

# STM32 CubeMX

## 1. Description

### 1.1. Project

Project Name	STM32F031K6U6
Board Name	custom
Generated with:	STM32CubeMX 6.15.0
Date	11/03/2025

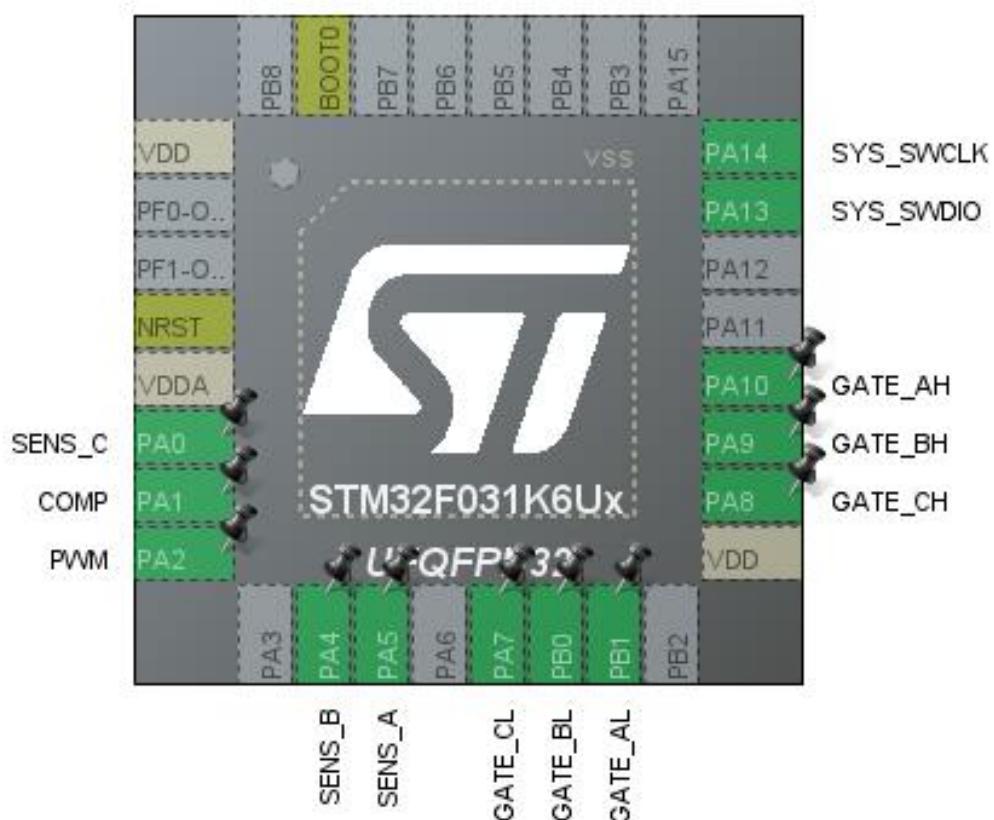
### 1.2. MCU

MCU Series	STM32F0
MCU Line	STM32F0x1
MCU name	STM32F031K6Ux
MCU Package	UFQFPN32
MCU Pin number	32

### 1.3. Core(s) information

Core(s)	Arm Cortex-M0
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## 2. Pinout Configuration

