
STM32
CubeMX

1. Description

1.1. Project

Project Name	A4V30
Board Name	custom
Generated with:	STM32CubeMX 6.1.2
Date	03/06/2022

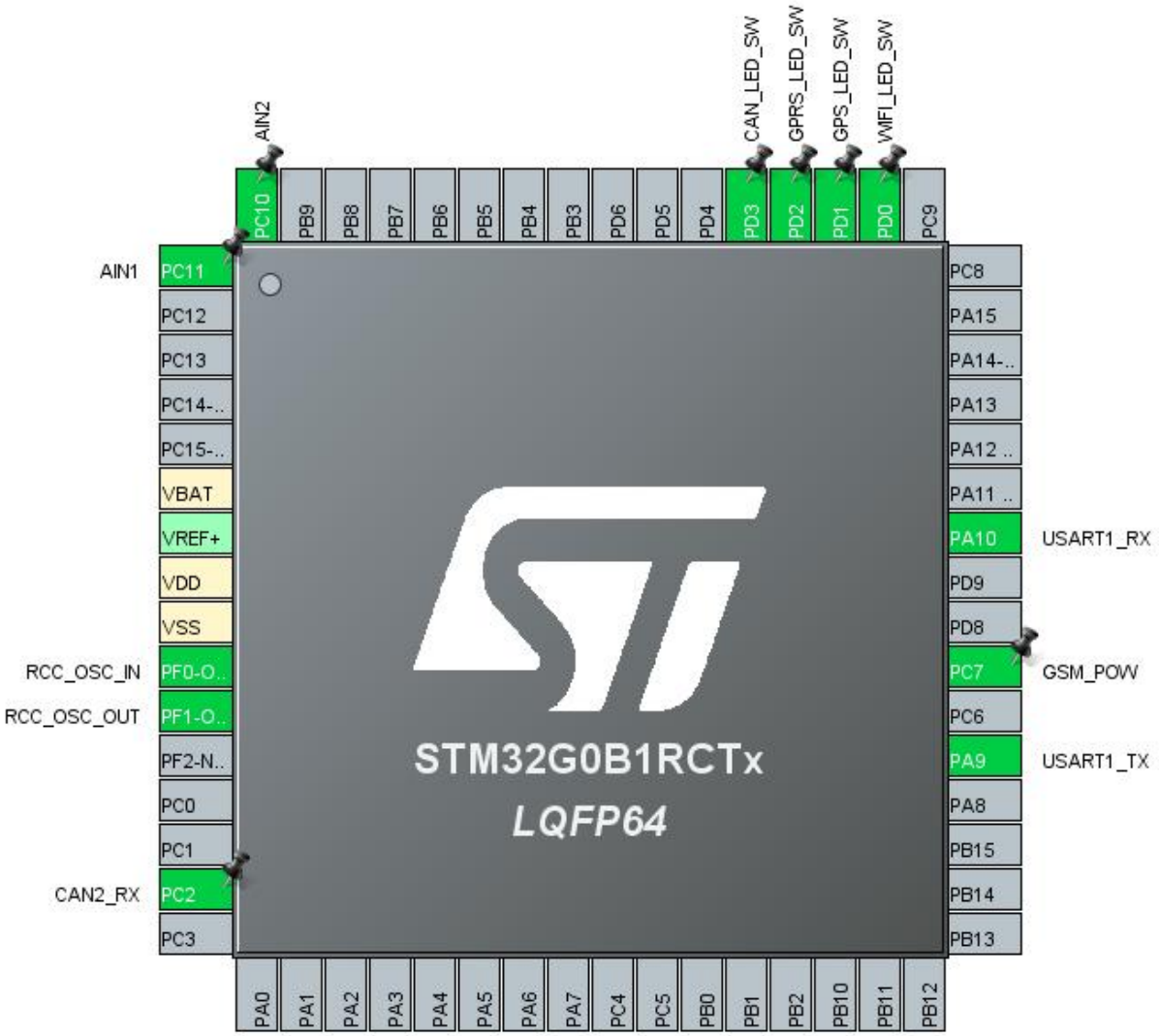
1.2. MCU

MCU Series	STM32G0
MCU Line	STM32G0x1
MCU name	STM32G0B1RCTx
MCU Package	LQFP64
MCU Pin number	64

