



1. Description

1.1. Project

Project Name	data_from_rotary_encoder
Board Name	custom
Generated with:	STM32CubeMX 6.4.0
Date	03/13/2022

1.2. MCU

MCU Series	STM32G0
MCU Line	STM32G0x1
MCU name	STM32G0B1RETx
MCU Package	LQFP64
MCU Pin number	64

1.3. Core(s) information

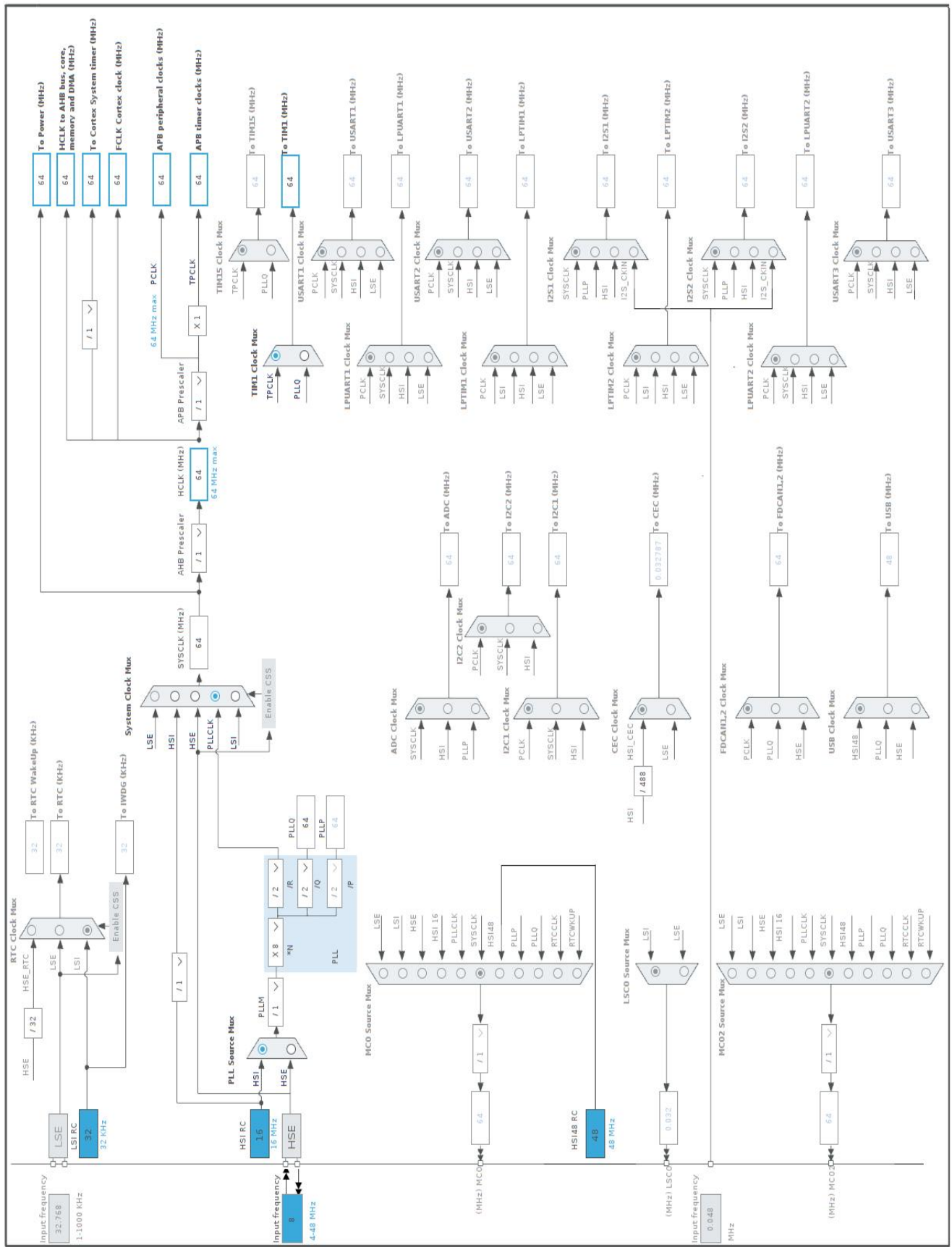
Core(s)	ARM Cortex-M0+
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3. Pins Configuration

Pin Number LQFP64	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
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	
18	PA1 *	I/O	GPIO_Input	
19	PA2 *	I/O	GPIO_Input	
36	PA8	I/O	TIM1_CH1	
45	PA13	I/O	SYS_SWDIO	
46	PA14-BOOT0	I/O	SYS_SWCLK	

* The pin is affected with an I/O function

4. Clock Tree Configuration



5. Software Project

5.1. Project Settings

Name	Value
Project Name	data_from_rotary_encoder
Project Folder	/home/batuhan/STM32CubeIDE/workspace_1.8.0/data_from_rotary_encoder
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_TIM1_Init	TIM1

6. Power Consumption Calculator report

6.1. Microcontroller Selection

Series	STM32G0
Line	STM32G0x1
MCU	STM32G0B1RETx
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