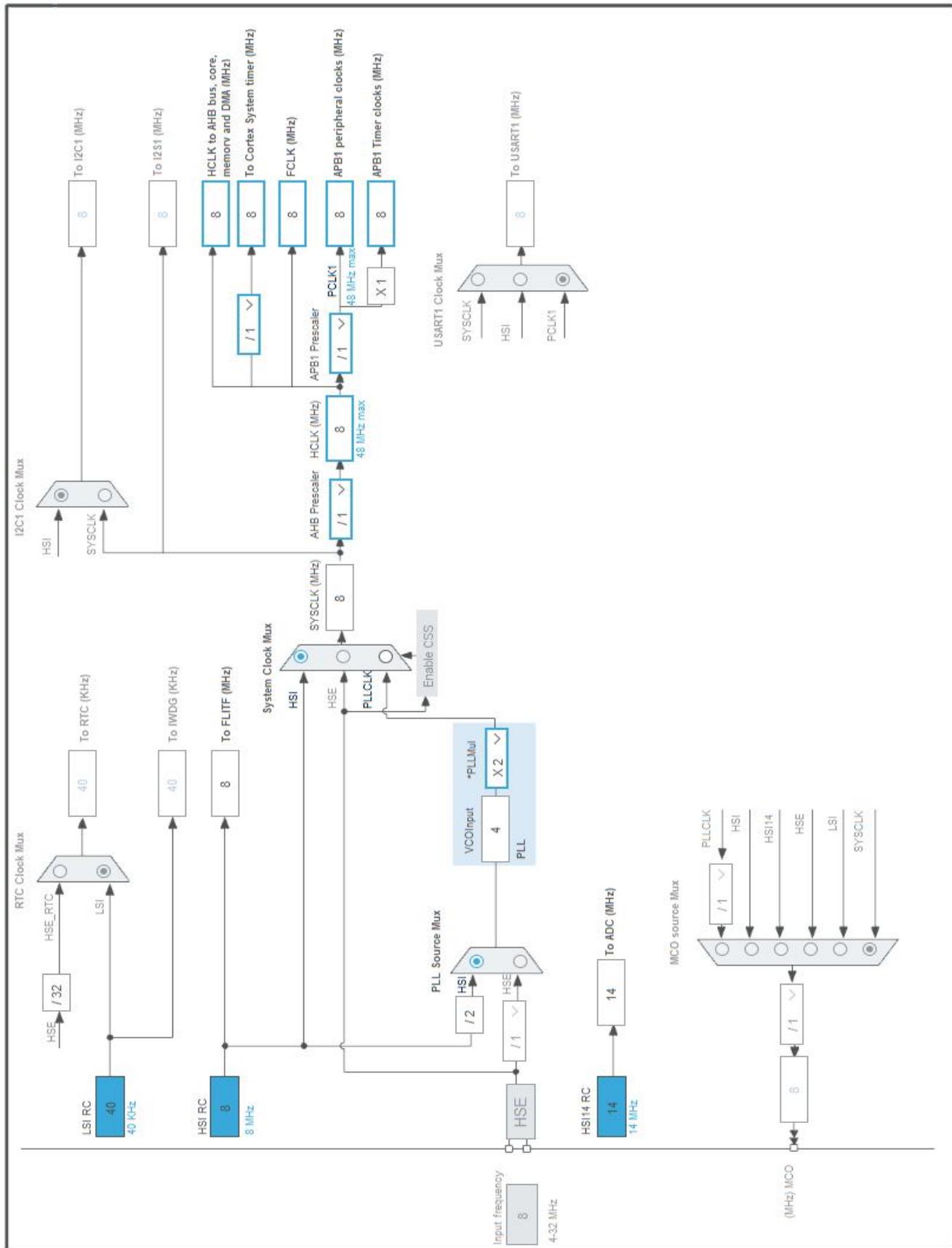


### 3. Pins Configuration

Pin Number UFQFPN32	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	VDD	Power		
4	NRST	Reset		
5	VDDA	Power		
6	PA0	I/O	ADC_IN0	SENS_C
7	PA1	I/O	ADC_IN1	COMP
8	PA2 *	I/O	GPIO_Input	PWM
10	PA4	I/O	ADC_IN4	SENS_B
11	PA5	I/O	ADC_IN5	SENS_A
13	PA7 *	I/O	GPIO_Output	GATE_CL
14	PB0 *	I/O	GPIO_Output	GATE_BL
15	PB1 *	I/O	GPIO_Output	GATE_AL
17	VDD	Power		
18	PA8 *	I/O	GPIO_Output	GATE_CH
19	PA9 *	I/O	GPIO_Output	GATE_BH
20	PA10 *	I/O	GPIO_Output	GATE_AH
23	PA13	I/O	SYS_SWDIO	
24	PA14	I/O	SYS_SWCLK	
31	BOOT0	Boot		