1.3. Core(s) information

Core(s)	ARM Cortex-M0+

2. Pinout Configuration

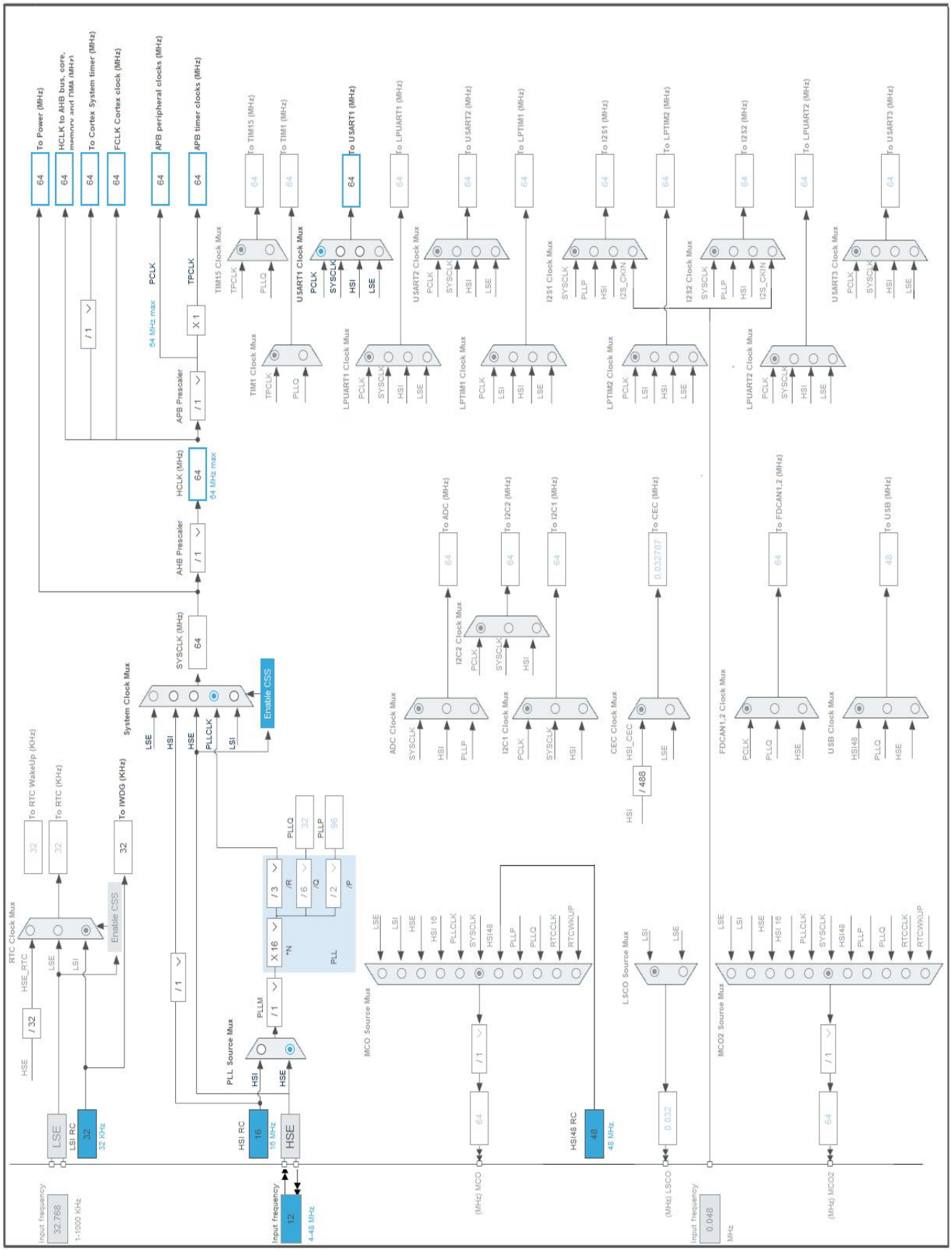


3. Pins Configuration

Pin Number LQFP64	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	PC11	I/O	GPIO_EXTI11	AIN1
6	VBAT	Power		
8	VDD	Power		
9	VSS	Power		
10	PF0-OSC_IN (PF0)	I/O	RCC_OSC_IN	
11	PF1-OSC_OUT (PF1)	I/O	RCC_OSC_OUT	
15	PC2	I/O	GPIO_EXTI2	CAN2_RX
37	PA9	I/O	USART1_TX	
39	PC7 *	I/O	GPIO_Output	GSM_POW
42	PA10	I/O	USART1_RX	
50	PD0 *	I/O	GPIO_Output	WIFI_LED_SW
51	PD1 *	I/O	GPIO_Output	GPS_LED_SW
52	PD2 *	I/O	GPIO_Output	GPRS_LED_SW
53	PD3 *	I/O	GPIO_Output	CAN_LED_SW
64	PC10	I/O	GPIO_EXTI10	AIN2

* The pin is affected with an I/O function

4. Clock Tree Configuration



5. Software Project

5.1. Project Settings

Name	Value
Project Name	A4V30
Project Folder	D:\YW687\DemoCode\A4V30
Toolchain / IDE	MDK-ARM V5
Firmware Package Name and Version	STM32Cube FW_G0 V1.4.1
Application Structure	Advanced
Generate Under Root	No
Do not generate the main()	No
Minimum Heap Size	0x200
Minimum Stack Size	0x400

5.2. Code Generation Settings

Name	Value
STM32Cube MCU packages and embedded software	Copy only the necessary library files
Generate peripheral initialization as a pair of '.c/.h' files	Yes
Backup previously generated files when re-generating	No
Keep User Code when re-generating	Yes
Delete previously generated files when not re-generated	Yes
Set all free pins as analog (to optimize the power consumption)	No
Enable Full Assert	No

5.3. Advanced Settings - Generated Function Calls

Rank	Function Name	Peripheral Instance Name
1	MX_GPIO_Init	GPIO
2	SystemClock_Config	RCC
3	MX_USART1_UART_Init	USART1
4	MX_IWDG_Init	IWDG

6. Power Consumption Calculator report

6.1. Microcontroller Selection

Series	STM32G0
Line	STM32G0x1
MCU	STM32G0B1RCTx
Datasheet	DS00000_Rev0

6.2. Parameter Selection

Temperature	25
Vdd	3.0

6.3. Battery Selection

Battery	Li-SOCL2(A3400)
Capacity	3400.0 mAh
Self Discharge	0.08 %/month
Nominal Voltage	3.6 V
Max Cont Current	100.0 mA
Max Pulse Current	200.0 mA
Cells in series	1
Cells in parallel	1

