



1. Description

1.1. Project

Project Name	HydrosoftBootLoader
Board Name	custom
Generated with:	STM32CubeMX 6.4.0
Date	01/01/2022

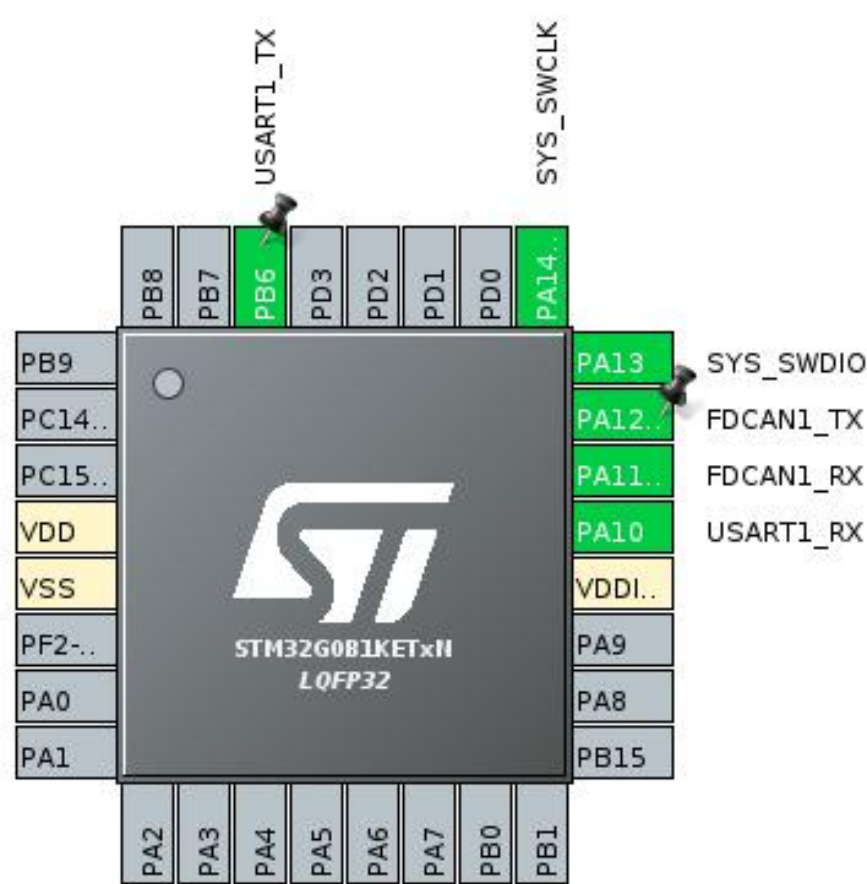
1.2. MCU

MCU Series	STM32G0
MCU Line	STM32G0x1
MCU name	STM32G0B1KETxN
MCU Package	LQFP32
MCU Pin number	32

1.3. Core(s) information

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



3. Pins Configuration

Pin Number LQFP32	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
4	VDD	Power		
5	VSS	Power		
20	VDDIO2	Power		
21	PA10	I/O	USART1_RX	
22	PA11 [PA9]	I/O	FDCAN1_RX	
23	PA12 [PA10]	I/O	FDCAN1_TX	
24	PA13	I/O	SYS_SWDIO	
25	PA14-BOOT0	I/O	SYS_SWCLK	
30	PB6	I/O	USART1_TX	



5. Software Project

5.1. Project Settings

Name	Value
Project Name	HydrosoftBootLoader
Project Folder	/home/softarm/STM32CubeIDE/workspace_1.7.0/HydrosoftBootLoader
Toolchain / IDE	STM32CubeIDE
Firmware Package Name and Version	STM32Cube FW_G0 V1.5.0
Application Structure	Advanced
Generate Under Root	Yes
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	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_CRC_Init	CRC
4	MX_DMA_Init	DMA
5	MX_USART1_UART_Init	USART1
6	MX_FDCAN1_Init	FDCAN1

6. Power Consumption Calculator report

6.1. Microcontroller Selection

Series	STM32G0
Line	STM32G0x1
MCU	STM32G0B1KETxN
Datasheet	DS13560_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