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

## 4. Clock Tree Configuration



## 1. Power Consumption Calculator report

### 1.1. Microcontroller Selection

Series	STM32F0
Line	STM32F0x1
MCU	STM32F031K6Ux
Datasheet	DS10111_Rev6

### 1.2. Parameter Selection

Temperature	25
Vdd	3.6

### 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

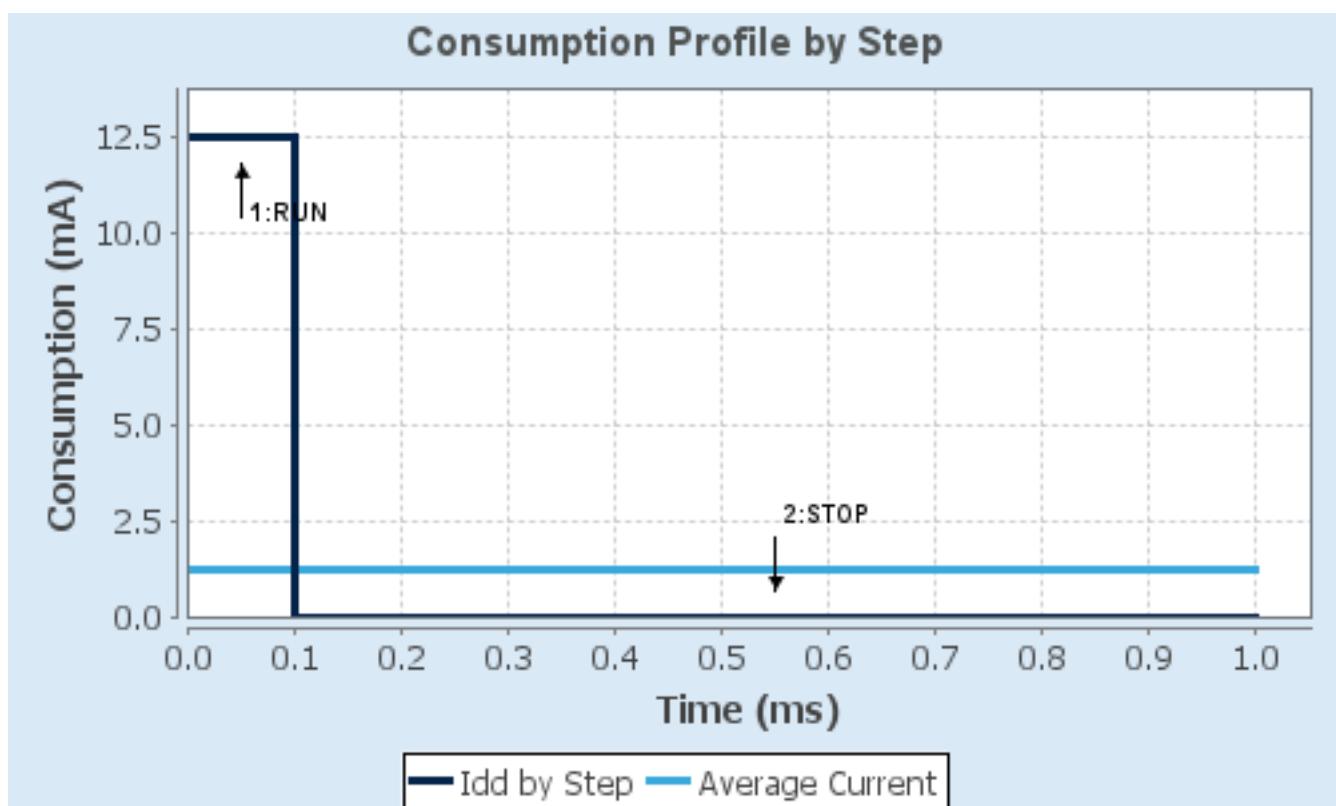
## 1.4. Sequence

<b>Step</b>	Step1	Step2
<b>Mode</b>	RUN	STOP
<b>Vdd</b>	3.6	3.6
<b>Voltage Source</b>	Battery	Battery
<b>Range</b>	No Scale	No Scale
<b>Fetch Type</b>	FLASH	n/a
<b>CPU Frequency</b>	48 MHz	0 Hz
<b>Clock Configuration</b>	HSE PLL	Regulator LP
<b>Clock Source Frequency</b>	8 MHz	0 Hz
<b>Peripherals</b>		
<b>Additional Cons.</b>	0 mA	0 mA
<b>Average Current</b>	12.45 mA	6.6 µA
<b>Duration</b>	0.1 ms	0.9 ms
<b>DMIPS</b>	0.0	0.0
<b>T<sub>a</sub> Max</b>	103.3	105
<b>Category</b>	In DS Table	In DS Table

