



## 1. Description

### 1.1. Project

Project Name	G0B1KET6N
Board Name	custom
Generated with:	STM32CubeMX 6.2.1
Date	12/05/2021

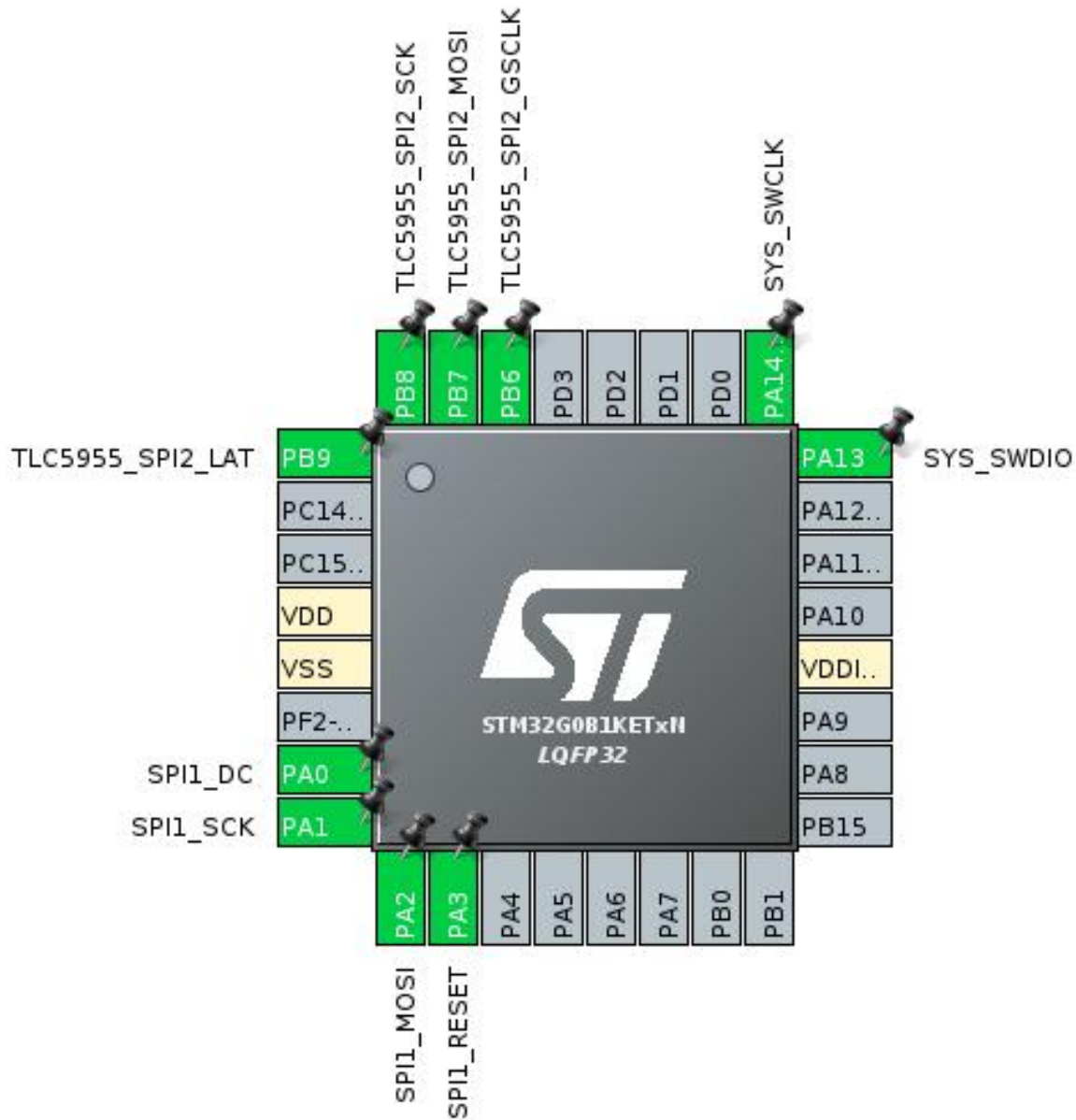
### 1.2. MCU

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

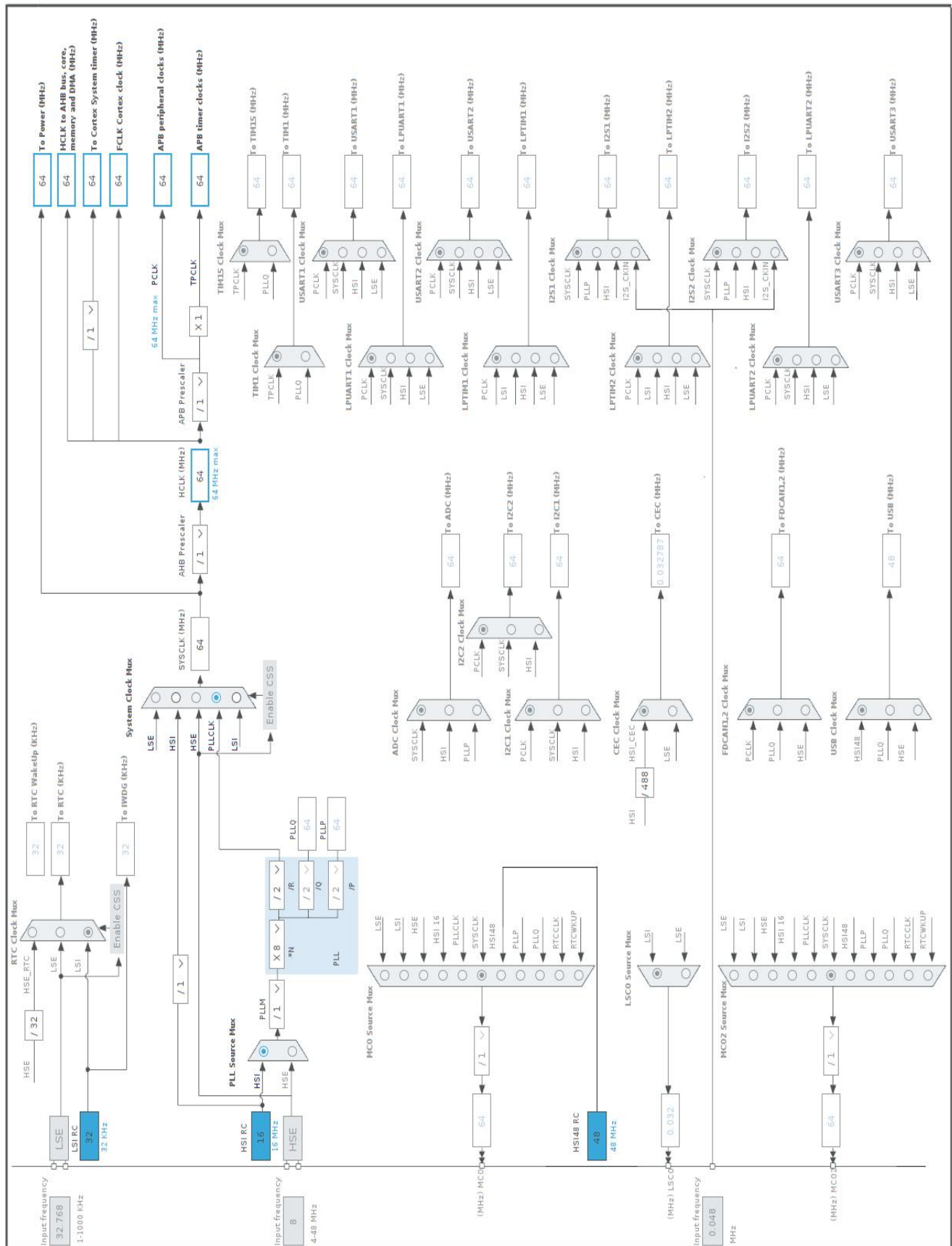


### 3. Pins Configuration

Pin Number LQFP32	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	PB9 *	I/O	GPIO_Output	TLC5955_SPI2_LAT
4	VDD	Power		
5	VSS	Power		
7	PA0 *	I/O	GPIO_Output	SPI1_DC
8	PA1	I/O	SPI1_SCK	
9	PA2	I/O	SPI1_MOSI	
10	PA3 *	I/O	GPIO_Output	SPI1_RESET
20	VDDIO2	Power		
24	PA13	I/O	SYS_SWDIO	
25	PA14-BOOT0	I/O	SYS_SWCLK	
30	PB6 *	I/O	GPIO_Output	TLC5955_SPI2_GSCLK
31	PB7	I/O	SPI2_MOSI	TLC5955_SPI2_MOSI
32	PB8	I/O	SPI2_SCK	TLC5955_SPI2_SCK

