



1. Description

1.1. Project

Project Name	spc250
Board Name	custom
Generated with:	STM32CubeMX 6.15.0
Date	09/04/2025

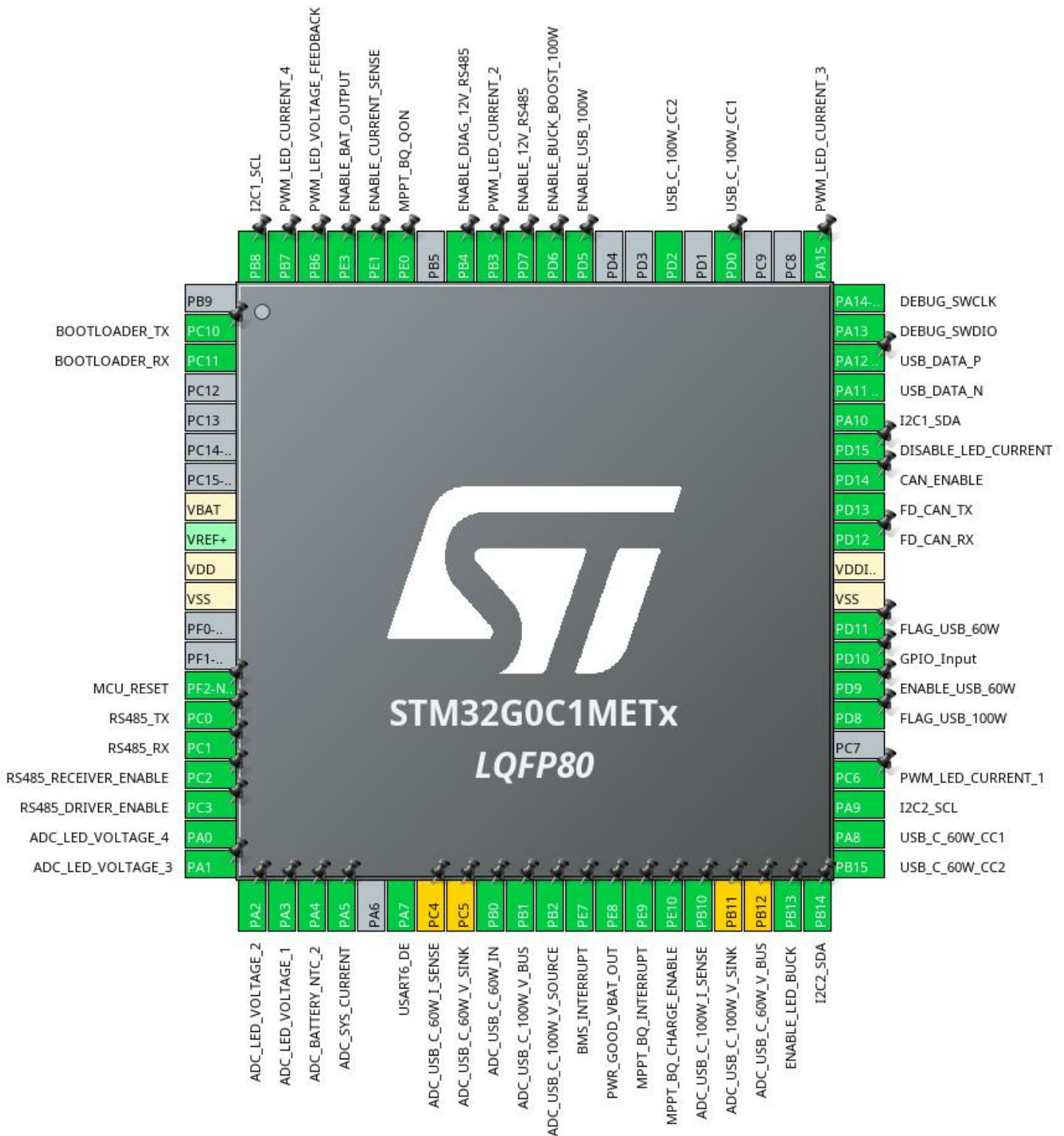
1.2. MCU

MCU Series	STM32G0
MCU Line	STM32G0x1
MCU name	STM32G0C1METx
MCU Package	LQFP80
MCU Pin number	80