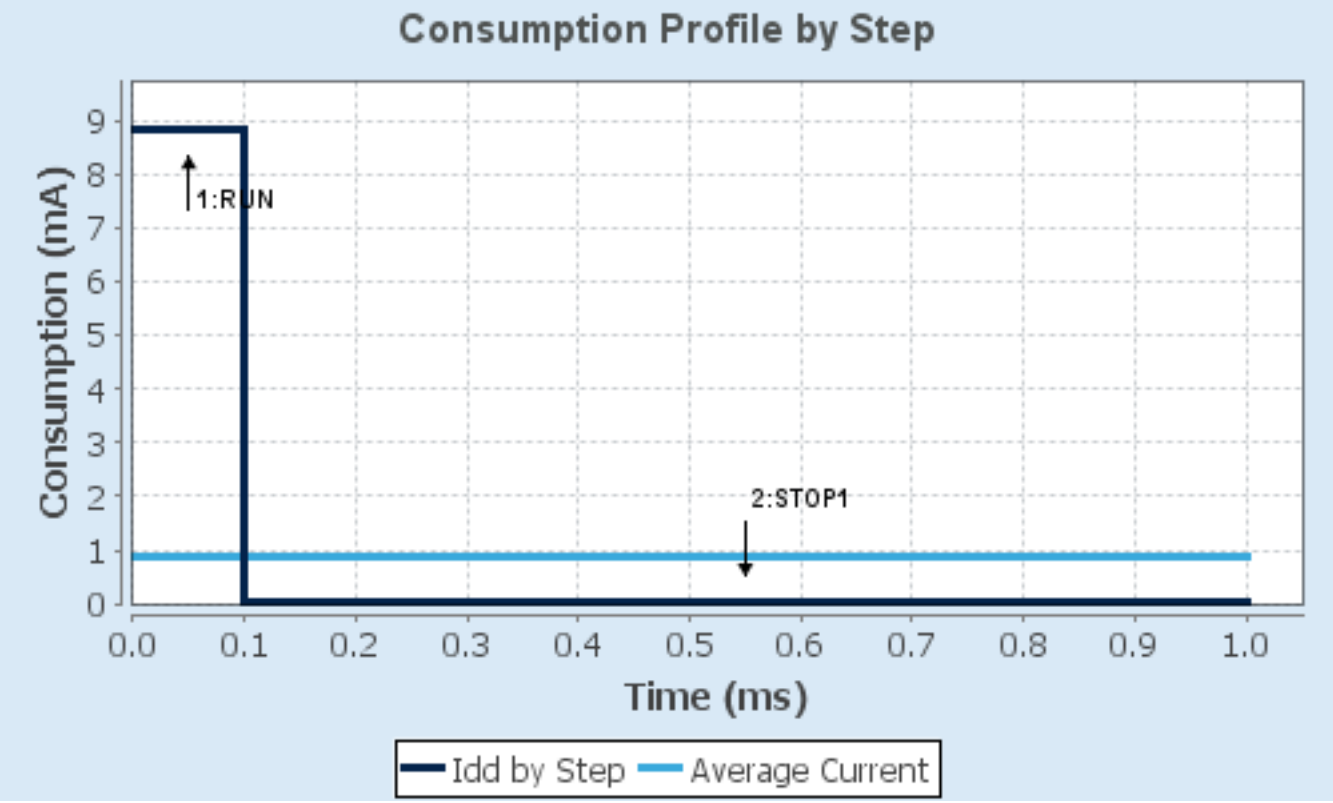
6.4. Sequence

Step	Step1	Step2
Mode	RUN	STOP1
Vdd	3.0	3.0
Voltage Source	Battery	Battery
Range	Range1-High	Range1-High
Fetch Type	SRAM1/Flash-PowerDown/D_SRAM1	Flash-PowerDown/D_SRAM1/Cache
CPU Frequency	64 MHz	16 MHz
Clock Configuration	HSI PLL	HSI
Clock Source Frequency	16 MHz	16 MHz
Peripherals		
Additional Cons.	0 mA	0 mA
Average Current	8.85 mA	7.05 µA
Duration	0.1 ms	0.9 ms
DMIPS	80.0	20.0
Ta Max	127.77	130
Category	In DS Table	In DS Table

6.5. Results

Sequence Time	1 ms	Average Current	891.34 µA
Battery Life	5 months, 6 days, 4 hours	Average DMIPS	26.0 DMIPS

6.6. Chart


Consumption Profile by Step
Consumption (mA)
0
1
2
3
4
5
6
7
8
9
1:RUN
2:STOP1
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
Time (ms)
Idd by Step
Average Current

7. Peripherals and Middlewares Configuration

7.1. IWDG

mode: Activated

7.1.1. Parameter Settings:

Watchdog Clocking:

IWDG counter clock prescaler	**64 ***
IWDG window value	4095
IWDG down-counter reload value	4095

7.2. RCC

High Speed Clock (HSE): Crystal/Ceramic Resonator

7.2.1. Parameter Settings:

System Parameters:

VDD voltage (V)	3.3
Instruction Cache	Enabled
Prefetch Buffer	Disabled
Data Cache	Enabled
Flash Latency(WS)	2 WS (3 CPU cycle)

RCC Parameters:

HSI Calibration Value	64
HSE Startup Timout Value (ms)	100
LSE Startup Timout Value (ms)	5000

Power Parameters:

Power Regulator Voltage Scale	Power Regulator Voltage Scale 1

Peripherals Clock Configuration:

Generate the peripherals clock configuration	TRUE

7.3. SYS

Timebase Source: SysTick

mode: save power of non-active UCPD - deactive Dead Battery pull-up

7.4. USART1

Mode: Asynchronous

7.4.1. Parameter Settings:

Basic Parameters:

Baud Rate	115200
Word Length	8 Bits (including Parity)
Parity	None
Stop Bits	1

Advanced Parameters:

Data Direction	Receive and Transmit
Over Sampling	16 Samples
Single Sample	Disable
ClockPrescaler	1
Fifo Mode	Disable
Txfifo Threshold	1 eighth full configuration
Rxfifo Threshold	1 eighth full configuration

Advanced Features:

Auto Baudrate	Disable
TX Pin Active Level Inversion	Disable
RX Pin Active Level Inversion	Disable
Data Inversion	Disable
TX and RX Pins Swapping	Disable
Overrun	Enable
DMA on RX Error	Enable
MSB First	Disable

*** User modified value**

8. System Configuration

8.1. GPIO configuration

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
RCC	PF0-OSC_IN (PF0)	RCC_OSC_IN	n/a	n/a	n/a	
	PF1-OSC_OUT (PF1)	RCC_OSC_OUT	n/a	n/a	n/a	
USART1	PA9	USART1_TX	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PA10	USART1_RX	Alternate Function Push Pull	No pull-up and no pull-down	Low	
GPIO	PC11	GPIO_EXTI11	**External Interrupt Mode with Falling edge trigger detection**	No pull-up and no pull-down	n/a	AIN1
	PC2	GPIO_EXTI2	**External Interrupt Mode with Falling edge trigger detection**	**Pull-up ***	n/a	CAN2_RX
	PC7	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	GSM_POW
	PD0	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	WIFI_LED_SW
	PD1	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	GPS_LED_SW
	PD2	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	GPRS_LED_SW
	PD3	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	CAN_LED_SW
	PC10	GPIO_EXTI10	**External Interrupt Mode with Falling edge trigger detection**	**Pull-up ***	n/a	AIN2

8.2. DMA configuration

nothing configured in DMA service

8.3. NVIC configuration

8.3.1. NVIC

Interrupt Table	Enable	Preenmption Priority	SubPriority
Non maskable interrupt	true	0	0
Hard fault interrupt	true	0	0
System service call via SWI instruction	true	0	0
Pendable request for system service	true	0	0
System tick timer	true	0	0
EXTI line 2 and line 3 interrupts	true	0	0
EXTI line 4 to 15 interrupts	true	0	0
USART1 global interrupt / USART1 wake-up interrupt through EXTI line 25	true	1	0
PVD through EXTI line 16, PVM (monit. VDDIO2) through EXTI line 34	unused		
Flash global interrupt	unused		
RCC and CRS global Interrupt	unused		