\* The pin is affected with an I/O function

## 4. Clock Tree Configuration



## 5. Software Project

### 5.1. Project Settings

Name	Value
Project Name	G0B1KET6N
Project Folder	/home/chris/Projects/Embedded/BassStation/StepSequencer_SW/stm32cube_wo
Toolchain / IDE	STM32CubeIDE
Firmware Package Name and Version	STM32Cube FW_G0 V1.4.1
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	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_SPI1_Init	SPI1
4	MX_SPI2_Init	SPI2

## 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

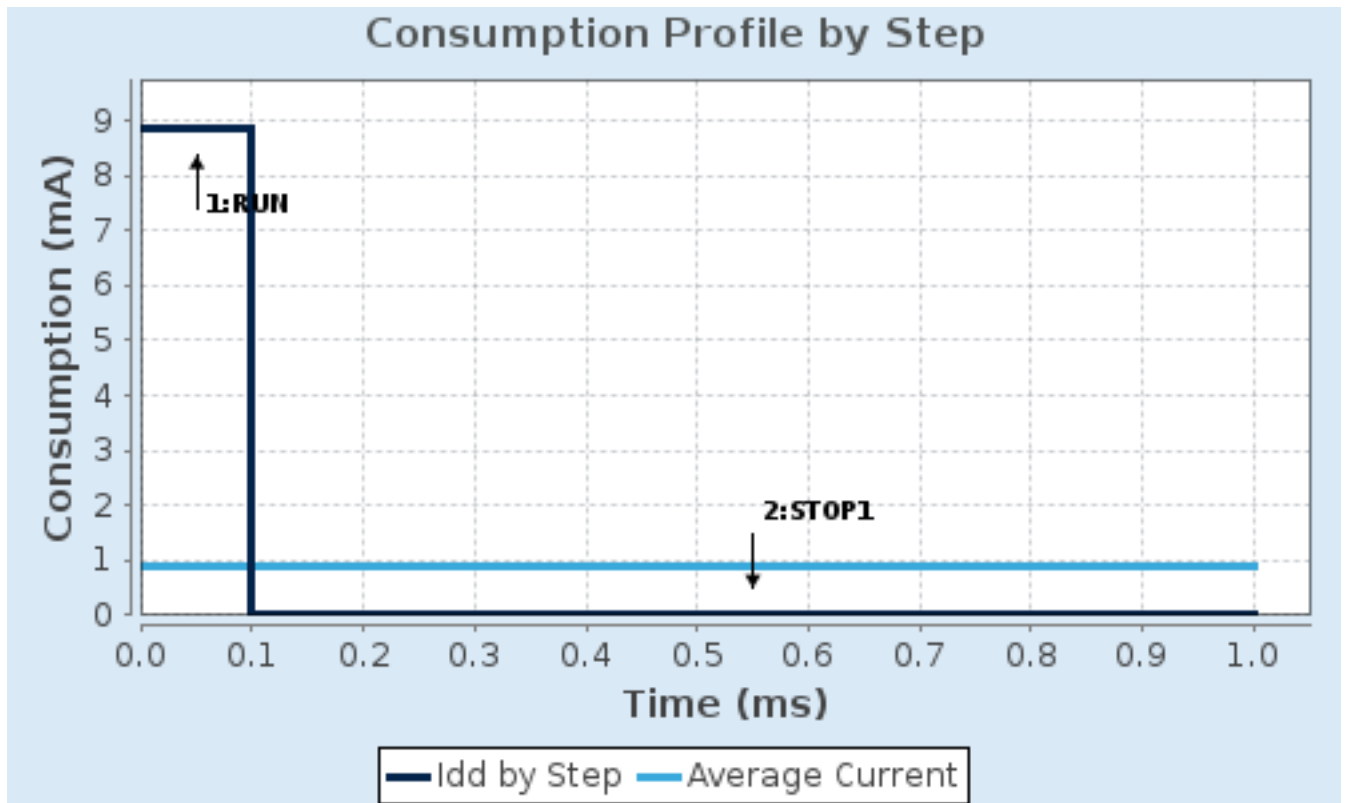
<b>Step</b>	Step1	Step2
<b>Mode</b>	RUN	STOP1
<b>Vdd</b>	3.0	3.0
<b>Voltage Source</b>	Battery	Battery
<b>Range</b>	Range1-High	Range1-High
<b>Fetch Type</b>	SRAM1/Flash-PowerDown/D_SRAM1	Flash-PowerDown/D_SRAM1/Cache
<b>CPU Frequency</b>	64 MHz	16 MHz
<b>Clock Configuration</b>	HSI PLL	HSI
<b>Clock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