1.3. Core(s) information

Core(s)	ARM Cortex-M0+
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2. Pinout Configuration



3. Pins Configuration

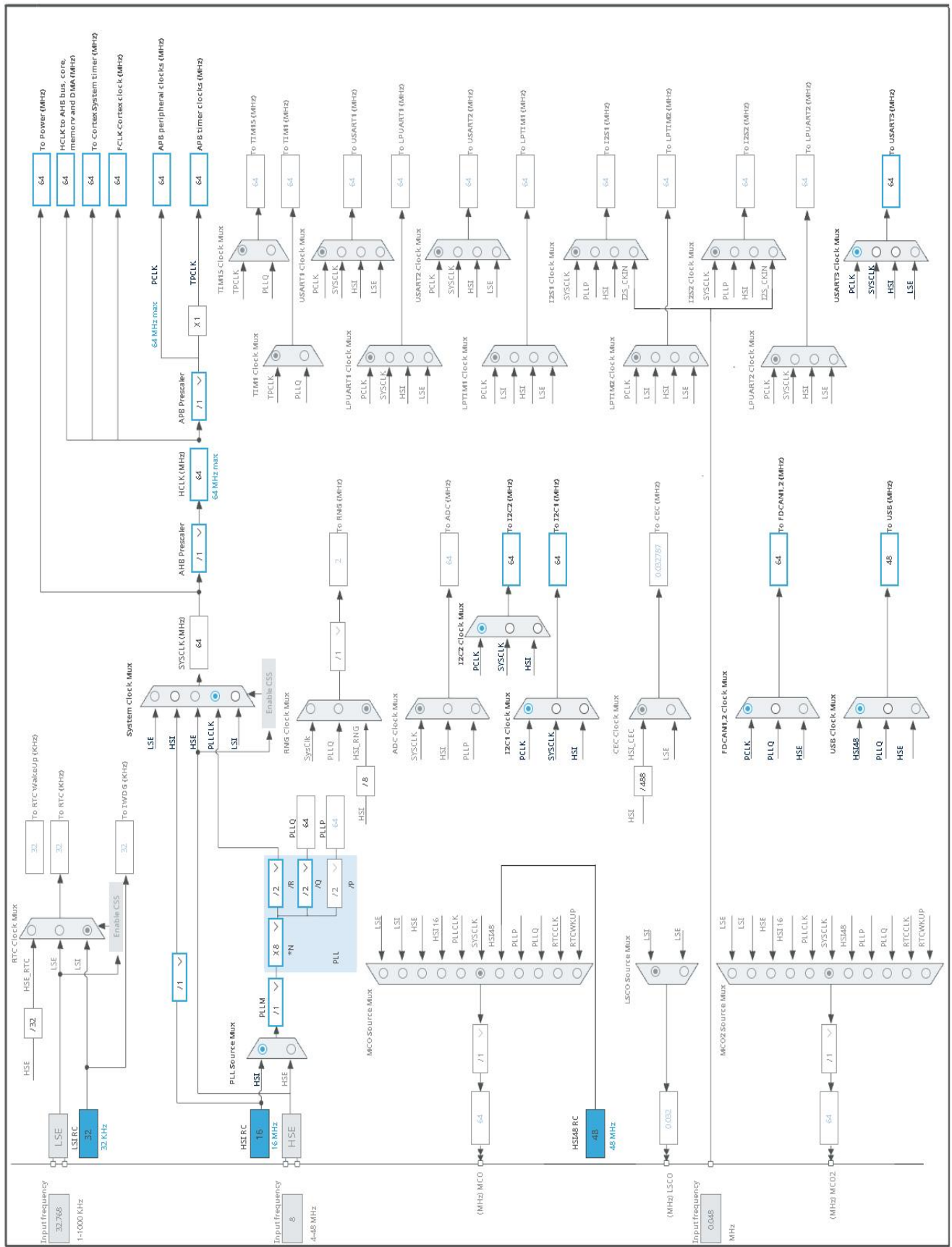
Pin Number LQFP80	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
2	PC10	I/O	USART3_TX	BOOTLOADER_TX
3	PC11	I/O	USART3_RX	BOOTLOADER_RX
8	VBAT	Power		
10	VDD	Power		
11	VSS	Power		
14	PF2-NRST *	I/O	GPIO_Input	MCU_RESET
15	PC0	I/O	USART6_TX	RS485_TX
16	PC1	I/O	USART6_RX	RS485_RX
17	PC2 *	I/O	GPIO_Input	RS485_RECEIVER_ENABL E
18	PC3 *	I/O	GPIO_Output	RS485_DRIVER_ENABLE
19	PA0	I/O	ADC1_IN0	ADC_LED_VOLTAGE_4
20	PA1	I/O	ADC1_IN1	ADC_LED_VOLTAGE_3
21	PA2	I/O	ADC1_IN2	ADC_LED_VOLTAGE_2
22	PA3	I/O	ADC1_IN3	ADC_LED_VOLTAGE_1
23	PA4	I/O	ADC1_IN4	ADC_BATTERY_NTC_2
24	PA5	I/O	ADC1_IN5	ADC_SYS_CURRENT
26	PA7	I/O	USART6_DE	
27	PC4 **	I/O	ADC1_IN17	ADC_USB_C_60W_I_SENS E
28	PC5 **	I/O	ADC1_IN18	ADC_USB_C_60W_V_SINK
29	PB0	I/O	ADC1_IN8	ADC_USB_C_60W_IN
30	PB1	I/O	ADC1_IN9	ADC_USB_C_100W_V_BU S
31	PB2	I/O	ADC1_IN10	ADC_USB_C_100W_V_SO URCE
32	PE7	I/O	GPIO_EXTI7	BMS_INTERRUPT
33	PE8 *	I/O	GPIO_Input	PWR_GOOD_VBAT_OUT
34	PE9 *	I/O	GPIO_Input	MPPT_BQ_INTERRUPT
35	PE10 *	I/O	GPIO_Output	MPPT_BQ_CHARGE_ENA BLE
36	PB10	I/O	ADC1_IN11	ADC_USB_C_100W_I_SEN SE
37	PB11 **	I/O	ADC1_IN15	ADC_USB_C_100W_V_SIN K
38	PB12 **	I/O	ADC1_IN16	ADC_USB_C_60W_V_BUS