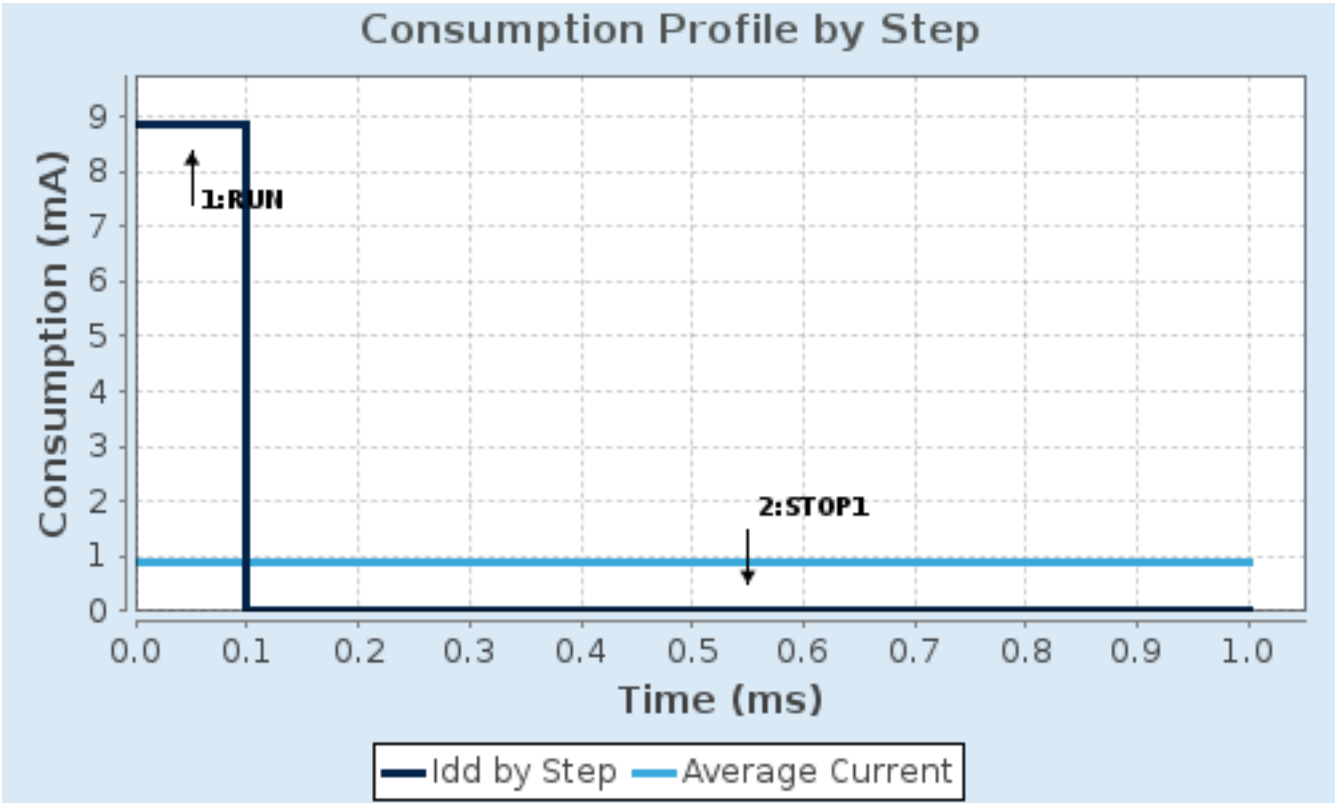
6.4. Sequence

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 μ A
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 μ A
Battery Life	5 months, 6 days, 4 hours	Average DMIPS	26.0 DMIPS

6.6. Chart



7. Peripherals and Middlewares Configuration

7.1. CRC

mode: Activated

7.1.1. Parameter Settings:

Basic Parameters:

Default Polynomial State	Enable
Default Init Value State	Enable

Advanced Parameters:

Input Data Inversion Mode	None
Output Data Inversion Mode	Disable
Input Data Format	Bytes

7.2. FDCAN1

mode: Activated

7.2.1. 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 Prescaler	4 *
Nominal Sync Jump Width	4 *
Nominal Time Seg1	11 *
Nominal Time Seg2	4 *
Data Prescaler	4 *
Data Sync Jump Width	4 *
Data Time Seg1	11 *
Data Time Seg2	4 *
Std Filters Nbr	1 *
Ext Filters Nbr	0
Tx Fifo Queue Mode	FIFO mode

7.3. RCC

7.3.1. 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 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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7.4. SYS

mode: Debug

Timebase Source: SysTick

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

7.5. USART1

Mode: Asynchronous

7.5.1. Parameter Settings:

Basic Parameters:

