
STM32
CubeMX

1. Description

1.1. Project

Project Name	traffic_sign
Board Name	custom
Generated with:	STM32CubeMX 6.14.0
Date	05/20/2025

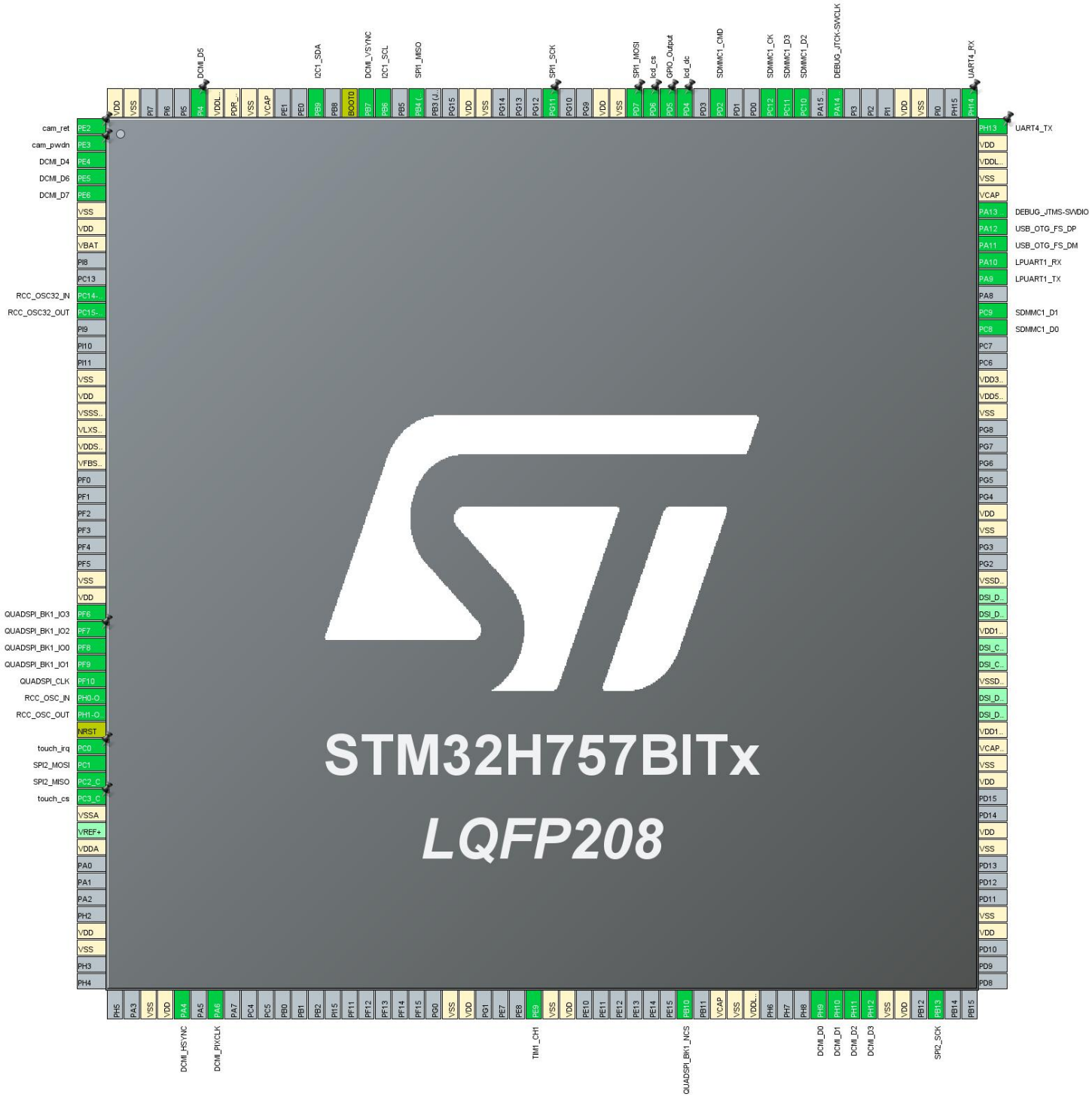
1.2. MCU

MCU Series	STM32H7
MCU Line	STM32H747/757
MCU name	STM32H757BITx
MCU Package	LQFP208
MCU Pin number	208

1.3. Core(s) information

Core(s)	ARM Cortex-M7 ARM Cortex-M4

2. Pinout Configuration



3. Pins Configuration

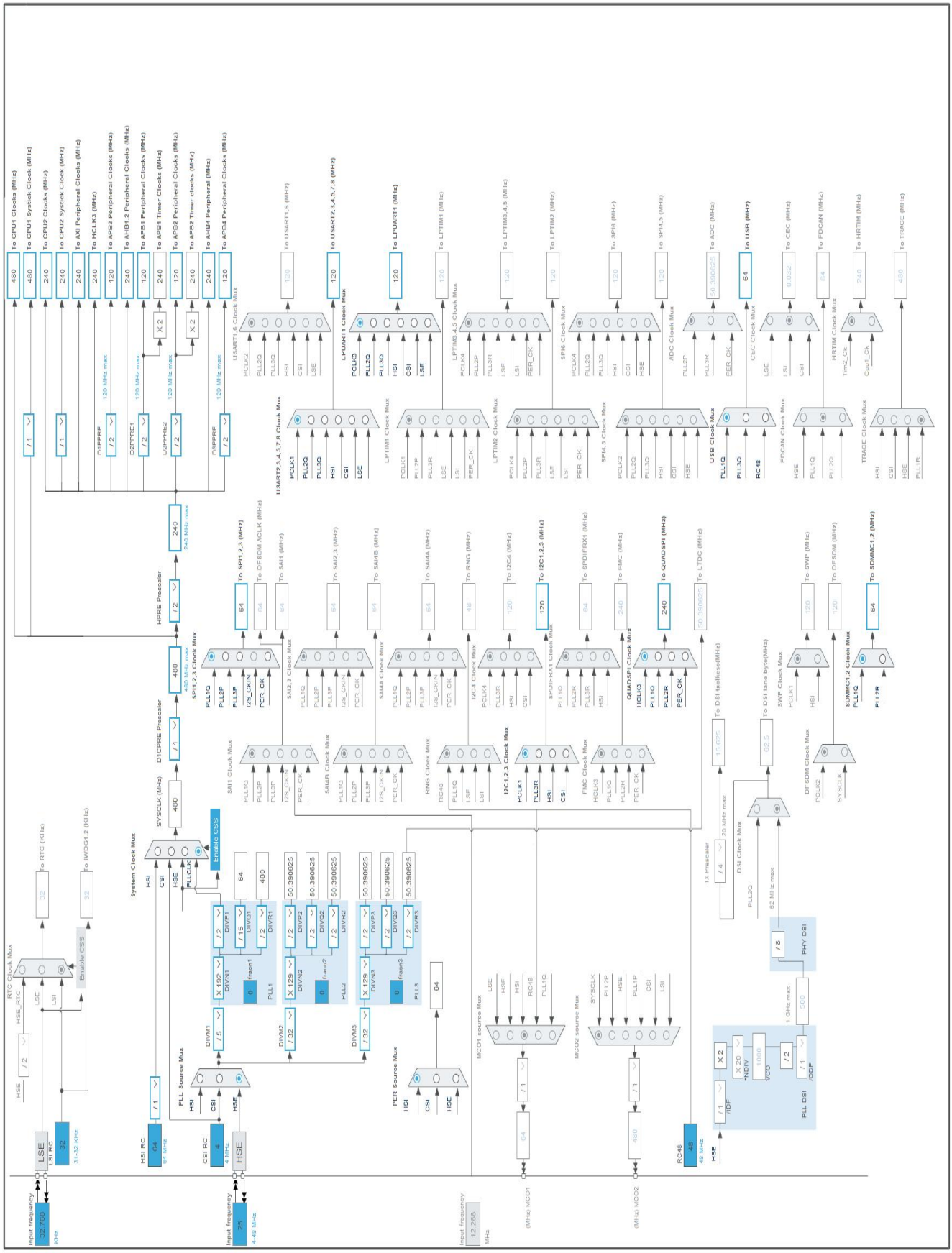
Pin Number LQFP208	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	PE2 *	I/O	GPIO_Output	cam_ret
2	PE3 *	I/O	GPIO_Output	cam_pwdn
3	PE4	I/O	DCMI_D4	
4	PE5	I/O	DCMI_D6	
5	PE6	I/O	DCMI_D7	
6	VSS	Power		
7	VDD	Power		
8	VBAT	Power		
11	PC14-OSC32_IN (OSC32_IN)	I/O	RCC_OSC32_IN	
12	PC15-OSC32_OUT (OSC32_OUT)	I/O	RCC_OSC32_OUT	
16	VSS	Power		
17	VDD	Power		
18	VSSSMPS	Power		
19	VLXSMPS	Power		
20	VDDSMPS	Power		
21	VFBSMPS	Power		
28	VSS	Power		
29	VDD	Power		
30	PF6	I/O	QUADSPI_BK1_IO3	
31	PF7	I/O	QUADSPI_BK1_IO2	
32	PF8	I/O	QUADSPI_BK1_IO0	
33	PF9	I/O	QUADSPI_BK1_IO1	
34	PF10	I/O	QUADSPI_CLK	
35	PH0-OSC_IN (PH0)	I/O	RCC_OSC_IN	
36	PH1-OSC_OUT (PH1)	I/O	RCC_OSC_OUT	
37	NRST	Reset		
38	PC0 *	I/O	GPIO_Input	touch_irq
39	PC1	I/O	SPI2_MOSI	
40	PC2_C	I/O	SPI2_MISO	
41	PC3_C *	I/O	GPIO_Output	touch_cs
42	VSSA	Power		
44	VDDA	Power		
49	VDD	Power		
50	VSS	Power		