Pin Number LQFP80	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
39	PB13 *	I/O	GPIO_Output	ENABLE_LED_BUCK
40	PB14	I/O	I2C2_SDA	
41	PB15	I/O	UCPD1_CC2	USB_C_60W_CC2
42	PA8	I/O	UCPD1_CC1	USB_C_60W_CC1
43	PA9	I/O	I2C2_SCL	
44	PC6 *	I/O	GPIO_Output	PWM_LED_CURRENT_1
46	PD8 *	I/O	GPIO_Input	FLAG_USB_100W
47	PD9 *	I/O	GPIO_Output	ENABLE_USB_60W
48	PD10 *	I/O	GPIO_Input	
49	PD11 *	I/O	GPIO_Input	FLAG_USB_60W
50	VSS	Power		
51	VDDIO2	Power		
52	PD12	I/O	FDCAN1_RX	FD_CAN_RX
53	PD13	I/O	FDCAN1_TX	FD_CAN_TX
54	PD14 *	I/O	GPIO_Output	CAN_ENABLE
55	PD15 *	I/O	GPIO_Output	DISABLE_LED_CURRENT
56	PA10	I/O	I2C1_SDA	
57	PA11 [PA9]	I/O	USB_DM	USB_DATA_N
58	PA12 [PA10]	I/O	USB_DP	USB_DATA_P
59	PA13	I/O	SYS_SWDIO	DEBUG_SWDIO
60	PA14-BOOT0	I/O	SYS_SWCLK	DEBUG_SWCLK
61	PA15 *	I/O	GPIO_Output	PWM_LED_CURRENT_3
64	PD0	I/O	UCPD2_CC1	USB_C_100W_CC1
66	PD2	I/O	UCPD2_CC2	USB_C_100W_CC2
69	PD5 *	I/O	GPIO_Output	ENABLE_USB_100W
70	PD6 *	I/O	GPIO_Output	ENABLE_BUCK_BOOST_1 00W
71	PD7 *	I/O	GPIO_Output	ENABLE_12V_RS485
72	PB3 *	I/O	GPIO_Output	PWM_LED_CURRENT_2
73	PB4 *	I/O	GPIO_Output	ENABLE_DIAG_12V_RS48 5
75	PE0 *	I/O	GPIO_Output	MPPT_BQ_QON
76	PE1 *	I/O	GPIO_Output	ENABLE_CURRENT_SENS E
77	PE3 *	I/O	GPIO_Output	ENABLE_BAT_OUTPUT
78	PB6 *	I/O	GPIO_Output	PWM_LED_VOLTAGE_FEE DBACK
79	PB7 *	I/O	GPIO_Output	PWM_LED_CURRENT_4
80	PB8	I/O	I2C1_SCL	

