



## 1. Description

### 1.1. Project

Project Name	F103_C_SPI_25AA40A_EEPROM
Board Name	custom
Generated with:	STM32CubeMX 6.14.1
Date	05/01/2026

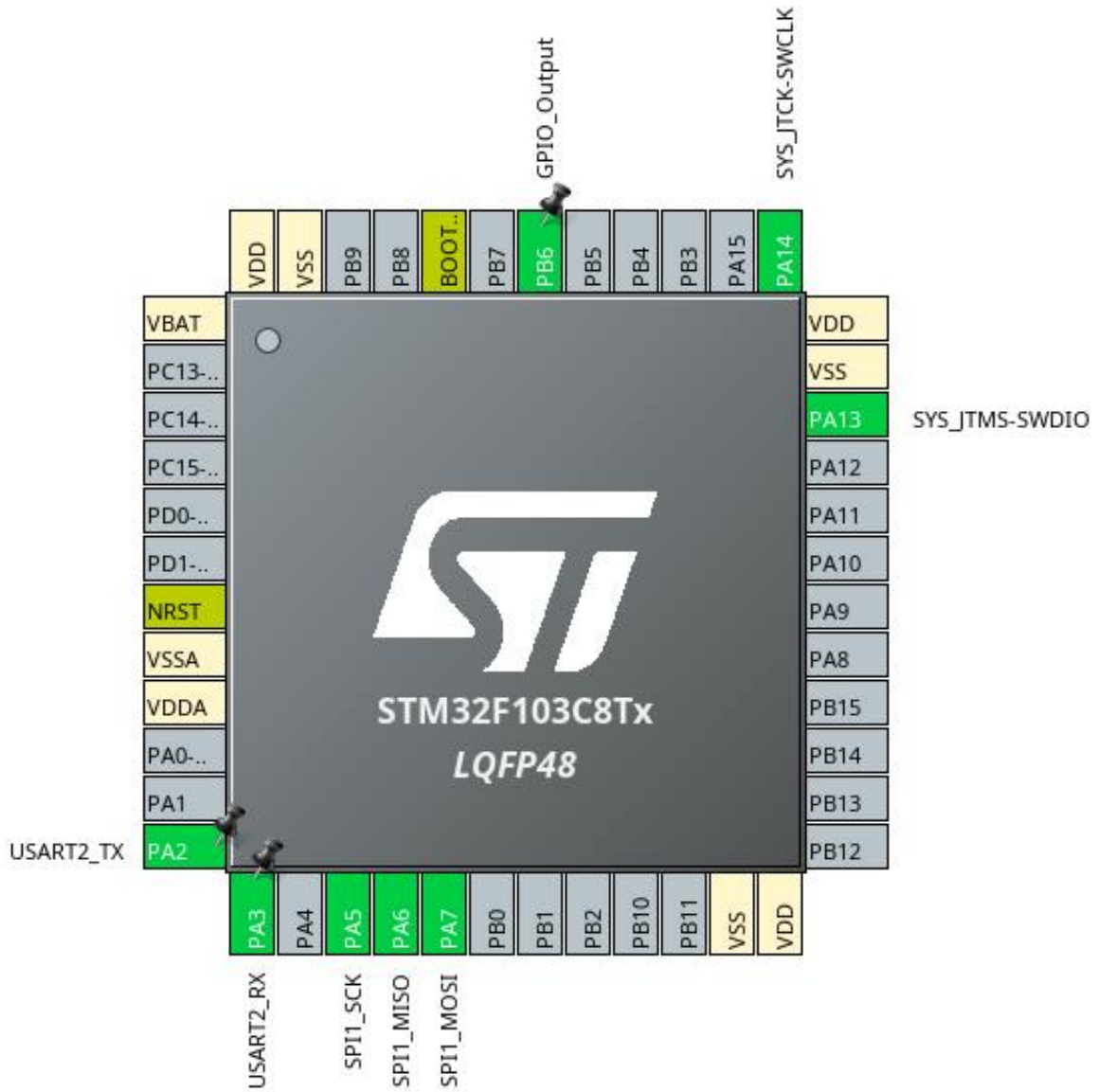
### 1.2. MCU

MCU Series	STM32F1
MCU Line	STM32F103
MCU name	STM32F103C8Tx
MCU Package	LQFP48
MCU Pin number	48

### 1.3. Core(s) information

Core(s)	Arm Cortex-M3
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## 2. Pinout Configuration