Pin Number LQFP208	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
55	VSS	Power		
56	VDD	Power		
57	PA4	I/O	DCMI_HSYNC	
59	PA6	I/O	DCMI_PIXCLK	
73	VSS	Power		
74	VDD	Power		
78	PE9	I/O	TIM1_CH1	
79	VSS	Power		
80	VDD	Power		
87	PB10	I/O	QUADSPI_BK1_NCS	
89	VCAP	Power		
90	VSS	Power		
91	VDDLDO	Power		
95	PH9	I/O	DCMI_D0	
96	PH10	I/O	DCMI_D1	
97	PH11	I/O	DCMI_D2	
98	PH12	I/O	DCMI_D3	
99	VSS	Power		
100	VDD	Power		
102	PB13	I/O	SPI2_SCK	
108	VDD	Power		
109	VSS	Power		
113	VSS	Power		
114	VDD	Power		
117	VDD	Power		
118	VSS	Power		
119	VCAPDSI	Power		
120	VDD12DSI	Power		
123	VSSDSI	Power		
126	VDD12DSI	Power		
129	VSSDSI	Power		
132	VSS	Power		
133	VDD	Power		
139	VSS	Power		
140	VDD50_USB	Power		
141	VDD33_USB	Power		
144	PC8	I/O	SDMMC1_D0	
145	PC9	I/O	SDMMC1_D1	
147	PA9	I/O	LPUART1_TX	

Pin Number LQFP208	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
148	PA10	I/O	LPUART1_RX	
149	PA11	I/O	USB_OTG_FS_DM	
150	PA12	I/O	USB_OTG_FS_DP	
151	PA13 (JTMS/SWDIO)	I/O	DEBUG_JTMS-SWDIO	
152	VCAP	Power		
153	VSS	Power		
154	VDDLDO	Power		
155	VDD	Power		
156	PH13	I/O	UART4_TX	
157	PH14	I/O	UART4_RX	
160	VSS	Power		
161	VDD	Power		
165	PA14 (JTCK/SWCLK)	I/O	DEBUG_JTCK-SWCLK	
167	PC10	I/O	SDMMC1_D2	
168	PC11	I/O	SDMMC1_D3	
169	PC12	I/O	SDMMC1_CK	
172	PD2	I/O	SDMMC1_CMD	
174	PD4 *	I/O	GPIO_Output	lcd_dc
175	PD5 *	I/O	GPIO_Output	
176	PD6 *	I/O	GPIO_Output	lcd_cs
177	PD7	I/O	SPI1_MOSI	
178	VSS	Power		
179	VDD	Power		
182	PG11	I/O	SPI1_SCK	
186	VSS	Power		
187	VDD	Power		
190	PB4 (NJTRST)	I/O	SPI1_MISO	
192	PB6	I/O	I2C1_SCL	
193	PB7	I/O	DCMI_VSYNC	
194	BOOT0	Boot		
196	PB9	I/O	I2C1_SDA	
199	VCAP	Power		
200	VSS	Power		
201	PDR_ON	Power		
202	VDDLDO	Power		
203	PI4	I/O	DCMI_D5	
207	VSS	Power		
208	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	STM32H7
Line	STM32H747/757
MCU	STM32H757BITx
Datasheet	DS12931_Rev1

1.2. Parameter Selection

Temperature	25
Vdd	3.0

1.3. Battery Selection

Battery	Li-SOCL2(DD36000)
Capacity	36000.0 mAh
Self Discharge	0.08 %/month
Nominal Voltage	3.6 V
Max Cont Current	450.0 mA
Max Pulse Current	1000.0 mA
Cells in series	1
Cells in parallel	1

