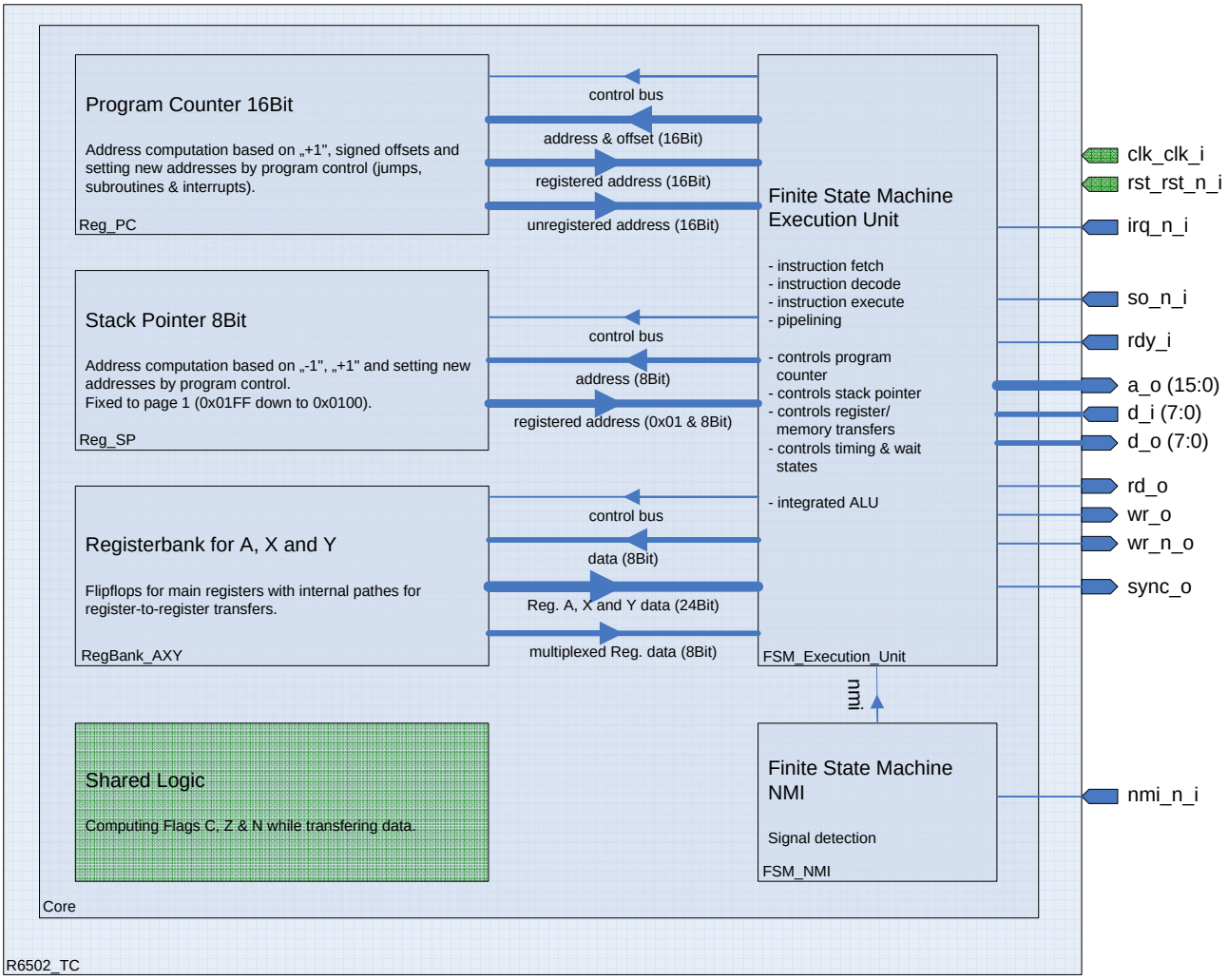
Program Counter 16Bit
Address computation based on „+1", signed offsets and setting new addresses by program control (jumps, subroutines & interrupts).
Reg_PC
control bus
address & offset (16Bit)
registered address (16Bit)
unregistered address (16Bit)
Stack Pointer 8Bit
Address computation based on „-1", „+1" and setting new addresses by program control.
Fixed to page 1 (0x01FF down to 0x0100).
Reg_SP
control bus
address (8Bit)
registered address (0x01 & 8Bit)
Registerbank for A, X and Y
Flipflops for main registers with internal pathes for register-to-register transfers.
RegBank_AXY
control bus
data (8Bit)
Reg. A, X and Y data (24Bit)
multiplexed Reg. data (8Bit)
Finite State Machine Execution Unit
- instruction fetch
- instruction decode
- instruction execute
- pipelining
- controls program counter
- controls stack pointer
- controls register/ memory transfers
- controls timing & wait states
- integrated ALU
FSM_Execution_Unit
nmi
Shared Logic
Computing Flags C, Z & N while transfering data.
Finite State Machine NMI
Signal detection
FSM_NMI
Core
R6502_TC
clk_clk_i
rst_rst_n_i
irq_n_i
so_n_i
rdy_i
a_o (15:0)
d_i (7:0)
d_o (7:0)
rd_o
wr_o
wr_n_o
sync_o
nmi_n_i