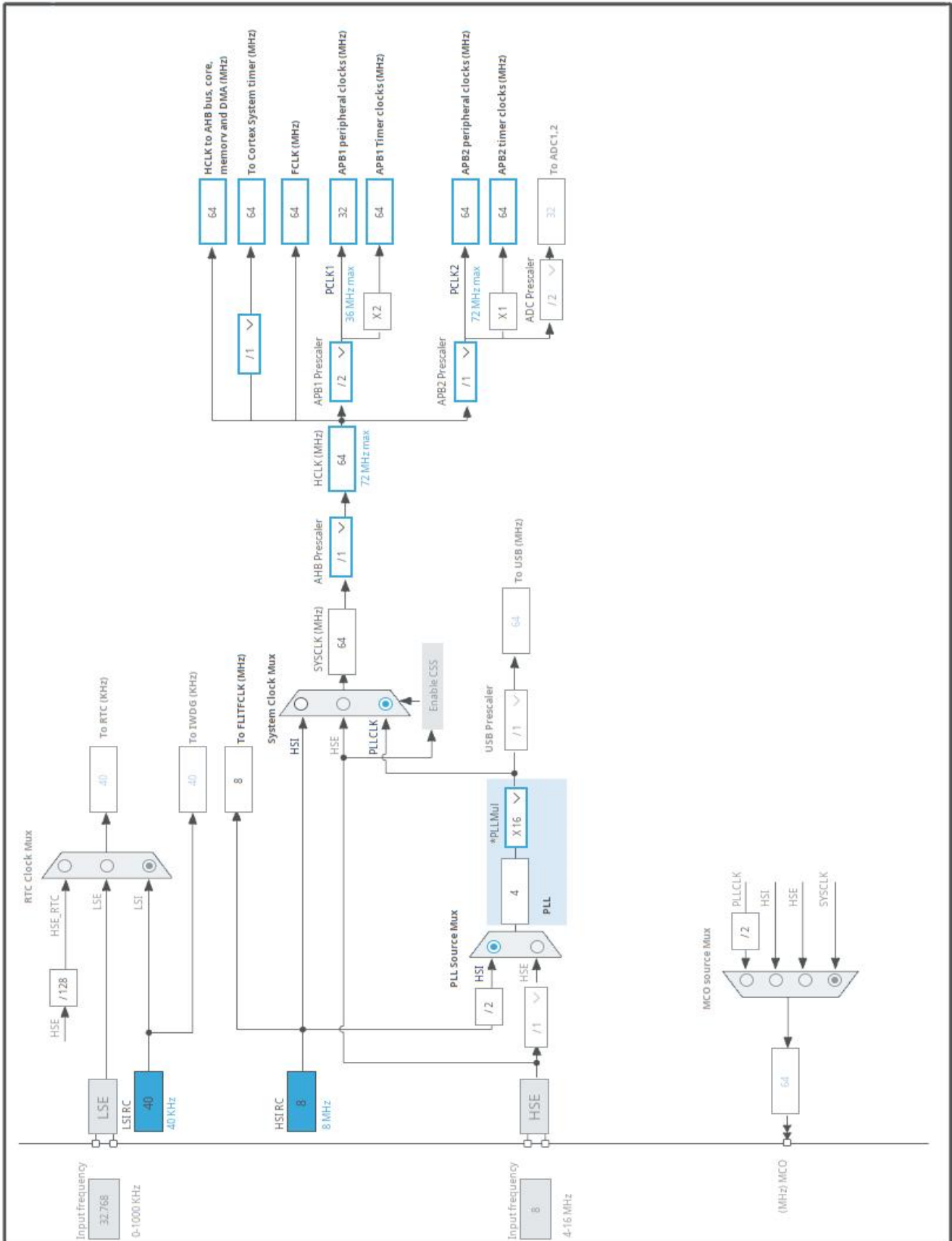


### 3. Pins Configuration

Pin Number LQFP48	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	VBAT	Power		
7	NRST	Reset		
8	VSSA	Power		
9	VDDA	Power		
12	PA2	I/O	USART2_TX	
13	PA3	I/O	USART2_RX	
15	PA5	I/O	SPI1_SCK	
16	PA6	I/O	SPI1_MISO	
17	PA7	I/O	SPI1_MOSI	
23	VSS	Power		
24	VDD	Power		
34	PA13	I/O	SYS_JTMS-SWDIO	
35	VSS	Power		
36	VDD	Power		
37	PA14	I/O	SYS_JTCK-SWCLK	
42	PB6 *	I/O	GPIO_Output	
44	BOOT0	Boot		
47	VSS	Power		
48	VDD	Power		