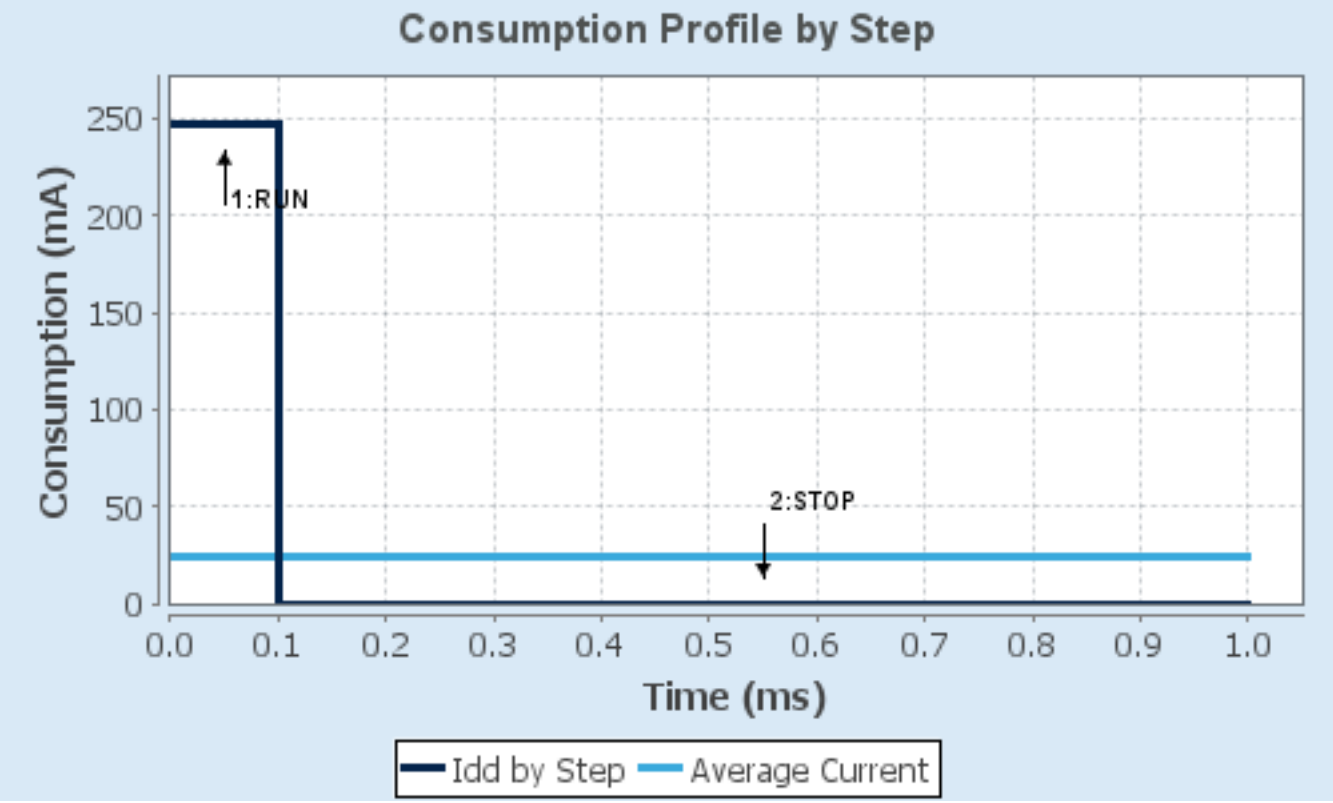
1.4. Sequence

Step	Step1	Step2
Mode	RUN	STOP
Vdd	3.0	3.0
Voltage Source	Battery	Battery
Range	VOS0: Scale0	SVOS5: System-Scale5
D1 Mode	DRUN/CRUN	DSTANDBY
D2 Mode	DRUN/CRUN	DSTANDBY
D3 Mode	DRUN	DSTOP
Fetch Type	CM7: ITCM/Cache / CM4: FLASH_B/ART	CM7: NA / CM4: NA
CM7 Frequency	480 MHz	0 Hz
Clock Configuration	HSE BYP PLL ALL_IPs_ON	LSE Flash-ON
CM4 Frequency	240 MHz	0 Hz
Clock Source Frequency	25 MHz	0 Hz
Peripherals		
Additional Cons.	0 mA	0 mA
Average Current	247 mA	145 µA
Duration	0.1 ms	0.9 ms
DMIPS	1027.0	0.0
Category	In DS Table	In DS Table

1.5. Results

Sequence Time	1 ms	Average Current	24.83 mA
Battery Life	1 month, 29 days, 21 hours	Average DMIPS	1027.2001 DMIPS

1.6. Chart


Consumption Profile by Step
Consumption (mA)
250
200
150
100
50
0
1:RUN
2:STOP
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
Time (ms)
Idd by Step
Average Current

2. Software Project

2.1. Project Settings

Name	Value
Project Name	traffic_sign
Project Folder	C:\Users\lapchong\Downloads\workspace-new\traffic_sign
Toolchain / IDE	STM32CubeIDE
Firmware Package Name and Version	STM32Cube FW_H7 V1.12.1
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 ARM Cortex-M7

Rank	Function Name	Peripheral Instance Name
1	MX_GPIO_Init	GPIO
2	SystemClock_Config	RCC
3	MX_UART4_Init	UART4
4	MX_TIM1_Init	TIM1

2.4. Advanced Settings - Generated Function Calls ARM Cortex-M4

Rank	Function Name	Peripheral Instance Name
1	MX_GPIO_Init	GPIO
2	MX_DCMI_Init	DCMI

Rank	Function Name	Peripheral Instance Name
3	MX_I2C1_Init	I2C1
4	MX_LPUART1_UART_Init	LPUART1
5	MX_SPI1_Init	SPI1
6	MX_USB_OTG_FS_PCD_Init	USB_OTG_FS
7	MX_QUADSPI_Init	QUADSPI
8	MX_SPI2_Init	SPI2
9	MX_SDMMC1_SD_Init	SDMMC1

3. Peripherals and Middlewares Configuration

3.1. DCMI

DCMI: Slave 8 bits External Synchro

3.1.1. Parameter Settings:

Core(s) Settings:

Context(s):	Cortex-M4
Initialized Context:	Cortex-M4
Power Domain:	D2

Mode Config:

Pixel clock polarity	Active on Falling edge
Vertical synchronization polarity	Active Low
Horizontal synchronization polarity	Active Low
Frequency of frame capture	All frames are captured
JPEG mode	Disabled

Interface Capture Config:

Byte Select Mode	Interface captures all received bytes
Line Select Mode	Interface captures all received lines

3.2. DEBUG

Debug: Serial Wire

3.2.1. Core(s) Settings:

Context(s):	Cortex-M7 Cortex-M4
Initialized Context:	Cortex-M7
Power Domain:	

3.3. I2C1

I2C: I2C

3.3.1. Parameter Settings:

Core(s) Settings:

Context(s):	Cortex-M4

Initialized Context:	Cortex-M4
Power Domain:	D2

Timing configuration:

Custom Timing	Disabled
I2C Speed Mode	Standard Mode
I2C Speed Frequency (KHz)	100
Rise Time (ns)	0
Fall Time (ns)	0
Coefficient of Digital Filter	0
Analog Filter	Enabled
Timing	**0x307075B1 ***

Slave Features:

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

3.4. LPUART1

Mode: Asynchronous

3.4.1. Parameter Settings:

Core(s) Settings:

Context(s):	Cortex-M4
Initialized Context:	Cortex-M4
Power Domain:	D3

Basic Parameters:

Baud Rate	209700
Word Length	8 Bits (including Parity)
Parity	None
Stop Bits	1

Advanced Parameters:

Data Direction	Receive and Transmit
Single Sample	Disable
ClockPrescaler	1
Fifo Mode	FIFO mode disable
Txfifo Threshold	1 eighth full configuration
Rxfifo Threshold	1 eighth full configuration

Advanced Features:

TX Pin Active Level Inversion	Disable
RX Pin Active Level Inversion	Disable
Data Inversion	Disable
TX and RX pins Swapping	Disable
Overrun	Enable
DMA on RX Error	Enable
MSB First	Disable

3.5. MEMORYMAP

mode: Activated

3.5.1. Core(s) Settings:

Context(s):	Cortex-M7
Initialized Context:	Cortex-M7
Power Domain:	

3.6. QUADSPI

QuadSPI Mode: Bank1 with Quad SPI Lines

3.6.1. Parameter Settings:

Core(s) Settings:

Context(s):	Cortex-M4
Initialized Context:	Cortex-M4
Power Domain:	D1

General Parameters:

Clock Prescaler	255
Fifo Threshold	1
Sample Shifting	No Sample Shifting
Flash Size	1
Chip Select High Time	1 Cycle
Clock Mode	Low
Flash ID	Flash ID 1
Dual Flash	Disabled

3.7. RCC

High Speed Clock (HSE): Crystal/Ceramic Resonator

Low Speed Clock (LSE) : Crystal/Ceramic Resonator

3.7.1. Parameter Settings:

Core(s) Settings:

Context(s):	Cortex-M7 Cortex-M4
Initialized Context:	Cortex-M7
Power Domain:	D3

Power Parameters:

SupplySource	PWR_LDO_SUPPLY
Power Regulator Voltage Scale	Power Regulator Voltage Scale 0

RCC Parameters:

TIM Prescaler Selection	Disabled
HSE Startup Timout Value (ms)	100
LSE Startup Timout Value (ms)	5000
CSI Calibration Value	32
HSI Calibration Value	64

System Parameters:

VDD voltage (V)	3.3
Flash Latency(WS)	4 WS (5 CPU cycle)
Product revision	rev.V

PLL range Parameters:

PLL1 clock Input range	Between 4 and 8 MHz
PLL1 clock Output range	Wide VCO range

3.8. SDMMC1

Mode: SD 4 bits Wide bus

3.8.1. Parameter Settings:

Core(s) Settings:

Context(s):	Cortex-M4
Initialized Context:	Cortex-M4
Power Domain:	D1

SDMMC parameters:

Clock transition on which the bit capture is made	Rising transition
SDMMC Clock output enable when the bus is idle	Disable the power save for the clock
SDMMC hardware flow control	The hardware control flow is disabled
SDMMC clock divide factor	0
Is external transceiver present ?	no

3.9. SPI1

Mode: Full-Duplex Master

3.9.1. Parameter Settings:

Core(s) Settings:

Context(s):	Cortex-M4
Initialized Context:	Cortex-M4
Power Domain:	D2

Basic Parameters:

Frame Format	Motorola
Data Size	**8 Bits ***
First Bit	MSB First

Clock Parameters:

Prescaler (for Baud Rate)	2
Baud Rate	**32.0 MBits/s ***
Clock Polarity (CPOL)	**High ***
Clock Phase (CPHA)	1 Edge

Advanced Parameters:

CRC Calculation	Disabled
NSSP Mode	Enabled
NSS Signal Type	Software
Fifo Threshold	Fifo Threshold 01 Data
Tx Crc Initialization Pattern	All Zero Pattern
Rx Crc Initialization Pattern	All Zero Pattern
Nss Polarity	Nss Polarity Low
Master Ss Idleness	00 Cycle
Master Inter Data Idleness	00 Cycle
Master Receiver Auto Susp	Disable
Master Keep Io State	Master Keep Io State Disable
IO Swap	Disabled

3.10. SPI2

Mode: Full-Duplex Master

3.10.1. Parameter Settings:

Core(s) Settings:

Context(s):	Cortex-M4
Initialized Context:	Cortex-M4
Power Domain:	D2

Basic Parameters:

Frame Format	Motorola
Data Size	4 Bits
First Bit	MSB First

Clock Parameters:

Prescaler (for Baud Rate)	2
Baud Rate	**32.0 MBits/s ***
Clock Polarity (CPOL)	Low
Clock Phase (CPHA)	1 Edge

Advanced Parameters:

CRC Calculation	Disabled
NSSP Mode	Enabled
NSS Signal Type	Software
Fifo Threshold	Fifo Threshold 01 Data
Tx Crc Initialization Pattern	All Zero Pattern
Rx Crc Initialization Pattern	All Zero Pattern
Nss Polarity	Nss Polarity Low
Master Ss Idleness	00 Cycle
Master Inter Data Idleness	00 Cycle
Master Receiver Auto Susp	Disable
Master Keep Io State	Master Keep Io State Disable
IO Swap	Disabled

3.11. SYS_M4

Timebase Source: SysTick

3.11.1. Core(s) Settings:

Context(s):	Cortex-M4
Initialized Context:	Cortex-M4
Power Domain:	

3.12. SYS

Timebase Source: SysTick

3.12.1. Core(s) Settings:

Context(s):	Cortex-M7
Initialized Context:	Cortex-M7
Power Domain:	

3.13. TIM1

Clock Source : Internal Clock

Channel1: PWM Generation CH1

3.13.1. Parameter Settings:

Core(s) Settings:

Context(s):	Cortex-M7
Initialized Context:	Cortex-M7
Power Domain:	D2

Counter Settings:

Prescaler (PSC - 16 bits value)	0
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	**10-1 ***
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
- DFSDM	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
- DFSDM	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

PWM Generation Channel 1:

Mode	PWM mode 1
Pulse (16 bits value)	**5 ***
Output compare preload	Enable
Fast Mode	Disable
CH Polarity	High
CH Idle State	Reset

3.14. UART4

Mode: Asynchronous

3.14.1. Parameter Settings:

Core(s) Settings:

Context(s):	Cortex-M7
Initialized Context:	Cortex-M7

Power Domain:	D2

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
Single Sample	Disable
ClockPrescaler	1
Fifo Mode	FIFO mode disable
Txfifo Threshold	1 eighth full configuration
Rxfifo Threshold	1 eighth full configuration

Advanced Features:

Auto Baudrate	Disable
TX Pin Active Level Inversion	Disable
RX Pin Active Level Inversion	Disable
Data Inversion	Disable
TX and RX Pins Swapping	Disable
Overrun	Enable
DMA on RX Error	Enable
MSB First	Disable

3.15. USB_OTG_FS

Mode: Device_Only

3.15.1. Parameter Settings:

Core(s) Settings:

Context(s):	Cortex-M4
Initialized Context:	Cortex-M4
Power Domain:	D2
Speed	Full Speed 12MBit/s
Enable internal IP DMA	Disabled
Low power	Disabled
Battery charging	Disabled
Link Power Management	Disabled
Use dedicated end point 1 interrupt	Disabled

VBUS sensing	Disabled
Signal start of frame	Disabled

*** User modified value**

4. System Configuration

4.1. GPIO configuration

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label	Context	Power Domain
DCMI	PE4	DCMI_D4	Alternate Function Push Pull	No pull-up and no pull-down	Low		Cortex-M4	D2
	PE5	DCMI_D6	Alternate Function Push Pull	No pull-up and no pull-down	Low		Cortex-M4	D2
	PE6	DCMI_D7	Alternate Function Push Pull	No pull-up and no pull-down	Low		Cortex-M4	D2
	PA4	DCMI_HSYNC	Alternate Function Push Pull	No pull-up and no pull-down	Low		Cortex-M4	D2
	PA6	DCMI_PIXCLK	Alternate Function Push Pull	No pull-up and no pull-down	Low		Cortex-M4	D2
	PH9	DCMI_D0	Alternate Function Push Pull	No pull-up and no pull-down	Low		Cortex-M4	D2
	PH10	DCMI_D1	Alternate Function Push Pull	No pull-up and no pull-down	Low		Cortex-M4	D2
	PH11	DCMI_D2	Alternate Function Push Pull	No pull-up and no pull-down	Low		Cortex-M4	D2
	PH12	DCMI_D3	Alternate Function Push Pull	No pull-up and no pull-down	Low		Cortex-M4	D2
	PB7	DCMI_VSYNC	Alternate Function Push Pull	No pull-up and no pull-down	Low		Cortex-M4	D2
	PI4	DCMI_D5	Alternate Function Push Pull	No pull-up and no pull-down	Low		Cortex-M4	D2
DEBUG	PA13 (JTMS/SWDIO)	DEBUG_JTMS-SWDIO	n/a	n/a	n/a		Cortex-M7* Cortex-M4	Cortex-M7* Cortex-M4
	PA14 (JTCK/SWCLK)	DEBUG_JTCK-SWCLK	n/a	n/a	n/a		Cortex-M7* Cortex-M4	Cortex-M7* Cortex-M4
I2C1	PB6	I2C1_SCL	Alternate Function Open Drain	No pull-up and no pull-down	Low		Cortex-M4	D2
	PB9	I2C1_SDA	Alternate Function Open Drain	No pull-up and no pull-down	Low		Cortex-M4	D2
LPUART1	PA9	LPUART1_TX	Alternate Function Push Pull	No pull-up and no pull-down	Low		Cortex-M4	D3
	PA10	LPUART1_RX	Alternate Function Push Pull	No pull-up and no pull-down	Low		Cortex-M4	D3
QUADSPI	PF6	QUADSPI_BK1_IO3	Alternate Function Push Pull	No pull-up and no pull-down	Low		Cortex-M4	D1
	PF7	QUADSPI_BK1_IO2	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***		Cortex-M4	D1