8.3.2. NVIC Code generation

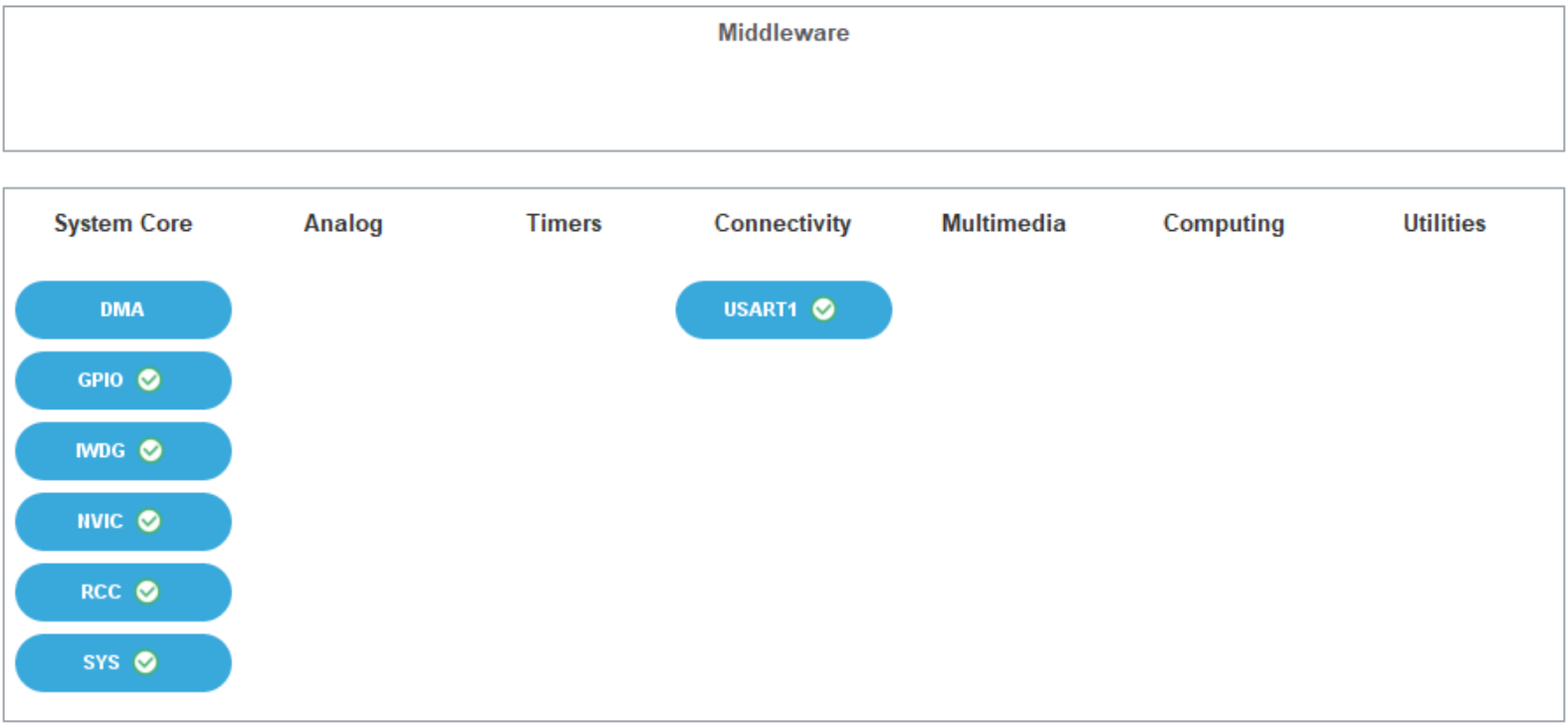
Enabled interrupt Table	Select for init sequence ordering	Generate IRQ handler	Call HAL handler
Non maskable interrupt	false	true	false
Hard fault interrupt	false	true	false
System service call via SWI instruction	false	true	false
Pendable request for system service	false	true	false
System tick timer	false	true	true
EXTI line 2 and line 3 interrupts	false	true	true
EXTI line 4 to 15 interrupts	false	true	true
USART1 global interrupt / USART1 wake-up interrupt through EXTI line 25	false	true	true