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

## 4. Clock Tree Configuration



## 1. Power Consumption Calculator report

### 1.1. Microcontroller Selection

Series	STM32F1
Line	STM32F103
MCU	STM32F103C8Tx
Datasheet	DS5319_Rev17

### 1.2. Parameter Selection

Temperature	25
Vdd	3.3

### 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

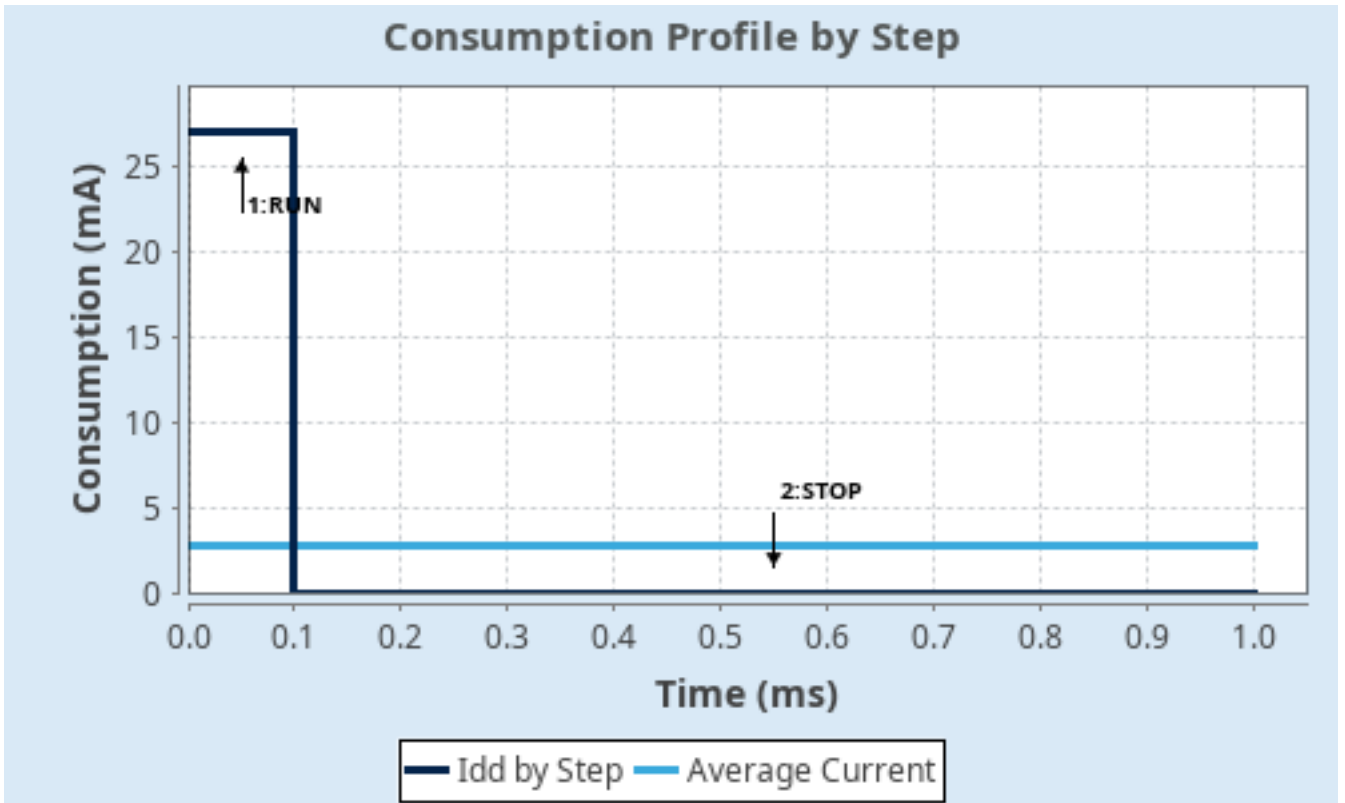
#### 1.4. Sequence

<b>Step</b>	Step1	Step2
<b>Mode</b>	RUN	STOP
<b>Vdd</b>	3.3	3.3
<b>Voltage Source</b>	Battery	Battery
<b>Range</b>	No Scale	No Scale
<b>Fetch Type</b>	FLASH	n/a
<b>CPU Frequency</b>	72 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>	27 mA	14 $\mu$ A
<b>Duration</b>	0.1 ms	0.9 ms
<b>DMIPS</b>	90.0	0.0
<b>Ta Max</b>	100.1	105
<b>Category</b>	In DS Table	In DS Table

#### 1.5. Results

Sequence Time	1 ms	Average Current	2.71 mA
Battery Life	1 month, 21 days, 17 hours	Average DMIPS	61.0 DMIPS