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label	Context	Power Domain
	PF8	QUADSPI_BK1_IO0	Alternate Function Push Pull	No pull-up and no pull-down	Low		Cortex-M4	D1
	PF9	QUADSPI_BK1_IO1	Alternate Function Push Pull	No pull-up and no pull-down	Low		Cortex-M4	D1
	PF10	QUADSPI_CLK	Alternate Function Push Pull	No pull-up and no pull-down	Low		Cortex-M4	D1
	PB10	QUADSPI_BK1_NCS	Alternate Function Push Pull	No pull-up and no pull-down	Low		Cortex-M4	D1
RCC	PC14-OSC32_IN	RCC_OSC32_IN	n/a	n/a	n/a		Cortex-M7* Cortex-M4	D3
	PC15-OSC32_OUT	RCC_OSC32_OUT	n/a	n/a	n/a		Cortex-M7* Cortex-M4	D3
	PH0-OSC_IN (PH0)	RCC_OSC_IN	n/a	n/a	n/a		Cortex-M7* Cortex-M4	D3
	PH1-OSC_OUT (PH1)	RCC_OSC_OUT	n/a	n/a	n/a		Cortex-M7* Cortex-M4	D3
SDMMC1	PC8	SDMMC1_D0	Alternate Function Push Pull	No pull-up and no pull-down	Very High		Cortex-M4	D1
	PC9	SDMMC1_D1	Alternate Function Push Pull	No pull-up and no pull-down	Very High		Cortex-M4	D1
	PC10	SDMMC1_D2	Alternate Function Push Pull	No pull-up and no pull-down	Very High		Cortex-M4	D1
	PC11	SDMMC1_D3	Alternate Function Push Pull	No pull-up and no pull-down	Very High		Cortex-M4	D1
	PC12	SDMMC1_CK	Alternate Function Push Pull	No pull-up and no pull-down	Very High		Cortex-M4	D1
	PD2	SDMMC1_CMD	Alternate Function Push Pull	No pull-up and no pull-down	Very High		Cortex-M4	D1
SPI1	PD7	SPI1_MOSI	Alternate Function Push Pull	No pull-up and no pull-down	Low		Cortex-M4	D2
	PG11	SPI1_SCK	Alternate Function Push Pull	No pull-up and no pull-down	Low		Cortex-M4	D2
	PB4 (NJTRST)	SPI1_MISO	Alternate Function Push Pull	No pull-up and no pull-down	Low		Cortex-M4	D2
SPI2	PC1	SPI2_MOSI	Alternate Function Push Pull	No pull-up and no pull-down	Low		Cortex-M4	D2
	PC2_C	SPI2_MISO	Alternate Function Push Pull	No pull-up and no pull-down	Low		Cortex-M4	D2
	PB13	SPI2_SCK	Alternate Function Push Pull	No pull-up and no pull-down	Low		Cortex-M4	D2
TIM1	PE9	TIM1_CH1	Alternate Function	No pull-up and no pull-	Low		Cortex-M7	D2

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label	Context	Power Domain
			Push Pull	down				
UART4	PH13	UART4_TX	Alternate Function Push Pull	No pull-up and no pull-down	Low		Cortex-M7	D2
	PH14	UART4_RX	Alternate Function Push Pull	No pull-up and no pull-down	Low		Cortex-M7	D2
USB_OTG_FS	PA11	USB_OTG_FS_DM	Alternate Function Push Pull	No pull-up and no pull-down	Low		Cortex-M4	D2
	PA12	USB_OTG_FS_DP	Alternate Function Push Pull	No pull-up and no pull-down	Low		Cortex-M4	D2
GPIO	PE2	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	cam_ret	Cortex-M7* Cortex-M4	Cortex-M7* Cortex-M4
	PE3	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	cam_pwdn	Cortex-M7* Cortex-M4	Cortex-M7* Cortex-M4
	PC0	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	touch_irq	Cortex-M7* Cortex-M4	Cortex-M7* Cortex-M4
	PC3_C	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	touch_cs	Cortex-M7* Cortex-M4	Cortex-M7* Cortex-M4
	PD4	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	lcd_dc	Cortex-M7* Cortex-M4	Cortex-M7* Cortex-M4
	PD5	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low		Cortex-M7* Cortex-M4	Cortex-M7* Cortex-M4
	PD6	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	lcd_cs	Cortex-M7* Cortex-M4	Cortex-M7* Cortex-M4

* Initialized context

4.2. DMA configuration

nothing configured in DMA service

4.3. BDMA configuration

nothing configured in DMA service

4.4. MDMA configuration

nothing configured in DMA service

4.5. NVIC configuration

4.5.1. NVIC1

Interrupt Table	Enable	Preenmption Priority	SubPriority
Non maskable interrupt	true	0	0
Hard fault interrupt	true	0	0
Memory management fault	true	0	0
Pre-fetch 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 and AVD interrupts through EXTI line 16	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		
TIM1 break interrupt	unused		
TIM1 update interrupt	unused		
TIM1 trigger and commutation interrupts	unused		
TIM1 capture compare interrupt	unused		
UART4 global interrupt	unused		
CM4 send event interrupt for CM7	unused		
FPU global interrupt	unused		
HSEM1 global interrupt	unused		
Hold core interrupt	unused		

4.5.2. NVIC1 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
Pre-fetch 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

4.5.3. NVIC2

Interrupt Table	Enable	Preenmption Priority	SubPriority
Non maskable interrupt	true	0	0
Hard fault interrupt	true	0	0
Memory management fault	true	0	0
Pre-fetch 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 and AVD interrupts through EXTI line 16	unused		
Flash global interrupt	unused		
I2C1 event interrupt	unused		
I2C1 error interrupt	unused		
SPI1 global interrupt	unused		
SPI2 global interrupt	unused		
SDMMC1 global interrupt	unused		
CM7 send event interrupt for CM4	unused		
DCMI global interrupt	unused		
FPU global interrupt	unused		
QUADSPI global interrupt	unused		
USB On The Go FS End Point 1 Out global interrupt	unused		
USB On The Go FS End Point 1 In global interrupt	unused		
USB On The Go FS global interrupt	unused		
HSEM2 global interrupt	unused		
LPUART1 global interrupt	unused		
Hold core interrupt	unused		

4.5.4. NVIC2 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
Pre-fetch 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

