
STM32
CubeMX

1. Description

1.1. Project

Project Name	MB2160X2
Board Name	custom
Generated with:	STM32CubeMX 6.6.1
Date	08/06/2023

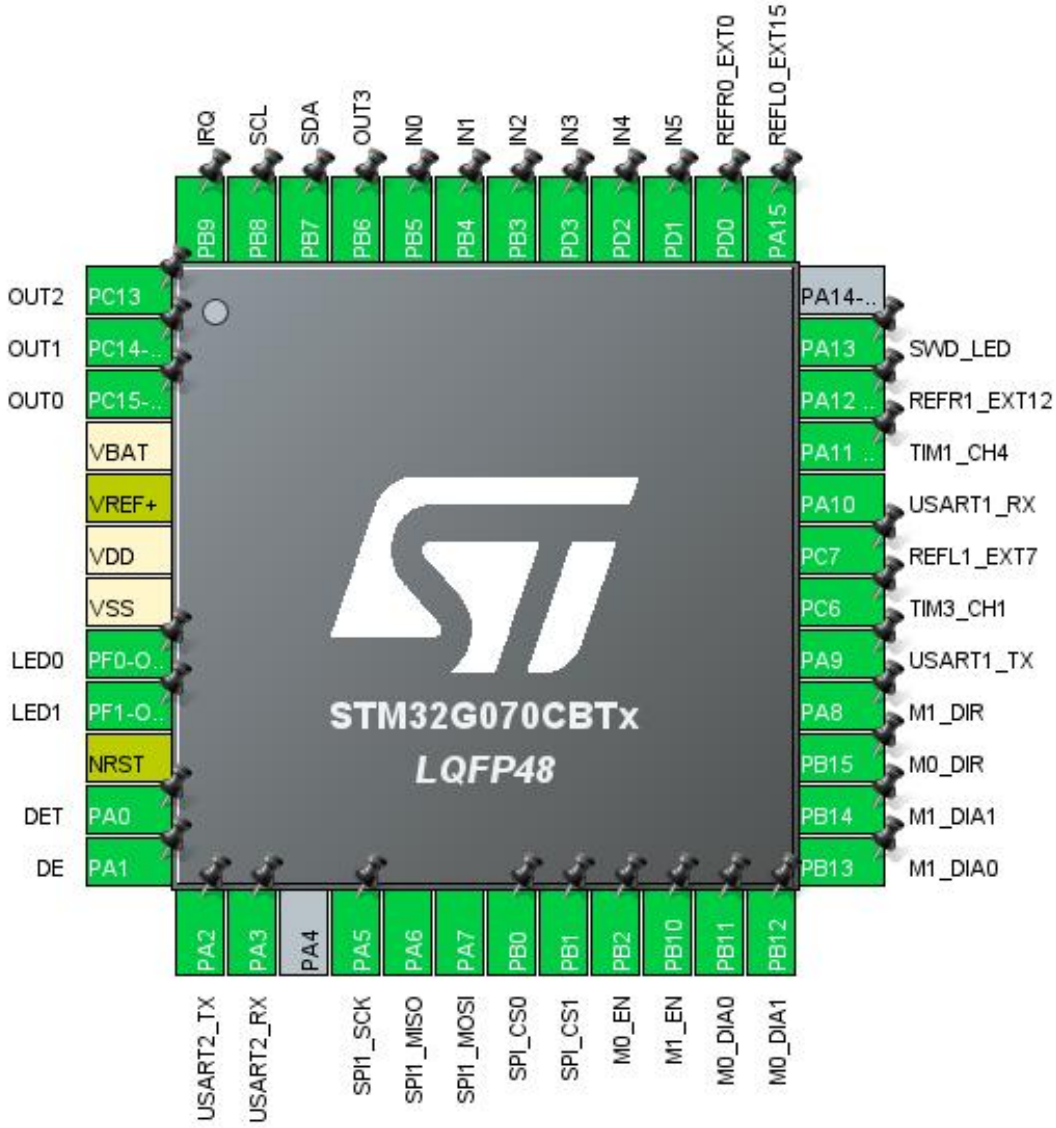
1.2. MCU

MCU Series	STM32G0
MCU Line	STM32G0x0 Value line
MCU name	STM32G070CBTx
MCU Package	LQFP48
MCU Pin number	48

