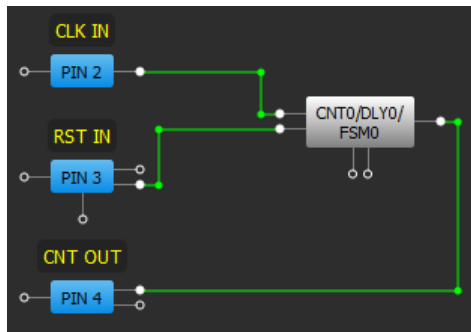


## SLG46532

### ISSUE 1: Counter Incorrect Operation after the Reset Functional Block Affected: Counter

**Description:**

If the Counter Reset appears at the time very close to a rising edge of the clock signal while clock signal generation (for example OSC operation) there is a possibility that the Counter Data of the Counter is reset incorrectly and the counter end signal (HIGH pulse) may appear faster than expected. This phenomena appears more frequently the higher clock frequency is.



**4-bit LUT0/WS Ctrl/16-bit CNT0/DLY0...**

Type:

Mode:

Counter data:   
(Range: 1 - 65535)

Output period (typical): N/D [Formula](#)

Clock frequency: N/D

Edge select:

Output polarity:

Q mode:

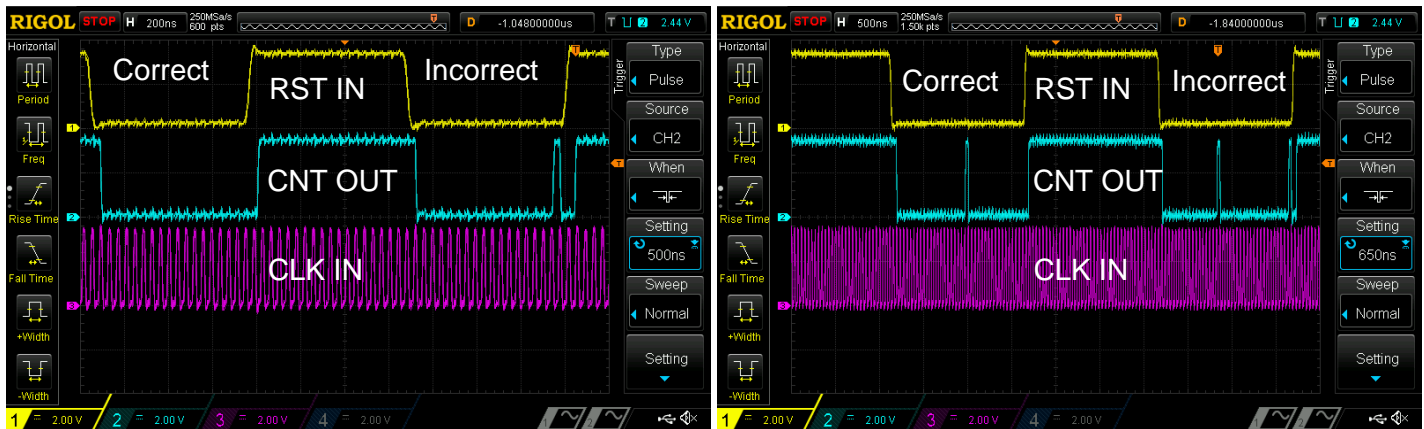
Stop and restart:

---

**Connections**

Clock:

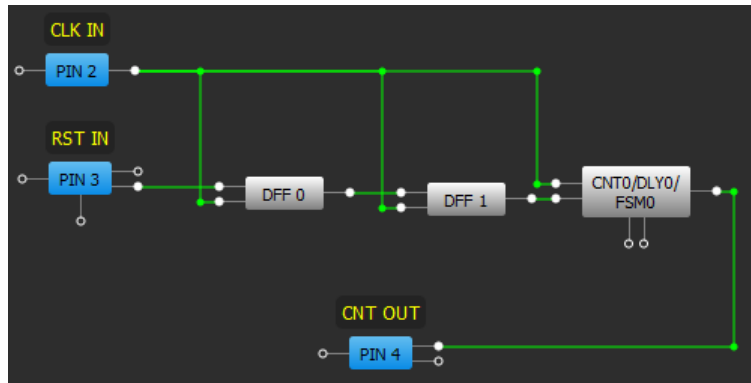
Clock source: EXT CLK (matrix)



**Workaround:**

- Synchronize RESET input of the Counter with its CLK using 2 DFF cells as shown on picture below.

