UNIVERSITY OF ILLINOIS

DIGITAL COMPUTER

Library Routine X 10 - 170

TITLE	Program Interruption Routine with Sum Check
NUMBER OF WORDS	49
TIME	Depends on number of memory changes
ACCURACY	No accuracy is gained or lost by the use of this subroutine
TEMPORARY STORAGE	None external to this routine
PRESET PARAMETERS	None
ENTRY	Same as in Library Routine X 9.
PURPOSE	This routine is similar to Library Routine X9 except that a sum check is included. The sum check essentially compares the contents of the memory immediately after interruption with its contents just after the subroutine has reset it. It serves as a general check on the memory and the reader.
METHOD OF USE	The procedure described in Library Routine X 9 is completely applicable here and so is the preparation of the specification tape. The output tape is slightly different. The first word is the control transfer to be used by the bootstrap; following this the words specified by the programmer and their addresses are punched out (for details see Library Routine X 9); lastly the accumulator contents, the sum check, the link and the control transfer to the sum check appear in that order, the list being preceded by an address.
REMARKS	The sum check sums every word in the memory with the exception of word thirty-five of the routine. This is done for the first time soon after the routine is entered. The memory sum is again computed after the memory is reset. If the sums fail to agree the machine will stop on an FF order in word forty five of the routine. Otherwise control is transferred to the main program via the link. If the programmer wishes to ignore the sum check he may do so, by restarting with the white switch where control again goes to the main program.
CAUTION	ALL memory changes occurring between the start of the program and the transfer of control to this subroutine

must be specified; changes that take place after the transfer of control need not concern the programmer. It follows that changes occurring in all library subroutines (except the present one) and their temporary storage must be specified.

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CODED BY Sily Leshu
APPROVED BY J. P. Nash

LOCATION	ORDER	NOTES	Page 1	X 10
0	40 33L			
	K5 F	Plant link		
1	42 32L			
	92 63F			
2	L5 37L	Output control transfer		
	82 40F			
3	22 37L	Go to sum check		
	92 3F			
4	92 131F			
	41 1L			
5	41 0L			
	81 4F			
6	L0 48L			
	36 12L			
7	L4 48L	Form address		
	50 0L			
8	74 48L			
	S5 32L			
9	40 0L			
	L3 2L	Was the last symbol a K?		
10	32 5L			
	L5 0L			
11	40 1L	If it was not a K		
	22 5L			
12	40 2L			
	00 38F	Is this K, S, or N?		
13	36 21L			
	L5 8L			
14	00 28F			
	82 12F			
15	92 131F			
	L5 (32)L			
16	82 40F			
	92 131F			
17	F5 15L	If it is an N		
	42 15L			

LOCATION	ORDER	NOTES Page 2 X 10
18	L0 46L	
	32 15L	
19	L5 3L	
	82 40F	
20	92 131F	
	0F F	
21	00 1F	Is it K or S?
	36 5L	
22	L5 1L	
	42 24L	
23	00 28F	
	82 12F	
24	92 131F	
	L5 ( )L	If it is an S
25	82 40F	
	F5 1L	
26	40 1L	
	42 24L	
27	F0 0L	
	32 3L	
28	26 24L	
	91 4F	
29	40 0L	
	L7 0L	
30	36 35L	
	81 12F	
31	42 35L	
	26 35L	
32	L5 33L	Link
	22 ( )F	Read back output
33	00 F	tape and reset
	00 F	Hold accumulator controls memory
34	00 F	
	00 F	Sum check stored here
35	81 40F	
	40 ( )L	

LOCATION	ORDER	NOTES	PAGE 3	X 10
36	F5 35L			
	40 35L			
37	22 28L			
	41 0L			
38	L5 36L			
	10 3F			
39	K6 32L			
	L4 (37)L			
40	40 36L			
	F5 39L			
41	40 39L			
	L0 47L			
42	36 38L			
	L1 36L			
43	40 34L			
	L1 35L	Are we in sum check I or II?		
44	32 3L			
	L3 34L			
45	36 32L			
	FF F			
46	12 131F			
	L5 35L			
47	26 32L	Constants		
	L4 1059L			
48	00 F			
	00 10F			

Sum check