

## Motorola Semiconductor Engineering Bulletin

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### Generating Edge-Sensitive Interrupts on the MC683xx and MC68HC16 Families of MCUs

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#### General Information

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One method for generating edge-sensitive interrupts (interrupts that are recognized only when the pin state changes) is to use an input to a peripheral module such as the general-purpose timer or the time processor unit.

For the general-purpose timer (GPT), an input capture pin or pulse accumulator input pin can be used. The pin should be set up to recognize an edge of a particular polarity, for instance, positive only or negative only. Of course, interrupts must be enabled for the GPT and the GPT's IARB field set to a non-zero value. When the edge occurs, a flag in the GPT's registers will be set and an interrupt will be signaled. The flag does not go away until the processor takes a specific action, such as reading the flag as a 1 and then clearing it by writing the flag to a 0.

A similar method can be used on the time processor unit (TPU). A channel can be set up in the DIO mode and programmed to recognize the desired edge. Once again, a flag will be set and an interrupt signaled. The flag must be cleared by a specific action of the CPU.



In either case, the flag and associated interrupt remains asserted regardless of whether the actual interrupt signal remains asserted or not. Also, a second interrupt is not created until the incoming signal first goes to its de-asserted state and then is asserted a second time.

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