Baud Rate	921600 *
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
FDCAN1	PA11 [PA9]	FDCAN1_RX	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PA12 [PA10]	FDCAN1_TX	Alternate Function Push Pull	No pull-up and no pull-down	Low	
SYS	PA13	SYS_SWDIO	n/a	n/a	n/a	
	PA14-BOOT0	SYS_SWCLK	n/a	n/a	n/a	
USART1	PA10	USART1_RX	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PB6	USART1_TX	Alternate Function Push Pull	No pull-up and no pull-down	Low	

8.2. DMA configuration

DMA request	Stream	Direction	Priority
USART1_TX	DMA1_Channel1	Memory To Peripheral	Low

USART1_TX: DMA1_Channel1 DMA request Settings:

Mode: Normal
Peripheral Increment: Disable
Memory Increment: **Enable ***
Peripheral Data Width: Byte
Memory Data Width: Byte

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
DMA1 channel 1 interrupt	true	0	0
TIM16, FDCAN1_IT0 and FDCAN2_IT0 Interrupt	true	0	0
PVD through EXTI line 16, PVM (monit. VDDIO2) through EXTI line 34	unused		
Flash global interrupt	unused		
RCC and CRS global Interrupt	unused		
TIM17, FDCAN1_IT1 and FDCAN2_IT1 Interrupt	unused		
USART1 global interrupt / USART1 wake-up interrupt through EXTI line 25	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
DMA1 channel 1 interrupt	false	true	true
TIM16, FDCAN1_IT0 and FDCAN2_IT0 Interrupt	false	true	true

* User modified value

9. System Views

9.1. Category view

9.1.1. Current

Middleware						
System Core	Analog	Timers	Connectivity	Multimedia	Computing	Utilities
DMA ✓			FDCAN1 ✓		CRC ✓	
GPIO ✓			USART1 ✓			
NVIC ✓						
RCC ✓						
SYS ✓						

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	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	http://www.st.com/resource/en/application_note/CD00160362.pdf
Application note	http://www.st.com/resource/en/application_note/CD00167594.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	http://www.st.com/resource/en/application_note/CD00211314.pdf
Application note	http://www.st.com/resource/en/application_note/CD00259245.pdf
Application note	http://www.st.com/resource/en/application_note/CD00264342.pdf
Application note	http://www.st.com/resource/en/application_note/CD00264379.pdf
Application note	http://www.st.com/resource/en/application_note/DM00042534.pdf
Application note	http://www.st.com/resource/en/application_note/DM00072315.pdf
Application note	http://www.st.com/resource/en/application_note/DM00073742.pdf
Application note	http://www.st.com/resource/en/application_note/DM00081379.pdf
Application note	https://www.st.com/resource/en/application_note/dm00118362-stm32-smbuspmibus-embedded-software-expansion-for-stm32cube-stmicroelectronics.pdf
Application note	http://www.st.com/resource/en/application_note/DM00129215.pdf

Application note	http://www.st.com/resource/en/application_note/DM00151811.pdf
Application note	http://www.st.com/resource/en/application_note/DM00160482.pdf
Application note	https://www.st.com/resource/en/application_note/dm00161366-stm32-inapplication-programming-iap-using-the-usart-stmicroelectronics.pdf
Application note	http://www.st.com/resource/en/application_note/DM00220769.pdf
Application note	http://www.st.com/resource/en/application_note/DM00226326.pdf
Application note	http://www.st.com/resource/en/application_note/DM00226326.pdf
Application note	http://www.st.com/resource/en/application_note/DM00236305.pdf
Application note	http://www.st.com/resource/en/application_note/DM00257177.pdf
Application note	http://www.st.com/resource/en/application_note/DM00272912.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	http://www.st.com/resource/en/application_note/DM00311483.pdf
Application note	http://www.st.com/resource/en/application_note/DM00315319.pdf
Application note	http://www.st.com/resource/en/application_note/DM00354244.pdf
Application note	http://www.st.com/resource/en/application_note/DM00355687.pdf
Application note	http://www.st.com/resource/en/application_note/DM00380469.pdf
Application note	http://www.st.com/resource/en/application_note/DM00395696.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	http://www.st.com/resource/en/application_note/DM00443870.pdf
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Application note	http://www.st.com/resource/en/application_note/DM00483659.pdf
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Application note	http://www.st.com/resource/en/application_note/DM00535045.pdf
Application note	http://www.st.com/resource/en/application_note/DM00536349.pdf
Application note	http://www.st.com/resource/en/application_note/DM00625700.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-usbp-d-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	http://www.st.com/resource/en/application_note/DM00725181.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/atoilic_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