## 1.5. Results

Sequence Time	1 ms	Average Current	1.25 mA
Battery Life	3 months, 21 days, 15 hours	Average DMIPS	0.0 DMIPS

## 1.6. Chart



## 2. Software Project

### 2.1. Project Settings

Name	Value
Project Name	STM32F031K6U6
Project Folder	C:\Users\RahulDhebri\OneDrive - Tungsten
Toolchain / IDE	EWARM V8.32
Firmware Package Name and Version	STM32Cube FW_F0 V1.11.5
Application Structure	Advanced
Generate Under Root	No
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 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

### 2.3. Advanced Settings - Generated Function Calls

Rank	Function Name	Peripheral Instance Name
1	SystemClock_Config	RCC
2	MX_GPIO_Init	GPIO
3	MX_ADC_Init	ADC

### 3. Peripherals and Middlewares Configuration

#### 3.1. ADC

**mode:** IN0

**mode:** IN1

**mode:** IN4

**mode:** IN5

##### 3.1.1. Parameter Settings:

###### **ADC\_Settings:**

Clock Prescaler	Asynchronous clock mode
Resolution	ADC 12-bit resolution
Data Alignment	Right alignment
Scan Conversion Mode	Forward
Continuous Conversion Mode	Disabled
Discontinuous Conversion Mode	Disabled
DMA Continuous Requests	Disabled
End Of Conversion Selection	End of single conversion
Overrun behaviour	Overrun data preserved
Low Power Auto Wait	Disabled
Low Power Auto Power Off	Disabled

###### **ADC-Regular\_ConversionMode:**

Sampling Time	1.5 Cycles
External Trigger Conversion Source	Regular Conversion launched by software
External Trigger Conversion Edge	None

###### **WatchDog:**

Enable Analog WatchDog Mode	false
Low Threshold	0

#### 3.2. RCC

##### 3.2.1. Parameter Settings:

###### **System Parameters:**

VDD voltage (V)	3.3
Prefetch Buffer	Enabled
Flash Latency(WS)	0 WS (1 CPU cycle)

###### **RCC Parameters:**

HSI Calibration Value	16
HSI14 Calibration Value	16

HSE Startup Timeout Value (ms)	100
LSE Startup Timeout Value (ms)	5000

### 3.3. SYS

**mode: Debug Serial Wire**

**Timebase Source: SysTick**

\* User modified value

## 4. System Configuration

### 4.1. GPIO configuration

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
ADC	PA0	ADC_IN0	Analog mode	No pull-up and no pull-down	n/a	SENS_C
	PA1	ADC_IN1	Analog mode	No pull-up and no pull-down	n/a	COMP
	PA4	ADC_IN4	Analog mode	No pull-up and no pull-down	n/a	SENS_B
	PA5	ADC_IN5	Analog mode	No pull-up and no pull-down	n/a	SENS_A
SYS	PA13	SYS_SWDIO	n/a	n/a	n/a	
	PA14	SYS_SWCLK	n/a	n/a	n/a	
GPIO	PA2	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	PWM
	PA7	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	GATE_CL
	PB0	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	GATE_BL
	PB1	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	GATE_AL
	PA8	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	GATE_CH
	PA9	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	GATE_BH
	PA10	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	GATE_AH

### 4.2. DMA configuration

nothing configured in DMA service

### 4.3. NVIC configuration

#### 4.3.1. NVIC

Interrupt Table	Enable	Preenemption 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 interrupt through EXTI line 16		unused	
Flash global interrupt		unused	
RCC global interrupt		unused	
ADC interrupt		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

