

RECOMP II USERS' PROGRAM NO. 1136

PROGRAM TITLE: SCO-MAT FORMATTING ROUTINE FOR
SCOPAC COMPILER

PROGRAM CLASSIFICATION: ROUTINE

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PURPOSE: To provide a simple, standard routine
for printing numbers in a pre-selected
format from SCOPAC compiled programs;
facilitating columnar output of data,
and allowing a more complete utilization
of space per line than is possible with
the SCOPAC Print instruction.

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1. PURPOSE

To provide a simple, standard routine for printing numbers in a pre-selected format from SCOPAC compiled programs; facilitating columnar output of data, and allowing a more complete utilization of space per line than is possible with the SCOPAC Print instruction.

2. RESTRICTIONS

2.1 If I = Number of characters (excluding sign) before decimal point, and D = Number of characters after decimal point, then

$$I + D = 1, 2, 3, 4, 6, 8, 10, \text{ or } 12.$$

2.2 A number which cannot be contained within the specified number of characters will be attempted at successively higher number of characters preceding the decimal point. The decimal point will be shifted one or two spaces to the right at each attempt with a higher number of characters preceding the decimal point. (Whether a shift of one or two will occur depends on the specific chain of formats followed in arriving at one which will accept the numbers.) The routine will find the most compact format acceptable within the limitation of 2.1.

2.3 If the number cannot be contained in 10 characters preceding the decimal point, the routine will transfer to AN-015.1 via location 22531 and be output either at maximum fixed point or floating point as required.

3. METHOD

A table of code words designating specific formats and error returns to the next higher number of characters preceding the decimal point is stored. In compiling the SCOPAC program the compiler uses symbolic coding to transfer to the correct location for the desired format.

4. USAGE

4.1 The routine is read-in over P³2 (or a tape of P³2 modified to contain this routine is used).

4.2 If only one or two values of a given format are to be printed, the following may be used:

STATEMENT bringing or leaving desired number in the accumulator

SYMBOLIC s

TRA N calling location (see table)

COMPILE

- 4.3 If more than two values are to be output in the same format, or if several formats are required, the following may be used:

```
SYMBOLIC      s
NAME ONE      DEF N (calling location of
                1st format)
NAME TWO      DEF N (calling location of
                2nd format)
```

etc.

COMPILE

Then, with the number in the accumulator, use

GO TO (desired format Name)

5. CODING INFORMATION

- 5.1 This routine occupies locations 0530 to 0765, replacing AN-014 in P³2.

5.2 Eraseable locations

```
05320
05360
05370
```

5.3 Fixed point constants

One at b39 in 05301

- 5.4 The attached table gives acceptable formats, calling location for each format, format code word location, and the next format to be tried.

6. CHECK

- 6.1 The program was used to attempt output of numbers containing from one to eleven characters in every format. All transfers operated correctly.

<u>Format Int/Dec</u>	<u>Calling Location</u>	<u>Format Code Loc.</u>	<u>Error Transfer to Format</u>
1/0	0540.0	0542.0	2/0
2/0	0543.0	0545.0	3/0
3/0	0546.0	0550.0	4/0
4/0	0551.0	0553.0	6/0
6/0	0554.0	0556.0	8/0
8/0	0557.0	0561.0	10/0
10/0	0562.0	0564.0	To full float. pt.
0/1	0565.0	0567.0	1/1
1/1	0570.0	0572.0	2/1
2/1	0573.0	0575.0	3/1
3/1	0576.0	0600.0	5/1
5/1	0601.0	0603.0	7/1
7/1	0604.0	0606.0	9/1
9/1	0607.0	0611.0	10/2
0/2	0612.0	0614.0	1/2
1/2	0615.0	0617.0	2/2
2/2	0620.0	0622.0	4/2
4/2	0623.0	0625.0	6/2
6/2	0626.0	0630.0	8/2
8/2	0631.0	0633.0	10/2
10/2	0634.0	0636.0	To full float. pt.
0/3	0637.0	0641.0	1/3
1/3	0642.0	0644.0	3/3
3/3	0645.0	0647.0	5/3
5/3	0650.0	0652.0	7/3
7/3	0653.0	0655.0	9/3
9/3	0656.0	0660.0	10/2
0/4	0661.0	0663.0	2/4
2/4	0664.0	0666.0	4/4
4/4	0667.0	0671.0	6/4
6/4	0672.0	0674.0	8/4
8/4	0675.0	0677.0	9/3
1/5	0700.0	0702.0	3/5
3/5	0703.0	0705.0	5/5
5/5	0706.0	0710.0	7/5
7/5	0711.0	0713.0	8/4
0/6	0714.0	0716.0	2/6
2/6	0717.0	0721.0	4/6
4/6	0722.0	0724.0	6/6
6/6	0725.0	0727.0	7/5
1/7	0730.0	0732.0	3/7
3/7	0733.0	0735.0	5/7
5/7	0736.0	0740.0	6/6
0/8	0741.0	0743.0	2/8
2/8	0744.0	0746.0	4/8
4/8	0747.0	0751.0	5/7
1/9	0752.0	0754.0	3/9
3/9	0755.0	0757.0	4/8
0/10	0760.0	0762.0	2/10
2/10	0763.0	0765.0	3/9

