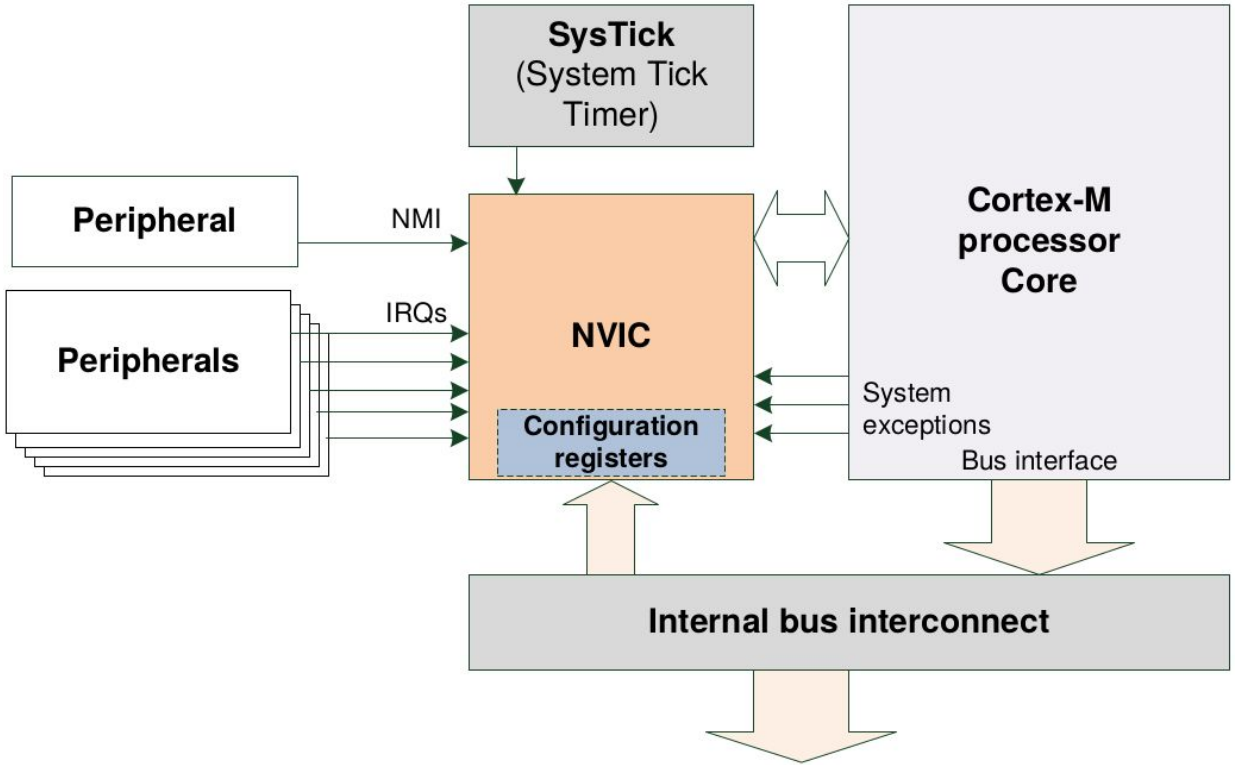
Программирование микроконтроллеров STM32