1.3. Core(s) information

Core(s)	ARM Cortex-M0+

2. Pinout Configuration



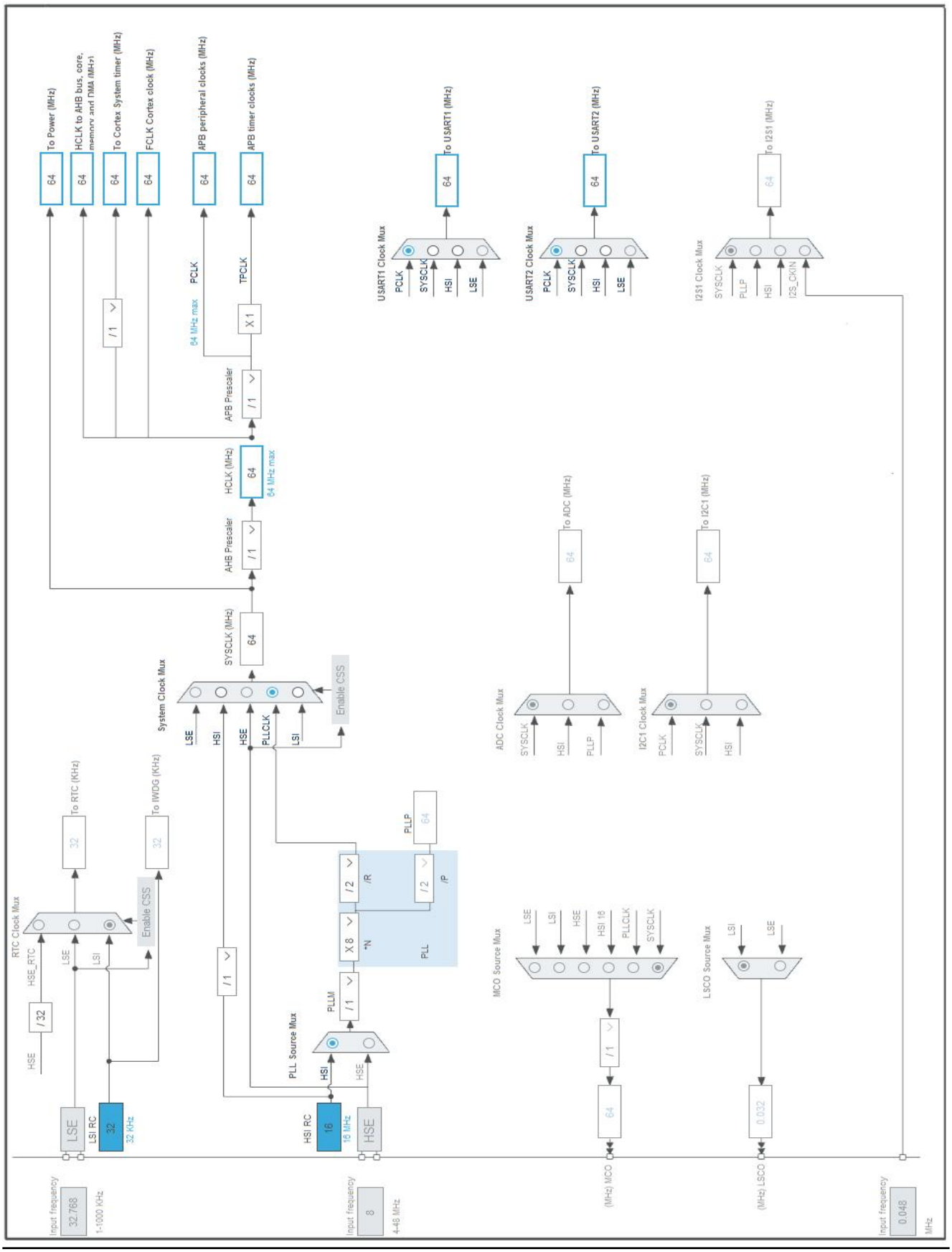
3. Pins Configuration

Pin Number LQFP48	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	PC13 *	I/O	GPIO_Output	OUT2
2	PC14-OSC32_IN (PC14) *	I/O	GPIO_Output	OUT1
3	PC15-OSC32_OUT (PC15) *	I/O	GPIO_Output	OUT0
4	VBAT	Power		
5	VREF+	MonoIO		
6	VDD	Power		
7	VSS	Power		
8	PF0-OSC_IN (PF0) *	I/O	GPIO_Output	LED0
9	PF1-OSC_OUT (PF1) *	I/O	GPIO_Output	LED1
10	NRST	Reset		
11	PA0 *	I/O	GPIO_Input	DET
12	PA1 *	I/O	GPIO_Output	DE
13	PA2	I/O	USART2_TX	
14	PA3	I/O	USART2_RX	
16	PA5	I/O	SPI1_SCK	
17	PA6	I/O	SPI1_MISO	
18	PA7	I/O	SPI1_MOSI	
19	PB0 *	I/O	GPIO_Output	SPI_CS0
20	PB1 *	I/O	GPIO_Output	SPI_CS1
21	PB2 *	I/O	GPIO_Output	M0_EN
22	PB10 *	I/O	GPIO_Output	M1_EN
23	PB11 *	I/O	GPIO_Input	M0_DIA0
24	PB12 *	I/O	GPIO_Input	M0_DIA1
25	PB13 *	I/O	GPIO_Input	M1_DIA0
26	PB14 *	I/O	GPIO_Input	M1_DIA1
27	PB15 *	I/O	GPIO_Output	M0_DIR
28	PA8 *	I/O	GPIO_Output	M1_DIR
29	PA9	I/O	USART1_TX	
30	PC6	I/O	TIM3_CH1	
31	PC7	I/O	GPIO_EXTI7	REFL1_EXT7
32	PA10	I/O	USART1_RX	
33	PA11 [PA9]	I/O	TIM1_CH4	
34	PA12 [PA10]	I/O	GPIO_EXTI12	REFR1_EXT12
35	PA13 *	I/O	GPIO_Output	SWD_LED
37	PA15	I/O	GPIO_EXTI15	REFL0_EXT15

