



1. Description

1.1. Project

Project Name	CustomBoardRenode
Board Name	custom
Generated with:	STM32CubeMX 6.12.1
Date	08/20/2025

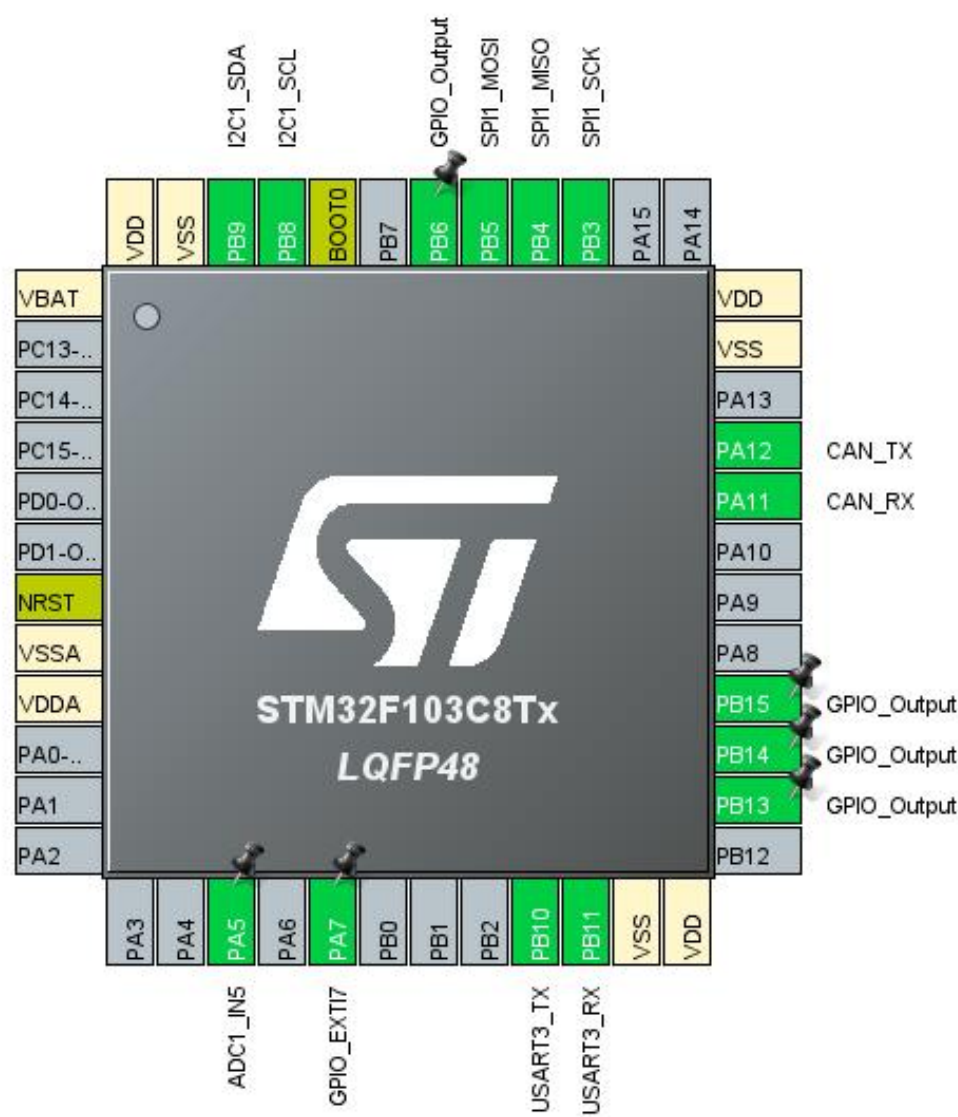
1.2. MCU

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

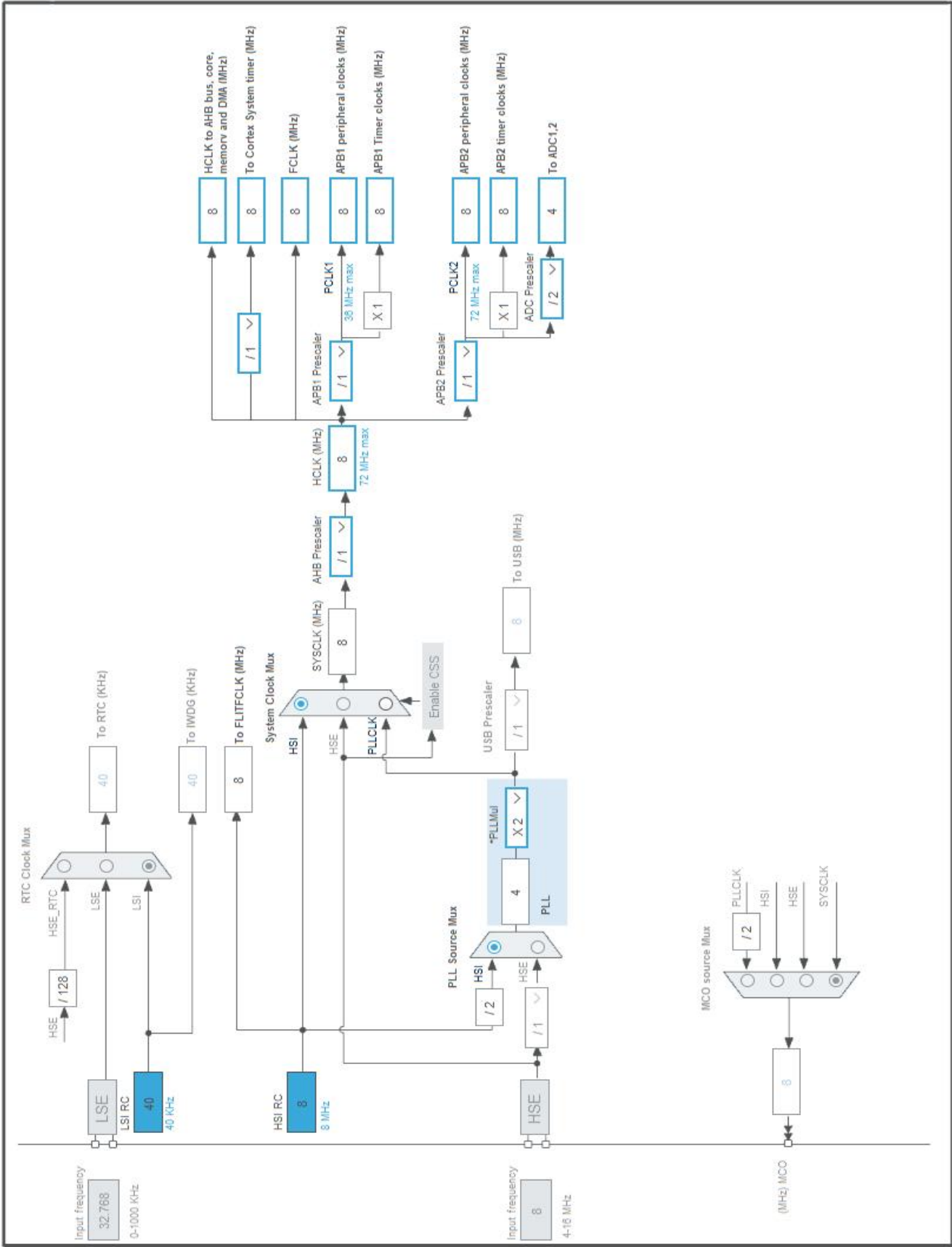


3. Pins Configuration

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		
15	PA5	I/O	ADC1_IN5	
17	PA7	I/O	GPIO_EXTI7	
21	PB10	I/O	USART3_TX	
22	PB11	I/O	USART3_RX	
23	VSS	Power		
24	VDD	Power		
26	PB13 *	I/O	GPIO_Output	
27	PB14 *	I/O	GPIO_Output	
28	PB15 *	I/O	GPIO_Output	
32	PA11	I/O	CAN_RX	
33	PA12	I/O	CAN_TX	
35	VSS	Power		
36	VDD	Power		
39	PB3	I/O	SPI1_SCK	
40	PB4	I/O	SPI1_MISO	
41	PB5	I/O	SPI1_MOSI	
42	PB6 *	I/O	GPIO_Output	
44	BOOT0	Boot		
45	PB8	I/O	I2C1_SCL	
46	PB9	I/O	I2C1_SDA	
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