#### 1.6. Chart



## 2. Software Project

### 2.1. Project Settings

Name	Value
Project Name	F103_C_SPI_25AA40A_EEPROM
Project Folder	/home/johng/STM32CubeIDE/workspace_1.15.4/F103_C_SPI_25AA40A_EEPR
Toolchain / IDE	STM32CubeIDE
Firmware Package Name and Version	STM32Cube FW_F1 V1.8.7
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_SPI1_Init	SPI1
4	MX_USART2_UART_Init	USART2

## 3. Peripherals and Middlewares Configuration

### 3.1. RCC

#### 3.1.1. Parameter Settings:

##### System Parameters:

VDD voltage (V)	3.3
Prefetch Buffer	Enabled
Flash Latency(WS)	2 WS (3 CPU cycle)

##### RCC Parameters:

HSI Calibration Value	16
HSE Startup Timeout Value (ms)	100
LSE Startup Timeout Value (ms)	5000

### 3.2. SPI1

#### Mode: Full-Duplex Master

#### 3.2.1. Parameter Settings:

##### Basic Parameters:

Frame Format	Motorola
Data Size	8 Bits
First Bit	MSB First

##### Clock Parameters:

Prescaler (for Baud Rate)	<b>128 *</b>
Baud Rate	<b>500.0 KBits/s *</b>
Clock Polarity (CPOL)	Low
Clock Phase (CPHA)	1 Edge

##### Advanced Parameters:

CRC Calculation	Disabled
NSS Signal Type	Software

### 3.3. SYS

#### Debug: Serial Wire

#### Timebase Source: SysTick

### 3.4. USART2

**Mode: Asynchronous**

#### 3.4.1. Parameter Settings:

**Basic Parameters:**

Baud Rate	<b>19200 *</b>
Word Length	8 Bits (including Parity)
Parity	None
Stop Bits	1

**Advanced Parameters:**

Data Direction	Receive and Transmit
Over Sampling	16 Samples

\* **User modified value**

## 4. System Configuration

### 4.1. GPIO configuration

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
SPI1	PA5	SPI1_SCK	Alternate Function Push Pull	n/a	<b>High *</b>	
	PA6	SPI1_MISO	Input mode	No pull-up and no pull-down	<b>n/a</b>	
	PA7	SPI1_MOSI	Alternate Function Push Pull	n/a	<b>High *</b>	
SYS	PA13	SYS_JTMS-SWDIO	n/a	n/a	n/a	
	PA14	SYS_JTCK-SWCLK	n/a	n/a	n/a	
USART2	PA2	USART2_TX	Alternate Function Push Pull	n/a	<b>High *</b>	
	PA3	USART2_RX	Input mode	No pull-up and no pull-down	<b>n/a</b>	
GPIO	PB6	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	

### 4.2. DMA configuration

nothing configured in DMA service

### 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
Memory management fault	true	0	0
Prefetch fault, memory access fault	true	0	0
Undefined instruction or illegal state	true	0	0
System service call via SWI instruction	true	0	0
Debug monitor	true	0	0
Pendable request for system service	true	0	0
System tick timer	true	15	0
PVD interrupt through EXTI line 16		unused	
Flash global interrupt		unused	
RCC global interrupt		unused	
SPI1 global interrupt		unused	
USART2 global 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
Memory management fault	false	true	false
Prefetch fault, memory access fault	false	true	false
Undefined instruction or illegal state	false	true	false
System service call via SWI instruction	false	true	false
Debug monitor	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

#### Computing

DMA

SPI1 

GPIO 

USART2 

NVIC 

RCC 

SYS 

## 6. Docs & Resources

Type	Link
BSDL files	<a href="https://www.st.com/resource/en/bsdl_model/stm32f1_bsdl.zip">https://www.st.com/resource/en/bsdl_model/stm32f1_bsdl.zip</a>
IBIS models	<a href="https://www.st.com/resource/en/ibis_model/stm32f1-ibis.zip">https://www.st.com/resource/en/ibis_model/stm32f1-ibis.zip</a>
System View Description	<a href="https://www.st.com/resource/en/svd/stm32f1_svd.zip">https://www.st.com/resource/en/svd/stm32f1_svd.zip</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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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>
Brochures	<a href="https://www.st.com/resource/en/brochure/expansion-boards-for-intelligent-power-switches.pdf">https://www.st.com/resource/en/brochure/expansion-boards-for-intelligent-power-switches.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/fldpstpfc11120.pdf">https://www.st.com/resource/en/flyer/fldpstpfc11120.pdf</a>
Product Certifications	<a href="https://www.st.com/resource/en/certification_document/1239988349.pdf">https://www.st.com/resource/en/certification_document/1239988349.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>

