

Notes of CM2000 use of Event 47 and Register 2038  
April 28, 1999

Event 47 and Register 2038 are used by the CM2 firmware to identify and control

- A CUL program that consumes excessive compute time, and/or
- An excessive number of S/S events being generated.

Register 2038 contains values written by the F/W to report the status of these two conditions. The Register is normally equal zero. Whenever F/W places a value in the register, it is required that the user write a zero to the register (i.e. acknowledge that this condition exists) before normal operation of the CUL and/or S/S systems will resume.

Register 2038 reports:

- Bit-0 Either CUL or S/S is inhibited (provides a single bit test).
- Bit-1 S/S is Disabled. This bit is set whenever the CM2 has performed repeated resets. S/S is not the only cause of such resets (it could be H/W related, etc), but improper setting of S/S configuration can create the condition. The user must write zero to Register 2038 and re-enable all desired events before S/S operation will resume.
- Bit-2 CUL is Disabled. This bit is set whenever the CUL program is consuming excessive processor time. It will occur when a CUL program enters an endless loop or performs some other operation that is very long in execution time. The CUL program is stopped, and will not resume until Register 2038 is cleared to zero.
- Bit-3 S/S is suspended on a temporary basis. A flurry of S/S events have been detected. The S/S system will remain suspended for 8 seconds and will then automatically resume operation. The Enable/Disable status of each S/S event is unchanged. Note this bit will clear itself when the S/S system returns to normal operation.
- Bit-4 S/S is suspended on a permanent basis. A flurry of S/S events have been detected immediately following a temporary suspension. The S/S system will now remain suspended until the user writes zero to Register 2038. The Enable/Disable status of each S/S event is unchanged; thus, S/S system operation will resume without user adjustment of the Enable/Disable values.

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A "flurry" of S/S events is defined as

- More than 48 events total from all S/S Alarms in any 500ms period,
- or
- More than 6 events from any single S/S Alarm in any 500ms period.

Event 47 is true whenever Register 2038 is not equal zero. The event is always enabled when the event is true. If the user disables Event 47 without clearing Register 2038, the event will immediately be re-enabled and asserted as true.