Pin Number LQFP48	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
38	PD0	I/O	GPIO_EXTI0	REFR0_EXT0
39	PD1 *	I/O	GPIO_Input	IN5
40	PD2 *	I/O	GPIO_Input	IN4
41	PD3 *	I/O	GPIO_Input	IN3
42	PB3 *	I/O	GPIO_Input	IN2
43	PB4 *	I/O	GPIO_Input	IN1
44	PB5 *	I/O	GPIO_Input	IN0
45	PB6 *	I/O	GPIO_Output	OUT3
46	PB7 *	I/O	GPIO_Output	SDA
47	PB8 *	I/O	GPIO_Output	SCL
48	PB9 *	I/O	GPIO_Input	IRQ

* The pin is affected with an I/O function

4. Clock Tree Configuration



5. Software Project

5.1. Project Settings

Name	Value
Project Name	MB2160X2
Project Folder	F:\pprj\FW_MX2160X2
Toolchain / IDE	MDK-ARM V5.32
Firmware Package Name and Version	STM32Cube FW_G0 V1.6.1
Application Structure	Advanced
Generate Under Root	No
Do not generate the main()	No
Minimum Heap Size	0x200
Minimum Stack Size	0x1000

5.2. Code Generation Settings

Name	Value
STM32Cube MCU packages and embedded software	Copy all used libraries into the project folder
Generate peripheral initialization as a pair of '.c/.h' files	No
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	SystemClock_Config	RCC
2	MX_GPIO_Init	GPIO
3	MX_SPI1_Init	SPI1
4	MX_TIM1_Init	TIM1
5	MX_TIM3_Init	TIM3
6	MX_USART1_UART_Init	USART1
7	MX_USART2_UART_Init	USART2