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- Application Notes [https://www.st.com/resource/en/application\\_note/an3095-stevalisv002v1-stevalisv002v2-3-kw-gridconnected-pv-system-based-on-the-stm32f103xx-stmicroelectronics.pdf](https://www.st.com/resource/en/application_note/an3095-stevalisv002v1-stevalisv002v2-3-kw-gridconnected-pv-system-based-on-the-stm32f103xx-stmicroelectronics.pdf)
- Application Notes [https://www.st.com/resource/en/application\\_note/an3108-stlm75-firmware-library-for-the-stm32f10x-stmicroelectronics.pdf](https://www.st.com/resource/en/application_note/an3108-stlm75-firmware-library-for-the-stm32f10x-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](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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& Software
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for related Tools  
& Software
- Application Notes [https://www.st.com/resource/en/application\\_note/an2594-eeeprom-emulation-in-stm32f10x-microcontrollers-stmicroelectronics.pdf](https://www.st.com/resource/en/application_note/an2594-eeeprom-emulation-in-stm32f10x-microcontrollers-stmicroelectronics.pdf)  
for related Tools  
& Software
- Application Notes [https://www.st.com/resource/en/application\\_note/an2598-smartcard-interface-with-stm32f10x-and-stm32l1xx-microcontrollers-stmicroelectronics.pdf](https://www.st.com/resource/en/application_note/an2598-smartcard-interface-with-stm32f10x-and-stm32l1xx-microcontrollers-stmicroelectronics.pdf)  
for related Tools  
& Software
- Application Notes [https://www.st.com/resource/en/application\\_note/an2629-stm32f101xx-stm32f102xx-and-stm32f103xx-lowpower-modes-stmicroelectronics.pdf](https://www.st.com/resource/en/application_note/an2629-stm32f101xx-stm32f102xx-and-stm32f103xx-lowpower-modes-stmicroelectronics.pdf)  
for related Tools  
& Software

Application Notes [https://www.st.com/resource/en/application\\_note/an2656-stm32f10xxx-for-related-Tools-lcd-glass-driver-firmware-stmicroelectronics.pdf](https://www.st.com/resource/en/application_note/an2656-stm32f10xxx-for-related-Tools-lcd-glass-driver-firmware-stmicroelectronics.pdf)  
& Software

Application Notes [https://www.st.com/resource/en/application\\_note/an2668-improving-for-related-Tools-stm32f1-series-stm32f3-series-and-stm32lx-series-adc-resolution-by-oversampling-stmicroelectronics.pdf](https://www.st.com/resource/en/application_note/an2668-improving-for-related-Tools-stm32f1-series-stm32f3-series-and-stm32lx-series-adc-resolution-by-oversampling-stmicroelectronics.pdf)  
& Software

Application Notes [https://www.st.com/resource/en/application\\_note/an2739-how-to-use-the-for-related-Tools-highdensity-stm32f103xx-microcontroller-to-play-audio-files-with-an-external-is-audio-codec-stmicroelectronics.pdf](https://www.st.com/resource/en/application_note/an2739-how-to-use-the-for-related-Tools-highdensity-stm32f103xx-microcontroller-to-play-audio-files-with-an-external-is-audio-codec-stmicroelectronics.pdf)  
& Software

Application Notes [https://www.st.com/resource/en/application\\_note/an2790-tft-lcd-for-related-Tools-interfacing-with-the-highdensity-stm32f10xxx-fsmc-stmicroelectronics.pdf](https://www.st.com/resource/en/application_note/an2790-tft-lcd-for-related-Tools-interfacing-with-the-highdensity-stm32f10xxx-fsmc-stmicroelectronics.pdf)  
& Software

Application Notes [https://www.st.com/resource/en/application\\_note/an2820-driving-bipolar-for-related-Tools-stepper-motors-using-a-mediumdensity-stm32f103xx-microcontroller-stmicroelectronics.pdf](https://www.st.com/resource/en/application_note/an2820-driving-bipolar-for-related-Tools-stepper-motors-using-a-mediumdensity-stm32f103xx-microcontroller-stmicroelectronics.pdf)  
& Software

Application Notes [https://www.st.com/resource/en/application\\_note/an2821-clockcalendar-for-related-Tools-implementation-on-the-stm32f10xxx-microcontroller-rtc-stmicroelectronics.pdf](https://www.st.com/resource/en/application_note/an2821-clockcalendar-for-related-Tools-implementation-on-the-stm32f10xxx-microcontroller-rtc-stmicroelectronics.pdf)  
& Software

