

ALTERNATIVE MONITOR ACTION USING THE INTERMEDIATE SUPERVISOR

Trapping of individual errors, and private monitor action when any error is detected, can be obtained using the intermediate supervisor. The initiation of trapping and private monitor action is by setting registers in the subsidiary store (achieved in the final version by extracode functions); the entry conditions when faults are detected are as in the final supervisor. The registers set in subsidiary store are reset by the Supervisor at the start of each program, so that changes made by one program do not affect any subsequent programs.

A) Trapping A trapping vector may be set up in the program store so that an error of type n causes a trap via entry n of this vector ($n = 0, 1, 2 \dots$). Each entry comprises one word. Digit 47-24 (first half word) contain the address in the program to jump to under main control; digits 23-0 (second half word) contain the number of a B register in digits 8-2 in which the current value of main control is recorded before jumping. On entry to the trap, B91 contains a record of the error; B92, 93 are altered, and B121 contains the address of the B register in which M is preserved.

The trapping mode is established by planting its initial address in 966*7. The program may revert to no trapping by planting *4 to this half word of subsidiary store. The following are trappable errors detected by the Intermediate Supervisor, the value of n , and the marker in B91 when trapped

Fault	Trap Number	B91
Exponent overflow	1	*00001
Division overflow	2	*004
Input ended	9	4.4

B) Block Limit Trapping

A special trap may be set up to cause a jump to n if a block label greater than b is defined. This trap will ultimately be set by extracode. It may be set up under the Intermediate Supervisor by planting n in half word 973.4*7; b in digit 22-12 of half word 974.4*7, remaining digit zero. The jump becomes effective after the block has been defined through a non-equivalence interrupt. The trap may be unset by planting *4 to half word 974.4*7. On exit to the trap, the value of m is held in B91.

C) Private Monitor Entry

An exit to a private monitor sequence in the event of any error may be obtained by planting the initial address of the sequence in half word 974*7. Digits 1,0 of the monitor address indicate that the private sequence is to be entered before any standard printing, after printing the error, or after the standard post mortem as follows :-

	Digits	1	0
Before any printing		0	1
After error print		0	0
After error and post mortem print		1	0

On entry to a private monitor sequence, B91 contains the fault marker as in the following table, B92 contains the previous value of main control, B93, 121 are altered. B96, 97 are altered unless exit is made before any standard printing.

Fault	Marker in B91
Illegal function	*02
Exponent overflow	*00001
Division overflow	*004
Sacred Violation Operand	*0002
Sacred Violation Instruction	*002
Excess blocks	2.0
Illegal block	9.6
Input ended	4.4

Should a further error occur after entry to the private monitor sequence, the standard monitor sequence is entered, to avoid the possibility of loops within the private monitor routine itself. A request for private monitoring may be deleted by planting *4 in half word 974*7.

D.J. HOWARTH

12th June 1963