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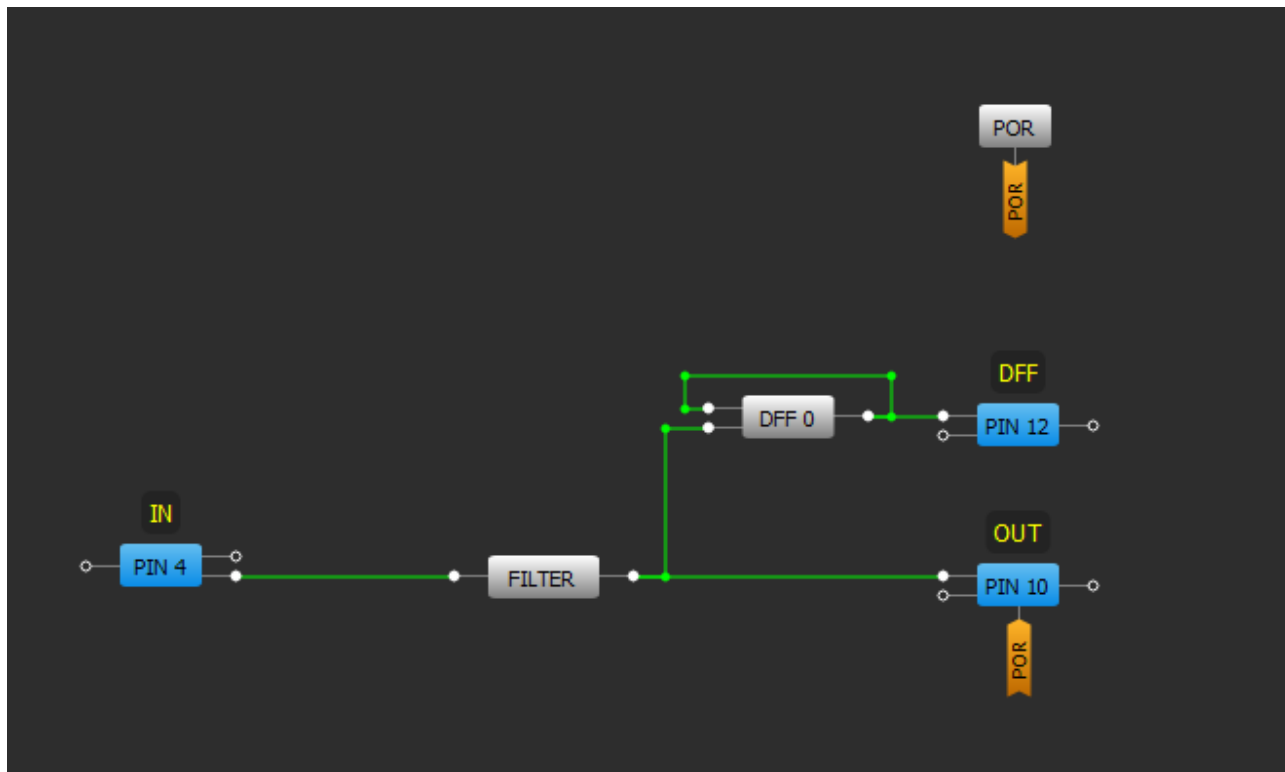


**ISSUE 2: FILTER cell does not filter out glitches**

**Functional Block Affected: FILTER**

Description:

If clock type high frequency input comes in, the FILTER cell may not filter out it. There are several factors like input frequency, duty cycle and LOW duration in such signal that may lead to its passing through FILTER block.



Channel 1 (yellow/top line) – PIN#4 (IN)  
 Channel 2 (light blue/2nd line) – PIN#10 (OUT)  
 Channel 3 (magenta /3rd line) – PIN#12 (DFF)

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1. Period is 60ns. Pulse width is 10ns DC=16.7% (Correct functionality)



2. Period is 60ns. Pulse width is 20ns DC = 33.3% (Incorrect functionality)



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3. Period is 60ns. Pulse width is 30ns DC=50% (Incorrect functionality)



4. Period is 60ns. Pulse width is 40ns DC=66.67% (Correct functionality)



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### Workaround:

Currently there is no workaround for this issue. Filter block is good at filtering short spontaneous glitches. It is intended to be used in series connection before the delay cell to avoid its latching (see issue #2).