Application Notes [https://www.st.com/resource/en/application\\_note/an2824-stm32f10xxx-ic-for-related-Tools-optimized-examples-stmicroelectronics.pdf](https://www.st.com/resource/en/application_note/an2824-stm32f10xxx-ic-for-related-Tools-optimized-examples-stmicroelectronics.pdf)  
& Software

Application Notes [https://www.st.com/resource/en/application\\_note/an2841-led-dimming-for-related-Tools-implemented-on-stm32-microcontroller-stmicroelectronics.pdf](https://www.st.com/resource/en/application_note/an2841-led-dimming-for-related-Tools-implemented-on-stm32-microcontroller-stmicroelectronics.pdf)  
& Software

Application Notes [https://www.st.com/resource/en/application\\_note/an2868-stm32f10xxx-for-related-Tools-internal-rc-oscillator-hsi-calibration-stmicroelectronics.pdf](https://www.st.com/resource/en/application_note/an2868-stm32f10xxx-for-related-Tools-internal-rc-oscillator-hsi-calibration-stmicroelectronics.pdf)  
& Software

Application Notes [https://www.st.com/resource/en/application\\_note/an2931-implementing-for-related-Tools-the-adpcm-algorithm-in-highdensity-stm32f103xx-microcontrollers-stmicroelectronics.pdf](https://www.st.com/resource/en/application_note/an2931-implementing-for-related-Tools-the-adpcm-algorithm-in-highdensity-stm32f103xx-microcontrollers-stmicroelectronics.pdf)  
& Software

Application Notes [https://www.st.com/resource/en/application\\_note/an2953-how-to-migrate-for-related-Tools-from-the-stm32f10xxx-firmware-library-v203-to-the-stm32f10xxx-standard-peripheral-library-v300-stmicroelectronics.pdf](https://www.st.com/resource/en/application_note/an2953-how-to-migrate-for-related-Tools-from-the-stm32f10xxx-firmware-library-v203-to-the-stm32f10xxx-standard-peripheral-library-v300-stmicroelectronics.pdf)  
& Software

Application Notes [https://www.st.com/resource/en/application\\_note/an3012-getting-started-](https://www.st.com/resource/en/application_note/an3012-getting-started-)

for related Tools [with-uclinux-for-stm32f10x-highdensity-devices-stmicroelectronics.pdf](#)  
& Software

Application Notes [https://www.st.com/resource/en/application\\_note/an3078-stm32-](https://www.st.com/resource/en/application_note/an3078-stm32-)  
for related Tools [inapplication-programming-over-the-ic-bus-stmicroelectronics.pdf](#)  
& Software

Application Notes [https://www.st.com/resource/en/application\\_note/an3109-communication-](https://www.st.com/resource/en/application_note/an3109-communication-)  
for related Tools [peripheral-fifo-emulation-with-dma-and-dma-timeout-in-stm32f10x-](#)  
& Software [microcontrollers-stmicroelectronics.pdf](#)

Application Notes [https://www.st.com/resource/en/application\\_note/an3116-stm32s-adc-](https://www.st.com/resource/en/application_note/an3116-stm32s-adc-)  
for related Tools [modes-and-their-applications-stmicroelectronics.pdf](#)  
& Software

Application Notes [https://www.st.com/resource/en/application\\_note/an3174-implementing-](https://www.st.com/resource/en/application_note/an3174-implementing-)  
for related Tools [receivers-for-infrared-remote-control-protocols-using-stm32f10xxx-](#)  
& Software [microcontrollers-stmicroelectronics.pdf](#)

Application Notes [https://www.st.com/resource/en/application\\_note/an3241-qvga-tftlcd-](https://www.st.com/resource/en/application_note/an3241-qvga-tftlcd-)  
for related Tools [direct-drive-using-the-stm32f10xx-fsmc-peripheral-stmicroelectronics.pdf](#)  
& Software

Application Notes [https://www.st.com/resource/en/application\\_note/an3307-guidelines-for-](https://www.st.com/resource/en/application_note/an3307-guidelines-for-)  
for related Tools [obtaining-iec-60335-class-b-certification-for-any-stm32-application-](#)  
& Software [stmicroelectronics.pdf](#)

Application Notes [https://www.st.com/resource/en/application\\_note/an3970-plm-smartplug-](https://www.st.com/resource/en/application_note/an3970-plm-smartplug-)  
for related Tools [v2-getting-started-stmicroelectronics.pdf](#)  
& Software

