

retained in the register description for a given peripheral. For more information on their behavior, see chapter [RESET — Reset control](#) on page 101.

8.1.5 Bit set and clear

Registers with multiple single-bit fields can implement the set-and-clear bit pattern. This bit pattern enables firmware to set and clear individual bits in a register without having to perform a read-modify-write operation to the main register.

This bit pattern is implemented using three consecutive addresses in the register map, where the main register is followed by dedicated SET and CLR registers (in that exact order).

In the main register, the SET register sets individual bits and the CLR register clears them. Writing 1 to a bit in the SET or CLR register will set or clear the same bit in the main register. Writing 0 to a bit in the SET or CLR register has no effect. Reading the SET or CLR register returns the value of the main register.

Note: The main register may not be visible, and therefore not directly accessible in all cases.

8.1.6 Tasks

Tasks trigger actions in a peripheral, such as to start a particular behavior. A peripheral can implement multiple tasks, with each task having a separate register in that peripheral's task register group.

A task is triggered when firmware writes 1 to the task register, or when the peripheral itself or another peripheral toggles the corresponding task signal. See the figure [Peripheral interface](#) on page 213.

8.1.7 Events

Events notify peripherals and the CPU about events that have happened, such as a state change in a peripheral. A peripheral may generate multiple events, where each event has a separate register in that peripheral's event register group.

An event is generated when the peripheral toggles the corresponding event signal and updates the event register to show an event has been generated, see figure [Peripheral interface](#) on page 213. An event register is cleared when firmware writes a 0 to that register. A peripheral can continually generate events when the event register is 1.

8.1.8 Publish and subscribe

Events and tasks from different peripherals can be connected together through the DPPI system using the PUBLISH and SUBSCRIBE registers in each peripheral. See [Peripheral interface](#) on page 213.

An event can be published onto a DPPI channel by configuring the event's PUBLISH register. Similarly, a task can subscribe to a DPPI channel by configuring the task's SUBSCRIBE register.

See [DPPI — Distributed programmable peripheral interconnect](#) on page 108 for details.

8.1.9 Shortcuts

A shortcut is a direct connection between an event and a task within the same peripheral. If a shortcut is enabled, the associated task is automatically triggered when its associated event is generated.

Using shortcuts is the same as connecting a task and event outside the peripheral through the DPPI. The propagation delay for a shortcut is usually shorter than the propagation delay through the DPPI.

Shortcuts are predefined, which means that their connections cannot be configured by firmware. Each shortcut can be individually enabled or disabled through the shortcut register, one bit per shortcut, giving a maximum of 32 shortcuts for each peripheral.