STM32H750B-DK Discovery Kit

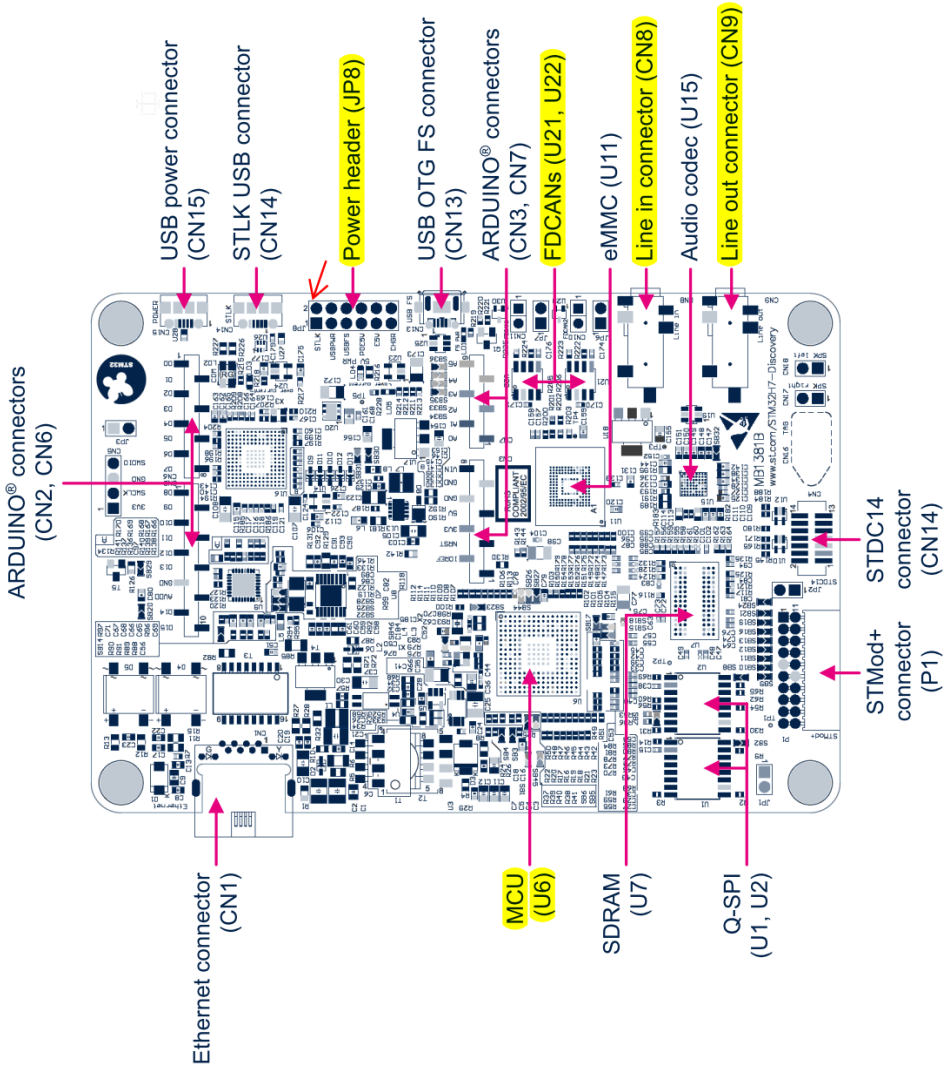
Predstavitev

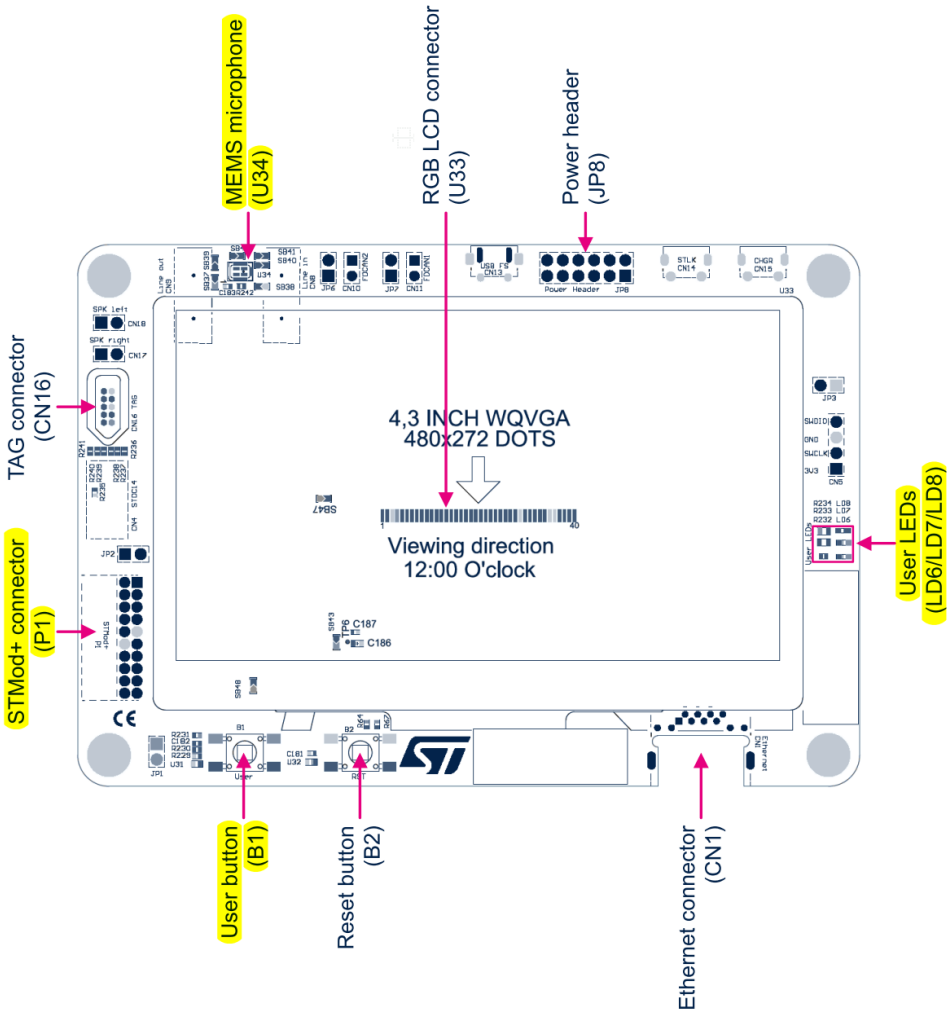
STM32H750B-DK Discovery razvojni sistem

- Arm® Cortex® core-based microcontroller with 128 Kbytes (STM32H750XBH6) of Flash memory and 1 Mbyte of RAM, in TFBGA240+25 package
- 4.3” RGB interface LCD with touch panel connector
- Ethernet compliant with IEEE-802.3-2002, and POE
- USB OTG FS with Micro-AB connector
- SAI audio codec
- One ST-MEMS digital microphone
- 2 x 512-Mbit Quad-SPI NOR Flash memory
- 128-Mbit SDRAM
- 4-Gbyte on-board eMMC
- 1 user and reset push-button
- Fanout daughterboard
- 2 x FDCANs
- Board connectors:
    - USB FS Micro-AB connectors
    - ST-LINK Micro-B USB connector
    - USB power Micro-B connector
    - Ethernet RJ45
    - Stereo headset jack including analog microphone input
    - Audio header for external speakers
    - Arduino™ Uno V3 expansion connectors
    - STMod+

