
STM32
CubeMX

1. Description

1.1. Project

Project Name	JAVELIN
Board Name	NUCLEO-H743ZI2
Generated with:	STM32CubeMX 6.6.1
Date	12/30/2022

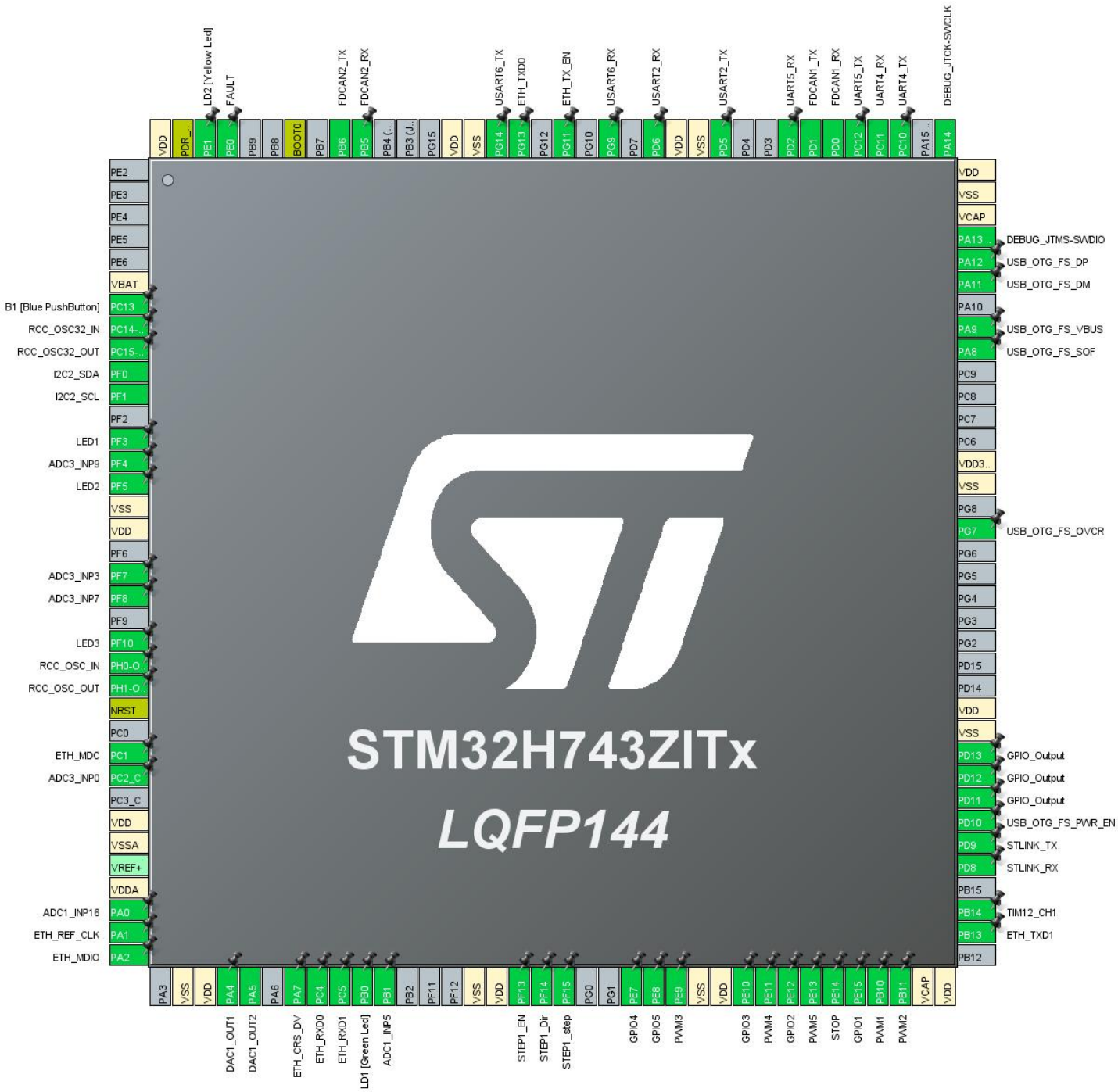
1.2. MCU

MCU Series	STM32H7
MCU Line	STM32H743/753
MCU name	STM32H743ZITx
MCU Package	LQFP144
MCU Pin number	144

