/\* Roteiro 3 - Programa 3

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/\* This assembly file uses GNU syntax \*/

.text

.align 2

.global main

.type main function

@-----------------------------------

@ Funcao de gastar tempo

@ Entradas:

@ r0 - com a valor de tempo

@ Altera:

@ r0 = 0

@ Flags

@-----------------------------------

delay:

push {lr}

again:

cmp r0,#0

beq return

sub r0,#1

b again

return:

pop {pc}

@-----------------------------------

@ Funcao Main

@-----------------------------------

main:

@ Habilita clock do PORTB (System Clock Gating Control)

ldr r3,SIM\_SCGC5

ldr r2,[r3]

movs r1,#128

lsl r1,r1,#3

orr r2,r1

str r2,[r3]

@ Habilita clock do PORTD (System Clock Gating Control)

ldr r3,SIM\_SCGC5

ldr r2,[r3]

movs r1,#128

lsl r1,r1,#5

orr r2,r1

str r2,[r3]

@ Zera bits de MUX de PTB18

ldr r3,PORTB\_PCR18

ldr r2,[r3]

ldr r1,MUXMASK

and r2,r1

str r2,[r3]

@ Zera bits de MUX de PTB19

ldr r3,PORTB\_PCR19

ldr r2,[r3]

ldr r1,MUXMASK

and r2,r1

str r2,[r3]

@ Zera bits de MUX de PTD1

ldr r3,PORTD\_PCR1

ldr r2,[r3]

ldr r1,MUXMASK

and r2,r1

str r2,[r3]

@ Seta bit 0 do MUX de PTB18, assim os bits de MUX serao 001

ldr r3,PORTB\_PCR18

ldr r2,[r3]

movs r1,#128

lsl r1,r1,#1

orr r2,r1

str r2,[r3]

@ Seta bit 0 do MUX de PTB19, assim os bits de MUX serao 001

ldr r3,PORTB\_PCR19

ldr r2,[r3]

movs r1,#128

lsl r1,r1,#1

orr r2,r1

str r2,[r3]

@ Seta bit 0 do MUX de PTD1, assim os bits de MUX serao 001

ldr r3,PORTD\_PCR1

ldr r2,[r3]

movs r1,#128

lsl r1,r1,#1

orr r2,r1

str r2,[r3]

@ Seta pino 18 do PORTB como saida

ldr r3,GPIOB\_PDDR

ldr r2,[r3]

movs r1,#128

lsl r1,r1,#11

orr r2,r1

str r2,[r3]

@ Seta pino 19 do PORTB como saida

ldr r3,GPIOB\_PDDR

ldr r2,[r3]

movs r1,#128

lsl r1,r1,#12

orr r2,r1

str r2,[r3]

@ Seta pino 1 do PORTD como saida

ldr r3,GPIOD\_PDDR

ldr r2,[r3]

movs r1,#128

lsr r1,r1,#6

orr r2,r1

str r2,[r3]

clear:

@ Clear bit 18, LED vermelho em PTB18

ldr r3,GPIOB\_PCOR

ldr r2,[r3]

movs r1,#128

lsl r1,r1,#11

orr r2,r1

str r2,[r3]

@ Clear bit 19, LED verde em PTB19

ldr r3,GPIOB\_PCOR

ldr r2,[r3]

movs r1,#128

lsl r1,r1,#12

orr r2,r1

str r2,[r3]

@ Clear bit 1, LED azul em PTD1

ldr r3,GPIOD\_PCOR

ldr r2,[r3]

movs r1,#128

lsr r1,r1,#6

orr r2,r1

str r2,[r3]

toggle:

@ Espera um tempo

ldr r0,WAIT

bl delay

@ Toogle bit 18, LED vermelho em PTB18

ldr r3,GPIOB\_PTOR

ldr r2,[r3]

movs r1,#128

lsl r1,r1,#11

orr r2,r1

str r2,[r3]

@ Toogle bit 19, LED verde em PTB19

ldr r3,GPIOB\_PTOR

ldr r2,[r3]

movs r1,#128

lsl r1,r1,#12

orr r2,r1

str r2,[r3]

@ Toogle bit 1, LED azul em PTD1

ldr r3,GPIOD\_PTOR

ldr r2,[r3]

movs r1,#128

lsr r1,r1,#6

orr r2,r1

str r2,[r3]

@ Espera um tempo

ldr r0,WAIT

bl delay

@ Toogle bit 18, LED vermelho em PTB18

ldr r3,GPIOB\_PTOR

ldr r2,[r3]

movs r1,#128

lsl r1,r1,#11

orr r2,r1

str r2,[r3]

@ Espera um tempo

ldr r0,WAIT

bl delay

@ Toogle bit 18, LED vermelho em PTB18

ldr r3,GPIOB\_PTOR

ldr r2,[r3]

movs r1,#128

lsl r1,r1,#11

orr r2,r1

str r2,[r3]

@ Toogle bit 19, LED verde em PTB19

ldr r3,GPIOB\_PTOR

ldr r2,[r3]

movs r1,#128

lsl r1,r1,#12

orr r2,r1

str r2,[r3]

@ Espera um tempo

ldr r0,WAIT

bl delay

@ Toogle bit 18, LED vermelho em PTB18

ldr r3,GPIOB\_PTOR

ldr r2,[r3]

movs r1,#128

lsl r1,r1,#11

orr r2,r1

str r2,[r3]

@ Repete para sempre

b toggle

.align 2

SIM\_SCGC5:

.word 0x40048038

PORTB\_PCR18:

.word 0x4004A048

PORTB\_PCR19:

.word 0x4004A04C

PORTD\_PCR1:

.word 0x4004C004

GPIOB\_PDDR:

.word 0x400FF054

GPIOD\_PDDR:

.word 0x400FF0D4

GPIOB\_PTOR:

.word 0x400FF04C

GPIOD\_PTOR:

.word 0x400FF0CC

GPIOB\_PCOR:

.word 0x400FF048

GPIOD\_PCOR:

.word 0x400FF0C8

MUXMASK:

.word 0xFFFFF8FF

WAIT:

.word 5000000

.end @ final do arquivo assembly