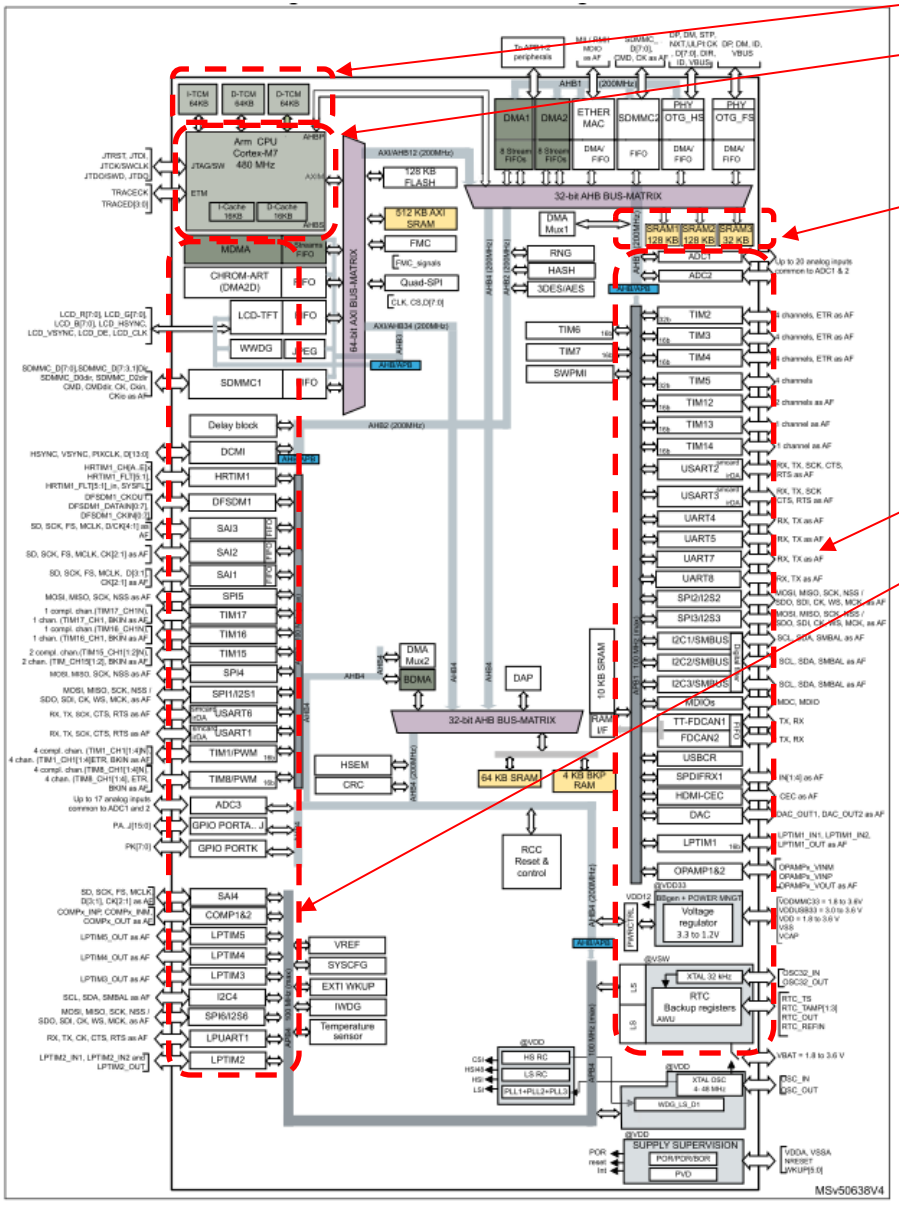
https://www.st.com/en/evaluation-tools/stm32h750b-dk.html