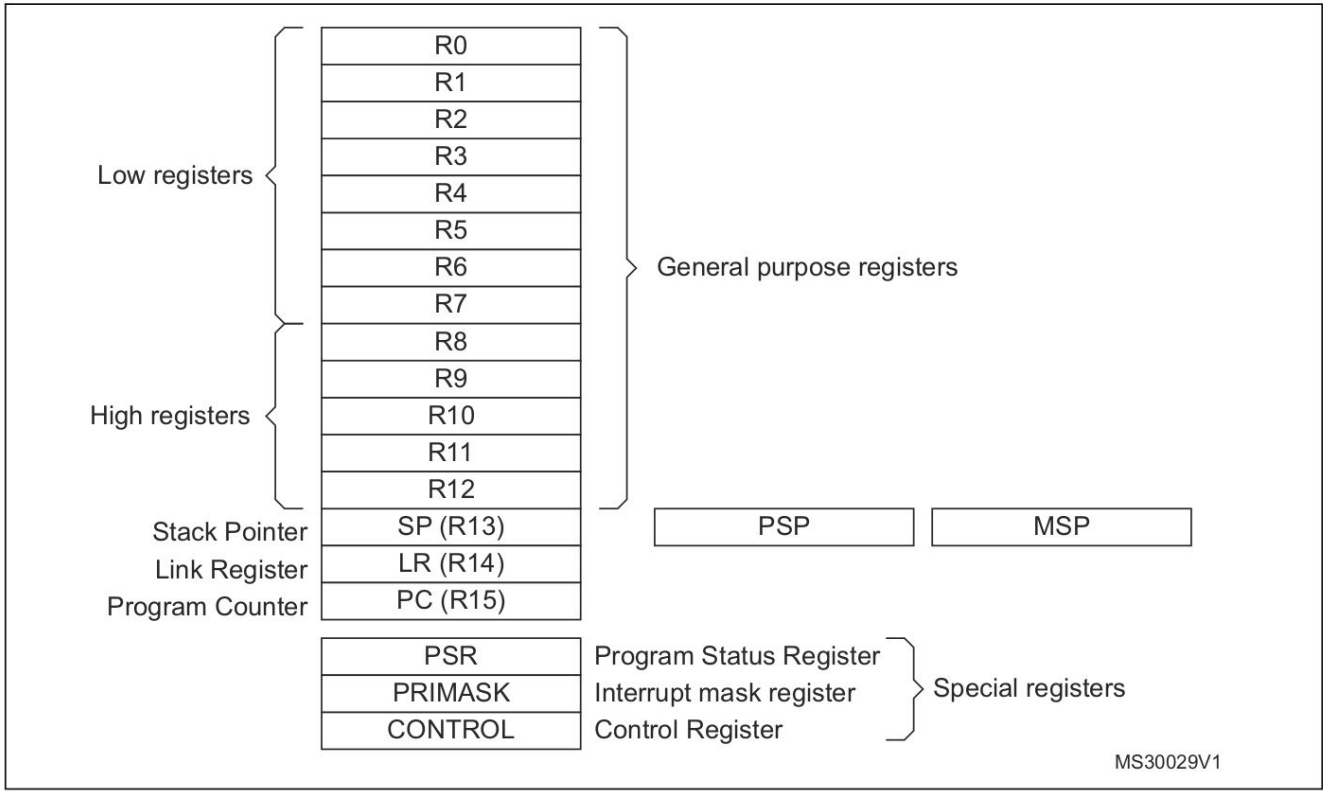
Cortex-M0 ядро.
Обзор структуры памяти

МФТИ, 2019

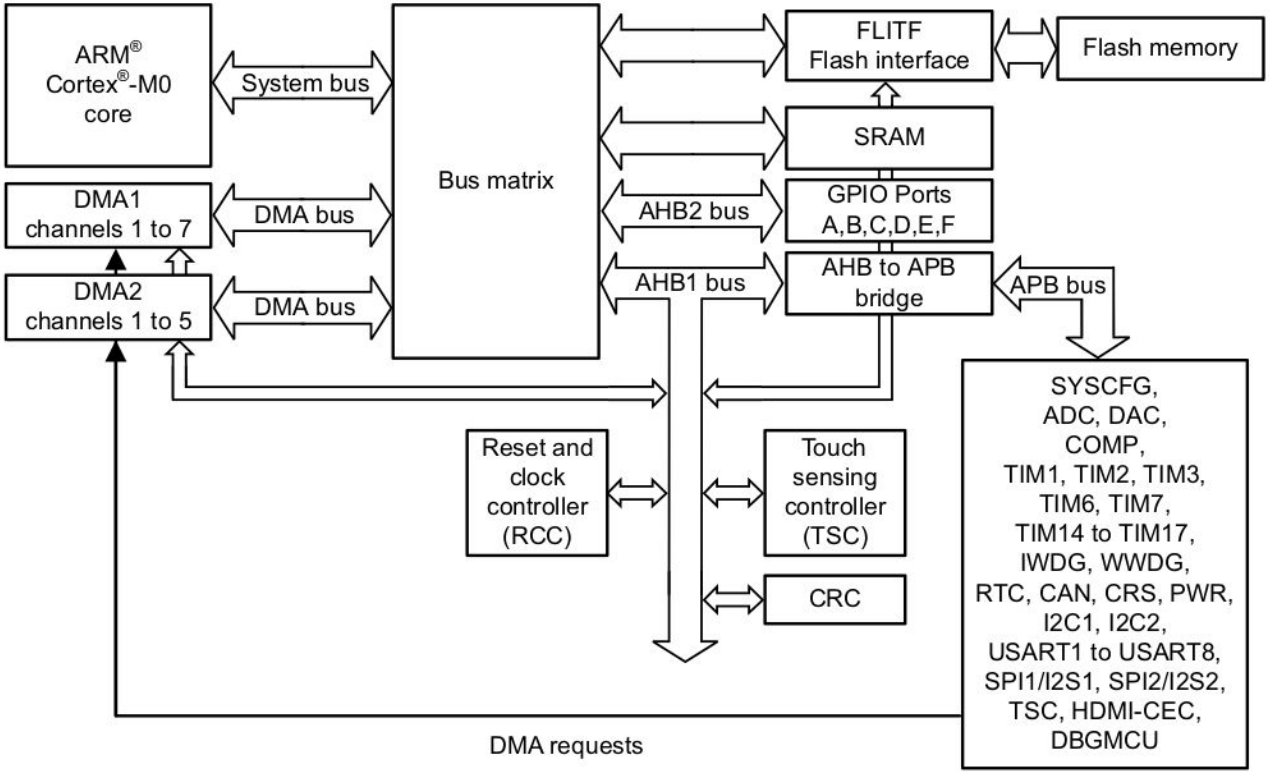
Устройство ядра



Ядро. Регистры



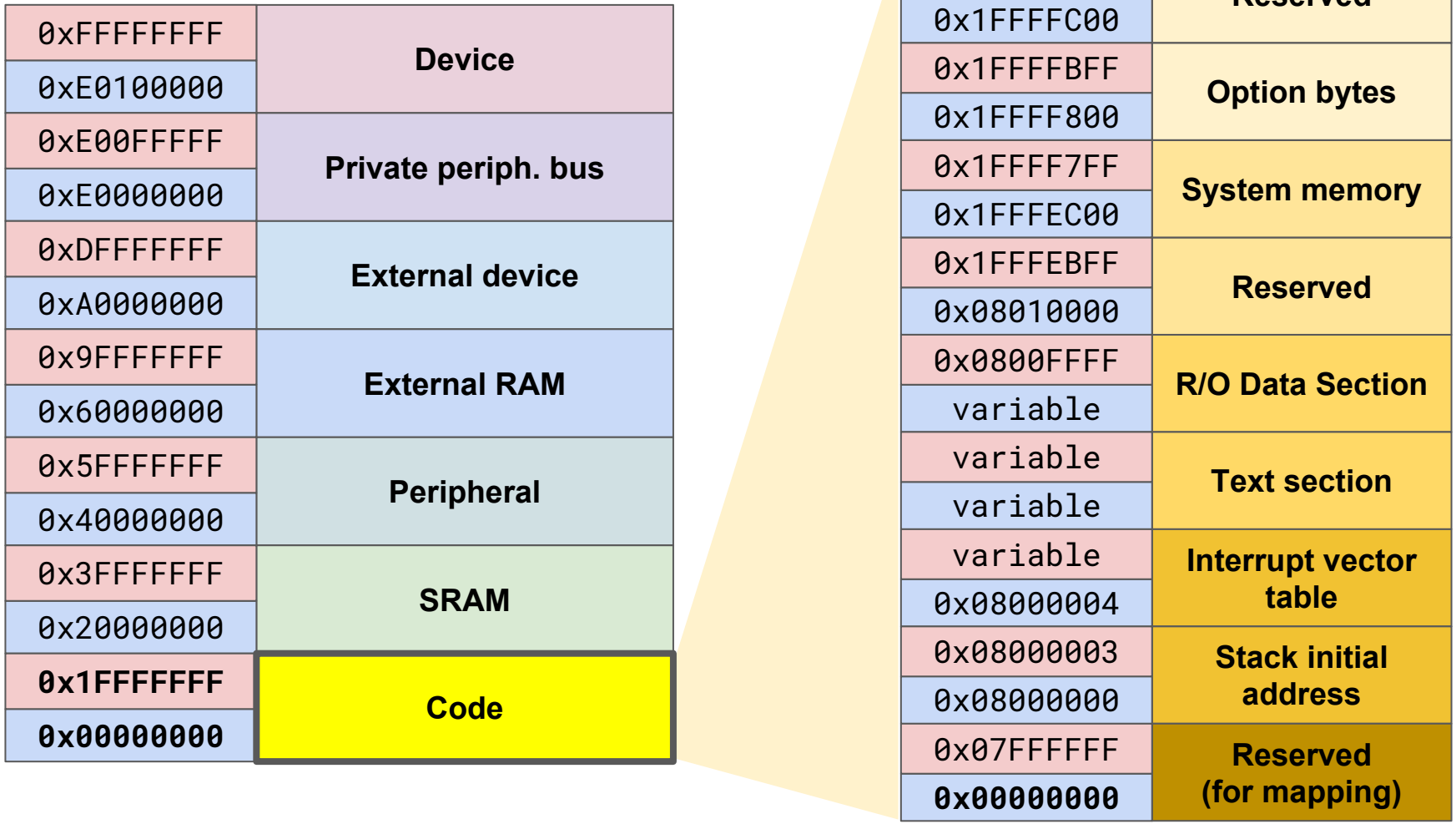
Устройство микроконтроллера

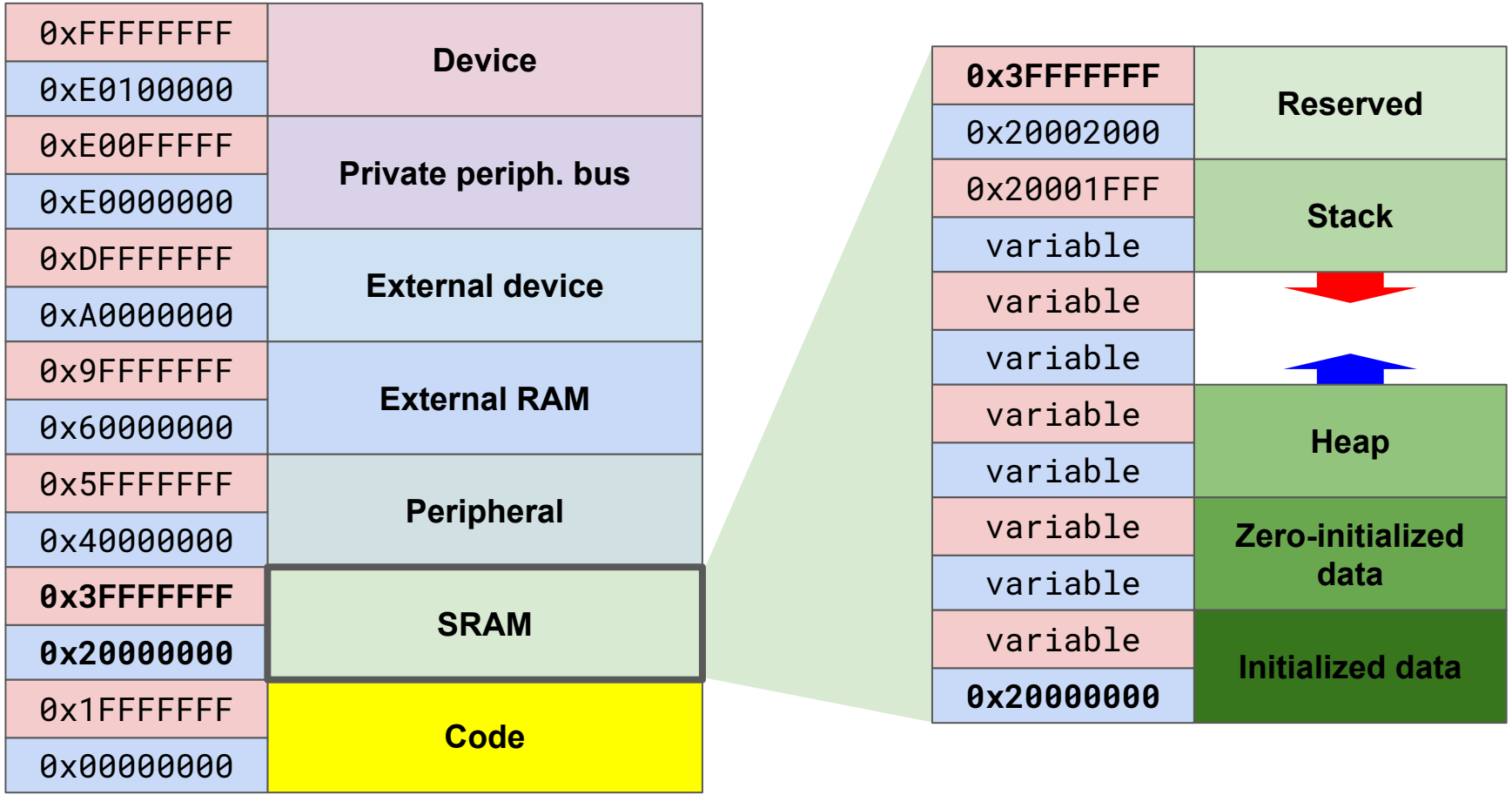


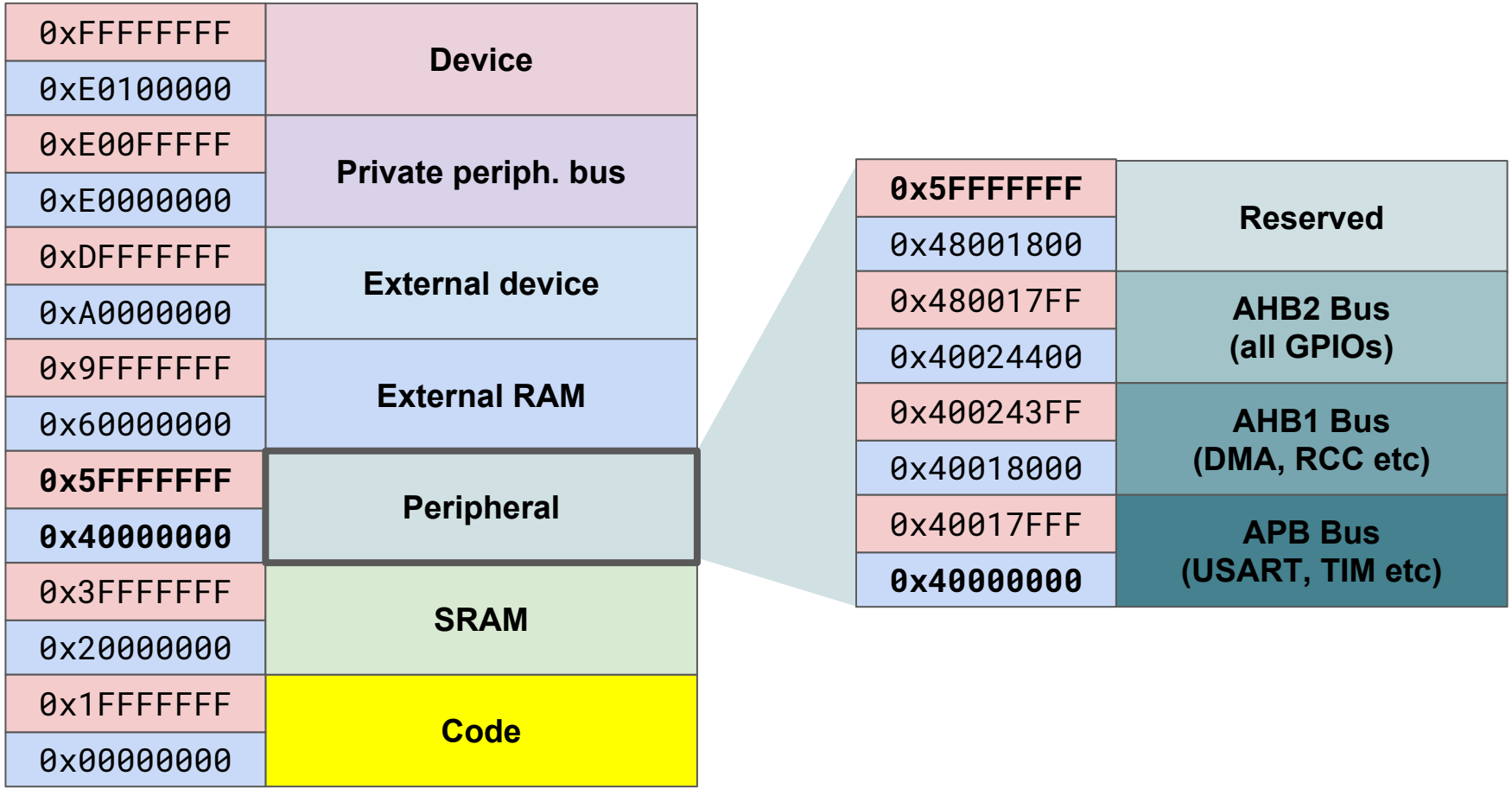
Структура данных. Стек

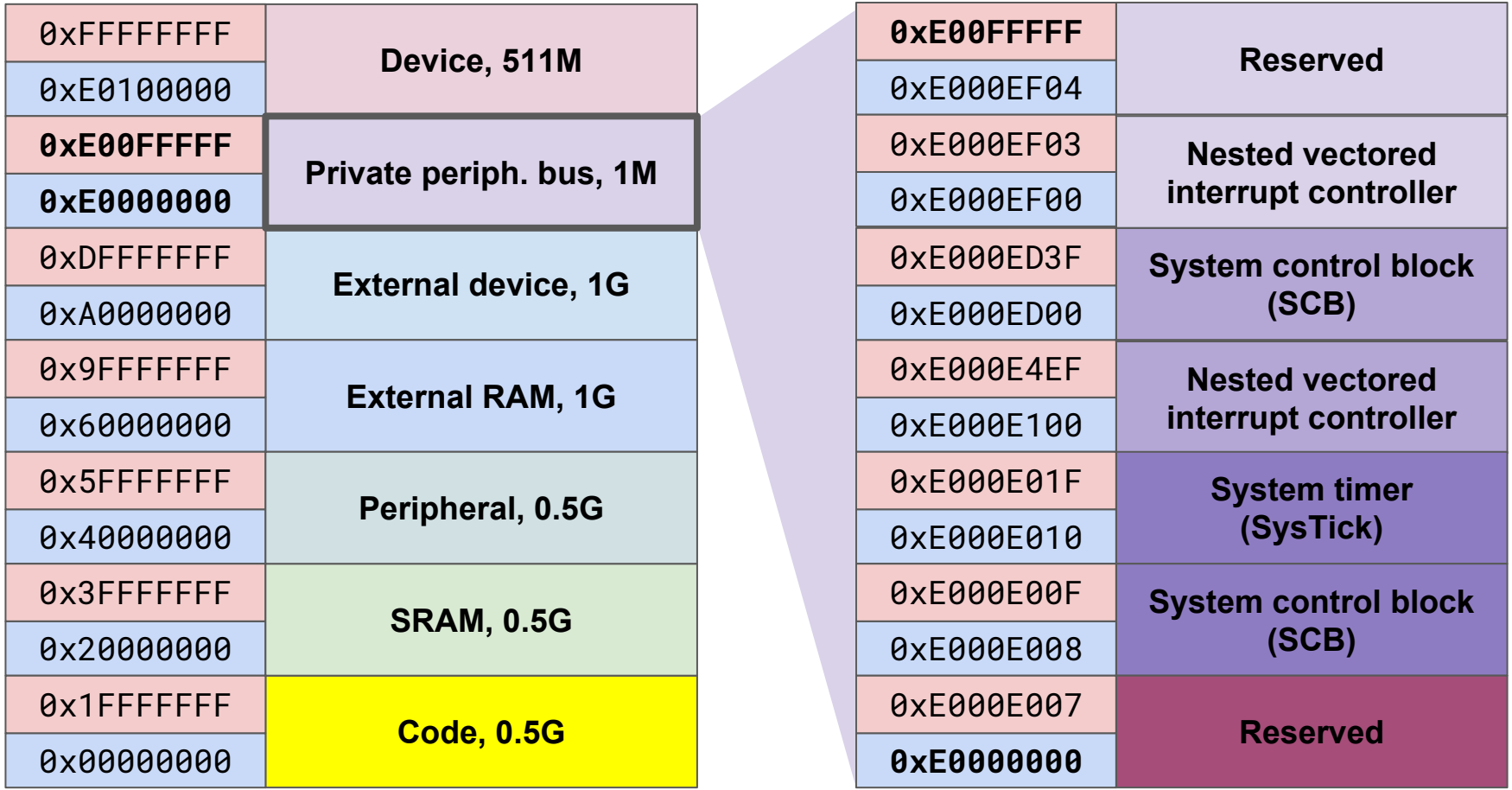
Структура памяти

0xFFFFFFFF	Device
0xE0100000	