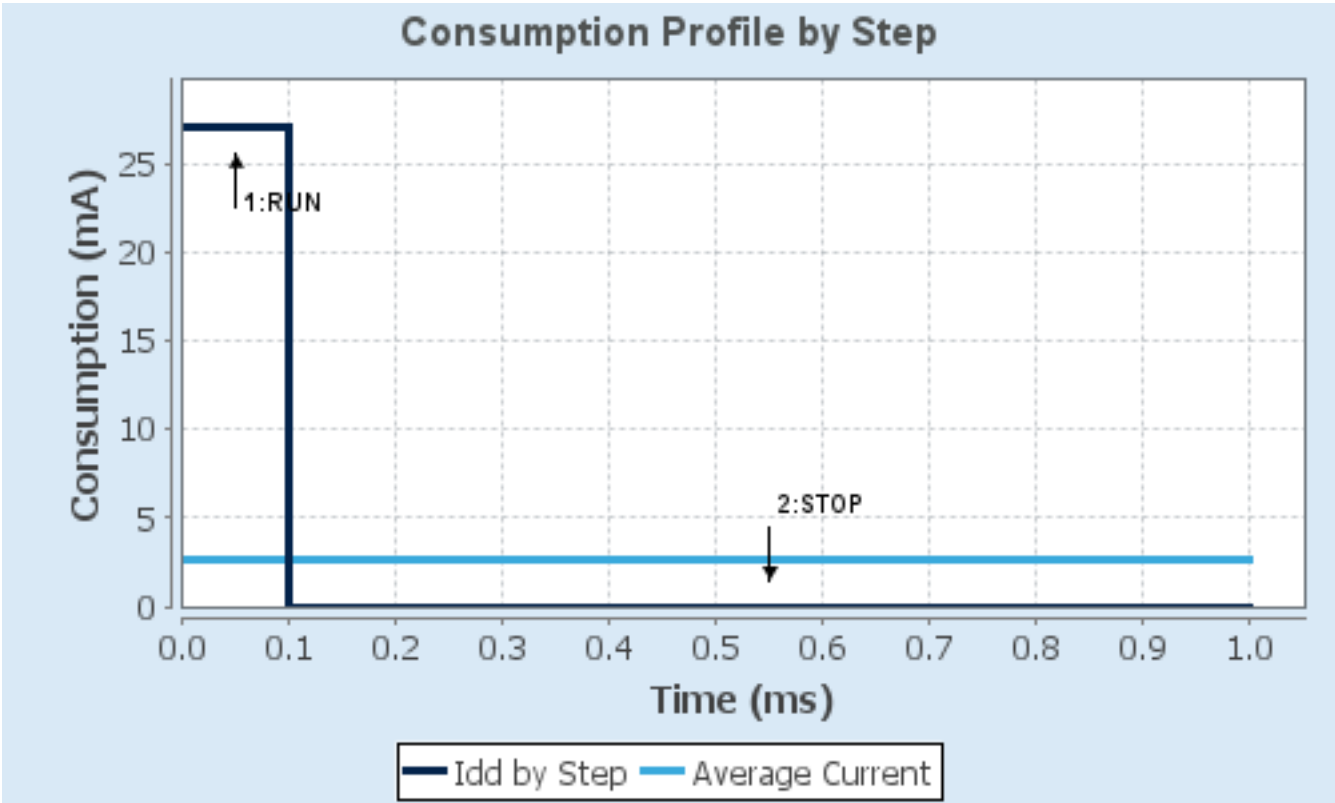
1.4. Sequence

Step	Step1	Step2
Mode	RUN	STOP
Vdd	3.3	3.3
Voltage Source	Battery	Battery
Range	No Scale	No Scale
Fetch Type	FLASH	n/a
CPU Frequency	72 MHz	0 Hz
Clock Configuration	HSE PLL	Regulator LP
Clock Source Frequency	8 MHz	0 Hz
Peripherals		
Additional Cons.	0 mA	0 mA
Average Current	27 mA	14 μ A
Duration	0.1 ms	0.9 ms
DMIPS	90.0	0.0
Ta Max	100.1	105
Category	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	CustomBoardRenode
Project Folder	C:\Users\DogusYukse\l\Desktop\share-vm\cubemx\CustomBoardRenode
Toolchain / IDE	CMake
Firmware Package Name and Version	STM32Cube FW_F1 V1.8.6
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 only the necessary library files
Generate peripheral initialization as a pair of '.c/.h' files	Yes
Backup previously generated files when re-generating	Yes
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_ADC1_Init	ADC1
4	MX_CAN_Init	CAN
5	MX_I2C1_Init	I2C1
6	MX_SPI1_Init	SPI1
7	MX_USART3_UART_Init	USART3