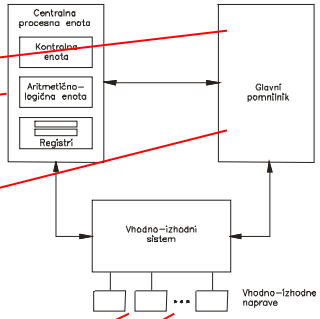
STM32H750B-DK Discovery razvojni sistem





STM32H750XB





ARM Cortex M – ISA

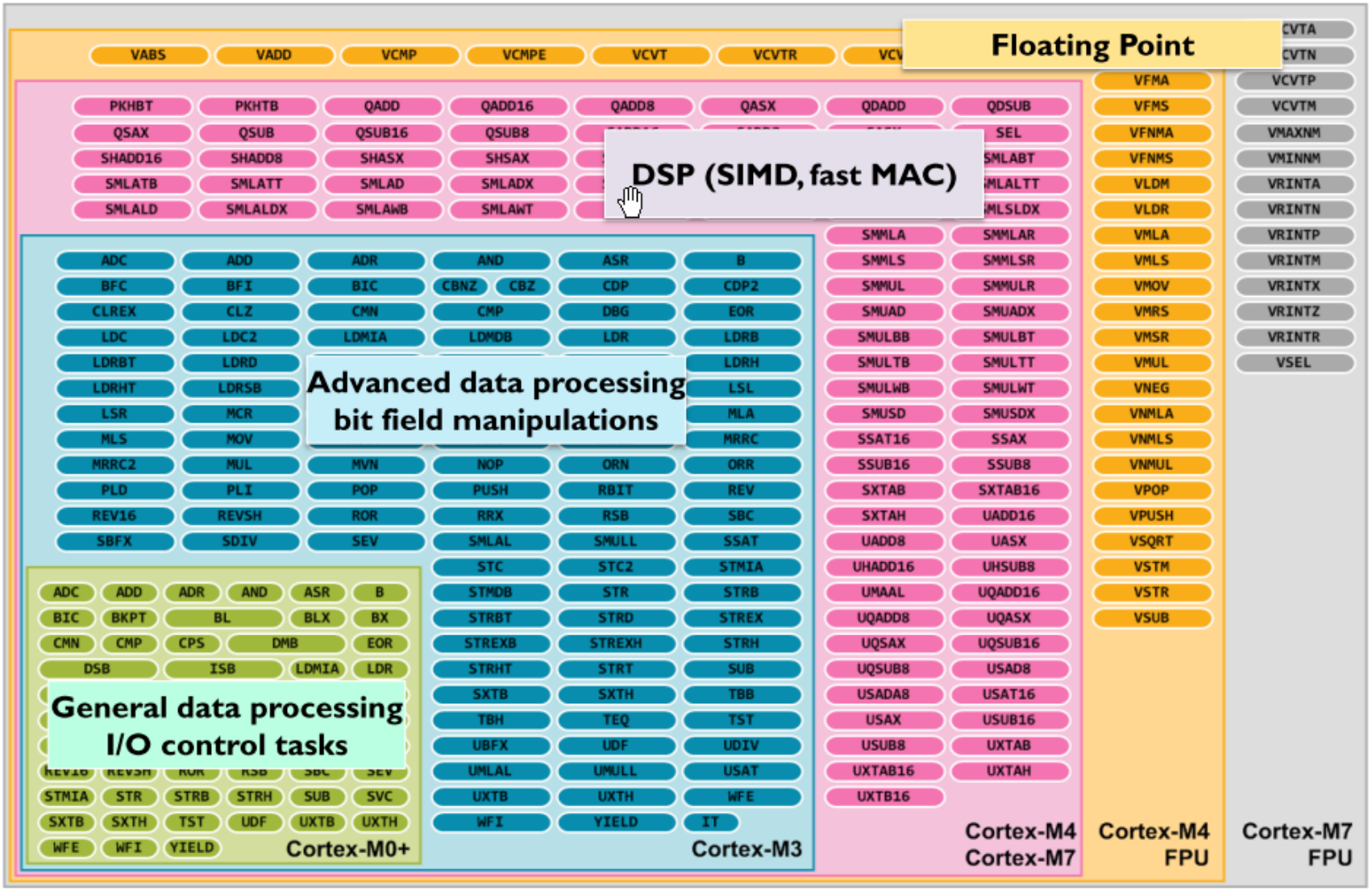


Figure 3: Instruction Set support in the Cortex-M processors

Delo na STM32H7 razvojnem sistemu

Priključitev :