PRINT OF ^{SCOMAT} SCOPAC SUBROUTINE

0530	+40	0000.0	0556	+00	0600.0	0603	+00	0501.0
	+57	0000.0		+57	0560.0		+57	0605.0
0531	+00	0000.0	0557	+15	0532.0	0604	+15	0532.0
	-00	0000.1		+42	0530.1		+42	0530.1
0532	+00	0000.0	0560	+00	0561.0	0605	+00	0606.0
	-00	0000.0		+57	0533.0		+57	0533.0
0533	+60	0536.0	0561	+00	1000.0	0606	+00	0701.0
	+00	0530.0		+57	0563.0		+57	0610.0
0534	+01	0531.0	0562	+15	0532.0	0607	+15	0532.0
	+60	0537.0		+42	0530.1		+42	0530.1
0535	+00	0532.0	0563	+00	0564.0	0610	+00	0611.0
	+57	0150.0		+57	0533.0		+57	0533.0
0536	+00	0000.0	0564	+00	1200.0	0611	+00	1101.0
	+00	0000.0		+57	2253.1		+57	0635.0
0537	+00	0000.0	0565	+15	0532.0	0612	+15	0532.0
	+00	0000.0		+42	0530.1		+42	0530.1
0540	+15	0532.0	0566	+00	0567.0	0613	+00	0614.0
	+42	0530.1		+57	0533.0		+57	0533.0
0541	+00	0542.0	0567	+00	0001.0	0614	+00	0002.0
	+57	0533.0		+57	0571.0		+57	0616.0
0542	+00	0100.0	0570	+15	0532.0	0615	+15	0532.0
	+57	0544.0		+42	0530.1		+42	0530.1
0543	+15	0532.0	0571	+00	0572.0	0616	+00	0617.0
	+42	0530.1		+57	0533.0		+57	0533.0
0544	+00	0545.0	0572	+00	0101.0	0617	+00	0102.0
	+57	0533.0		+57	0574.0		+57	0621.0
0545	+00	0200.0	0573	+15	0532.0	0620	+15	0532.0
	+57	0547.0		+42	0530.1		+42	0530.1
0546	+15	0532.0	0574	+00	0575.0	0621	+00	0622.0
	+42	0530.1		+57	0533.0		+57	0533.0
0547	+00	0550.0	0575	+00	0201.0	0622	+00	0202.0
	+57	0533.0		+57	0577.0		+57	0624.0
0550	+00	0300.0	0576	+15	0532.0	0623	+15	0532.0
	+57	0552.0		+42	0530.1		+42	0530.1
0551	+15	0532.0	0577	+00	0600.0	0624	+00	0625.0
	+42	0530.1		+57	0533.0		+57	0533.0
0552	+00	0553.0	0600	+00	0301.0	0625	+00	0402.0
	+57	0533.0		+57	0602.0		+57	0627.0
0553	+00	0400.0	0601	+15	0532.0	0626	+15	0532.0
	+57	0555.0		+42	0530.1		+42	0530.1
0554	+15	0532.0	0602	+00	0603.0	0627	+00	0630.0
	+42	0530.1		+57	0533.0		+57	0533.0
0555	+00	0556.0						
	+57	0533.0						

