

Sample code for reading the SYSCOUNTER value:

```

uint32_t syscounterl_value, syscounterh_value, syscounterh;
uint64_t syscounter;

do
{
    syscounterl_value = GRTC.SYSCOUNTER[m].SYSCOUNTERL;
    syscounterh = GRTC.SYSCOUNTER[m].SYSCOUNTERH;

    syscounterh_value = ((syscounterh & GRTC_SYSCOUNTER_SYSOUNTERH_VALUE_Msk) >>
GRTC_SYSCOUNTER_SYSOUNTERH_VALUE_Pos);

    if (((syscounterh & GRTC_SYSCOUNTER_SYSOUNTERH_OVERFLOW_Msk) >>
GRTC_SYSCOUNTER_SYSOUNTERH_OVERFLOW_Pos) ==
GRTC_SYSCOUNTER_SYSOUNTERH_OVERFLOW_Overflow)
    {
        syscounterh = syscounterh_value - 1;
    }

} while (((syscounterh & GRTC_SYSCOUNTER_SYSOUNTERH_BUSY_Msk) >>
GRTC_SYSCOUNTER_SYSOUNTERH_BUSY_Pos) != GRTC_SYSCOUNTER_SYSOUNTERH_BUSY_Ready);

syscounter = (syscounterh_value << 32) + syscounterl_value;

```

## Compare and Capture (CC)

The [CC\[n\]](#) is a group of registers interfacing the compare and capture channels of SYSCOUNTER, where  $n$  is the number of compare and capture channels specified in the GRTC instance configuration table below. Each [CC\[n\]](#) has an associated [TASKS\\_CAPTURE\[n\]](#) task and [EVENTS\\_COMPARE\[n\]](#) event. Each channel compare functionality can be enabled/disabled with [CC\[n\].CCEN.ACTIVE](#), and its current active state read from this same register.

The [EVENTS\\_COMPARE\[n\]](#) event can be generated by writing the compare values to the corresponding [CC\[n\].CCL](#) and [CC\[n\].CCH](#) registers. When a channel compare functionality is enabled and SYSCOUNTER is equal or greater than that CC value [EVENTS\\_COMPARE\[n\]](#) will be generated. Writes to [CC\[n\].CCL](#) disable the corresponding compare channel and writes to [CC\[n\].CCH](#) enable it. So [CC\[n\].CCL](#) must be written first.

Each channel compare functionality, except for the first channel when operating in periodic mode, operates in one-shot mode. When operating in one-shot mode, [CC\[n\].CCEN.ACTIVE](#) is cleared automatically following a compare event.

Moreover, a compare channel is automatically disabled when triggering [TASKS\\_CAPTURE\[n\]](#).

The [EVENTS\\_COMPARE\[n\]](#) event is generated immediately if the configured compare value at [CC\[n\]](#) is less than the current SYSCOUNTER value.

Every time the [TASKS\\_CAPTURE\[n\]](#) task is triggered, the current SYSCOUNTER is copied into the corresponding [CC\[n\].CCL](#) and [CC\[n\].CCH](#) registers. The [CC\[n\].CCL](#) and [CC\[n\].CCH](#) registers can be read in any order. The [TASKS\\_CAPTURE\[n\]](#) task will not generate [EVENTS\\_COMPARE\[n\]](#) event.

The [TASKS\\_CAPTURE\[n\]](#) tasks and [EVENTS\\_COMPARE\[n\]](#) events can be connected with the PPI. However, the [TASKS\\_CAPTURE\[n\]](#) is functional only when the SYSCOUNTER is in active state. The GRTC can be forced into active state by setting any [SYSCOUNTER\[n\].ACTIVE](#) register.