- **Mikro USB** priklop na **daljši stranici (nad LCD, srednji !!!)**

Poseben začetni projekt (github) in info za *STM32H7* (e-učilnica):

- ***dodajanje vsebine (Main.s):***

CubeIDEWorkspace - stm32h7-asm/Core/Src/Main.s - STM32CubeIDE

File Edit Source Refactor Navigate Search Project Run Window Help

Project Explorer

- CubeIDE_Workspace
  - stm32f4-asm-qemu
- Delo
  - ARM9Template
  - stm32f4-asm (in STM32AsmTemplate)
  - ARM9Template.zip
- Node_V4 (in node_v4)
- Sluzba
  - CAN_IEX_Module
  - ORLab-STM32H7
    - stm32h7-asm
      - Binaries
      - Includes
      - Core
        - Src
          - Main.s
        - Startup
          - startup_stm32h750xbhx.s
      - Debug
      - out
      - makefile
      - README.md
      - STM32H750X.svd
      - STM32H750XBHX_FLASH.ld
      - STM32H750XBHX_RAM.ld
    - README.md
  - RALab-STM32H7
    - stm32h7-asm_RA_LED
    - README.md
  - STM32_USB_Key_AdvDebug
  - STM32_USB_Key_FreeRTOS_AdvDebug
  - STM32CubeIDE_Adv_Debug
  - STM32F4_Discovery_VIN_Projects

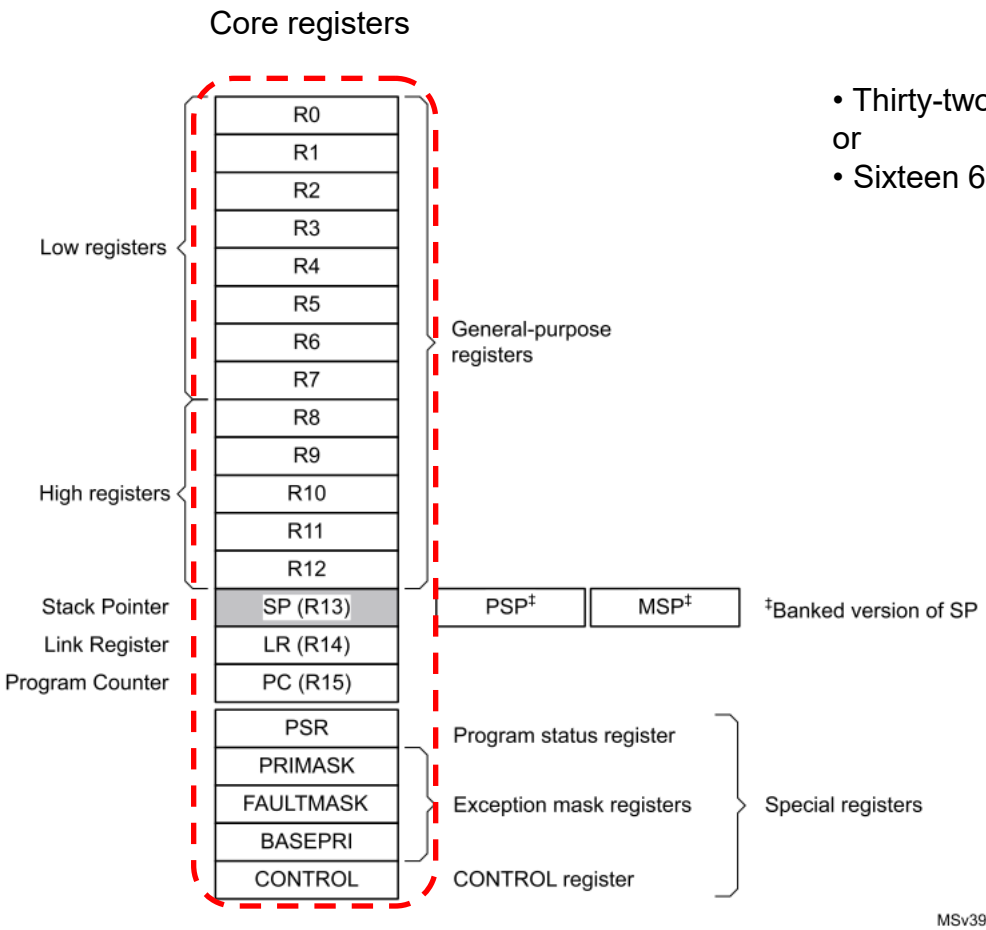
Main.s | startup_stm32h750xbhx.s

```
12
13 ////////////////////////////////////////////////////////////////////////////
14 // Definitions
15 ////////////////////////////////////////////////////////////////////////////
16 // Definitions section. Define all the registers and
17 // constants here for code readability.
18
19 // Constants
20
21
22 // Start of data section
23         .data
24
25         .align
26
27 STEV1:  .word   0x10    // 32-bitna spr.
28 STEV2:  .word   0x40    // 32-bitna spr.
29 VSOTA:  .word   0       // 32-bitna spr.
30
31
32 // Start of text section
33         .text
34
35         .type  main, %function
36         .global main
37
38         .align
39 main:
40         ldr r0, =STEV1   // Naslov od STEV1 -> r0
41         ldr r1, [r0]    // Vsebina iz naslova v r0 -> r1
42
43         ldr r0, =STEV2   // Naslov od STEV1 -> r0
44         ldr r2, [r0]    // Vsebina iz naslova v r0 -> r2
45
46         add r3,r1,r2    // r1 + r2 -> r3
47
48         ldr r0, =VSOTA   // Naslov od STEV1 -> r0
49         str r3,[r0]     // iz registra r3 -> na naslov v r0
50
51 __end:  b    __end
52
```