6. Power Consumption Calculator report

6.1. Microcontroller Selection

Series	STM32G0
Line	STM32G0x0 Value line
MCU	STM32G070CBTx
Datasheet	DS12766_Rev0

6.2. Parameter Selection

Temperature	25
Vdd	3.0

6.3. Battery Selection

Battery	Li-SOCL2(AAA700)
Capacity	700.0 mAh
Self Discharge	0.08 %/month
Nominal Voltage	3.6 V
Max Cont Current	10.0 mA
Max Pulse Current	30.0 mA
Cells in series	1
Cells in parallel	1

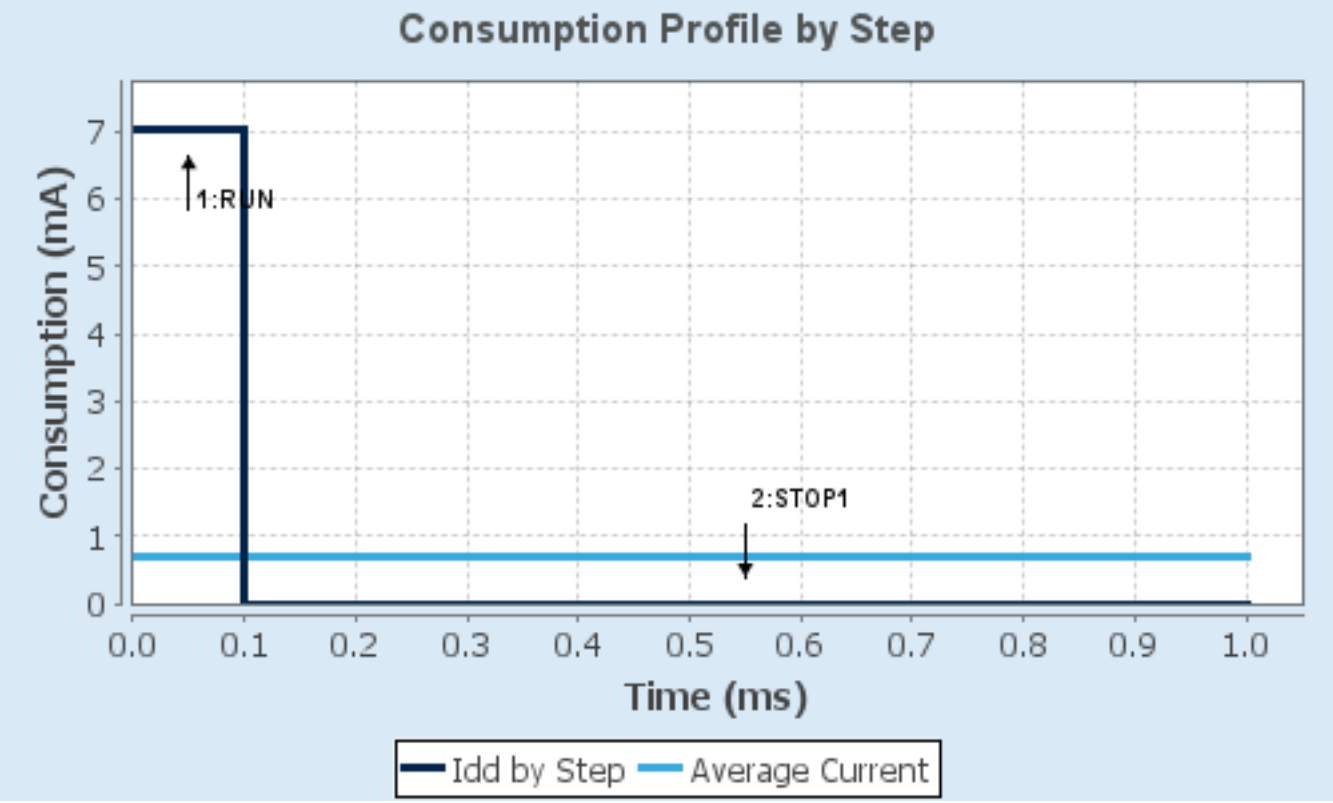
6.4. Sequence

Step	Step1	Step2
Mode	RUN	STOP1
Vdd	3.0	3.0
Voltage Source	Battery	Battery
Range	Range1-High	NoRange
Fetch Type	FLASH	Flash-PowerDown
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	7.04 mA	3.74 µA
Duration	0.1 ms	0.9 ms
DMIPS	80.0	0.0
Ta Max	128.42	130
Category	In DS Table	In DS Table

6.5. Results

Sequence Time	1 ms	Average Current	707.37 µA
Battery Life	1 month, 10 days, 18 hours	Average DMIPS	80.0 DMIPS

6.6. Chart


Consumption Profile by Step
Consumption (mA)
7
6
5
4
3
2
1
0
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. RCC

7.1.1. Parameter Settings:

System Parameters:

VDD voltage (V)	3.3
Instruction Cache	Enabled
Prefetch Buffer	Enabled
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

7.2. SPI1

Mode: Full-Duplex Master

7.2.1. Parameter Settings:

Basic Parameters:

Frame Format	Motorola
Data Size	4 Bits
First Bit	MSB First

Clock Parameters:

Prescaler (for Baud Rate)	2
Baud Rate	**32.0 MBits/s ***
Clock Polarity (CPOL)	Low
Clock Phase (CPHA)	1 Edge

Advanced Parameters:

CRC Calculation	Disabled
NSSP Mode	Enabled
NSS Signal Type	Software

7.3. SYS

Timebase Source: SysTick

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

7.4. TIM1

Channel4: PWM Generation CH4