1.3. Core(s) information

Core(s)	ARM Cortex-M7

2. Pinout Configuration



3. Pins Configuration

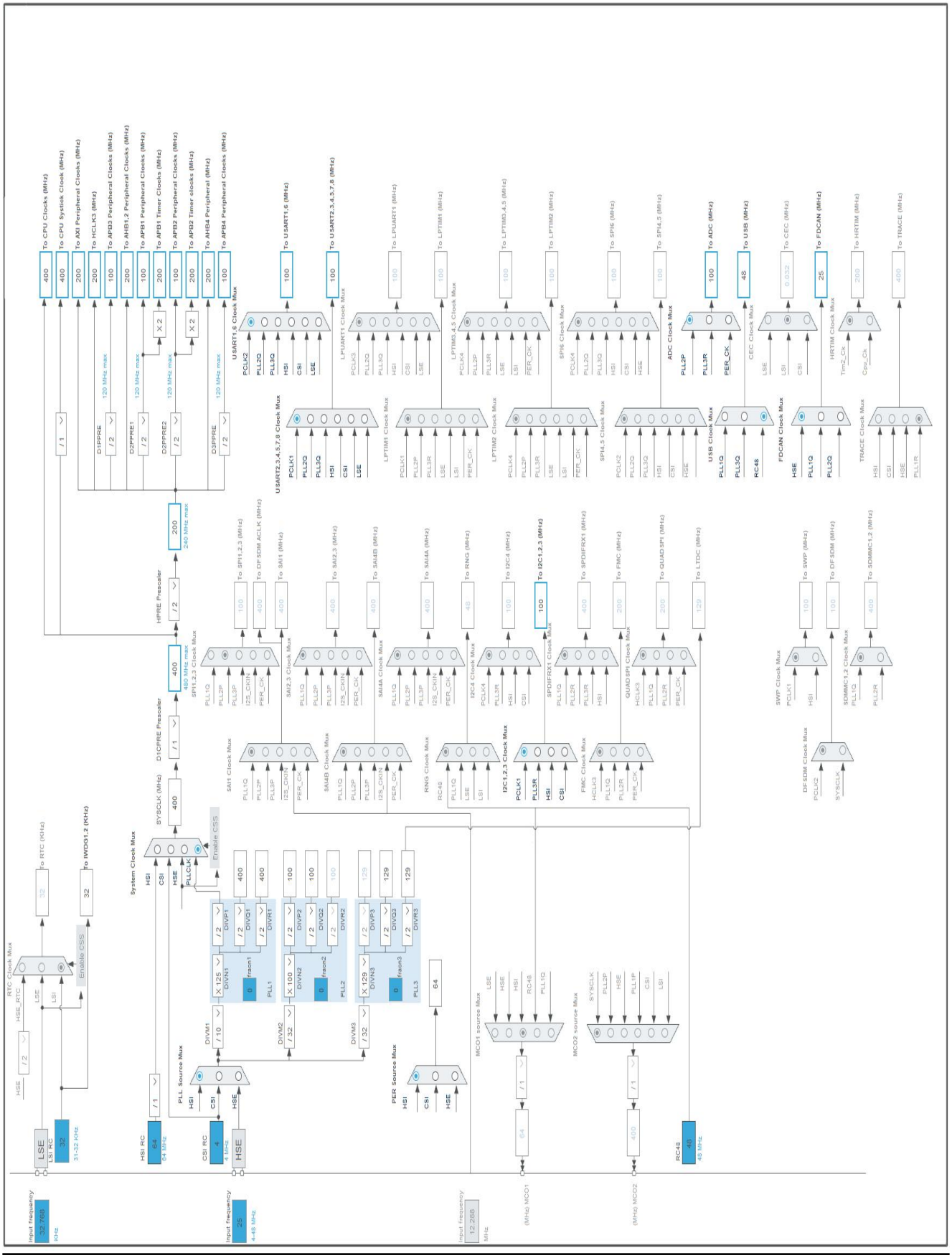
Pin Number LQFP144	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
6	VBAT	Power		
7	PC13 *	I/O	GPIO_Input	B1 [Blue PushButton]
8	PC14-OSC32_IN (OSC32_IN)	I/O	RCC_OSC32_IN	
9	PC15-OSC32_OUT (OSC32_OUT)	I/O	RCC_OSC32_OUT	
10	PF0	I/O	I2C2_SDA	
11	PF1	I/O	I2C2_SCL	
13	PF3 *	I/O	GPIO_Output	LED1
14	PF4	I/O	ADC3_INP9	
15	PF5 *	I/O	GPIO_Output	LED2
16	VSS	Power		
17	VDD	Power		
19	PF7	I/O	ADC3_INP3	
20	PF8	I/O	ADC3_INP7	
22	PF10 *	I/O	GPIO_Output	LED3
23	PH0-OSC_IN (PH0)	I/O	RCC_OSC_IN	
24	PH1-OSC_OUT (PH1)	I/O	RCC_OSC_OUT	
25	NRST	Reset		
27	PC1	I/O	ETH_MDC	
28	PC2_C	I/O	ADC3_INP0	
30	VDD	Power		
31	VSSA	Power		
33	VDDA	Power		
34	PA0	I/O	ADC1_INP16	
35	PA1	I/O	ETH_REF_CLK	
36	PA2	I/O	ETH_MDIO	
38	VSS	Power		
39	VDD	Power		
40	PA4	I/O	DAC1_OUT1	
41	PA5	I/O	DAC1_OUT2	
43	PA7	I/O	ETH_CRS_DV	
44	PC4	I/O	ETH_RXD0	
45	PC5	I/O	ETH_RXD1	
46	PB0 *	I/O	GPIO_Output	LD1 [Green Led]
47	PB1	I/O	ADC1_INP5	

Pin Number LQFP144	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
51	VSS	Power		
52	VDD	Power		
53	PF13 *	I/O	GPIO_Output	STEP1_EN
54	PF14 *	I/O	GPIO_Output	STEP1_Dir
55	PF15 *	I/O	GPIO_Output	STEP1_step
58	PE7 *	I/O	GPIO_Output	GPIO4
59	PE8 *	I/O	GPIO_Output	GPIO5
60	PE9	I/O	TIM1_CH1	PWM3
61	VSS	Power		
62	VDD	Power		
63	PE10 *	I/O	GPIO_Output	GPIO3
64	PE11	I/O	TIM1_CH2	PWM4
65	PE12 *	I/O	GPIO_Output	GPIO2
66	PE13	I/O	TIM1_CH3	PWM5
67	PE14 *	I/O	GPIO_Output	STOP
68	PE15 *	I/O	GPIO_Output	GPIO1
69	PB10	I/O	TIM2_CH3	PWM1
70	PB11	I/O	TIM2_CH4	PWM2
71	VCAP	Power		
72	VDD	Power		
74	PB13	I/O	ETH_TXD1	
75	PB14	I/O	TIM12_CH1	
77	PD8	I/O	USART3_TX	STLINK_RX
78	PD9	I/O	USART3_RX	STLINK_TX
79	PD10 *	I/O	GPIO_Output	USB_OTG_FS_PWR_EN
80	PD11 *	I/O	GPIO_Output	
81	PD12 *	I/O	GPIO_Output	
82	PD13 *	I/O	GPIO_Output	
83	VSS	Power		
84	VDD	Power		
92	PG7	I/O	GPIO_EXTI7	USB_OTG_FS_OVCR
94	VSS	Power		
95	VDD33_USB	Power		
100	PA8	I/O	USB_OTG_FS_SOF	
101	PA9	I/O	USB_OTG_FS_VBUS	
103	PA11	I/O	USB_OTG_FS_DM	
104	PA12	I/O	USB_OTG_FS_DP	
105	PA13 (JTMS/SWDIO)	I/O	DEBUG_JTMS-SWDIO	
106	VCAP	Power		

Pin Number LQFP144	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
107	VSS	Power		
108	VDD	Power		
109	PA14 (JTCK/SWCLK)	I/O	DEBUG_JTCK-SWCLK	
111	PC10	I/O	UART4_TX	
112	PC11	I/O	UART4_RX	
113	PC12	I/O	UART5_TX	
114	PD0	I/O	FDCAN1_RX	
115	PD1	I/O	FDCAN1_TX	
116	PD2	I/O	UART5_RX	
119	PD5	I/O	USART2_TX	
120	VSS	Power		
121	VDD	Power		
122	PD6	I/O	USART2_RX	
124	PG9	I/O	USART6_RX	
126	PG11	I/O	ETH_TX_EN	
128	PG13	I/O	ETH_TXD0	
129	PG14	I/O	USART6_TX	
130	VSS	Power		
131	VDD	Power		
135	PB5	I/O	FDCAN2_RX	
136	PB6	I/O	FDCAN2_TX	
138	BOOT0	Boot		
141	PE0	I/O	GPIO_EXTI0	FAULT
142	PE1 *	I/O	GPIO_Output	LD2 [Yellow Led]
143	PDR_ON	Reset		
144	VDD	Power		