* The pin is affected with an I/O function

** The pin is affected with a peripheral function but no peripheral mode is activated

4. Clock Tree Configuration



1. Power Consumption Calculator report

1.1. Microcontroller Selection

Series	STM32G0
Line	STM32G0x1
MCU	STM32G0C1METx
Datasheet	DS13564_Rev0

1.2. Parameter Selection

Temperature	25
Vdd	3.0

1.3. 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

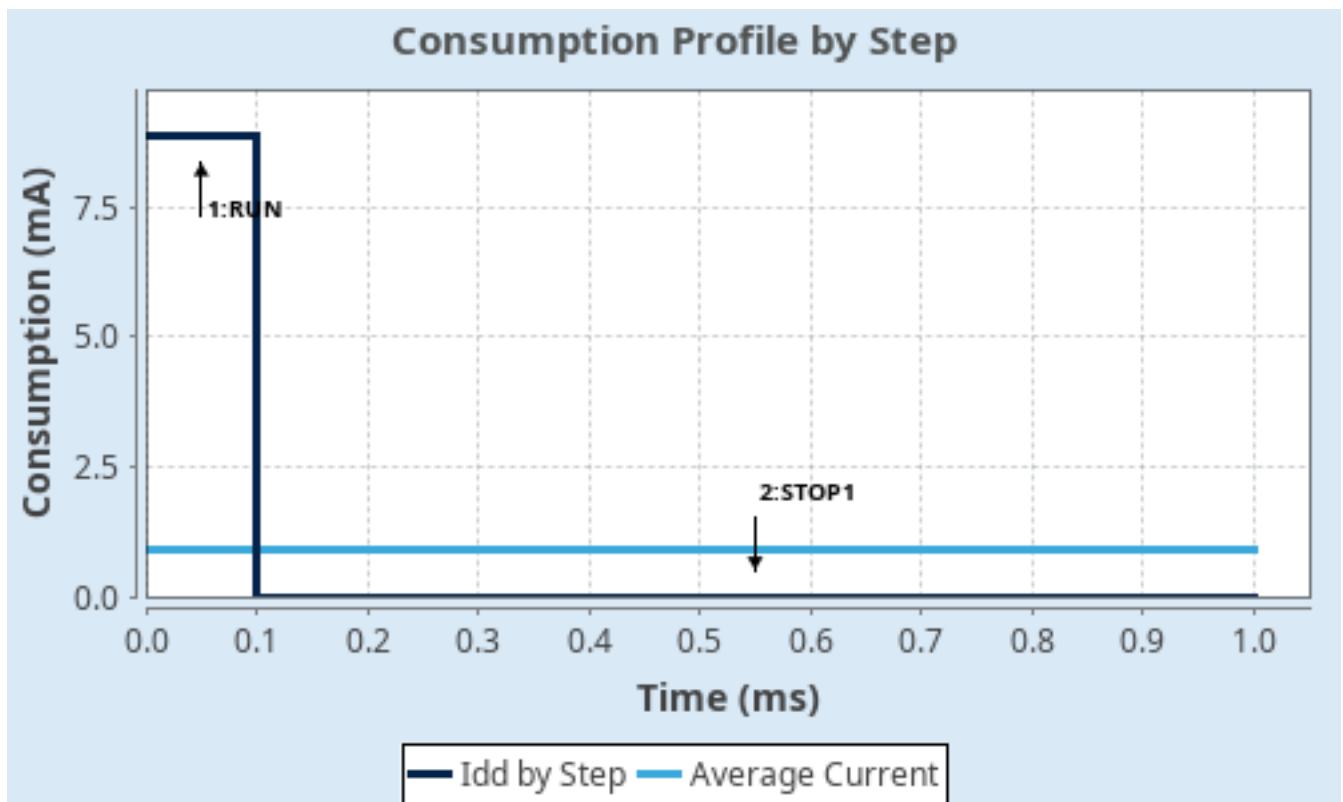
1.4. Sequence

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 μ A
Duration	0.1 ms	0.9 ms
DMIPS	80.0	20.0
Ta Max	126.44	130
Category	In DS Table	In DS Table

1.5. Results

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

1.6. Chart



2. Software Project

2.1. Project Settings

Name	Value
Project Name	spc250
Project Folder	/home/shawal/GitHub/anfa_battery_management/apc250
Toolchain / IDE	STM32CubeIDE
Firmware Package Name and Version	STM32Cube FW_G0 V1.6.2
Application Structure	Advanced
Generate Under Root	Yes
Do not generate the main()	No
Minimum Heap Size	0x200
Minimum Stack Size	0x400

2.2. 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	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

2.3. Advanced Settings - Generated Function Calls

Rank	Function Name	Peripheral Instance Name
1	SystemClock_Config	RCC