7.4.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	0
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	65535
Internal Clock Division (CKD)	No Division
Repetition Counter (RCR - 16 bits value)	0
auto-reload preload	Disable

Trigger Output (TRGO) Parameters:

Master/Slave Mode (MSM bit)	Disable (Trigger input effect not delayed)
Trigger Event Selection TRGO	Reset (UG bit from TIMx_EGR)
Trigger Event Selection TRGO2	Reset (UG bit from TIMx_EGR)

Break And Dead Time management - BRK Configuration:

BRK State	Disable
BRK Polarity	High
BRK Filter (4 bits value)	0
BRK Sources Configuration	
- Digital Input	Disable

Break And Dead Time management - BRK2 Configuration:

BRK2 State	Disable
BRK2 Polarity	High
BRK2 Filter (4 bits value)	0
BRK2 Sources Configuration	
- Digital Input	Disable

Break And Dead Time management - Output Configuration:

Automatic Output State	Disable
Off State Selection for Idle Mode (OSSI)	Disable
Lock Configuration	Off

Clear Input:

Clear Input Source	Disable

PWM Generation Channel 4:

Mode	PWM mode 1
Pulse (16 bits value)	0
Output compare preload	Enable
Fast Mode	Disable
CH Polarity	High
CH Idle State	Reset

7.5. TIM3

Channel1: PWM Generation CH1

7.5.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	0
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	65535
Internal Clock Division (CKD)	No Division
auto-reload preload	Disable

Trigger Output (TRGO) Parameters:

Master/Slave Mode (MSM bit)	Disable (Trigger input effect not delayed)
Trigger Event Selection TRGO	Reset (UG bit from TIMx_EGR)

Clear Input:

Clear Input Source	Disable

PWM Generation Channel 1:

Mode	PWM mode 1
Pulse (16 bits value)	0
Output compare preload	Enable
Fast Mode	Disable
CH Polarity	High