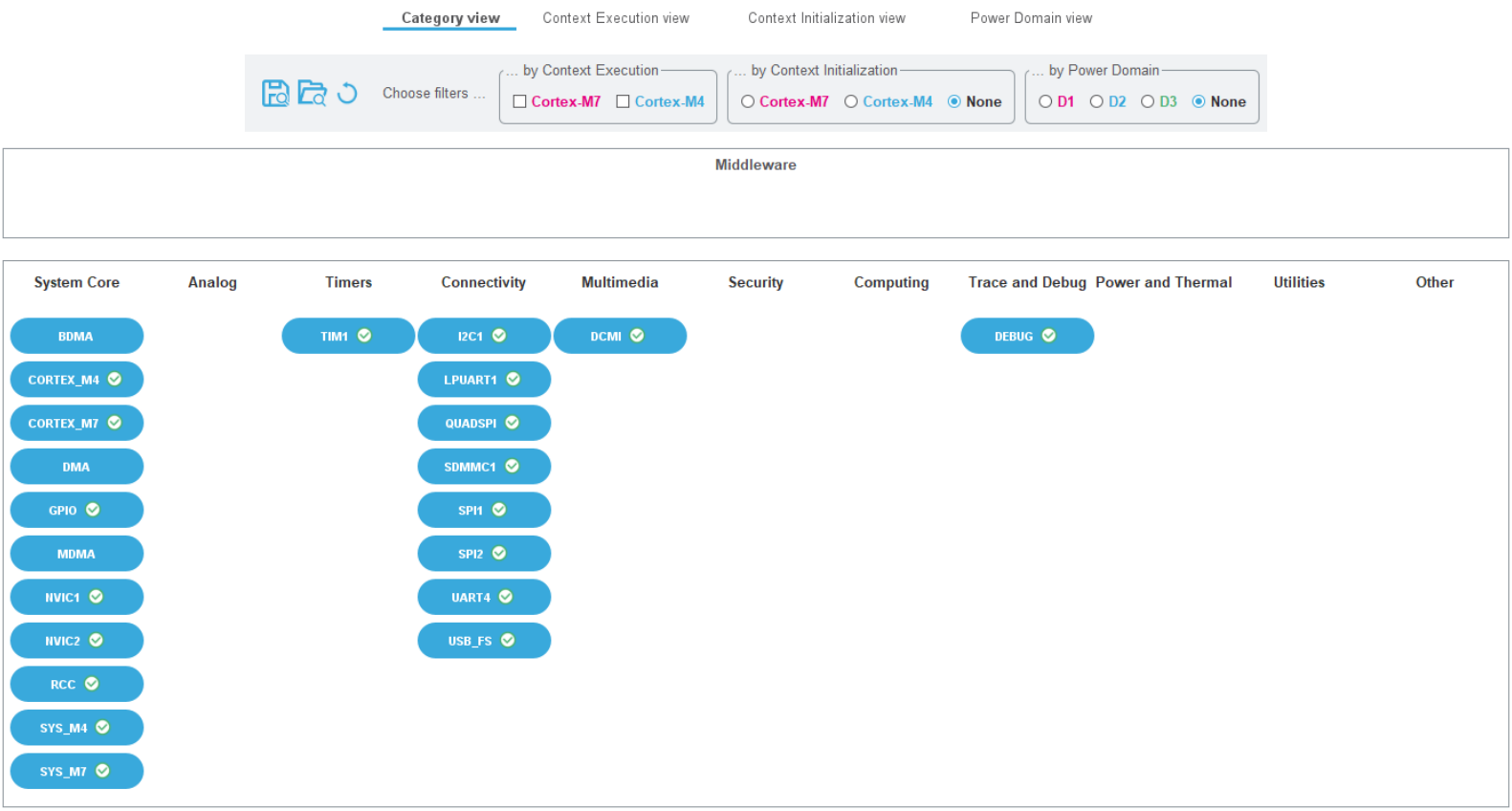
Enabled interrupt Table	Select for init sequence ordering	Generate IRQ handler	Call HAL handler
System tick timer	false	true	true