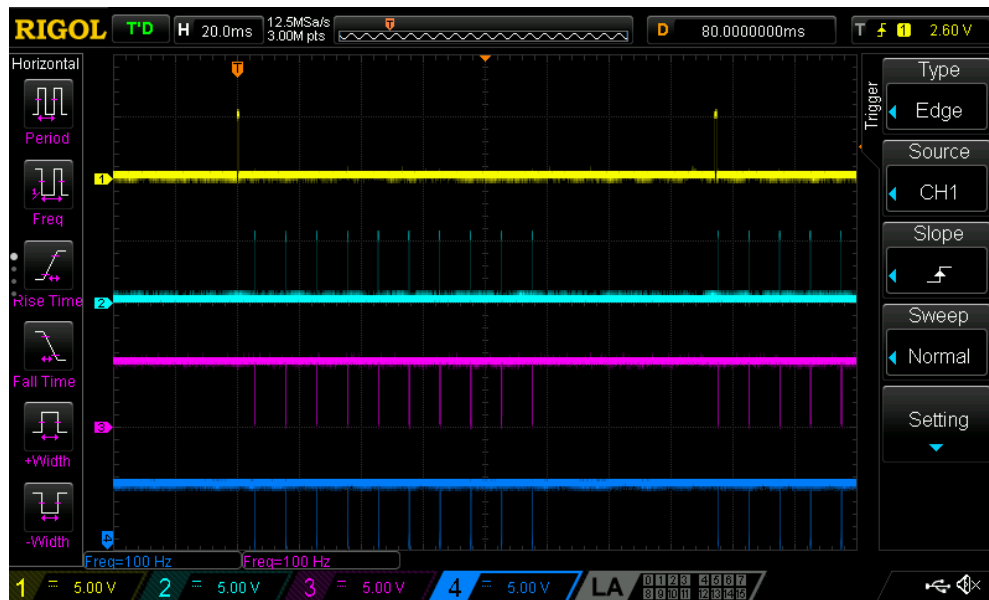
### ISSUE 3: Incorrect I<sup>2</sup>C Reads of the 8-bit Counter Registers Functional Block Affected: CNT2/DLY2 and CNT4/DLY4

#### Description:

Asynchronous interaction between the CNT/DLY clock input and the I<sup>2</sup>C latch signal (generated by an I<sup>2</sup>C read command of the CNT/DLY block's count value) can result in an incorrect I<sup>2</sup>C data read. The CNT/DLY block will count accurately, but the count value transferred into the block's I<sup>2</sup>C read register might be loaded incompletely if the I<sup>2</sup>C latch signal and the clock input occur at about the same time.

The example data capture below shows ten periodic I<sup>2</sup>C reads of CNT2/DLY2 configured to count down at about 16 clocks per read. The sixth read sample erroneously shows a value greater than that of the fifth. The seventh sample reads as if the previous I<sup>2</sup>C error never occurred - the difference from the fifth sample (176) to the seventh (143) is 33 clocks or 16 clocks + 17 clocks as expected.

- Channel 1 (yellow/top line) – PIN#2 (CNT2/DLY2 Out)
- Channel 2 (light blue/2nd line) – PIN#1 (I<sup>2</sup>C Read Triggers)
- Channel 3 (magenta /3rd line) – PIN#8 (I<sup>2</sup>C SCL)
- Channel 3 (dark blue /4th line) – PIN#9 (I<sup>2</sup>C SDA)



### Workaround:

If the possibility of incorrect I<sup>2</sup>C data reads can't be accommodated for by external software checks, one can guarantee proper operation by stopping the CNT/DLY block's clock during I<sup>2</sup>C reads through one of the following methods: by disabling the oscillator block, by reconfiguring the CNT/DLY block's clock source, or by gating an external clock using a LUT (Look-up Table) in the signal matrix. After disabling the CNT/DLY block's clock, the count registers can be read without error. Please note that this workaround will add the I<sup>2</sup>C read and processing time to the counter's overall clock period.

The best workaround depends on the resource constraints of the application. If the oscillator block doesn't clock other logic elements within the design, a matrix output can be used to manually power down the oscillators for the I<sup>2</sup>C read. When the CNT/DLY block's clock source is routed internally from the oscillator block, I<sup>2</sup>C commands can temporarily reconfigure the CNT/DLY block's clock source registers to select "Ext. CLK. (From Matrix)." This action will disable the clock by connecting it to ground. If the CNT/DLY block is clocked from the signal matrix, a LUT can be used to gate the clock during an I<sup>2</sup>C read.



**SLG46532****ISSUE 4: Low Voltage Input does not work for Pin 8 (SCL)****Functional Block Affected: I<sup>2</sup>C****Description:**

I<sup>2</sup>C SCL low voltage input configuration is not supported.

**Workaround:**

Currently there is no workaround.

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**ISSUE 5: ACMP additional IN- leakage current****Functional Block Affected: ACMP, PIN****Description:**

The SLG46532 has an additional leakage current through the PIN connected to the ACMP IN- input when all of the ACMPs are powered down. Typically, leakage through the PIN connected to IN- is much less than 1  $\mu$ A. But when the ACMP is powered down and voltage is applied to the PIN, the leakage current may grow up to several  $\mu$ A (depending on the VDD and voltage applied).

**Workaround:**

Currently there is no workaround for this issue.

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## SLG46532

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