Application Notes [https://www.st.com/resource/en/application\\_note/an3991-how-to-drive-](https://www.st.com/resource/en/application_note/an3991-how-to-drive-)  
for related Tools [multiple-stepper-motors-with-the-l6470-motor-driver-](#)  
& Software [stmicroelectronics.pdf](#)

Application Notes [https://www.st.com/resource/en/application\\_note/an4075-stevalifp016v2-](https://www.st.com/resource/en/application_note/an4075-stevalifp016v2-)  
for related Tools [iolink-communication-master-transceiver-demonstration-board-](#)  
& Software [stmicroelectronics.pdf](#)

Application Notes [https://www.st.com/resource/en/application\\_note/an4323-getting-started-](https://www.st.com/resource/en/application_note/an4323-getting-started-)  
for related Tools [with-stemwin-library-stmicroelectronics.pdf](#)  
& Software

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for related Tools [obtaining-ulcsaiec-607301603351-class-b-certification-in-any-stm32-](#)

& Software [application-stmicroelectronics.pdf](#)

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& Software

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& Software

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& Software

Application Notes [https://www.st.com/resource/en/application\\_note/an4657-stm32-inapplication-programming-iap-using-the-usart-stmicroelectronics.pdf](https://www.st.com/resource/en/application_note/an4657-stm32-inapplication-programming-iap-using-the-usart-stmicroelectronics.pdf)  
& Software

Application Notes [https://www.st.com/resource/en/application\\_note/an4724-stm32cube-for-related-Tools-firmware-examples-for-stm32f1-series-stmicroelectronics.pdf](https://www.st.com/resource/en/application_note/an4724-stm32cube-for-related-Tools-firmware-examples-for-stm32f1-series-stmicroelectronics.pdf)  
& Software

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& Software

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& Software

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& Software

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& Software

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& Software

Application Notes for related Tools & Software	<a href="https://www.st.com/resource/en/application_note/an5426-migrating-graphics-middleware-projects-from-stm32cubemx-540-to-stm32cubemx-550-stmicroelectronics.pdf">https://www.st.com/resource/en/application_note/an5426-migrating-graphics-middleware-projects-from-stm32cubemx-540-to-stm32cubemx-550-stmicroelectronics.pdf</a>
Application Notes for related Tools & Software	<a href="https://www.st.com/resource/en/application_note/an5564-getting-started-with-projects-based-on-dualcore-stm32wl-microcontrollers-in-stm32cubeide-stmicroelectronics.pdf">https://www.st.com/resource/en/application_note/an5564-getting-started-with-projects-based-on-dualcore-stm32wl-microcontrollers-in-stm32cubeide-stmicroelectronics.pdf</a>
Application Notes for related Tools & Software	<a href="https://www.st.com/resource/en/application_note/an5698-adapting-the-xcubestl-functional-safety-package-for-stm32-iec-61508-compliant-to-other-safety-standards-stmicroelectronics.pdf">https://www.st.com/resource/en/application_note/an5698-adapting-the-xcubestl-functional-safety-package-for-stm32-iec-61508-compliant-to-other-safety-standards-stmicroelectronics.pdf</a>
Application Notes for related Tools & Software	<a href="https://www.st.com/resource/en/application_note/an5731-stm32cubemx-and-stm32cubeide-threadsafe-solution-stmicroelectronics.pdf">https://www.st.com/resource/en/application_note/an5731-stm32cubemx-and-stm32cubeide-threadsafe-solution-stmicroelectronics.pdf</a>
Application Notes for related Tools & Software	<a href="https://www.st.com/resource/en/application_note/an4502-stm32-smbuspmbus-expansion-package-for-stm32cube-stmicroelectronics.pdf">https://www.st.com/resource/en/application_note/an4502-stm32-smbuspmbus-expansion-package-for-stm32cube-stmicroelectronics.pdf</a>
Application Notes for related Tools & Software	<a href="https://www.st.com/resource/en/application_note/an5952-how-to-use-cmake-in-stm32cubeide-stmicroelectronics.pdf">https://www.st.com/resource/en/application_note/an5952-how-to-use-cmake-in-stm32cubeide-stmicroelectronics.pdf</a>
Application Notes for related Tools & Software	<a href="https://www.st.com/resource/en/application_note/an5054-how-to-perform-secure-programming-using-stm32cubeprogrammer-stmicroelectronics.pdf">https://www.st.com/resource/en/application_note/an5054-how-to-perform-secure-programming-using-stm32cubeprogrammer-stmicroelectronics.pdf</a>
Application Notes for related Tools & Software	<a href="https://www.st.com/resource/en/application_note/an6179-how-to-integrate-the-stl-firmware-into-a-time-critical-user-application-stmicroelectronics.pdf">https://www.st.com/resource/en/application_note/an6179-how-to-integrate-the-stl-firmware-into-a-time-critical-user-application-stmicroelectronics.pdf</a>
Application Notes for related Tools & Software	<a href="https://www.st.com/resource/en/application_note/an6127-getting-started-with-stm32h7rx7sx-mcus-in-stm32cubeide-stmicroelectronics.pdf">https://www.st.com/resource/en/application_note/an6127-getting-started-with-stm32h7rx7sx-mcus-in-stm32cubeide-stmicroelectronics.pdf</a>
Application Notes for related Tools & Software	<a href="https://www.st.com/resource/en/application_note/an6265-getting-started-with-stm32n6-mcus-in-stm32cubeide-stmicroelectronics.pdf">https://www.st.com/resource/en/application_note/an6265-getting-started-with-stm32n6-mcus-in-stm32cubeide-stmicroelectronics.pdf</a>
Application Notes for related Tools & Software	<a href="https://www.st.com/resource/en/application_note/an6382-introduction-to-swd-multidrop-for-stm32-with-stlink-stmicroelectronics.pdf">https://www.st.com/resource/en/application_note/an6382-introduction-to-swd-multidrop-for-stm32-with-stlink-stmicroelectronics.pdf</a>
Device Option	<a href="https://www.st.com/resource/en/device_option_list/opl_stm32f103_64k.zip">https://www.st.com/resource/en/device_option_list/opl_stm32f103_64k.zip</a>