#### 6.5. Results

Sequence Time	1 ms	Average Current	891.34 $\mu$ 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

#### 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. SPI1

#### Mode: Half-Duplex Master

#### 7.2.1. Parameter Settings:

##### Basic Parameters:

Frame Format	Motorola
Data Size	8 Bits
First Bit	MSB First

##### Clock Parameters:

Prescaler (for Baud Rate)	<b>64 *</b>
Baud Rate	<b>1000.0 KBits/s *</b>
Clock Polarity (CPOL)	<b>High *</b>
Clock Phase (CPHA)	1 Edge

##### Advanced Parameters:

CRC Calculation	Disabled
NSSP Mode	Enabled
NSS Signal Type	Software

### 7.3. SPI2

**Mode: Transmit Only Master**

#### 7.3.1. Parameter Settings:

**Basic Parameters:**

Frame Format	Motorola
Data Size	8 Bits
First Bit	MSB First

**Clock Parameters:**

Prescaler (for Baud Rate)	<b>8 *</b>
Baud Rate	<b>8.0 MBits/s *</b>
Clock Polarity (CPOL)	Low
Clock Phase (CPHA)	1 Edge

**Advanced Parameters:**

CRC Calculation	Disabled
NSSP Mode	<b>Disabled *</b>
NSS Signal Type	Software

### 7.4. SYS

**mode: Debug**

**Timebase Source: SysTick**

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

**\* 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	PA1	SPI1_SCK	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PA2	SPI1_MOSI	Alternate Function Push Pull	No pull-up and no pull-down	Low	
SPI2	PB7	SPI2_MOSI	Alternate Function Push Pull	<b>Pull-down *</b>	<b>Very High *</b>	TLC5955_SPI2_MOSI
	PB8	SPI2_SCK	Alternate Function Push Pull	<b>Pull-down *</b>	<b>Very High *</b>	TLC5955_SPI2_SCK
SYS	PA13	SYS_SWDIO	n/a	n/a	n/a	
	PA14-BOOT0	SYS_SWCLK	n/a	n/a	n/a	
GPIO	PB9	GPIO_Output	Output Push Pull	<b>Pull-down *</b>	<b>Very High *</b>	TLC5955_SPI2_LAT
	PA0	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	SPI1_DC
	PA3	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	SPI1_RESET
	PB6	GPIO_Output	Output Push Pull	<b>Pull-down *</b>	<b>Very High *</b>	TLC5955_SPI2_GSCLK

### 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
SPI1/I2S1 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		
SPI2/I2S2, SPI3/I2S3 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
SPI1/I2S1 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

GPIO 

NVIC 

RCC 

SYS 

SPI1 

SPI2 

## 10. Docs & Resources

Type	Link
Datasheet	<a href="https://www.st.com/resource/en/datasheet/dm00748675.pdf">https://www.st.com/resource/en/datasheet/dm00748675.pdf</a>
Reference manual	<a href="http://www.st.com/resource/en/reference_manual/DM00371828.pdf">http://www.st.com/resource/en/reference_manual/DM00371828.pdf</a>
Programming manual	<a href="http://www.st.com/resource/en/programming_manual/DM00104451.pdf">http://www.st.com/resource/en/programming_manual/DM00104451.pdf</a>
Errata sheet	<a href="https://www.st.com/resource/en/errata_sheet/dm00760234-stm32g0b1xbxcxe-device-errata-stmicroelectronics.pdf">https://www.st.com/resource/en/errata_sheet/dm00760234-stm32g0b1xbxcxe-device-errata-stmicroelectronics.pdf</a>
Application note	<a href="http://www.st.com/resource/en/application_note/CD00160362.pdf">http://www.st.com/resource/en/application_note/CD00160362.pdf</a>
Application note	<a href="http://www.st.com/resource/en/application_note/CD00167594.pdf">http://www.st.com/resource/en/application_note/CD00167594.pdf</a>
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Application note	<a href="http://www.st.com/resource/en/application_note/CD00264342.pdf">http://www.st.com/resource/en/application_note/CD00264342.pdf</a>
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Application note	<a href="http://www.st.com/resource/en/application_note/DM00151811.pdf">http://www.st.com/resource/en/application_note/DM00151811.pdf</a>
Application note	<a href="http://www.st.com/resource/en/application_note/DM00160482.pdf">http://www.st.com/resource/en/application_note/DM00160482.pdf</a>
Application note	<a href="http://www.st.com/resource/en/application_note/DM00220769.pdf">http://www.st.com/resource/en/application_note/DM00220769.pdf</a>
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Application note	<a href="https://www.st.com/resource/en/application_note/cd00173820-soldering-recommendations-and-package-information-for-leadfree-ecopack-mcus-and-mpus-stmicroelectronics.pdf">https://www.st.com/resource/en/application_note/cd00173820-soldering-recommendations-and-package-information-for-leadfree-ecopack-mcus-and-mpus-stmicroelectronics.pdf</a>
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Application note	<a href="https://www.st.com/resource/en/application_note/dm00290631-lowpower-timer-lptim-applicative-use-cases-on-stm32-microcontrollers-stmicroelectronics.pdf">https://www.st.com/resource/en/application_note/dm00290631-lowpower-timer-lptim-applicative-use-cases-on-stm32-microcontrollers-stmicroelectronics.pdf</a>