2	MX_GPIO_Init	GPIO
3	MX_DMA_Init	DMA
4	MX_ADC1_Init	ADC1
5	MX_TIM4_Init	TIM4
6	MX_FDCAN1_Init	FDCAN1
7	MX_I2C1_Init	I2C1
8	MX_I2C2_Init	I2C2
9	MX_UCPD1_Init	UCPD1
10	MX_UCPD2_Init	UCPD2
11	MX_USART3_UART_Init	USART3

Rank	Function Name	Peripheral Instance Name
12	MX_USART6_UART_Init	USART6
13	MX_USB_DRD_FS_PCD_Init	USB_DRD_FS

3. Peripherals and Middlewares Configuration

3.1. ADC1

mode: IN0

mode: IN1

mode: IN2

mode: IN3

mode: IN4

mode: IN5

mode: IN8

mode: IN9

mode: IN10

mode: IN11

3.1.1. Parameter Settings:

ADC_Settings:

Clock Prescaler	Synchronous clock mode divided by 2
Resolution	ADC 12-bit resolution
Data Alignment	Right alignment
Sequencer	Sequencer set to fully configurable
Scan Conversion Mode	Disabled
Continuous Conversion Mode	Disabled
Discontinuous Conversion Mode	Disabled
DMA Continuous Requests	Enabled *
End Of Conversion Selection	End of single conversion
Overrun behaviour	Overrun data preserved
Low Power Auto Wait	Disabled
Auto Off	Disabled
Oversampling Mode	Disabled

ADC_Regular_ConversionMode:

SamplingTime Common 1	1.5 Cycles
SamplingTime Common 2	1.5 Cycles
Number Of Conversion	1
External Trigger Conversion Source	Timer 4 Trigger Out event *
External Trigger Conversion Edge	Trigger detection on the rising edge
Trigger Frequency	High frequency