0xE00FFFFF	Private periph. bus
0xE0000000	
0xDFFFFFFF	External device
0xA0000000	
0x9FFFFFFF	External RAM
0x60000000	
0x5FFFFFFF	Peripheral
0x40000000	
0x3FFFFFFF	SRAM
0x20000000	
0x1FFFFFFF	Code
0x00000000	


0xFFFFFFFF
0xE0100000
Device
0xE00FFFFF
0xE0000000
Private periph. bus
0xDFFFFFFF
0xA0000000
External device
0x9FFFFFFF
0x60000000
External RAM
0x5FFFFFFF
0x40000000
Peripheral
0x3FFFFFFF
0x20000000
SRAM
0x1FFFFFFF
0x00000000
Code
0x1FFFFFFF
0x1FFFFC00
Reserved
0x1FFFFBFF
0x1FFFF800
Option bytes
0x1FFFF7FF
0x1FFFEC00
System memory
0x1FFFEBFF
0x08010000
Reserved
0x0800FFFF
variable
R/O Data Section
variable
variable
Text section
variable
0x08000004
Interrupt vector table
0x08000003
0x08000000
Stack initial address
0x07FFFFFF
0x00000000
Reserved (for mapping)


0xFFFFFFFF
Device
0xE0100000
0xE00FFFFF
Private periph. bus
0xE0000000
0xDFFFFFFF
External device
0xA0000000
0x9FFFFFFF