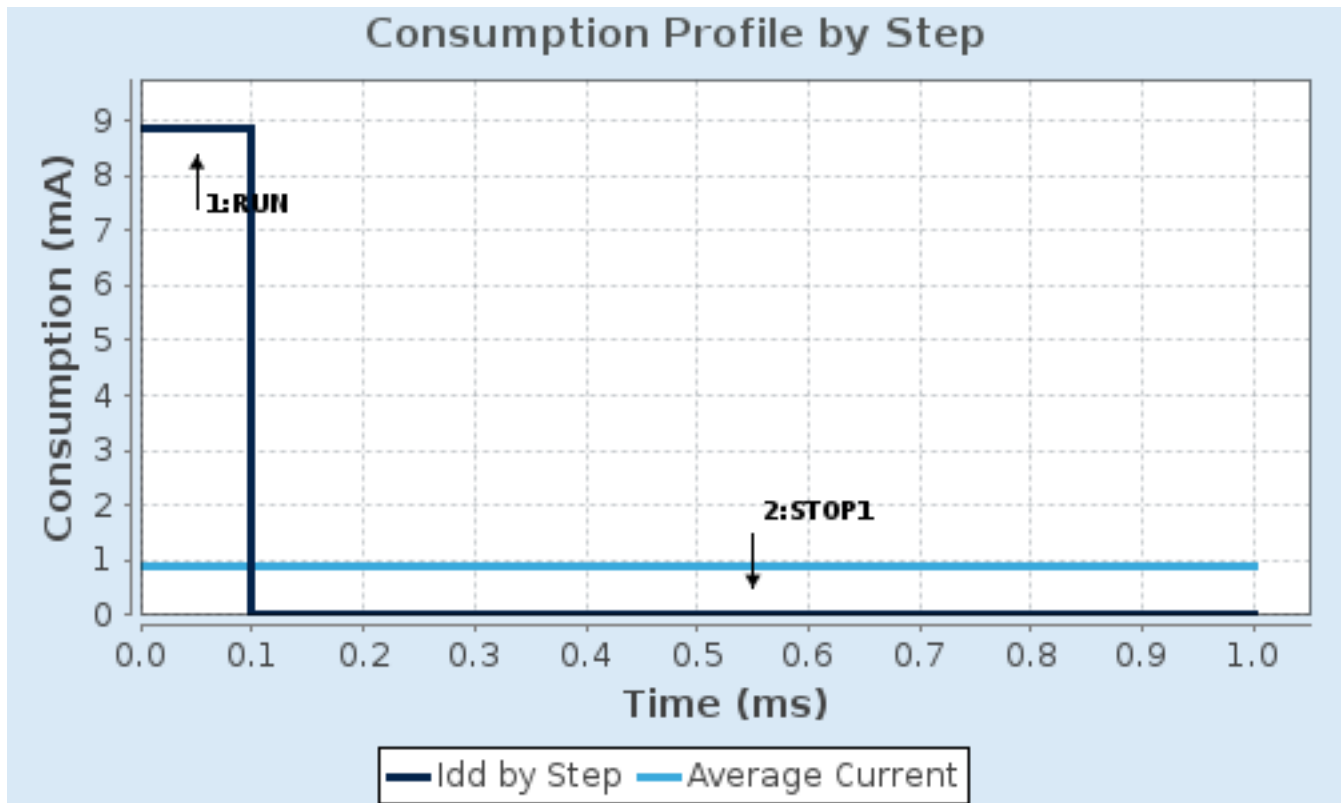
6.4. Sequence

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. RCC

High Speed Clock (HSE): Crystal/Ceramic Resonator

7.1.1. 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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7.2. SYS

mode: Debug

Timebase Source: SysTick

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

7.3. TIM1

Channel1: PWM Generation CH1

7.3.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	128-1 *
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	10000-1 *
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
- COMP1	Disable
- COMP2	Disable
- COMP3	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
- COMP1	Disable
- COMP2	Disable
- COMP3	Disable

Break And Dead Time management - Output Configuration:

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

Clear Input:

Clear Input Source	Disable
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PWM Generation Channel 1:

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

* 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	
SYS	PA13	SYS_SWDIO	n/a	n/a	n/a	
	PA14-BOOT0	SYS_SWCLK	n/a	n/a	n/a	
TIM1	PA8	TIM1_CH1	Alternate Function Push Pull	No pull-up and no pull-down	Low	
GPIO	PA1	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PA2	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	

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
PVD through EXTI line 16, PVM (monit. VDDIO2) through EXTI line 34	unused		
Flash global interrupt	unused		
RCC and CRS global Interrupt	unused		
TIM1 break, update, trigger and commutation interrupts	unused		
TIM1 capture compare 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

* User modified value

9. System Views

9.1. Category view

9.1.1. Current

Middleware

System Core

Analog

Timers

Connectivity

Multimedia

Computing

Utilities

DMA

TIM1 

GPIO 

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
Application note	http://www.st.com/resource/en/application_note/DM00449912.pdf
Application note	http://www.st.com/resource/en/application_note/DM00449912.pdf
Application note	http://www.st.com/resource/en/application_note/DM00483659.pdf
Application note	http://www.st.com/resource/en/application_note/DM00493651.pdf

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

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