7.6. USART1

Mode: Asynchronous

7.6.1. 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

7.7. USART2

Mode: Asynchronous

7.7.1. 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
SPI1	PA5	SPI1_SCK	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PA6	SPI1_MISO	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PA7	SPI1_MOSI	Alternate Function Push Pull	No pull-up and no pull-down	Low	
TIM1	PA11 [PA9]	TIM1_CH4	Alternate Function Push Pull	No pull-up and no pull-down	Low	
TIM3	PC6	TIM3_CH1	Alternate Function Push Pull	No pull-up and no pull-down	Low	
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	
USART2	PA2	USART2_TX	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PA3	USART2_RX	Alternate Function Push Pull	No pull-up and no pull-down	Low	
GPIO	PC13	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	OUT2
	PC14-OSC32_IN (PC14)	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	OUT1
	PC15-OSC32_OUT (PC15)	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	OUT0
	PF0-OSC_IN (PF0)	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LED0
	PF1-OSC_OUT (PF1)	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LED1
	PA0	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	DET
	PA1	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	DE
	PB0	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	SPI_CS0
	PB1	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	SPI_CS1
	PB2	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	M0_EN
	PB10	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	M1_EN
	PB11	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	M0_DIA0
	PB12	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	M0_DIA1
	PB13	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	M1_DIA0
	PB14	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	M1_DIA1
	PB15	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	M0_DIR
	PA8	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	M1_DIR
	PC7	GPIO_EXTI7	External Interrupt Mode with Rising edge trigger detection	No pull-up and no pull-down	n/a	REFL1_EXT7
	PA12 [PA10]	GPIO_EXTI12	External Interrupt Mode with Rising edge trigger detection	No pull-up and no pull-down	n/a	REFR1_EXT12
	PA13	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	SWD_LED

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
	PA15	GPIO_EXTI15	External Interrupt Mode with Rising edge trigger detection	No pull-up and no pull-down	n/a	REFL0_EXT15
	PD0	GPIO_EXTI0	External Interrupt Mode with Rising edge trigger detection	No pull-up and no pull-down	n/a	REFR0_EXT0
	PD1	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	IN5
	PD2	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	IN4
	PD3	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	IN3
	PB3	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	IN2
	PB4	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	IN1
	PB5	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	IN0
	PB6	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	OUT3
	PB7	GPIO_Output	**Output Open Drain ***	No pull-up and no pull-down	Low	SDA
	PB8	GPIO_Output	**Output Open Drain ***	No pull-up and no pull-down	Low	SCL
	PB9	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	IRQ

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	3	0
USART1 global interrupt / USART1 wake-up interrupt through EXTI line 25	true	0	0
USART2 global interrupt / USART2 wake-up interrupt through EXTI line 26	true	0	0
Flash global interrupt	unused		
RCC global interrupt	unused		
EXTI line 0 and line 1 interrupts	unused		
EXTI line 4 to 15 interrupts	unused		
TIM1 break, update, trigger and commutation interrupts	unused		
TIM1 capture compare interrupt	unused		
TIM3 global interrupt	unused		
SPI1 global interrupt	unused		