*** User modified value**

9. System Views

9.1. Category view

9.1.1. Current



10. Docs & Resources

Type	Link
Datasheet	https://www.st.com/resource/en/datasheet/dm00748675.pdf
Reference manual	http://www.st.com/resource/en/reference_manual/DM00371828.pdf
Programming manual	http://www.st.com/resource/en/programming_manual/DM00104451.pdf
Errata sheet	https://www.st.com/resource/en/errata_sheet/dm00760234-stm32g0b1xbxcxe-device-errata-stmicroelectronics.pdf
Application note	http://www.st.com/resource/en/application_note/CD00160362.pdf
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Application note	http://www.st.com/resource/en/application_note/DM00220769.pdf
Application note	http://www.st.com/resource/en/application_note/DM00257177.pdf
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Application note	http://www.st.com/resource/en/application_note/DM00311483.pdf
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Application note	http://www.st.com/resource/en/application_note/DM00493651.pdf
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Application note	http://www.st.com/resource/en/application_note/DM00625700.pdf
Application note	http://www.st.com/resource/en/application_note/DM00725181.pdf
Application note	https://www.st.com/resource/en/application_note/cd00004125-electrostatic-discharge-sensitivity-measurement-stmicroelectronics.pdf
Application note	https://www.st.com/resource/en/application_note/cd00004479-emc-design-guide-for-stm8-stm32-and-legacy-mcus-stmicroelectronics.pdf
Application note	https://www.st.com/resource/en/application_note/cd00173820-soldering-recommendations-and-package-information-for-leadfree-ecopack-mcus-and-mpus-stmicroelectronics.pdf
Application note	https://www.st.com/resource/en/application_note/dm00118362-stm32-smbuspmbus-embedded-software-expansion-for-stm32cube-stmicroelectronics.pdf
Application note	https://www.st.com/resource/en/application_note/dm00161366-stm32-inapplication-programming-iap-using-the-usart-stmicroelectronics.pdf
Application note	https://www.st.com/resource/en/application_note/dm00273990-digital-signal-processing-for-stm32-microcontrollers-using-cmsis-stmicroelectronics.pdf
Application note	https://www.st.com/resource/en/application_note/dm00290631-lowpower-timer-lptim-applicative-use-cases-on-stm32-microcontrollers-stmicroelectronics.pdf

Application note	https://www.st.com/resource/en/application_note/dm00413494-secure-programming-using-stm32cubeprogrammer-stmicroelectronics.pdf
Application note	https://www.st.com/resource/en/application_note/dm00414677-integration-guide-for-the-xcubesbsfu-stm32cube-expansion-package-stmicroelectronics.pdf
Application note	https://www.st.com/resource/en/application_note/dm00629854-getting-started-with-projects-based-on-the-stm32mp1-series-in-stm32cubeide-stmicroelectronics.pdf
Application note	https://www.st.com/resource/en/application_note/dm00629855-getting-started-with-projects-based-on-dualcore-stm32h7-microcontrollers-in-stm32cubeide-stmicroelectronics.pdf
Application note	https://www.st.com/resource/en/application_note/dm00652038-getting-started-with-projects-based-on-the-stm32l5-series-in-stm32cubeide-stmicroelectronics.pdf
Application note	https://www.st.com/resource/en/application_note/dm00663511-how-to-build-a-simple-usbpd-sink-application-with-stm32cubemx-stmicroelectronics.pdf
Application note	https://www.st.com/resource/en/application_note/dm00670808-migrating-graphics-middleware-projects-from-stm32cubemx-540-to-stm32cubemx-550-stmicroelectronics.pdf
Application note	https://www.st.com/resource/en/application_note/dm00736854-getting-started-with-projects-based-on-dualcore-stm32wl-microcontrollers-in-stm32cubeide-stmicroelectronics.pdf
Application note	https://www.st.com/resource/en/application_note/an1202_freertos_guide-freertos-guide-stmicroelectronics.pdf
Application note	https://www.st.com/resource/en/application_note/an1602_semihosting_in_truestudio-how-to-do-semihosting-in-truestudio-stmicroelectronics.pdf
Application note	https://www.st.com/resource/en/application_note/an1801_stm32cubeprogrammer_in_truestudio-installing-stm32cubeprogrammer-in-truestudio-stmicroelectronics.pdf
Application note	https://www.st.com/resource/en/application_note/atollic_editing_keyboard_shortcuts-atollic-editing-keyboard-shortcuts-stmicroelectronics.pdf
Application note	https://www.st.com/resource/en/application_note/iar_to_atollic_truestudio_migration_guide-truestudio-for-arm-migration-guide-iar-embedded-

	workbench-to-truestudio-stmicroelectronics.pdf
Application note	https://www.st.com/resource/en/application_note/stm32cubemx_installation_in_truestudio-stm32cubemx-installation-in-truestudio-stmicroelectronics.pdf