* The pin is affected with an I/O function

4. Clock Tree Configuration



5. Software Project

5.1. Project Settings

Name	Value
Project Name	JAVELIN
Project Folder	C:\Users\joshh\CLionProjects\ProjectJAVELIN
Toolchain / IDE	STM32CubeIDE
Firmware Package Name and Version	STM32Cube FW_H7 V1.10.0
Application Structure	Advanced
Generate Under Root	Yes
Do not generate the main()	No
Minimum Heap Size	0x200
Minimum Stack Size	0x400

5.2. Code Generation Settings

Name	Value
STM32Cube MCU packages and embedded software	Copy only the necessary library files
Generate peripheral initialization as a pair of '.c/.h' files	Yes
Backup previously generated files when re-generating	No
Keep User Code when re-generating	Yes
Delete previously generated files when not re-generated	Yes
Set all free pins as analog (to optimize the power consumption)	No
Enable Full Assert	No

5.3. Advanced Settings - Generated Function Calls

Rank	Function Name	Peripheral Instance Name
1	SystemClock_Config	RCC
2	MX_GPIO_Init	GPIO
3	MX_LWIP_Init	LWIP
4	MX_USART3_UART_Init	USART3
5	MX_IWDG1_Init	IWDG1
6	MX_FDCAN1_Init	FDCAN1
7	MX_FDCAN2_Init	FDCAN2
8	MX_TIM12_Init	TIM12
9	MX_TIM16_Init	TIM16
10	MX_ADC3_Init	ADC3
11	MX_ADC1_Init	ADC1

Rank	Function Name	Peripheral Instance Name
12	MX_I2C2_Init	I2C2
13	MX_TIM1_Init	TIM1
14	MX_TIM2_Init	TIM2
15	MX_UART4_Init	UART4
16	MX_USART2_UART_Init	USART2
17	MX_DAC1_Init	DAC1
18	MX_UART5_Init	UART5
19	MX_USART6_UART_Init	USART6
20	MX_USB_OTG_FS_PCD_Init	USB_OTG_FS

6. Power Consumption Calculator report

6.1. Microcontroller Selection

Series	STM32H7
Line	STM32H743/753
MCU	STM32H743ZITx
Datasheet	DS12110_Rev8

6.2. Parameter Selection

Temperature	25
Vdd	3.0

6.3. Battery Selection

Battery	Alkaline(9V)
Capacity	625.0 mAh
Self Discharge	0.3 %/month
Nominal Voltage	9.0 V
Max Cont Current	200.0 mA
Max Pulse Current	0.0 mA
Cells in series	1
Cells in parallel	1

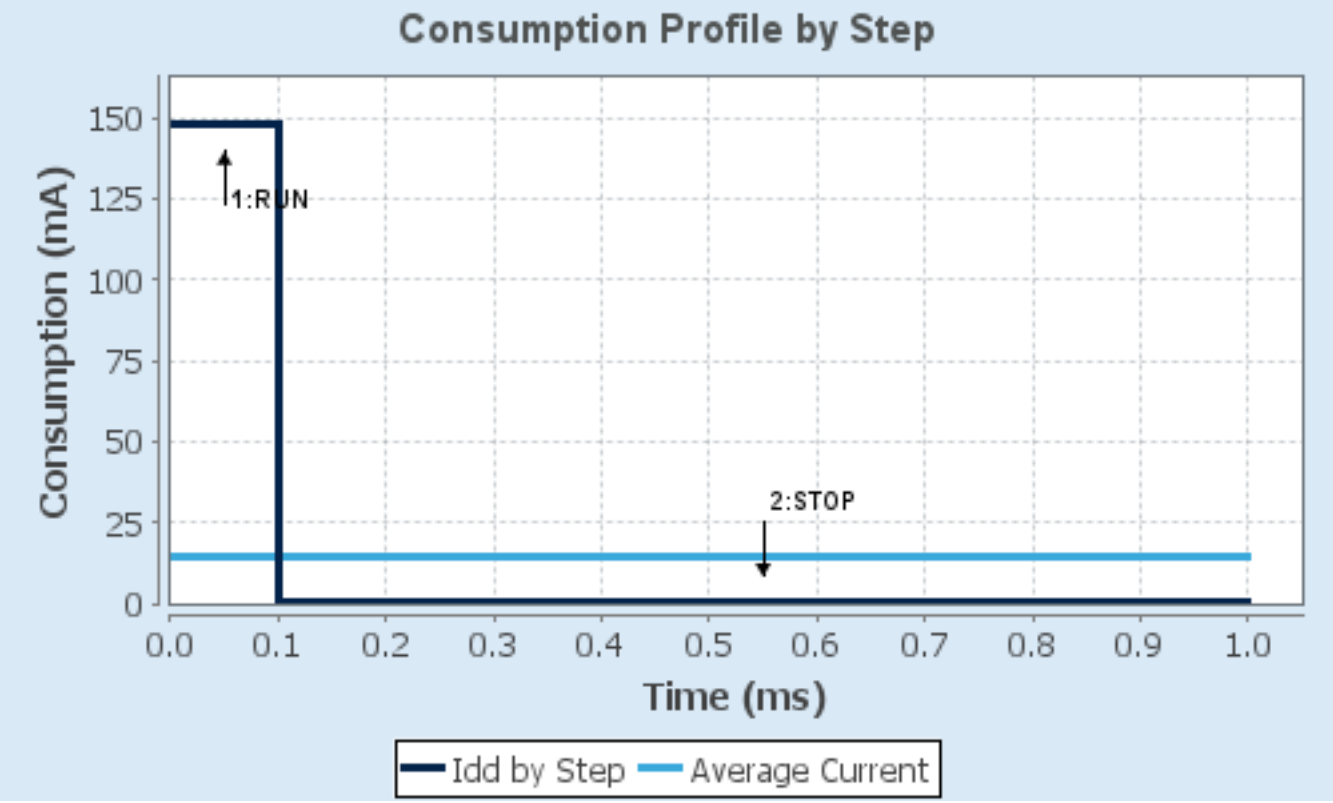
6.4. Sequence

Step	Step1	Step2
Mode	RUN	STOP
Vdd	3.0	3.0
Voltage Source	Battery	Battery
Range	VOS0: Scale0-High	SVOS5: System-Scale5
D1 Mode	DRUN/CRUN	DSTANDBY
D2 Mode	DRUN	DSTANDBY
D3 Mode	DRUN	DSTOP
Fetch Type	ITCM	NA
CPU Frequency	480 MHz	0 Hz
Clock Configuration	HSE BYP PLL	Flash-OFF
Clock Source Frequency	24 MHz	0 Hz
Peripherals		
Additional Cons.	0 mA	0 mA
Average Current	148 mA	150 µA
Duration	0.1 ms	0.9 ms
DMIPS	1027.0	0.0
Ta Max	105.46	124.98
Category	In DS Table	In DS Table

