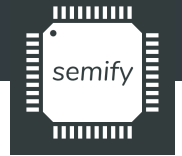


I2C Communication Setup Checklist

The following checklist allows to systematically establish communication with an I2C target device. It provides a systematic approach to overcome common issues encountered when establishing an initial I2C communication.

Description	SmartWave Support	Done
Recheck that SCL and SDA are physically connected correctly	Must be checked manually	<input type="checkbox"/>
Check if SDA, SCL can be pull-down or pull-up <ul style="list-style-type: none"> Set SDA to high and measure voltage level at SDA. Must be VCC Set SDA to low and measure voltage level at SDA. Must be 0V Set SCL to high and measure voltage level at SCL. Must be VCC Set SCL to low and measure voltage level at SCL. Must be 0V 	<input type="checkbox"/>	<input type="checkbox"/>
Check short between SCL and SDA <ul style="list-style-type: none"> Set SDA to high and SCL to low. Check that both levels are correct Set SDA to low and SCL to high. Check that both levels are correct 	<input type="checkbox"/>	<input type="checkbox"/>
Check for maximal clock frequency <ul style="list-style-type: none"> Apply a clock with the target frequency on SCL and measure the duty cycle. Check that the duty cycle is in the expected range Apply a clock with the target frequency on SDA and measure the duty cycle. Check that the duty cycle is in the expected range 	To be implemented	<input type="checkbox"/>
Send a command to the target and check if the Acknowledge (ACK) is received <ul style="list-style-type: none"> Perform a read within a given range or based on a given list of target addresses If no response (NACK) --> reduce speed (400kHz --> 100kHz) If no response (NACK) --> swap SDA / SCL and retry 	<input type="checkbox"/>	<input type="checkbox"/>
Check for the correct target device Perform a read test for known information (e.g. serial number, product ID...) Perform a write / read back test	<input type="checkbox"/>	<input type="checkbox"/>



References:

- [Solving common I2C Communication Setup Issues](#)
- [UM10204 NXP I2C-bus specification and user manual, Rev. 7.0 — 1 October 2021](#)
- [Wikipedia](#)

In case you have any comments or suggestions to the “I2C Communication Setup Checklist” please send an email to office@semify-eda.com.