3. Peripherals and Middlewares Configuration

3.1. ADC1

mode: IN5

3.1.1. Parameter Settings:

ADCs_Common_Settings:

Mode Independent mode

ADC_Settings:

Data Alignment Right alignment

Scan Conversion Mode Disabled

Continuous Conversion Mode Disabled

Discontinuous Conversion Mode Disabled

ADC_Regular_ConversionMode:

Enable Regular Conversions Enable

Number Of Conversion 1

External Trigger Conversion Source Regular Conversion launched by software

Rank 1

Channel Channel 5

Sampling Time 1.5 Cycles

ADC_Injected_ConversionMode:

Enable Injected Conversions Disable

WatchDog:

Enable Analog WatchDog Mode false

3.2. CAN

mode: Activated

3.2.1. Parameter Settings:

Bit Timings Parameters:

Prescaler (for Time Quantum) 16

Time Quantum **2000.0 ***

Time Quanta in Bit Segment 1 1 Time

Time Quanta in Bit Segment 2 1 Time

Time for one Bit **6000 ***

Baud Rate **166666 ***

ReSynchronization Jump Width 1 Time

Basic Parameters:

Time Triggered Communication Mode	Disable
Automatic Bus-Off Management	Disable
Automatic Wake-Up Mode	Disable
Automatic Retransmission	Disable
Receive Fifo Locked Mode	Disable
Transmit Fifo Priority	Disable

Advanced Parameters:

Test Mode	Normal
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3.3. I2C1

I2C: I2C

3.3.1. Parameter Settings:

Master Features:

I2C Speed Mode	Fast Mode *
I2C Clock Speed (Hz)	400000
Fast Mode Duty Cycle	Duty cycle Tlow/Thigh = 2

Slave Features:

Clock No Stretch Mode	Disabled
Primary Address Length selection	7-bit
Dual Address Acknowledged	Disabled
Primary slave address	0
General Call address detection	Disabled

3.4. RCC

3.4.1. 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
HSE Startup Timeout Value (ms)	100
LSE Startup Timeout Value (ms)	5000

3.5. SPI1

Mode: Full-Duplex Master

3.5.1. Parameter Settings:

Basic Parameters:

Frame Format	Motorola
Data Size	8 Bits
First Bit	MSB First

Clock Parameters:

Prescaler (for Baud Rate)	2
Baud Rate	4.0 MBits/s *
Clock Polarity (CPOL)	Low
Clock Phase (CPHA)	1 Edge

Advanced Parameters:

CRC Calculation	Disabled
NSS Signal Type	Software

3.6. SYS

Debug: No Debug

Timebase Source: SysTick

3.7. USART3

Mode: Asynchronous

3.7.1. Parameter Settings:

Basic Parameters:

Baud Rate	115200
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
ADC1	PA5	ADC1_IN5	Analog mode	n/a	n/a	
CAN	PA11	CAN_RX	Input mode	No pull-up and no pull-down	n/a	
	PA12	CAN_TX	Alternate Function Push Pull	n/a	High *	
I2C1	PB8	I2C1_SCL	Alternate Function Open Drain	n/a	High *	
	PB9	I2C1_SDA	Alternate Function Open Drain	n/a	High *	
SPI1	PB3	SPI1_SCK	Alternate Function Push Pull	n/a	High *	
	PB4	SPI1_MISO	Input mode	No pull-up and no pull-down	n/a	
	PB5	SPI1_MOSI	Alternate Function Push Pull	n/a	High *	
USART3	PB10	USART3_TX	Alternate Function Push Pull	n/a	High *	
	PB11	USART3_RX	Input mode	No pull-up and no pull-down	n/a	
GPIO	PA7	GPIO_EXTI7	External Interrupt Mode with Rising edge trigger detection	No pull-up and no pull-down	n/a	
	PB13	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PB14	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PB15	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	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
EXTI line[9:5] interrupts	true	0	0
PVD interrupt through EXTI line 16	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		
ADC1 and ADC2 global interrupts	unused		
USB high priority or CAN TX interrupts	unused		
USB low priority or CAN RX0 interrupts	unused		
CAN RX1 interrupt	unused		
CAN SCE interrupt	unused		
I2C1 event interrupt	unused		
I2C1 error interrupt	unused		
SPI1 global interrupt	unused		
USART3 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
EXTI line[9:5] interrupts	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	ADC1 ✓		CAN ✓	
GPIO ✓			I2C1 ✓	
IVIC ✓			SPI1 ✓	
RCC ✓			USART3 ✓	
SYS ✓				