6.5. Results

Sequence Time	1 ms	Average Current	14.94 mA
Battery Life	1 day, 17 hours	Average DMIPS	1027.2001 DMIPS

6.6. Chart


Consumption Profile by Step
Consumption (mA)
150
125
100
75
50
25
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

7. Peripherals and Middlewares Configuration

7.1. ADC1

IN5: IN5 Single-ended

IN16: IN16 Single-ended

7.1.1. Parameter Settings:

ADCs_Common_Settings:

Mode	Independent mode

ADC_Settings:

Clock Prescaler	Asynchronous clock mode divided by 4
Resolution	ADC 16-bit resolution
Scan Conversion Mode	Disabled
Continuous Conversion Mode	Disabled
Discontinuous Conversion Mode	Disabled
End Of Conversion Selection	End of single conversion
Overrun behaviour	Overrun data preserved
Left Bit Shift	No bit shift
Conversion Data Management Mode	Regular Conversion data stored in DR register only
Low Power Auto Wait	Disabled

ADC_Regular_ConversionMode:

Enable Regular Conversions	Enable
Enable Regular Oversampling	Disable
Number Of Conversion	1
External Trigger Conversion Source	Regular Conversion launched by software
External Trigger Conversion Edge	None
Rank	1
Channel	Channel 5
Sampling Time	1.5 Cycles
Offset Number	No offset
Offset Signed Saturation	Disable

ADC_Injected_ConversionMode:

Enable Injected Conversions	Disable

Analog Watchdog 1:

Enable Analog WatchDog1 Mode	false

Analog Watchdog 2:

Enable Analog WatchDog2 Mode	false

Analog Watchdog 3:

Enable Analog WatchDog3 Mode	false

7.2. ADC3

mode: IN0

IN3: IN3 Single-ended

mode: IN7

mode: IN9

mode: Vbat Channel

mode: Temperature Sensor Channel

mode: Vrefint Channel

7.2.1. Parameter Settings:

ADC_Settings:

Clock Prescaler	Asynchronous clock mode divided by 1
Resolution	ADC 16-bit resolution
Scan Conversion Mode	Enabled
Continuous Conversion Mode	Disabled
Discontinuous Conversion Mode	Disabled
End Of Conversion Selection	End of single conversion
Overrun behaviour	Overrun data preserved
Left Bit Shift	No bit shift
Conversion Data Management Mode	Regular Conversion data stored in DR register only
Low Power Auto Wait	Disabled

ADC_Regular_ConversionMode:

Enable Regular Conversions	Enable
Enable Regular Oversampling	**Enable ***
Oversampling Right Shift	No bit shift for oversampling
Oversampling Ratio	**2 ***
Regular Oversampling Mode	Oversampling Continued Mode
Triggered Regular Oversampling	Single trigger for all oversampled conversions
Number Of Conversion	**3 ***
External Trigger Conversion Source	Regular Conversion launched by software
External Trigger Conversion Edge	None
Rank	1
Channel	**Channel Temperature Sensor ***
Sampling Time	**387.5 Cycles ***
Offset Number	No offset
Offset Signed Saturation	Disable
Rank	**2 ***

Channel	**Channel Vbat ***
Sampling Time	**32.5 Cycles ***
Offset Number	No offset
Offset Signed Saturation	Disable
Rank	**3 ***
Channel	**Channel Vrefint ***
Sampling Time	**32.5 Cycles ***
Offset Number	No offset
Offset Signed Saturation	Disable

ADC_Injected_ConversionMode:

Enable Injected Conversions	Disable

Analog Watchdog 1:

Enable Analog WatchDog1 Mode	false

Analog Watchdog 2:

Enable Analog WatchDog2 Mode	false

Analog Watchdog 3:

Enable Analog WatchDog3 Mode	false

7.3. CORTEX_M7

7.3.1. Parameter Settings:

Speculation default mode Settings:

Speculation default mode	Disabled

Cortex Interface Settings:

CPU ICache	**Enabled ***
CPU DCache	**Enabled ***

Cortex Memory Protection Unit Control Settings:

MPU Control Mode	**Background Region Privileged accesses only + MPU Disabled during hard fault, NMI and FAULTMASK handlers ***

Cortex Memory Protection Unit Region 0 Settings:

MPU Region	**Enabled ***
MPU Region Base Address	**0x30040000 ***
MPU Region Size	**32KB ***
MPU SubRegion Disable	**0x0 ***
MPU TEX field level	**level 1 ***
MPU Access Permission	**ALL ACCESS PERMITTED ***
MPU Instruction Access	

	DISABLE *
MPU Shareability Permission	DISABLE
MPU Cacheable Permission	DISABLE
MPU Bufferable Permission	DISABLE

Cortex Memory Protection Unit Region 1 Settings:

MPU Region	**Enabled ***
MPU Region Base Address	**0x30040000 ***
MPU Region Size	**256B ***
MPU SubRegion Disable	**0x0 ***
MPU TEX field level	level 0
MPU Access Permission	**ALL ACCESS PERMITTED ***
MPU Instruction Access	**DISABLE ***
MPU Shareability Permission	**ENABLE ***
MPU Cacheable Permission	DISABLE
MPU Bufferable Permission	**ENABLE ***

Cortex Memory Protection Unit Region 2 Settings:

MPU Region	Disabled

Cortex Memory Protection Unit Region 3 Settings:

MPU Region	Disabled

Cortex Memory Protection Unit Region 4 Settings:

MPU Region	Disabled

Cortex Memory Protection Unit Region 5 Settings:

MPU Region	Disabled

Cortex Memory Protection Unit Region 6 Settings:

MPU Region	Disabled

Cortex Memory Protection Unit Region 7 Settings:

MPU Region	Disabled

Cortex Memory Protection Unit Region 8 Settings:

MPU Region	Disabled

Cortex Memory Protection Unit Region 9 Settings:

MPU Region	Disabled

Cortex Memory Protection Unit Region 10 Settings:

MPU Region	Disabled

Cortex Memory Protection Unit Region 11 Settings:

MPU Region	Disabled

Cortex Memory Protection Unit Region 12 Settings:

MPU Region	Disabled

Cortex Memory Protection Unit Region 13 Settings:

MPU Region	Disabled

Cortex Memory Protection Unit Region 14 Settings:

MPU Region	Disabled

Cortex Memory Protection Unit Region 15 Settings:

MPU Region	Disabled

7.4. DAC1

OUT1 connected to: only external pin

OUT2 connected to: only external pin

7.4.1. Parameter Settings:

DAC Out1 Settings:

Mode selected	Normal Mode
Output Buffer	Enable
Trigger	None
User Trimming	Factory trimming

DAC Out2 Settings:

Mode selected	Normal Mode
Output Buffer	Enable
Trigger	None
User Trimming	Factory trimming

7.5. DEBUG

Debug: Serial Wire

7.6. ETH

Mode: RMII

7.6.1. Parameter Settings:

General : Ethernet Configuration:

Warning	The ETH can work only when RAM is pointing at 0x24000000
Note	PHY Driver must be configured from the LwIP 'Platform Settings' top right tab
Ethernet MAC Address	00:80:E1:00:00:00
Tx Descriptor Length	4
First Tx Descriptor Address	**0x30000200 ***
Rx Descriptor Length	4
First Rx Descriptor Address	**0x30000000 ***

Rx Buffers Length	1536

7.7. FDCAN1

mode: Activated

7.7.1. Parameter Settings:

Basic Parameters:

Frame Format	Classic mode
Mode	Normal mode
Auto Retransmission	Disable
Transmit Pause	Disable
Protocol Exception	Disable
Nominal Sync Jump Width	1
Data Prescaler	1
Data Sync Jump Width	1
Data Time Seg1	1
Data Time Seg2	1
Message Ram Offset	0
Std Filters Nbr	0
Ext Filters Nbr	0
Rx Fifo0 Elmts Nbr	0
Rx Fifo0 Elmt Size	8 bytes data field
Rx Fifo1 Elmts Nbr	0
Rx Fifo1 Elmt Size	8 bytes data field
Rx Buffers Nbr	0
Rx Buffer Size	8 bytes data field
Tx Events Nbr	0
Tx Buffers Nbr	0
Tx Fifo Queue Elmts Nbr	0
Tx Fifo Queue Mode	FIFO mode
Tx Elmt Size	8 bytes data field

Clock Calibration Unit:

Clock Calibration	Disable

Bit Timings Parameters:

Nominal Prescaler	16
Nominal Time Quantum	**640.0 ***
Nominal Time Seg1	2
Nominal Time Seg2	2
Nominal Time for one Bit	**3200 ***
Nominal Baud Rate	**312500 ***

7.8. FDCAN2

mode: Activated

7.8.1. Parameter Settings:

Basic Parameters:

Frame Format	Classic mode
Mode	Normal mode
Auto Retransmission	Disable
Transmit Pause	Disable
Protocol Exception	Disable
Nominal Sync Jump Width	1
Data Prescaler	1
Data Sync Jump Width	1
Data Time Seg1	1
Data Time Seg2	1
Message Ram Offset	0
Std Filters Nbr	0
Ext Filters Nbr	0
Rx Fifo0 Elmts Nbr	0
Rx Fifo0 Elmt Size	8 bytes data field
Rx Fifo1 Elmts Nbr	0
Rx Fifo1 Elmt Size	8 bytes data field
Rx Buffers Nbr	0
Rx Buffer Size	8 bytes data field
Tx Events Nbr	0
Tx Buffers Nbr	0
Tx Fifo Queue Elmts Nbr	0
Tx Fifo Queue Mode	FIFO mode
Tx Elmt Size	8 bytes data field

Clock Calibration Unit:

Clock Calibration	Disable

Bit Timings Parameters:

Nominal Prescaler	16
Nominal Time Quantum	**640.0 ***
Nominal Time Seg1	2
Nominal Time Seg2	2
Nominal Time for one Bit	**3200 ***
Nominal Baud Rate	**312500 ***

7.9. I2C2

I2C: I2C

7.9.1. Parameter Settings:

Timing configuration:

Custom Timing	Disabled
I2C Speed Mode	**Fast Mode ***
I2C Speed Frequency (KHz)	400
Rise Time (ns)	0
Fall Time (ns)	0
Coefficient of Digital Filter	0
Analog Filter	Enabled
Timing	**0x009034B6 ***

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

7.10. IWDG1

mode: Activated

7.10.1. Parameter Settings:

Watchdog Clocking:

IWDG counter clock prescaler	**16 ***
IWDG window value	4095
IWDG down-counter reload value	4095

7.11. RCC

High Speed Clock (HSE): Crystal/Ceramic Resonator

Low Speed Clock (LSE) : Crystal/Ceramic Resonator

7.11.1. Parameter Settings:

Power Parameters:

SupplySource	PWR_LDO_SUPPLY
Power Regulator Voltage Scale	Power Regulator Voltage Scale 1

RCC Parameters:

TIM Prescaler Selection	Disabled
HSE Startup Timout Value (ms)	100
LSE Startup Timout Value (ms)	5000
CSI Calibration Value	16
HSI Calibration Value	32

System Parameters:

VDD voltage (V)	3.3
Flash Latency(WS)	2 WS (3 CPU cycle)
Product revision	rev.Y

PLL range Parameters:

PLL1 clock Input range	Between 4 and 8 MHz
PLL2 input frequency range	Between 2 and 4 MHz
PLL1 clock Output range	Wide VCO range
PLL2 clock Output range	Wide VCO range

7.12. SYS

Timebase Source: TIM17

7.13. TIM1

Channel1: PWM Generation CH1

Channel2: PWM Generation CH2

Channel3: PWM Generation CH3

7.13.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	0
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	65535
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)	0
Output compare preload	Enable
Fast Mode	Disable
CH Polarity	High
CH Idle State	Reset

PWM Generation Channel 2:

Mode	PWM mode 1
Pulse (16 bits value)	0
Output compare preload	Enable
Fast Mode	Disable
CH Polarity	High
CH Idle State	Reset

PWM Generation Channel 3:

Mode	PWM mode 1
Pulse (16 bits value)	0
Output compare preload	Enable
Fast Mode	Disable
CH Polarity	High
CH Idle State	Reset

7.14. TIM2

Channel3: PWM Generation CH3

Channel4: Forced Output CH4

7.14.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	0
Counter Mode	Up
Counter Period (AutoReload Register - 32 bits value)	4294967295
Internal Clock Division (CKD)	No Division
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)

