```
# Read from SPI routine
#
# - reads the reading address from R3
# - writes the 32-bit data to R4-R7
# - returns to the address stored in R8-R9
rd_spi
       ldi 31
                   # number of iterations (Nbits - 1)
       Idih 31
       wrw R1
       ldi R7
       Idih 0
       wrw R2
       ldi 0
       wrw R4
       wrw R5
       wrw R6
       wrw R7
       ldih 0x1
                     # constant for toggle the sclk signal
                     # assert sclk signal
       wrw R0
       rdw R3
                     # reads address for reading
       wrw SPI CTRL REG
       wrw R10
rdloop
       rdw R10
       xor R0
       wrw SPI CTRL REG
       xor R0
       wrw SPI CTRL REG
       wrw R10
       rdw R2
       wrw RB
       ldi 0
       wrw RB,1
       rdwb
       shft -1
       add RTC_REG
       wrwb
       ldi 0x7
       and R1
       bnegi nincrd
       rdw R2
       addi -1
       wrw R2
nincrd
       ldi rdloop
       Idih rdloop
       wrw RB
       ldi rdloop>>8
       wrw RB.1
       rdw R1
       bneq
       wrw R1
       rdw R8
                     # reads return address
       wrw RB
       rdw R9
       wrw RB,1
                      # clears the SPI control register
       ldi 0
       wrw SPI CTRL REG
       beq
       nop
```