividend to temporary dividend scaling by 10**c
148 0211 2 |
149 0212 2 | ASHP(C, FACTOR_1[DSC$W_LENGTH], .FACTOR_1[DSC$A_POINTER], %REF(0),
150 0213 2 | %REF(31), DIVIDEND);
151 0214 2 |
152 0215 2 | OTS$DIV_PKSHORT(DIVIDEND, .FACTOR_2[DSC$A_POINTER], .FACTOR_2[DSC$W_LENGTH],
153 0216 2 | .RESULT[DSC$A_POINTER], .RESULT[DSC$W_LENGTH], .A, .D);
154 0217 2 |
155 0218 2 | RETURN;
156 0219 1 | END;

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.TITLE RPG$DIVIDE
.IDENT \1-003\

.EXTRN OTS$DIV_PKSHORT

.PSECT _RPG$CODE, NOWRT, SHR, PIC, 2

.ENTRY RPG$DIV_LONG, Save R2,R3,R4,R5,R6,R7 : 0132
SUBL2 #16, SP :
MOVL FACTOR_1, R2 : 0196
MOVL FACTOR_2, R5
MOVZWL (R2), R0
CVTBL 8(R5), R1
SUBL2 R1, R0
MOVL RESULT, R4
CVTBL 8(R4), R3
SUBL2 R3, R0
CVTBL 8(R2), R1 : 0197
MOVAB -31(R1)[R0], A :
MOVZWL (R2), C : 0202
SUBL3 C, #31, C :
CVTBL 8(R5), D : 0207
ADDL2 #31, D :
ASHP C, (R2), @4(R2), #0, #31, DIVIDEND : 0212

```

			00FC	0000
5E		10	C2	00002
52	04	AC	D0	00005
55	08	AC	D0	00009
50		62	3C	0000D
51	08	A5	98	00010
50		51	C2	00014
54	0C	AC	D0	00017
53	08	A4	98	0001B
50		53	C2	0001F
51	08	A2	98	00022
57	E1	A140	9E	00026
50		62	3C	0002B
50	50	1F	C3	0002E
56	08	A5	98	00032
56		1F	C0	00036
00	04	B2	50	F8 00039

RPG\$DIVIDE
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6E		1F	0003F						
		56	DD 00041	PUSHL	D			:	0216
		57	DD 00043	PUSHL	A			:	
7E		64	3C 00045	MOVZWL	(R4), -(SP)			:	
	04	A4	DD 00048	PUSHL	4(R4)			:	
7E		65	3C 0004B	MOVZWL	(R5), -(SP)			:	0215
	04	A5	DD 0004E	PUSHL	4(R5)			:	
	18	AE	9F 00051	PUSHAB	DIVIDEND			:	
00000000G	00	07	FB 00054	CALLS	#7, OTS\$DIV_PKSHORT			:	0219
		04	0005B	RET				:	

: Routine Size: 92 bytes, Routine Base: _RPG\$CODE + 0000

: 157 0220 1

RF

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RMS0TRUNC LIS	STAPRFLNM LIS	RPGCUTPT0 LIS	RPGHANDLE LIS	RPGMOVE1 LIS
RMS0RCH LIS	RMS0WAIT LIS	RPGRTLIB REQ	RPGDSPLY LIS	RPGLIB LIS
RMS0UPDAT LIS	RPGRTMAP	RPGPROLOG REQ	RPGEXTIND LIS	RPGLIB LIS
RMS0RCH LIS	RMS0WAIT LIS	RPGRTZ LIS	RPGMOVE2 LIS	RPGDEF REQ
RMS0UPDAT LIS	RPGDEF REQ	RPGDIVIDE LIS	RPGIOEXCE LIS	RPGDEF REQ
RMS0RCH LIS	RMS0WAIT LIS	RMS0UPDAT LIS	RPGERROR LIS	RMS0RCH LIS