--------- Razvojni sistem STM32H750-DK ----------

- STM32H750B-DK Discovery kit with STM32H750XB MCU
- ORLab-STM32H7 - GitHub repozitorij
- User Manual Discovery kit stm32h750xb Uploaded 11/11/22, 10.15
- DataSheet_stm32h750xb Uploaded 11/11/22, 10.16
- Reference Manual rm0433-stm32h750xb Uploaded 11/11/22, 10.17
- Programming_Manual_pm0253-stm32h750xb Uploaded 11/11/22, 10.17
- Errata_es0396-stm32h750xb Uploaded 11/11/22, 10.19

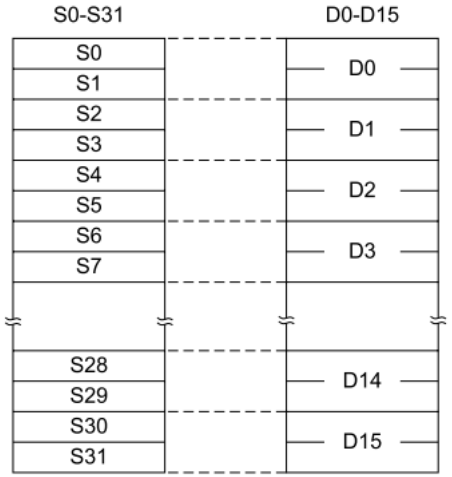
ARM Cortex M7 – Programski model



- Thirty-two 32-bit single-precision registers, S0-S31

or

- Sixteen 64-bit double-precision registers, D0-D15.