Analog Watchdog 1:

Enable Analog WatchDog1 Mode	false
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Analog Watchdog 2:

Enable Analog WatchDog2 Mode false

Analog Watchdog 3:

Enable Analog WatchDog3 Mode false

3.2. FDCAN1

mode: Activated

3.2.1. Parameter Settings:

Basic Parameters:

Clock Divider	Divide kernel clock by 1
Frame Format	Classic mode
Mode	Normal mode
Auto Retransmission	Disable
Transmit Pause	Disable
Protocol Exception	Disable
Nominal Sync Jump Width	1
Data Prescaler	1
Data Sync Jump Width	1
Data Time Seg1	1
Data Time Seg2	1
Message Ram Offset	0
Std Filters Nbr	0
Ext Filters Nbr	0
Tx Fifo Queue Mode	FIFO mode

Bit Timings Parameters:

Nominal Prescaler	16
Nominal Time Quantum	250.0 *
Nominal Time Seg1	1
Nominal Time Seg2	1
Nominal Time for one Bit	750 *
Nominal Baud Rate	1333333 *

3.3. I2C1

I2C: I2C

3.3.1. Parameter Settings:

Timing configuration:

Custom Timing	Disabled
I2C Speed Mode	Standard Mode
I2C Speed Frequency (KHz)	100
Rise Time (ns)	100
Fall Time (ns)	100
Coefficient of Digital Filter	0
Analog Filter	Enabled
Timing	0x10B17DB5 *

Slave Features:

Clock No Stretch Mode	Disabled
General Call Address Detection	Disabled
Primary Address Length selection	7-bit
Dual Address Acknowledged	Disabled
Primary slave address	0

3.4. I2C2

I2C: I2C

3.4.1. Parameter Settings:

Timing configuration:

Custom Timing	Disabled
I2C Speed Mode	Standard Mode
I2C Speed Frequency (KHz)	100
Rise Time (ns)	100
Fall Time (ns)	100
Coefficient of Digital Filter	0
Analog Filter	Enabled
Timing	0x10B17DB5 *

Slave Features:

Clock No Stretch Mode	Disabled
General Call Address Detection	Disabled
Primary Address Length selection	7-bit
Dual Address Acknowledged	Disabled
Primary slave address	0

3.5. RCC

3.5.1. 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 Timeout Value (ms)	100
LSE Startup Timeout Value (ms)	5000

Power Parameters:

Power Regulator Voltage Scale	Power Regulator Voltage Scale 1
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Peripherals Clock Configuration:

Generate the peripherals clock configuration	TRUE
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3.6. SYS

mode: Debug

Timebase Source: SysTick

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

3.7. TIM4

Clock Source : Internal Clock

3.7.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	6400-1 *
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	1000-1 *
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	Update Event *

3.8. UCPD1

UCPD Mode: Source

3.8.1. Parameter Settings:

Version	1.0
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3.9. UCPD2

UCPD Mode: Source

3.9.1. Parameter Settings:

Version	1.0
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3.10. USART3

Mode: Asynchronous

3.10.1. 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

Power Parameters:

Low Power	Disabled
Link Power Management	Disabled
Battery Charging	Disabled

EndPoint Parameters:

bulk double buffer	Disabled
iso single buffer	Disabled

* User modified value

4. System Configuration

4.1. GPIO configuration

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
ADC1	PA0	ADC1_IN0	Analog mode	No pull-up and no pull-down	n/a	ADC_LED_VOLTAGE_4
	PA1	ADC1_IN1	Analog mode	No pull-up and no pull-down	n/a	ADC_LED_VOLTAGE_3
	PA2	ADC1_IN2	Analog mode	No pull-up and no pull-down	n/a	ADC_LED_VOLTAGE_2
	PA3	ADC1_IN3	Analog mode	No pull-up and no pull-down	n/a	ADC_LED_VOLTAGE_1
	PA4	ADC1_IN4	Analog mode	No pull-up and no pull-down	n/a	ADC_BATTERY_NTC_2
	PA5	ADC1_IN5	Analog mode	No pull-up and no pull-down	n/a	ADC_SYS_CURRENT
	PB0	ADC1_IN8	Analog mode	No pull-up and no pull-down	n/a	ADC_USB_C_60W_IN
	PB1	ADC1_IN9	Analog mode	No pull-up and no pull-down	n/a	ADC_USB_C_100W_V_B US
	PB2	ADC1_IN10	Analog mode	No pull-up and no pull-down	n/a	ADC_USB_C_100W_V_S OURCE
	PB10	ADC1_IN11	Analog mode	No pull-up and no pull-down	n/a	ADC_USB_C_100W_I_SE NSE
FDCAN1	PD12	FDCAN1_RX	Alternate Function Push Pull	No pull-up and no pull-down	Low	FD_CAN_RX
	PD13	FDCAN1_TX	Alternate Function Push Pull	No pull-up and no pull-down	Low	FD_CAN_TX
I2C1	PA10	I2C1_SDA	Alternate Function Open Drain	No pull-up and no pull-down	Low	
	PB8	I2C1_SCL	Alternate Function Open Drain	No pull-up and no pull-down	Low	
I2C2	PB14	I2C2_SDA	Alternate Function Open Drain	No pull-up and no pull-down	Low	
	PA9	I2C2_SCL	Alternate Function Open Drain	No pull-up and no pull-down	Low	
SYS	PA13	SYS_SWDIO	n/a	n/a	n/a	DEBUG_SWDIO
	PA14- BOOT0	SYS_SWCLK	n/a	n/a	n/a	DEBUG_SWCLK
UCPD1	PB15	UCPD1_CC2	Analog mode	No pull-up and no pull-down	n/a	USB_C_60W_CC2
	PA8	UCPD1_CC1	Analog mode	No pull-up and no pull-down	n/a	USB_C_60W_CC1
UCPD2	PD0	UCPD2_CC1	Analog mode	No pull-up and no pull-down	n/a	USB_C_100W_CC1
	PD2	UCPD2_CC2	Analog mode	No pull-up and no pull-down	n/a	USB_C_100W_CC2
USART3	PC10	USART3_TX	Alternate Function Push Pull	No pull-up and no pull-down	Low	BOOTLOADER_TX
	PC11	USART3_RX	Alternate Function Push Pull	No pull-up and no pull-down	Low	BOOTLOADER_RX
USART6	PC0	USART6_TX	Alternate Function Push Pull	No pull-up and no pull-down	Low	RS485_TX
	PC1	USART6_RX	Alternate Function Push Pull	No pull-up and no pull-down	Low	RS485_RX
	PA7	USART6_DE	Alternate Function Push Pull	No pull-up and no pull-down	Low	
USB_DRD_ FS	PA11 [PA9]	USB_DM	n/a	n/a	n/a	USB_DATA_N
	PA12 [PA10]	USB_DP	n/a	n/a	n/a	USB_DATA_P
Single	PC4	ADC1_IN17	Analog mode	No pull-up and no pull-down	n/a	ADC_USB_C_60W_I_SEN