*** User modified value**

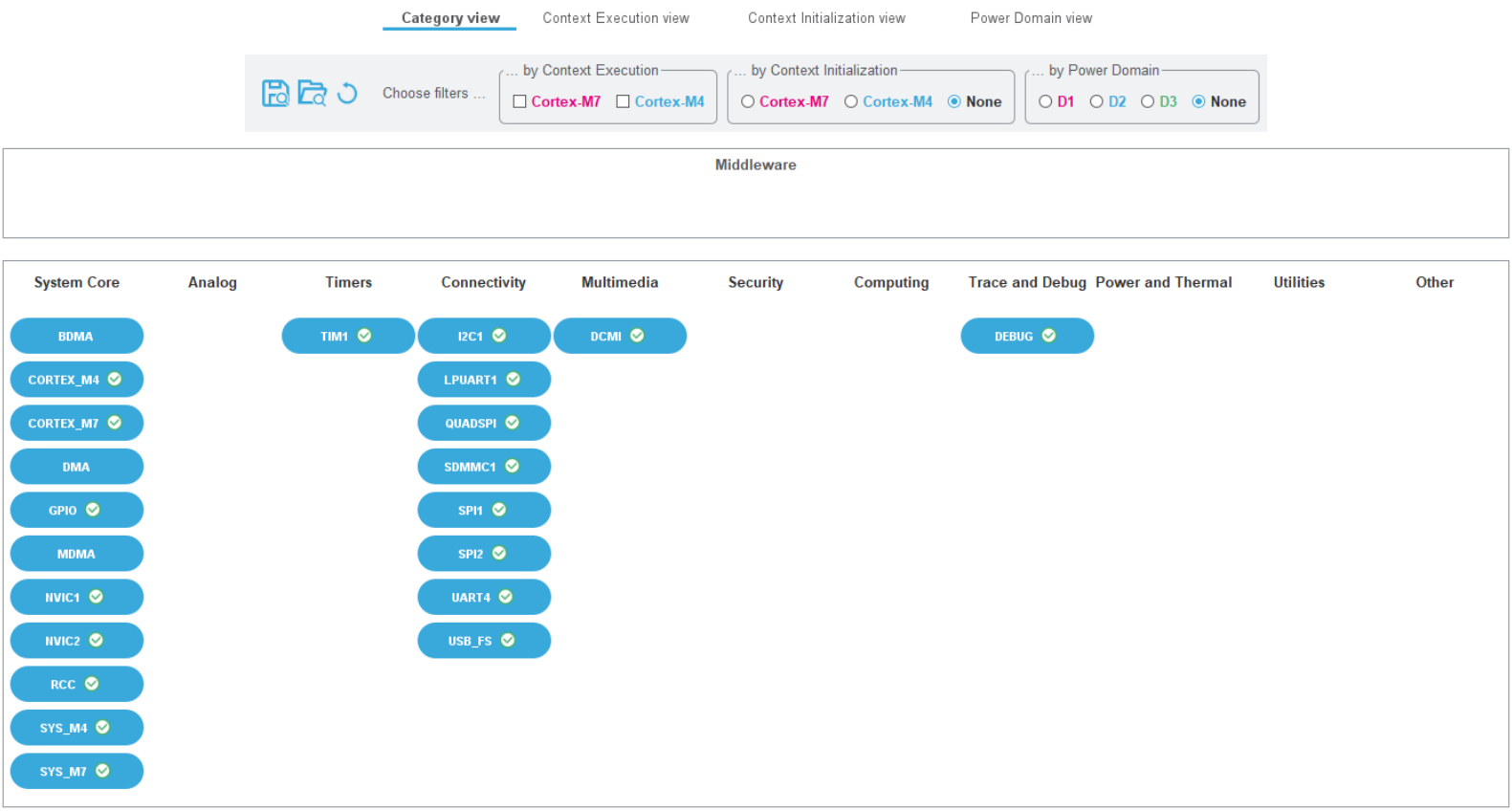
5. System Views

5.1. Category view

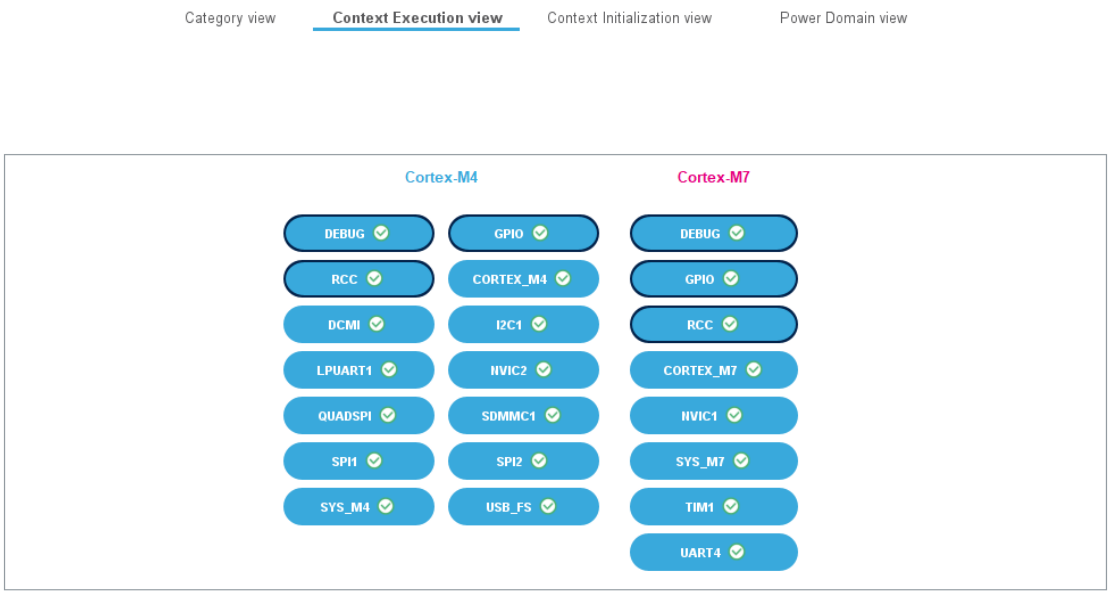
5.1.1. Current



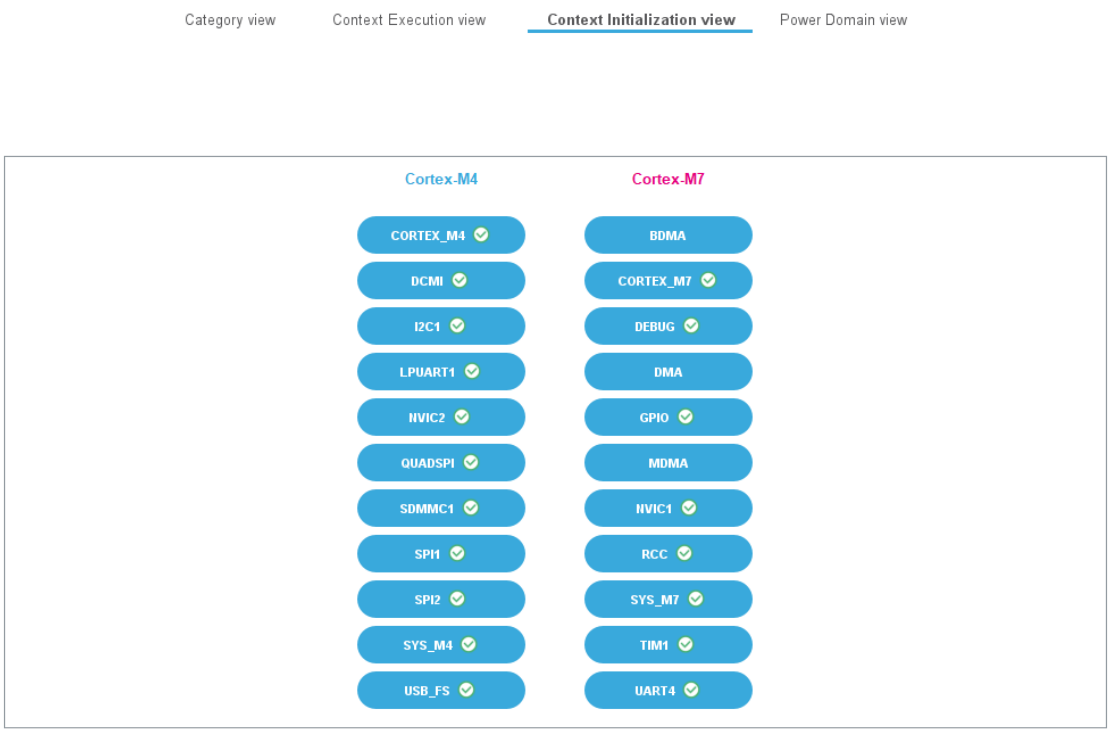
5.1.2. Without filters



5.2. Context Execution view



5.3. Context Initialization view



5.4. Power Domain view

6. Docs & Resources

Type	Link
BSDL files	https://www.st.com/resource/en/bsdl_model/stm32h7_bsdl.zip
IBIS models	https://www.st.com/resource/en/ibis_model/stm32h7_ibis.zip
System View Description	https://www.st.com/resource/en/svd/stm32h7-svd.zip
Presentations	https://www.st.com/resource/en/product_presentation/microcontrollers_stm32h7_series_product_overview.pdf
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
Presentations	https://www.st.com/resource/en/product_presentation/stm32_stm8_functional-safety-packages.pdf
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
Presentations	https://www.st.com/resource/en/product_presentation/microcontrollers-stm32h7rs-lines-overview.pdf
Brochures	https://www.st.com/resource/en/brochure/brstm32h7.pdf
Flyers	https://www.st.com/resource/en/flyer/flstm32nucleo.pdf
Flyers	https://www.st.com/resource/en/flyer/flstm32trust.pdf
Flyers	https://www.st.com/resource/en/flyer/flstm32h7rs.pdf
Security Bulletin	https://www.st.com/resource/en/security_bulletin/sb0023-eucleak-protection-statement-for-stmicroelectronics-certified-products-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an1709-emc-design-guide-for-stm8-stm32-and-legacy-mcus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an2606-stm32-microcontroller-system-memory-boot-mode-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
Application Notes	https://www.st.com/resource/en/application_note/an3155-usart-protocol-used-in-the-stm32-bootloader-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an3156-usb-dfu-protocol-used-in-the-stm32-bootloader-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4221-i2c-protocol-used-in-the-stm32-bootloader-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4286-spi-protocol-used-in-the-stm32-bootloader-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4539-hrtim-cookbook-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4566-extending-the-dac-performance-of-stm32-microcontrollers-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4655-virtually-increasing-the-number-of-serial-communication-peripherals-in-stm32-applications-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4750-handling-of-soft-errors-in-stm32-applications-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4776-generalpurpose-timer-cookbook-for-stm32-microcontrollers-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4803-highspeed-si-simulations-using-ibis-and-boardlevel-simulations-using-hyperlynx-si-on-stm32-mcus-and-mpus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4839-level-1-cache-on-stm32f7-series-and-stm32h7-series-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4989-stm32-microcontroller-debug-toolbox-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4990-getting-started-with-sigmadelta-digital-interface-on-applicable-stm32-microcontrollers-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5027-interfacing-pdm-

	digital-microphones-using-stm32-mcus-and-mpus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5033-stm32cube-mcu-package-examples-for-stm32h7-series-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5073-receiving-spdif-audio-stream-with-the-stm32f4f7h7-series-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5286-stm32h7x5x7-dualcore-microcontroller-debugging-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5354-getting-started-with-the-stm32h7-series-mcu-16bit-adc-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5557-stm32h745755-and-stm32h747757-lines-dualcore-architecture-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5617-stm32h745755-and-stm32h747757-lines-interprocessor-communications-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4899-stm32-microcontroller-gpio-hardware-settings-and-lowpower-consumption-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5612-esd-protection-of-stm32-mcus-and-mpus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5293-migration-guide-from-stm32f7-series-to-stmh74x75x-stm32h72x73x-and-stmh7a37bx-devices-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4991-how-to-wake-up-an-stm32-microcontroller-from-lowpower-mode-with-the-usart-or-the-lpuart-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4838-introduction-to-memory-protection-unit-management-on-stm32-mcus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5927-i3c-protocol-used-in-the-stm32-bootloader-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4860-introduction-to-dsi-host-on-stm32-mcus-and-mpus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5225-introduction-to-