\* User modified value

## 5. System Views

### 5.1. Category view

#### 5.1.1. Current

#### Middleware

##### System Core

##### Analog

##### Timers

##### Connectivity

##### Multimedia

##### Computing

DMA

ADC 

GPIO 

NVIC 

RCC 

SYS 

## 6. Docs & Resources

Type	Link
IBIS models	<a href="https://www.st.com/resource/en/ibis_model/stm32f0_ibis.zip">https://www.st.com/resource/en/ibis_model/stm32f0_ibis.zip</a>
System View	<a href="https://www.st.com/resource/en/svd/stm32f0_svd.zip">https://www.st.com/resource/en/svd/stm32f0_svd.zip</a>
Description	
Presentations	<a href="https://www.st.com/resource/en/product_presentation/gt_stm32f0-l0.pdf">https://www.st.com/resource/en/product_presentation/gt_stm32f0-l0.pdf</a>
Presentations	<a href="https://www.st.com/resource/en/product_presentation/stm32-stm8_embedded_software_solutions.pdf">https://www.st.com/resource/en/product_presentation/stm32-stm8_embedded_software_solutions.pdf</a>
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Presentations	<a href="https://www.st.com/resource/en/product_presentation/microcontrollers-stm32-family-overview.pdf">https://www.st.com/resource/en/product_presentation/microcontrollers-stm32-family-overview.pdf</a>
Brochures	<a href="https://www.st.com/resource/en/brochure/products-and-solutions-for-plcs-and-smart-i-os.pdf">https://www.st.com/resource/en/brochure/products-and-solutions-for-plcs-and-smart-i-os.pdf</a>
Flyers	<a href="https://www.st.com/resource/en/flyer/flstm32nucleo.pdf">https://www.st.com/resource/en/flyer/flstm32nucleo.pdf</a>
Flyers	<a href="https://www.st.com/resource/en/flyer/fldpstpf11120.pdf">https://www.st.com/resource/en/flyer/fldpstpf11120.pdf</a>
Product Certifications	<a href="https://www.st.com/resource/en/certification_document/stm32_authentication_can.pdf">https://www.st.com/resource/en/certification_document/stm32_authentication_can.pdf</a>
Security Bulletin	<a href="https://www.st.com/resource/en/technical_note/tn1489-security-bulletin-tn1489stpsirt-physical-attacks-on-stm32-and-stm32cube-firmware-stmicroelectronics.pdf">https://www.st.com/resource/en/technical_note/tn1489-security-bulletin-tn1489stpsirt-physical-attacks-on-stm32-and-stm32cube-firmware-stmicroelectronics.pdf</a>
Application Notes	<a href="https://www.st.com/resource/en/application_note/an1709-emc-design-guide-for-stm8-stm32-and-legacy-mcus-stmicroelectronics.pdf">https://www.st.com/resource/en/application_note/an1709-emc-design-guide-for-stm8-stm32-and-legacy-mcus-stmicroelectronics.pdf</a>
Application Notes	<a href="https://www.st.com/resource/en/application_note/an2606-stm32-microcontroller-system-memory-boot-mode-stmicroelectronics.pdf">https://www.st.com/resource/en/application_note/an2606-stm32-microcontroller-system-memory-boot-mode-stmicroelectronics.pdf</a>

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- Application Notes [https://www.st.com/resource/en/application\\_note/an3156-usb-dfu-protocol-used-in-the-stm32-bootloader-stmicroelectronics.pdf](https://www.st.com/resource/en/application_note/an3156-usb-dfu-protocol-used-in-the-stm32-bootloader-stmicroelectronics.pdf)
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- Application Notes [https://www.st.com/resource/en/application\\_note/an3371-using-the-hardware-realtime-clock-rtc-in-stm32-f0-f2-f3-f4-and-l1-series-of-mcus-stmicroelectronics.pdf](https://www.st.com/resource/en/application_note/an3371-using-the-hardware-realtime-clock-rtc-in-stm32-f0-f2-f3-f4-and-l1-series-of-mcus-stmicroelectronics.pdf)
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- Application Notes [https://www.st.com/resource/en/application\\_note/an5225-introduction-to-usb-typec-power-delivery-for-stm32-mcus-and-mpus-stmicroelectronics.pdf](https://www.st.com/resource/en/application_note/an5225-introduction-to-usb-typec-power-delivery-for-stm32-mcus-and-mpus-stmicroelectronics.pdf)

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