ARM Cortex M7 – Naslovni prostor

Figure 8. Processor memory map

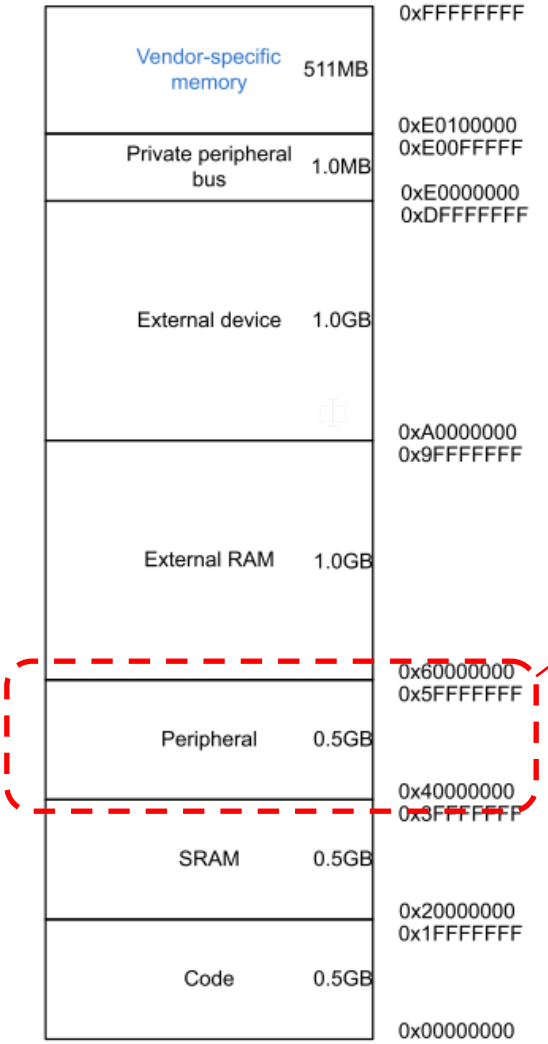


Table 8. Register boundary addresses(1)

Boundary address	Peripheral	Bus	Register map
0x58027000 - 0x580273FF	RAMECC3		*Section 3.4: RAMECC registers*
0x58026400 - 0x580267FF	HSEM	AHB4 (D3)	*Section 10.4: HSEM registers*
0x58026000 - 0x580263FF	ADC3		*Section 25.7: ADC common registers*
0x58025800 - 0x58025BFF	DMAMUX2		*Section 17.6: DMAMUX registers*
0x58025400 - 0x580257FF	BDMA		*Section 16.6: BDMA registers*
0x58024C00 - 0x58024FFF	CRC		*Section 21.4: CRC registers*
0x58024800 - 0x58024BFF	PWR		*Section 6.8: PWR register description*
0x58024400 - 0x580247FF	RCC		*Section 8.7: RCC register description*
0x58022800 - 0x58022BFF	GPIOK		*Section 11.4: GPIO registers*
0x58022400 - 0x580227FF	GPIOJ		*Section 11.4: GPIO registers*
0x58022000 - 0x580223FF	GPIOI		*Section 11.4: GPIO registers*
[illegible]	[illegible]		[illegible]

ARM Cortex M – Vektorska tabela

Vector Table		Vector address (initial)
Interrupt#239 vector	1	0x000003FC
Interrupt#31 vector	1	0x000000BC
Interrupt#1 vector	1	0x00000044
Interrupt#0 vector	1	0x00000040
SysTick vector	1	0x0000003C
PendSV vector	1	0x00000038
Not used		0x00000034
Debug Monitor vector	1	0x00000030
SVC vector	1	0x0000002C
Not used		0x00000028
Not used		0x00000024
Not used		0x00000020
SecureFault (ARMv8-M Mainline)	1	0x0000001C
Usage Fault vector	1	0x00000018
Bus Fault vector	1	0x00000014
MemManage vector	1	0x00000010
HardFault vector	1	0x0000000C
NMI vector	1	0x00000008
Reset vector	1	0x00000004
MSP initial value		0x00000000