8.3.2. NVIC Code generation

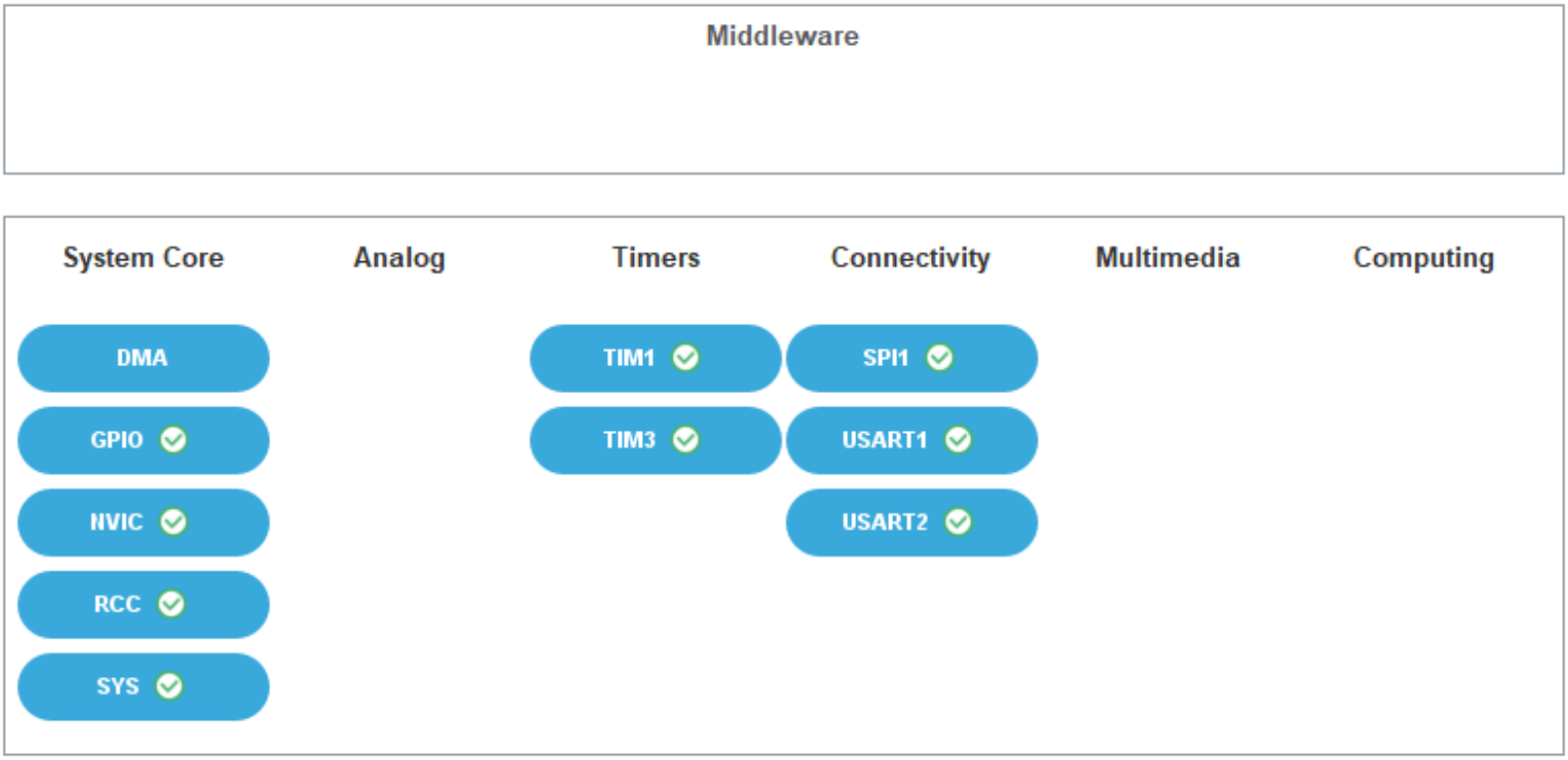
Enabled interrupt Table	Select for init sequence ordering	Generate IRQ handler	Call HAL handler
Non maskable interrupt	false	true	false
Hard fault interrupt	false	true	false
System service call via SWI instruction	false	true	false
Pendable request for system service	false	true	false
System tick timer	false	true	true
USART1 global interrupt / USART1 wake-up interrupt through EXTI line 25	false	true	true
USART2 global interrupt / USART2 wake-up interrupt through EXTI line 26	false	true	true