	usb-typec-power-delivery-for-stm32-mcus-and-mpus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5342--how-to-use-error-correction-code-ecc-management-for-internal-memories-protection-on-stm32-mcus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4938-getting-started-with-stm32h74xig-and-stm32h75xig-mcu-hardware-development-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5537-how-to-use-adc-oversampling-techniques-to-improve-signaltonoise-ratio-on-stm32-mcus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5036-guidelines-for-thermal-management-on-stm32-applications-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4992-introduction-to-secure-firmware-install-sfi-for-stm32-mcus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5405-how-to-use-fdcan-bootloader-protocol-on-stm32-mcus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5690-how-to-use-vrefbuf-peripheral-on-stm32-mcus-and-mpus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4230-introduction-to-random-number-generation-validation-using-the-nist-statistical-test-suite-for-stm32-mcus-and-mpus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an2867-guidelines-for-oscillator-design-on-stm8afals-and-stm32-mcusmpus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4013-introduction-to-timers-for-stm32-mcus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4277-how-to-use-pwm-shutdown-for-motor-control-and-digital-power-conversion-on-stm32-mcus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4635-how-to-optimize-lpuart-power-consumption-on-stm32-mcus-stmicroelectronics.pdf

Application Notes	https://www.st.com/resource/en/application_note/an4759-introduction-to-using-the-hardware-realtime-clock-rtc-and-the-tamper-management-unit-tamp-with-stm32-mcus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4861-introduction-to-lcdtft-display-controller-ltdc-on-stm32-mcus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4908-getting-started-with-usart-automatic-baud-rater-detection-for-stm32-mcus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4943-how-to-use-chromart-accelerator-to-refresh-an-lcdtft-display-on-stm32-mcus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5156-introduction-to-security-for-stm32-mcus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5200-getting-started-with-stm32h7-mcus-sdmmc-host-controller-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5224-introduction-to-dmamux-for-stm32-mcus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5507-how-to-use-crc-to-check-the-integrity-of-the-internal-flash-memory-on-stm32h7-mcus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5543-guidelines-for-enhanced-spi-communication-on-stm32-mcus-and-mpus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5337-guidelines-for-estimating-stm32h7-mcus-lifetime-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4996-how-to-use-the-jpeg-codec-peripheral-on-stm32-mcus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5215-how-to-implement-advanced-power-management-on-stm32h747757-mcus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5348-introduction-to-fdcan-peripherals-for-stm32-mcus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/cd00211314-how-to-

	optimize-the-adc-accuracy-in-the-stm32-mcus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an2639-soldering-recommendations-and-package-information-for-leadfree-ecopack2-mcus-and-mpus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5020-introduction-to-digital-camera-interface-dcmi-for-stm32-mcus-stmicroelectronics.pdf
Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an4323-getting-started-with-stemwin-library-stmicroelectronics.pdf
Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an4435-guidelines-for-obtaining-ulcsaiec-607301603351-class-b-certification-in-any-stm32-application-stmicroelectronics.pdf
Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an4657-stm32-inapplication-programming-iap-using-the-usart-stmicroelectronics.pdf
Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an4841-digital-signal-processing-for-stm32-microcontrollers-using-cmsis-stmicroelectronics.pdf
Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an4891-stm32h72x-stm32h73x-and-singlecore-stm32h74x75x-system-architecture-and-performance-stmicroelectronics.pdf
Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an5001-stm32cube-expansion-package-for-stm32h7-series-mdma-stmicroelectronics.pdf
Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an5014-stm32h7x3-smart-power-management-expansion-package-for-stm32cube-stmicroelectronics.pdf
Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an5033-stm32cube-mcu-package-examples-for-stm32h7-series-stmicroelectronics.pdf
Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an5056-integration-guide-for-the-xcubesbsfu-stm32cube-expansion-package-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5360-getting-started-

for related Tools & Software	with-projects-based-on-the-stm32mp1-series-in-stm32cubeide-stmicroelectronics.pdf
Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an5361-getting-started-with-projects-based-on-dualcore-stm32h7-microcontrollers-in-stm32cubeide-stmicroelectronics.pdf
Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an5394-getting-started-with-projects-based-on-the-stm32l5-series-in-stm32cubeide-stmicroelectronics.pdf
Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an5418-how-to-build-a-simple-usbpd-sink-application-with-stm32cubemx-stmicroelectronics.pdf
Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an5426-migrating-graphics-middleware-projects-from-stm32cubemx-540-to-stm32cubemx-550-stmicroelectronics.pdf
Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an5564-getting-started-with-projects-based-on-dualcore-stm32wl-microcontrollers-in-stm32cubeide-stmicroelectronics.pdf
Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an4865-lowpower-timer-lptim-applicative-use-cases-on-stm32-mcus-and-mpus-stmicroelectronics.pdf
Application Notes for related Tools & Software	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
Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an5731-stm32cubemx-and-stm32cubeide-threadsafe-solution-stmicroelectronics.pdf
Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an5450-stm32h7a37b3-lines-and-stm32h7b0-value-line-smart-power-management-expansion-package-for-stm32cube-stmicroelectronics.pdf
Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an4502-stm32-smbuspmbus-expansion-package-for-stm32cube-stmicroelectronics.pdf
Application Notes for related Tools	https://www.st.com/resource/en/application_note/an5952-how-to-use-cmake-in-stm32cubeide-stmicroelectronics.pdf

& Software	
Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an4635-how-to-optimize-lpuart-power-consumption-on-stm32-mcus-stmicroelectronics.pdf
Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an5054-how-to-perform-secure-programming-using-stm32cubeprogrammer-stmicroelectronics.pdf
Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an6088-how-to-use-mce-for-encryptiondecryption-on-stm32-mcus-stmicroelectronics.pdf
Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an6179-how-to-integrate-the-stl-firmware-into-a-time-critical-user-application-stmicroelectronics.pdf
Design Notes & Tips	https://www.st.com/resource/en/design_tip/dt0117-microphone-array-beamforming-in-the-pcm-and-pdm-domain-stmicroelectronics.pdf
Errata Sheets	https://www.st.com/resource/en/errata_sheet/es0445-stm32h745xig-stm32h755xi-stm32h747xig-stm32h757xi-device-errata-stmicroelectronics.pdf
Datasheet	https://www.st.com/resource/en/datasheet/dm00602265.pdf
Programming Manuals	https://www.st.com/resource/en/programming_manual/pm0214-stm32-cortexm4-mcus-and-mpus-programming-manual-stmicroelectronics.pdf
Programming Manuals	https://www.st.com/resource/en/programming_manual/pm0253-stm32f7-series-and-stm32h7-series-cortexm7-processor-programming-manual-stmicroelectronics.pdf
Reference Manuals	https://www.st.com/resource/en/reference_manual/rm0399-stm32h745755-and-stm32h747757-advanced-armbased-32bit-mcus-stmicroelectronics.pdf
Technical Notes & Articles	https://www.st.com/resource/en/technical_note/tn1163-description-of-wlcsp-for-microcontrollers-and-recommendations-for-its-use-stmicroelectronics.pdf
Technical Notes & Articles	https://www.st.com/resource/en/technical_note/tn1204-tape-and-reel-shipping-media-for-stm32-microcontrollers-in-bga-packages-stmicroelectronics.pdf

Technical Notes & Articles	https://www.st.com/resource/en/technical_note/tn1205-tape-and-reel-shipping-media-for-stm8-and-stm32-microcontrollers-in-fpn-packages-stmicroelectronics.pdf
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