External RAM
0x60000000
0x5FFFFFFF
Peripheral
0x40000000
0x3FFFFFFF
SRAM
0x20000000
0x1FFFFFFF
Code
0x00000000
0x3FFFFFFF
Reserved
0x20002000
0x20001FFF
Stack
variable
variable
variable
variable
Heap
variable
variable
Zero-initialized data
variable
variable
Initialized data
0x20000000


0xFFFFFFFF
Device
0xE0100000
0xE00FFFFF
Private periph. bus
0xE0000000
0xDFFFFFFF
External device
0xA0000000
0x9FFFFFFF
External RAM
0x60000000
0x5FFFFFFF
Peripheral
0x40000000
0x3FFFFFFF
SRAM
0x20000000
0x1FFFFFFF
Code
0x00000000
0x5FFFFFFF
Reserved
0x48001800
0x480017FF
AHB2 Bus
(all GPIOs)
0x40024400
0x400243FF
AHB1 Bus
(DMA, RCC etc)
0x40018000
0x40017FFF
APB Bus
(USART, TIM etc)
0x40000000


0xFFFFFFFF
Device, 511M
0xE0100000
0xE00FFFFF
Private periph. bus, 1M
0xE0000000
0xDFFFFFFF
External device, 1G
0xA0000000
0x9FFFFFFF
External RAM, 1G
0x60000000
0x5FFFFFFF
Peripheral, 0.5G
0x40000000
0x3FFFFFFF
SRAM, 0.5G
0x20000000
0x1FFFFFFF
Code, 0.5G
0x00000000
0xE00FFFFF
Reserved
0xE000EF04
0xE000EF03
Nested vectored interrupt controller
0xE000EF00
0xE000ED3F
System control block (SCB)
0xE000ED00
0xE000E4EF
Nested vectored interrupt controller
0xE000E100
0xE000E01F
System timer (SysTick)
0xE000E010
0xE000E00F
System control block (SCB)
0xE000E008
0xE000E007
Reserved
0xE0000000

Репозиторий

https://github.com/edosedgar/stm32f0_ARM