## Lists

Errata Sheets	<a href="https://www.st.com/resource/en/errata_sheet/es096-stm32f101x8b-stm32f102x8b-and-stm32f103x8b-mediumdensity-device-limitations-stmicroelectronics.pdf">https://www.st.com/resource/en/errata_sheet/es096-stm32f101x8b-stm32f102x8b-and-stm32f103x8b-mediumdensity-device-limitations-stmicroelectronics.pdf</a>
Datasheet	<a href="https://www.st.com/resource/en/datasheet/cd00161566.pdf">https://www.st.com/resource/en/datasheet/cd00161566.pdf</a>
Programming Manuals	<a href="https://www.st.com/resource/en/programming_manual/pm0056-stm32f10xxx20xxx21xxx1xxxx-cortexm3-programming-manual-stmicroelectronics.pdf">https://www.st.com/resource/en/programming_manual/pm0056-stm32f10xxx20xxx21xxx1xxxx-cortexm3-programming-manual-stmicroelectronics.pdf</a>
Programming Manuals	<a href="https://www.st.com/resource/en/programming_manual/pm0075-stm32f10xxx-flash-memory-microcontrollers-stmicroelectronics.pdf">https://www.st.com/resource/en/programming_manual/pm0075-stm32f10xxx-flash-memory-microcontrollers-stmicroelectronics.pdf</a>
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Technical Notes & Articles	<a href="https://www.st.com/resource/en/technical_note/tn1163-description-of-wlcsp-for-microcontrollers-and-recommendations-for-its-use-stmicroelectronics.pdf">https://www.st.com/resource/en/technical_note/tn1163-description-of-wlcsp-for-microcontrollers-and-recommendations-for-its-use-stmicroelectronics.pdf</a>
Technical Notes & Articles	<a href="https://www.st.com/resource/en/technical_note/tn1204-tape-and-reel-shipping-media-for-stm32-microcontrollers-in-bga-packages-stmicroelectronics.pdf">https://www.st.com/resource/en/technical_note/tn1204-tape-and-reel-shipping-media-for-stm32-microcontrollers-in-bga-packages-stmicroelectronics.pdf</a>
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Technical Notes & Articles	<a href="https://www.st.com/resource/en/technical_note/tn1207-tape-and-reel-shipping-media-for-stm8-and-stm32-microcontrollers-in-so-packages-stmicroelectronics.pdf">https://www.st.com/resource/en/technical_note/tn1207-tape-and-reel-shipping-media-for-stm8-and-stm32-microcontrollers-in-so-packages-stmicroelectronics.pdf</a>
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Technical Notes & Articles	<a href="https://www.st.com/resource/en/technical_note/tn1433-reference-device-marking-schematics-for-stm32-microcontrollers-and-microprocessors-stmicroelectronics.pdf">https://www.st.com/resource/en/technical_note/tn1433-reference-device-marking-schematics-for-stm32-microcontrollers-and-microprocessors-stmicroelectronics.pdf</a>
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