STM32H750xB bus matrix

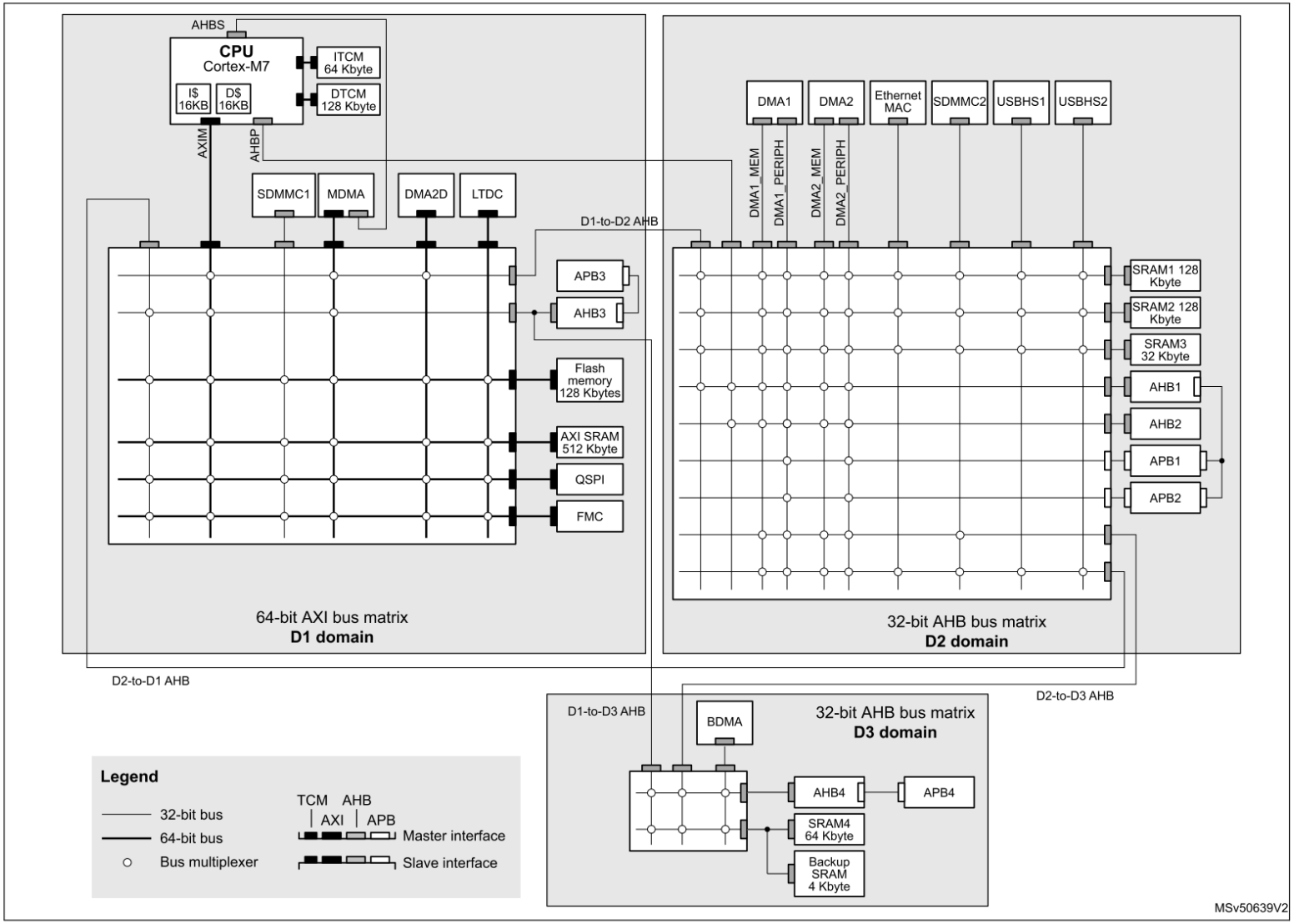



Figure 3. STM32H750xB bus matrix