6. Docs & Resources

Type	Link
BSDL files	https://www.st.com/resource/en/bsdl_model/stm32f1_bsd.zip
IBIS models	https://www.st.com/resource/en/ibis_model/stm32f1-ibis.zip
System View Description	https://www.st.com/resource/en/svd/stm32f1_svd.zip
Presentations	https://www.st.com/resource/en/product_presentation/stm32-stm8_embedded_software_solutions.pdf
Presentations	https://www.st.com/resource/en/product_presentation/stm32_eval_tools_portfolio.pdf
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Presentations	https://www.st.com/resource/en/product_presentation/stm32-stm8_software_development_tools.pdf
Presentations	https://www.st.com/resource/en/product_presentation/microcontrollers-stm32-family-overview.pdf
Brochures	https://www.st.com/resource/en/brochure/products-and-solutions-for-plcs-and-smart-i-os.pdf
Flyers	https://www.st.com/resource/en/flyer/flstm32nucleo.pdf
Flyers	https://www.st.com/resource/en/flyer/fldpstpf11120.pdf
Product Certifications	https://www.st.com/resource/en/certification_document/1239988349.pdf
Product Certifications	https://www.st.com/resource/en/certification_document/stm32_authentication_can.pdf
Security Bulletin	https://www.st.com/resource/en/technical_note/tn1489-security-bulletin-tn1489stpsirt-physical-attacks-on-stm32-and-stm32cube-firmware-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an1709-emc-design-guide-for-stm8-stm32-and-legacy-mcus-stmicroelectronics.pdf
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Application Notes https://www.st.com/resource/en/application_note/an2945-stm8s-and-stm32-mcus-a-consistent-832bit-product-line-for-painless-migration-stmicroelectronics.pdf

Application Notes https://www.st.com/resource/en/application_note/an3070-managing-the-driver-enable-signal-for-rs485-and-iolink-communications-with-the-stm32s-usart-stmicroelectronics.pdf

Application Notes https://www.st.com/resource/en/application_note/an3095-stevalisv002v1-stevalisv002v2-3-kw-gridconnected-pv-system-based-on-the-stm32f103xx-stmicroelectronics.pdf

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Application Notes https://www.st.com/resource/en/application_note/an3155-usart-protocol-used-in-the-stm32-bootloader-stmicroelectronics.pdf

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Application Notes https://www.st.com/resource/en/application_note/an3364-migration-and-compatibility-guidelines-for-stm32-microcontroller-applications-stmicroelectronics.pdf

Application Notes https://www.st.com/resource/en/application_note/an3422-migration-of-microcontroller-applications-from-stm32f1-to-stm32l1-series-stmicroelectronics.pdf

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- Application Notes https://www.st.com/resource/en/application_note/an3429-stm32-proprietary-code-protection-overview-stmicroelectronics.pdf
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- Application Notes https://www.st.com/resource/en/application_note/an4088-migrating-between-stm32f1-and-stm32f0-series-microcontrollers-stmicroelectronics.pdf
- Application Notes https://www.st.com/resource/en/application_note/an4228-migrating-from-stm32f1-series-to-stm32f3-series-microcontrollers-stmicroelectronics.pdf
- Application Notes https://www.st.com/resource/en/application_note/an4649-migrating-from-stm32f1-series-to-stm32l4-series--stm32l4-series-microntrrollers-stmicroelectronics.pdf
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- Application Notes https://www.st.com/resource/en/application_note/an4904-migration-of-microcontroller-applications-from-stm32f1-series-to-stm32f4-access-lines-stmicroelectronics.pdf

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for related Tools	highdensity-stm32f103xx-microcontroller-to-play-audio-files-with-an-
& Software	external-is-audio-codec-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an2784-using-the-
for related Tools	highdensity-stm32f10xxx-fsmc-peripheral-to-drive-external-memories-
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for related Tools	interfacing-with-the-highdensity-stm32f10xxx-fsmc-stmicroelectronics.pdf
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& Software	stmicroelectronics.pdf
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& Software	peripheral-library-v300-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/an3174-implementing-receivers-for-infrared-remote-control-protocols-using-stm32f10xxx-microcontrollers-stmicroelectronics.pdf
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