Clear Input:

Clear Input Source	Disable

PWM Generation Channel 3:

Mode	PWM mode 1
Pulse (32 bits value)	0
Output compare preload	Enable
Fast Mode	Disable
CH Polarity	High

Forced Output Channel 4:

Mode	Forced Active
Pulse (32 bits value)	0
Output compare preload	Disable
CH Polarity	High

7.15. TIM12

Channel1: PWM Generation CH1

7.15.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	0
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	65535
Internal Clock Division (CKD)	No Division
auto-reload preload	**Enable ***

Clear Input:

Clear Input Source	Disable

PWM Generation Channel 1:

Mode	PWM mode 1
Pulse (16 bits value)	0
Output compare preload	Enable
Fast Mode	Disable
CH Polarity	High

7.16. TIM16
mode: Activated
7.16.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	0
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	65535
Internal Clock Division (CKD)	No Division
Repetition Counter (RCR - 8 bits value)	0
auto-reload preload	**Enable ***

7.17. UART4
Mode: Asynchronous
7.17.1. 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
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

7.18. UART5

Mode: Asynchronous

7.18.1. 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
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

7.19. USART2

Mode: Asynchronous

7.19.1. 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
Single Sample	Disable
ClockPrescaler	1
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

7.20. USART3

Mode: Asynchronous

7.20.1. 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
Single Sample	Disable
ClockPrescaler	1
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

7.21. USART6

Mode: Asynchronous

7.21.1. 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
Single Sample	Disable
ClockPrescaler	1
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

7.22. USB_OTG_FS

Mode: Device_Only

Activate_VBUS: VBUS sensing

mode: Activate_SOF

7.22.1. Parameter Settings:

Speed	Full Speed 12MBit/s
Enable internal IP DMA	Disabled
Low power	Disabled
Battery charging	Enabled
Link Power Management	Disabled
Use dedicated end point 1 interrupt	Disabled
VBUS sensing	Enabled
Signal start of frame	Enabled

7.23. FREERTOS

Interface: CMSIS_V2

7.23.1. Config parameters:

API:

FreeRTOS API	CMSIS v2

Versions:

FreeRTOS version	10.3.1
CMSIS-RTOS version	2.00

MPU/FPU:

ENABLE_MPU	Disabled
ENABLE_FPU	**Enabled ***

Kernel settings:

USE_PREEMPTION	Enabled
CPU_CLOCK_HZ	SystemCoreClock
TICK_RATE_HZ	1000
MAX_PRIORITIES	56
MINIMAL_STACK_SIZE	128
MAX_TASK_NAME_LEN	16
USE_16_BIT_TICKS	Disabled
IDLE_SHOULD_YIELD	Enabled
USE_MUTEXES	Enabled
USE_RECURSIVE_MUTEXES	Enabled
USE_COUNTING_SEMAPHORES	Enabled
QUEUE_REGISTRY_SIZE	8
USE_APPLICATION_TASK_TAG	Disabled
ENABLE_BACKWARD_COMPATIBILITY	Enabled
USE_PORT_OPTIMISED_TASK_SELECTION	Disabled
USE_TICKLESS_IDLE	Disabled
USE_TASK_NOTIFICATIONS	Enabled
RECORD_STACK_HIGH_ADDRESS	**Enabled ***

Memory management settings:

Memory Allocation	Dynamic / Static
TOTAL_HEAP_SIZE	**65536 ***
Memory Management scheme	heap_4

Hook function related definitions:

USE_IDLE_HOOK	Disabled
USE_TICK_HOOK	Disabled
USE_MALLOC_FAILED_HOOK	Disabled
USE_DAEMON_TASK_STARTUP_HOOK	Disabled
CHECK_FOR_STACK_OVERFLOW	Disabled

Run time and task stats gathering related definitions:

GENERATE_RUN_TIME_STATS	**Enabled ***
USE_TRACE_FACILITY	Enabled
USE_STATS_FORMATTING_FUNCTIONS	**Enabled ***

Co-routine related definitions:

USE_CO_ROUTINES	Disabled
MAX_CO_ROUTINE_PRIORITIES	2

Software timer definitions:

USE_TIMERS	Enabled
TIMER_TASK_PRIORITY	2
TIMER_QUEUE_LENGTH	10
TIMER_TASK_STACK_DEPTH	256

Interrupt nesting behaviour configuration:

LIBRARY_LOWEST_INTERRUPT_PRIORITY	15
LIBRARY_MAX_SYSCALL_INTERRUPT_PRIORITY	5

Added with 10.2.1 support:

MESSAGE_BUFFER_LENGTH_TYPE	size_t
USE_POSIX_ERRNO	Disabled

CMSIS-RTOS V2 flags:

USE_OS2_THREAD_SUSPEND_RESUME	Enabled
USE_OS2_THREAD_ENUMERATE	Enabled
USE_OS2_EVENTFLAGS_FROM_ISR	Enabled
USE_OS2_THREAD_FLAGS	Enabled
USE_OS2_TIMER	Enabled
USE_OS2_MUTEX	Enabled

7.23.2. Include parameters:

Include definitions:

vTaskPrioritySet	Enabled
uxTaskPriorityGet	Enabled
vTaskDelete	Enabled
vTaskCleanUpResources	Disabled
vTaskSuspend	Enabled
vTaskDelayUntil	Enabled
vTaskDelay	Enabled
xTaskGetSchedulerState	Enabled
xTaskResumeFromISR	Enabled
xQueueGetMutexHolder	Enabled
xSemaphoreGetMutexHolder	Disabled
pcTaskGetTaskName	Disabled
uxTaskGetStackHighWaterMark	Enabled
xTaskGetCurrentTaskHandle	Enabled
eTaskGetState	Enabled
xEventGroupSetBitFromISR	Disabled
xTimerPendFunctionCall	Enabled
xTaskAbortDelay	Disabled
xTaskGetHandle	Disabled
uxTaskGetStackHighWaterMark2	Disabled

7.23.3. Advanced settings:

Newlib settings (see parameter description first):

USE_NEWLIB_REENTRANT	**Enabled ***

Project settings (see parameter description first):

Use FW pack heap file	Enabled

7.24. LWIP

mode: Enabled

Advanced parameters are not listed except if modified by user.