Application note	<a href="https://www.st.com/resource/en/application_note/dm00413494-secure-programming-using-stm32cubeprogrammer-stmicroelectronics.pdf">https://www.st.com/resource/en/application_note/dm00413494-secure-programming-using-stm32cubeprogrammer-stmicroelectronics.pdf</a>
Application note	<a href="https://www.st.com/resource/en/application_note/dm00414677-integration-guide-for-the-xcubesbsfu-stm32cube-expansion-package-stmicroelectronics.pdf">https://www.st.com/resource/en/application_note/dm00414677-integration-guide-for-the-xcubesbsfu-stm32cube-expansion-package-stmicroelectronics.pdf</a>
Application note	<a href="https://www.st.com/resource/en/application_note/dm00629854-getting-started-with-projects-based-on-the-stm32mp1-series-in-stm32cubeide-stmicroelectronics.pdf">https://www.st.com/resource/en/application_note/dm00629854-getting-started-with-projects-based-on-the-stm32mp1-series-in-stm32cubeide-stmicroelectronics.pdf</a>
Application note	<a href="https://www.st.com/resource/en/application_note/dm00629855-getting-started-with-projects-based-on-dualcore-stm32h7-microcontrollers-in-stm32cubeide-stmicroelectronics.pdf">https://www.st.com/resource/en/application_note/dm00629855-getting-started-with-projects-based-on-dualcore-stm32h7-microcontrollers-in-stm32cubeide-stmicroelectronics.pdf</a>
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Application note	<a href="https://www.st.com/resource/en/application_note/dm00670808-migrating-graphics-middleware-projects-from-stm32cubemx-540-to-stm32cubemx-550-stmicroelectronics.pdf">https://www.st.com/resource/en/application_note/dm00670808-migrating-graphics-middleware-projects-from-stm32cubemx-540-to-stm32cubemx-550-stmicroelectronics.pdf</a>
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Application note	<a href="https://www.st.com/resource/en/application_note/an1602_semihosting_in_truestudio-how-to-do-semihosting-in-truestudio-stmicroelectronics.pdf">https://www.st.com/resource/en/application_note/an1602_semihosting_in_truestudio-how-to-do-semihosting-in-truestudio-stmicroelectronics.pdf</a>
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Application note	<a href="https://www.st.com/resource/en/application_note/atoilic_editing_keyboard_shortcuts-atollic-editing-keyboard-shortcuts-stmicroelectronics.pdf">https://www.st.com/resource/en/application_note/atoilic_editing_keyboard_shortcuts-atollic-editing-keyboard-shortcuts-stmicroelectronics.pdf</a>
Application note	<a href="https://www.st.com/resource/en/application_note/iar_to_atollic_truestudio_migration_guide-truestudio-for-arm-migration-guide-iar-embedded-">https://www.st.com/resource/en/application_note/iar_to_atollic_truestudio_migration_guide-truestudio-for-arm-migration-guide-iar-embedded-</a>

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](https://www.st.com/resource/en/application_note/stm32cubemx_installation_in_truestudio-stm32cubemx-installation-in-truestudio-stmicroelectronics.pdf)