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
Mapped Signals						SE
	PC5	ADC1_IN18	Analog mode	No pull-up and no pull-down	n/a	ADC_USB_C_60W_V_SINK
	PB11	ADC1_IN15	Analog mode	No pull-up and no pull-down	n/a	ADC_USB_C_100W_V_SINK
	PB12	ADC1_IN16	Analog mode	No pull-up and no pull-down	n/a	ADC_USB_C_60W_V_BUS
GPIO	PF2-NRST	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	MCU_RESET
	PC2	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	RS485_RECEIVER_ENABLE
	PC3	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	RS485_DRIVER_ENABLE
	PE7	GPIO_EXTI7	External Interrupt Mode with Rising edge trigger detection	No pull-up and no pull-down	n/a	BMS_INTERRUPT
	PE8	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	PWR_GOOD_VBAT_OUT
	PE9	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	MPPT_BQ_INTERRUPT
	PE10	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	MPPT_BQ_CHARGE_ENABLE
	PB13	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	ENABLE_LED_BUCK
	PC6	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	PWM_LED_CURRENT_1
	PD8	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	FLAG_USB_100W
	PD9	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	ENABLE_USB_60W
	PD10	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PD11	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	FLAG_USB_60W
	PD14	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	CAN_ENABLE
	PD15	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	DISABLE_LED_CURRENT
	PA15	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	PWM_LED_CURRENT_3
	PD5	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	ENABLE_USB_100W
	PD6	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	ENABLE_BUCK_BOOST_100W
	PD7	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	ENABLE_12V_RS485
	PB3	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	PWM_LED_CURRENT_2
	PB4	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	ENABLE_DIAG_12V_RS485
	PE0	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	MPPT_BQ_QON
	PE1	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	ENABLE_CURRENT_SENSE
	PE3	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	ENABLE_BAT_OUTPUT
	PB6	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	PWM_LED_VOLTAGE_FEEDBACK
	PB7	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	PWM_LED_CURRENT_4

4.2. DMA configuration

DMA request	Stream	Direction	Priority
ADC1	DMA1_Channel1	Peripheral To Memory	Low

ADC1: DMA1_Channel1 DMA request Settings:

Mode: **Circular ***
Peripheral Increment: Disable
Memory Increment: **Enable ***
Peripheral Data Width: Half Word
Memory Data Width: Half Word

4.3. NVIC configuration

4.3.1. 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
DMA1 channel 1 interrupt	true	0	0
PVD through EXTI line 16, PVM (monit. VDDIO2) through EXTI line 34	unused		
Flash global interrupt	unused		
RCC global Interrupt	unused		
EXTI line 4 to 15 interrupts	unused		
USB, UCPD1 and UCPD2 global interrupts	unused		
ADC1, COMP1,COMP2, COMP3 Interrupts (combined with EXTI 17 & 18)	unused		
TIM3, TIM4 global Interrupt	unused		
TIM16, FDCAN1_IT0 and FDCAN2_IT0 Interrupt	unused		
TIM17, FDCAN1_IT1 and FDCAN2_IT1 Interrupt	unused		
I2C1 event global interrupt / I2C1 wake-up interrupt through EXTI line 23	unused		
I2C2, I2C3 Interrupt (combined with EXTI 24 and EXTI 22)	unused		
USART3, USART4, USART5, USART6, LPUART1 global Interrupts (combined with EXTI 28)	unused		

4.3.2. 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
DMA1 channel 1 interrupt	false	true	true

*** User modified value**

5. System Views

5.1. Category view

5.1.1. Current

Middleware							
System Core	Analog	Timers	Connectivity	Multimedia	Security	Computing	Utilities
DMA ✓	ADC1 ✓	TIM4 ✓	FDCAN1 ✓				
GPIO ⚠			I2C1 ✓				
NVIC ✓			I2C2 ✓				
RCC ✓			UCPD1 ✓				
SYS ✓			UCPD2 ✓				
			USART3 ✓				
			USART6 ✓				
			USB_DRD_FS ✓				

6. 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
Presentations	https://www.st.com/resource/en/product_presentation/microcontrollers-stm32-family-overview.pdf
Presentations	https://www.st.com/resource/en/product_presentation/microcontrollers-stm32-entry-level-graphics.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/flstm32trust.pdf
Flyers	https://www.st.com/resource/en/flyer/flstpfc11120.pdf
Security Bulletin	https://www.st.com/resource/en/technical_note/tn1489-security-bulletin-tn1489stpsirt-physical-attacks-on-stm32-and-stm32cube-firmware-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/an3126-audio-and-waveform-generation-using-the-dac-in-stm32-products-stmicroelectronics.pdf

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applications-from-stm32f0-series-to-stm32g0-series--
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for related Tools

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