PRINT OF SCOMAT SUBROUTINE

0630	+00	0602.0	0656	+15	0532.0	0703	+15	0532.0
	+57	0632.0		+42	0530.1		+42	0530.1
0631	+15	0532.0	0657	+00	0660.0	0704	+00	0705.0
	+42	0530.1		+57	0533.0		+57	0533.0
0632	+00	0633.0	0660	+00	1103.0	0705	+00	0305.0
	+57	0533.0		+57	0635.0		+57	0707.0
0633	+00	1002.0	0661	+15	0532.0	0706	+15	0532.0
	+57	0635.0		+42	0530.1		+42	0530.1
0634	+15	0532.0	0662	+00	0663.0	0707	+00	0710.0
	+42	0530.1		+57	0533.0		+57	0533.0
0635	+00	0636.0	0663	+00	0004.0	0710	+00	0505.0
	+57	0533.0		+57	0665.0		+57	0712.0
0636	+00	1212.0	0664	+15	0532.0	0711	+15	0532.0
	+57	2253.1		+42	0530.1		+42	0530.1
0637	+15	0532.0	0665	+00	0666.0	0712	+00	0713.0
	+42	0530.1		+57	0533.0		+57	0533.0
0640	+00	0641.0	0666	+00	0204.0	0713	+00	0705.0
	+57	0533.0		+57	0670.0		+57	0676.0
0641	+00	0003.0	0667	+15	0532.0	0714	+15	0532.0
	+57	0643.0		+42	0530.1		+42	0530.1
0642	+15	0532.0	0670	+00	0671.0	0715	+00	0716.0
	+42	0530.1		+57	0533.0		+57	0533.0
0643	+00	0644.0	0671	+00	0404.0	0716	+00	0006.0
	+57	0533.0		+57	0673.0		+57	0720.0
0644	+00	0103.0	0672	+15	0532.0	0717	+15	0532.0
	+57	0646.0		+42	0530.1		+42	0530.1
0645	+15	0532.0	0673	+00	0674.0	0720	+00	0721.0
	+42	0530.1		+57	0533.0		+57	0533.0
0646	+00	0647.0	0674	+00	0604.0	0721	+00	0206.0
	+57	0533.0		+57	0676.0		+57	0723.0
0647	+00	0303.0	0675	+15	0532.0	0722	+15	0532.0
	+57	0651.0		+42	0530.1		+42	0530.1
0650	+15	0532.0	0676	+00	0677.0	0723	+00	0724.0
	+42	0530.1		+57	0533.0		+57	0533.0
0651	+00	0652.0	0677	+00	1004.0	0724	+00	0406.0
	+57	0533.0		+57	0657.0		+57	0726.0
0652	+00	0503.0	0700	+15	0532.0	0725	+15	0532.0
	+57	0654.0		+42	0530.1		+42	0530.1
0653	+15	0532.0	0701	+00	0702.0	0726	+00	0727.0
	+42	0530.1		+57	0533.0		+57	0533.0
0654	+00	0655.0	0702	+00	0105.0	0727	+00	0606.0
	+57	0533.0		+57	0704.0		+57	0712.0
0655	+00	0703.0						
	+57	0657.0						

PRINT OF SCOPAT SUBROUTINE

0730	+15	0532.0	0756	+00	0757.0
	+42	0530.1		+57	0533.0
0731	+00	0732.0	0757	+00	0311.0
	+57	0533.0		+57	0750.0
0732	+00	0107.0	0760	+15	0532.0
	+57	0734.0		+42	0530.1
0733	+15	0532.0	0761	+00	0762.0
	+42	0530.1		+57	0533.0
0734	+00	0735.0	0762	+00	0012.0
	+57	0533.0		+57	0764.0
0735	+00	0307.0	0763	+15	0532.0
	+57	0737.0		+42	0530.1
0736	+15	0532.0	0764	+00	0765.0
	+42	0530.1		+57	0533.0
0737	+00	0740.0	0765	+00	0212.0
	+57	0533.0		+57	0756.0
0740	+00	0507.0			
	+57	0726.0			
0741	+15	0532.0			
	+42	0530.1			
0742	+00	0743.0			
	+57	0533.0			
0743	+00	0010.0			
	+57	0745.0			
0744	+15	0532.0			
	+42	0530.1			
0745	+00	0746.0			
	+57	0533.0			
0746	+00	0210.0			
	+57	0750.0			
0747	+15	0532.0			
	+42	0530.1			
0750	+00	0751.0			
	+57	0533.0			
0751	+00	0410.0			
	+57	0737.0			
0752	+15	0532.0			
	+42	0530.1			
0753	+00	0754.0			
	+57	0533.0			
0754	+00	0111.0			
	+57	0756.0			
0755	+15	0532.0			
	+42	0530.1			