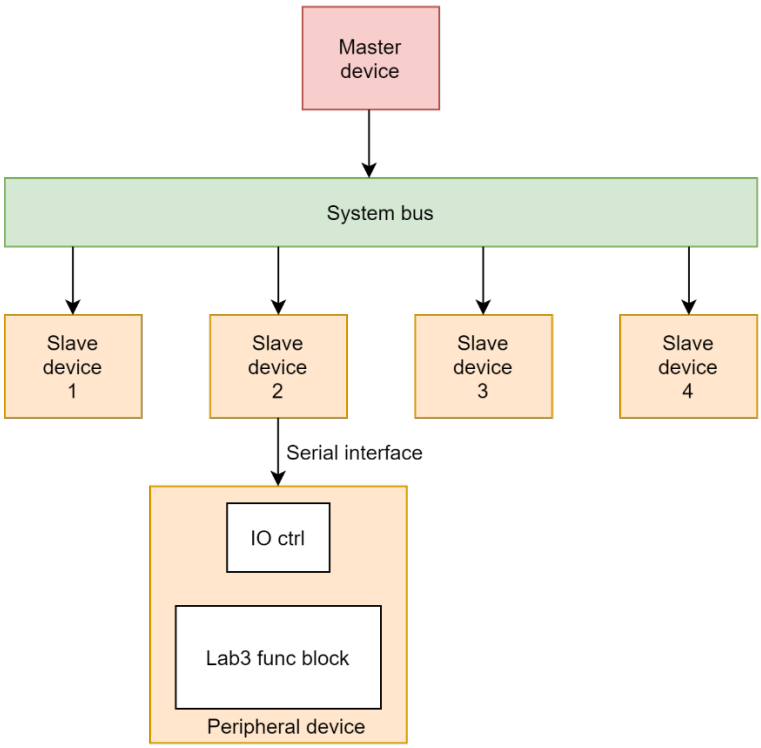
Functional electronic circuits

Laboratory work 5 «Design of I/O controllers»

1. Add the peripheral device to the system from Lab4. The peripheral device should be connected via serial SPI interface and perform the arithmetic function from Lab3.



Memory map

Addresses	Device
0x00 - 0x1F	Slave 1
0x20 - 0x2F	Slave 2
0x30 - 0x3F	Slave 3
0x40 - 0x4F	Slave 4
0x50 - ...	Reserved

Figure 1 – Scheme of the system and memory map

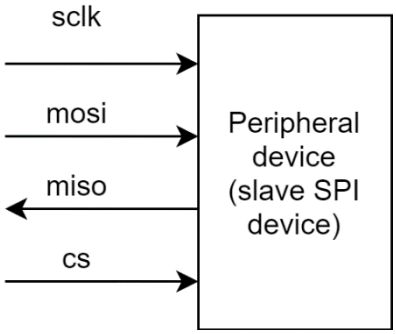


Figure 2 – Interface of the SPI based peripheral device

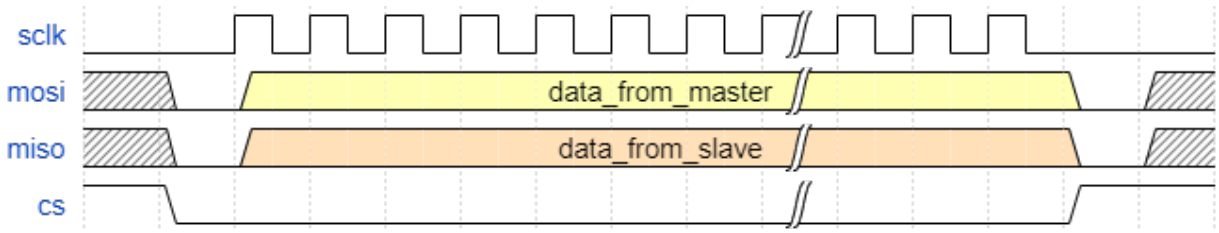


Figure 3 – Timing diagrams of write and read operations for serial interface

2. Develop a testbench for the system and test the system.
3. Put results in the report. The report should consist of:
   3.1. Student Name and Student ID
   3.2. The picture of the system
   3.3. The timing diagram with simulation results
   3.4. Code of the testbench and the device.
4. Upload the report by this form: https://forms.yandex.ru/u/646744efc417f30ee122b60a/