Computer architecure

ARM assembly

ARM

https://cpulator.01xz.net/

Choose a system to simulate

Architecture

- **Any**
- Nios II
- ARMv7
- MIPS32r5
- MIPS32r5 (no delay slots)
- MIPS32r6
- MIPS32r6 (no delay slots)

System

- ARMv7 generic
- ARMv7 DE1-SoC
- ARMv7 DE1-SoC (v16.1)
- Nios II generic
- Nios II DE1-SoC
- Nios II DE1-SoC (v16.1)
- Nios II DE2-115

https://cpulator.01xz.net/?sys=arm-de1soc

Go

https://developer.arm.com/documentation/dui0473/j/writing-arm-assembly-language/register-usage-in-subroutine-calls

```
.global _start
_start:

ldr r5,=UART
ldr r6,=STRING

loop:
ldrb r0,[r6]
cmp r0, #0
beq end
cmp r0,#0x60
blt writeout
bl convert

writeout:
bl write
add r6,r6,#1
b loop

write:
str r0,[r5]
bx lr

convert:
sub r0,r0,#0x20
bx lr

.data
.equ UART, 0xff201000
STRING:
.asciz "Riba ribi grize rep"
```

Tasks:

- Use switches to input number in binary
- Show number on LED display as binary
- Show that number as decimal on 7-segment led display
- If the number changes, update the display
- Do all this using subroutines

Thank you for your attention!