*** User modified value**

9. System Views

9.1. Category view

9.1.1. Current



10. Docs & Resources

Type	Link
IBIS models	https://www.st.com/resource/en/ibis_model/stm32g0_ibis.zip
System View Description	https://www.st.com/resource/en/svd/stm32g0_svd.zip
Presentations	https://www.st.com/resource/en/product_presentation/stm32-stm8_embedded_software_solutions.pdf
Presentations	https://www.st.com/resource/en/product_presentation/stm32_eval-tools_portfolio.pdf
Presentations	https://www.st.com/resource/en/product_presentation/stm32_stm8_functional-safety-packages.pdf
Presentations	https://www.st.com/resource/en/product_presentation/stm32g0_marketing_pres.pdf
Presentations	https://www.st.com/resource/en/product_presentation/stm32-usb-c-pd-solutions-presentation.pdf
Presentations	https://www.st.com/resource/en/product_presentation/stm32-stm8_software_development_tools.pdf
Brochures	https://www.st.com/resource/en/brochure/products-and-solutions-for-plcs-and-smart-i-os.pdf
Flyers	https://www.st.com/resource/en/flyer/flstm32g0.pdf
Flyers	https://www.st.com/resource/en/flyer/flstm32nucleo.pdf
Flyers	https://www.st.com/resource/en/flyer/flstmcsuite.pdf
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Flyers	https://www.st.com/resource/en/flyer/fldpstpfc11120.pdf
Application Notes	https://www.st.com/resource/en/application_note/an1181-electrostatic-discharge-sensitivity-measurement-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an1709-emc-design-guide-for-stm8-stm32-and-legacy-mcus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an2606-stm32-microcontroller-system-memory-boot-mode-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an2639-soldering-

	recommendations-and-package-information-for-leadfree-ecopack-mcus-and-mpus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an2834-how-to-get-the-best-adc-accuracy-in-stm32-microcontrollers-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an3126-audio-and-waveform-generation-using-the-dac-in-stm32-products-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an3155-usart-protocol-used-in-the-stm32-bootloader-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an3156-usb-dfu-protocol-used-in-the-stm32-bootloader-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4013-stm32-crossseries-timer-overview-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4221-i2c-protocol-used-in-the-stm32-bootloader-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4229-how-to-implement-a-vocoder-solution-using-stm32-microcontrollers-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4277-using-stm32-device-pwm-shutdown-features-for-motor-control-and-digital-power-conversion-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4286-spi-protocol-used-in-the-stm32-bootloader-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4566-extending-the-dac-performance-of-stm32-microcontrollers-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4635-minimization-of-power-consumption-using-lpuart-for-stm32-microcontrollers-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4655-virtually-increasing-the-number-of-serial-communication-peripherals-in-stm32-applications-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4750-handling-of-soft-errors-in-stm32-applications-stmicroelectronics.pdf

Application Notes	https://www.st.com/resource/en/application_note/an4759-using-the-hardware-realtime-clock-rtc-and-the-tamper-management-unit-tamp-with-stm32-microcontrollers-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4776-generalpurpose-timer-cookbook-for-stm32-microcontrollers-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4803-highspeed-si-simulations-using-ibis-and-boardlevel-simulations-using-hyperlynx-si-on-stm32-mcus-and-mpus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4894-eeprom-emulation-techniques-and-software-for-stm32-microcontrollers-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4989-stm32-microcontroller-debug-toolbox-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5027-interfacing-pdm-digital-microphones-using-stm32-mcus-and-mpus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5036-thermal-management-guidelines-for-stm32-applications-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5096-getting-started-with-stm32g0-series-hardware-development-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5110-stm32cube-firmware-examples-for-stm32g0-series-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5145-migration-of-applications-from-stm32f0-series-to-stm32g0-series--stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5224-stm32-dmamux-the-dma-request-router-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5225-usb-typec-power-delivery-using-stm32-mcus-and-mpus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5405-fdcan-protocol-used-in-the-stm32-bootloader-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5543-enhanced-methods-to-handle-spi-communication-on-stm32-devices-stmicroelectronics.pdf

Application Notes	https://www.st.com/resource/en/application_note/an5690-vrefbuf-peripheral-applications-and-trimming-technique-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4899-stm32-microcontroller-gpio-hardware-settings-and-lowpower-consumption-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5612-esd-protection-of-stm32-mcus-and-mpus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5156-introduction-to-stm32-microcontrollers-security-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an2548-using-the-stm32f0f1f3cxgxlx-series-dma-controller-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4991-how-to-wake-up-an-stm32-microcontroller-from-lowpower-mode-with-the-usart-or-the-lpuart-stmicroelectronics.pdf
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