7.24.1. General Settings:

LwIP Version:	
LwIP Version (Version of LwIP supported by CubeMX ** CubeMX specific **)	2.1.2
IPv4 - DHCP Options:	
LWIP_DHCP (DHCP Module)	**Disabled ***
IP Address Settings:	
IP_ADDRESS (IP Address)	**192.168.000.123 ***
NETMASK_ADDRESS (Netmask Address)	**255.255.255.000 ***
GATEWAY_ADDRESS (Gateway Address)	**192.168.000.001 ***
RTOS Dependency:	
WITH_RTOS (Use FREERTOS ** CubeMX specific **)	Enabled
CMSIS_VERSION (CMSIS API Version used)	CMSIS v2
RTOS_USE_NEWLIB_REENTRANT (RTOS used - 1)	Enabled
Platform Settings:	
PHY Driver	Choose/LAN8742
Protocols Options:	
LWIP_ICMP (ICMP Module Activation)	Enabled
LWIP_IGMP (IGMP Module)	Disabled
LWIP_DNS (DNS Module)	Disabled
LWIP_UDP (UDP Module)	Enabled
MEMP_NUM_UDP_PCB (Number of UDP Connections)	4
LWIP_TCP (TCP Module)	Enabled
MEMP_NUM_TCP_PCB (Number of TCP Connections)	5

7.24.2. Key Options:

Infrastructure - OS Awarness Option:	
NO_SYS (OS Awarness)	OS Used
Infrastructure - Timers Options:	
LWIP_TIMERS (Use Support For sys_timeout)	Enabled

Infrastructure - Core Locking and MPU Options:

SYS_LIGHTWEIGHT_PROT (Memory Functions Protection)	Enabled

Infrastructure - Heap and Memory Pools Options:

MEM_SIZE (Heap Memory Size)	**16360 ***
LWIP_RAM_HEAP_POINTER (RAM Heap Pointer)	**0x30044000 ***

Infrastructure - Internal Memory Pool Sizes:

MEMP_NUM_PBUF (Number of Memory Pool struct Pbufs)	16
MEMP_NUM_RAW_PCB (Number of Raw Protocol Control Blocks)	4
MEMP_NUM_TCP_PCB_LISTEN (Number of Listening TCP Connections)	8
MEMP_NUM_TCP_SEG (Number of TCP Segments simultaneously queued)	16
MEMP_NUM_LOCALHOSTLIST (Number of Host Entries in the Local Host List)	1

Pbuf Options:

PBUF_POOL_SIZE (Number of Buffers in the Pbuf Pool)	**12 ***
PBUF_POOL_BUFSIZE (Size of each pbuf in the pbuf pool)	**16360 ***

IPv4 - ARP Options:

LWIP_ARP (ARP Functionality)	Enabled

Callback - TCP Options:

TCP_TTL (Number of Time-To-Live Used by TCP Packets)	255
TCP_WND (TCP Receive Window Maximum Size)	2144
TCP_QUEUE_OOSEQ (Allow Out-Of-Order Incoming Packets)	Enabled
LWIP_TCP_SACK_OUT (Allow Sending Selective Acknowledgements)	Disabled
TCP_MSS (Maximum Segment Size)	536
TCP_SND_BUF (TCP Sender Buffer Space)	1072
TCP_SND_QUEUELEN (Number of Packet Buffers Allowed for TCP Sender)	9

Network Interfaces Options:

LWIP_NETIF_STATUS_CALLBACK (Callback Function on Interface Status Changes)	Disabled
LWIP_NETIF_EXT_STATUS_CALLBACK (Extended Callback Function for several netif)	Disabled
LWIP_NETIF_LINK_CALLBACK (Callback Function on Interface Link Changes)	Enabled

NETIF - Loopback Interface Options:

LWIP_NETIF_LOOPBACK (NETIF Loopback)	Disabled

Infrastructure - Threading Options:

TCPIP_THREAD_NAME (TCPIP Thread Name)	"tcpip_thread"
TCPIP_THREAD_STACKSIZE (TCPIP Thread Stack Size)	1024
TCPIP_THREAD_PRIO (TCPIP Thread Priority Level)	24
TCPIP_MBOX_SIZE (TCPIP Mailbox Size)	6
DEFAULT_THREAD_NAME (Default LwIP Thread Name)	"lwIP"
DEFAULT_THREAD_STACKSIZE (Default LwIP Thread Stack Size)	**16360 ***
DEFAULT_THREAD_PRIO (Default LwIP Thread Priority Level)	3
DEFAULT_RAW_RECVMBOX_SIZE (Default Mailbox Size on a NETCONN Raw)	0
DEFAULT_TCP_RECVMBOX_SIZE (Default Mailbox Size on a NETCONN TCP)	6

DEFAULT_ACCEPTMBOX_SIZE (Default Mailbox Size for Incoming Connections)	6

Thread Safe APIs - Netconn Options:

LWIP_NETCONN (NETCONN API)	Enabled

Thread Safe APIs - Socket Options:

LWIP_SOCKET (Socket API)	Enabled
LWIP_COMPAT_SOCKETS (BSD-style Socket Functions Names)	1
LWIP_SOCKET_OFFSET (Socket Offset Number)	0
LWIP_SOCKET_SELECT (Select for Socket)	Enabled
LWIP_SOCKET_POLL (Poll for Socket)	Enabled

7.24.3. PPP:

PPP Options:

PPP_SUPPORT (PPP Module)	Disabled

7.24.4. IPv6:

IPv6 Options:

LWIP_IPV6 (IPv6 Protocol)	Disabled

7.24.5. HTTPD:

HTTPD Options:

LWIP_HTTPD (LwIP HTTPD Support ** CubeMX specific **)	Disabled

7.24.6. SNMP:

SNMP Options:

LWIP_SNMP (LwIP SNMP Agent)	Disabled

7.24.7. SNTP/SMTP:

SNTP Options:

LWIP_SNTP (LWIP SNTP Support ** CubeMX specific **)	Disabled

SMTP Options:

LWIP_SMTP (LWIP SMTP Support ** CubeMX specific **)	Disabled

7.24.8. MDNS/TFTP:

MDNS Options:

LWIP_MDNS (Multicast DNS Support ** CubeMX specific **)	Disabled

TFTP Options:

LWIP_TFTP (TFTP Support ** CubeMX specific **)	Disabled

7.24.9. Perf/Checks:

Sanity Checks:

LWIP_DISABLE_TCP_SANITY_CHECKS (TCP Sanity Checks)	Disabled
LWIP_DISABLE_MEMP_SANITY_CHECKS (MEMP Sanity Checks)	Disabled

Performance Options:

LWIP_PERF (Performace Testing for LwIP)	Disabled

7.24.10. Statistics:

Debug - Statistics Options:

LWIP_STATS (Statictics Collection)	Disabled

7.24.11. Checksum:

Infrastructure - Checksum Options:

CHECKSUM_BY_HARDWARE (Hardware Checksum ** CubeMX specific **)	Enabled
LWIP_CHECKSUM_CTRL_PER_NETIF (Generate/Check Checksum per Netif)	Disabled
CHECKSUM_GEN_IP (Generate Software Checksum for Outgoing IP Packets)	Disabled
CHECKSUM_GEN_UDP (Generate Software Checksum for Outgoing UDP Packets)	Disabled
CHECKSUM_GEN_TCP (Generate Software Checksum for Outgoing TCP Packets)	**Enabled ***
CHECKSUM_GEN_ICMP (Generate Software Checksum for Outgoing ICMP Packets)	Enabled
CHECKSUM_GEN_ICMP6 (Generate Software Checksum for Outgoing ICMP6 Packets)	Disabled
CHECKSUM_CHECK_IP (Generate Software Checksum for Incoming IP Packets)	Disabled
CHECKSUM_CHECK_UDP (Generate Software Checksum for Incoming UDP Packets)	Disabled
CHECKSUM_CHECK_TCP (Generate Software Checksum for Incoming TCP Packets)	**Enabled ***
CHECKSUM_CHECK_ICMP (Generate Software Checksum for Incoming ICMP Packets)	Enabled
CHECKSUM_CHECK_ICMP6 (Generate Software Checksum for Incoming ICMP6 Packets)	Disabled

7.24.12. Debug:

LwIP Main Debugging Options:

LWIP_DBG_MIN_LEVEL (Minimum Level)	All

7.24.13. Platform Settings:

Driver_PHY	LAN8742

*** User modified value**

8. System Configuration

8.1. GPIO configuration

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
ADC1	PA0	ADC1_INP16	Analog mode	No pull-up and no pull-down	n/a	
	PB1	ADC1_INP5	Analog mode	No pull-up and no pull-down	n/a	
ADC3	PF4	ADC3_INP9	Analog mode	No pull-up and no pull-down	n/a	
	PF7	ADC3_INP3	Analog mode	No pull-up and no pull-down	n/a	
	PF8	ADC3_INP7	Analog mode	No pull-up and no pull-down	n/a	
	PC2_C	ADC3_INP0	Analog mode	No pull-up and no pull-down	n/a	
DAC1	PA4	DAC1_OUT1	Analog mode	No pull-up and no pull-down	n/a	
	PA5	DAC1_OUT2	Analog mode	No pull-up and no pull-down	n/a	
DEBUG	PA13 (JTMS/SWDIO)	DEBUG_JTMS-SWDIO	n/a	n/a	n/a	
	PA14 (JTCK/SWCLK)	DEBUG_JTCK-SWCLK	n/a	n/a	n/a	
ETH	PC1	ETH_MDC	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	
	PA1	ETH_REF_CLK	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	
	PA2	ETH_MDIO	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	
	PA7	ETH_CRS_DV	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	
	PC4	ETH_RXD0	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	
	PC5	ETH_RXD1	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	
	PB13	ETH_TXD1	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	
	PG11	ETH_TX_EN	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	
	PG13	ETH_TXD0	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	
FDCAN1	PD0	FDCAN1_RX	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PD1	FDCAN1_TX	Alternate Function Push Pull	No pull-up and no pull-down	Low	
FDCAN2	PB5	FDCAN2_RX	Alternate Function Push Pull	No pull-up and no pull-down	Low	

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
	PB6	FDCAN2_TX	Alternate Function Push Pull	No pull-up and no pull-down	Low	
I2C2	PF0	I2C2_SDA	Alternate Function Open Drain	No pull-up and no pull-down	Low	
	PF1	I2C2_SCL	Alternate Function Open Drain	No pull-up and no pull-down	Low	
RCC	PC14-OSC32_IN (OSC32_IN)	RCC_OSC32_IN	n/a	n/a	n/a	
	PC15-OSC32_OUT	RCC_OSC32_OUT	n/a	n/a	n/a	
	PH0-OSC_IN (PH0)	RCC_OSC_IN	n/a	n/a	n/a	
	PH1-OSC_OUT (PH1)	RCC_OSC_OUT	n/a	n/a	n/a	
TIM1	PE9	TIM1_CH1	Alternate Function Push Pull	No pull-up and no pull-down	Low	PWM3
	PE11	TIM1_CH2	Alternate Function Push Pull	No pull-up and no pull-down	Low	PWM4
	PE13	TIM1_CH3	Alternate Function Push Pull	No pull-up and no pull-down	Low	PWM5
TIM2	PB10	TIM2_CH3	Alternate Function Push Pull	No pull-up and no pull-down	Low	PWM1
	PB11	TIM2_CH4	Alternate Function Push Pull	No pull-up and no pull-down	Low	PWM2
TIM12	PB14	TIM12_CH1	Alternate Function Push Pull	No pull-up and no pull-down	Low	
UART4	PC10	UART4_TX	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PC11	UART4_RX	Alternate Function Push Pull	No pull-up and no pull-down	Low	
UART5	PC12	UART5_TX	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PD2	UART5_RX	Alternate Function Push Pull	No pull-up and no pull-down	Low	
USART2	PD5	USART2_TX	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PD6	USART2_RX	Alternate Function Push Pull	No pull-up and no pull-down	Low	
USART3	PD8	USART3_TX	Alternate Function Push Pull	No pull-up and no pull-down	Low	STLINK_RX
	PD9	USART3_RX	Alternate Function Push Pull	No pull-up and no pull-down	Low	STLINK_TX
USART6	PG9	USART6_RX	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PG14	USART6_TX	Alternate Function Push Pull	No pull-up and no pull-down	Low	
USB_OTG_FS	PA8	USB_OTG_FS_SOF	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PA9	USB_OTG_FS_VBUS	Input mode	No pull-up and no pull-down	n/a	
	PA11	USB_OTG_FS_DM	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PA12	USB_OTG_FS_DP	Alternate Function Push Pull	No pull-up and no pull-down	Low	
GPIO	PC13	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	B1 [Blue PushButton]
	PF3	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LED1

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
	PF5	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LED2
	PF10	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LED3
	PB0	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LD1 [Green Led]
	PF13	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	STEP1_EN
	PF14	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	STEP1_Dir
	PF15	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	STEP1_step
	PE7	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	GPIO4
	PE8	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	GPIO5
	PE10	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	GPIO3
	PE12	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	GPIO2
	PE14	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	STOP
	PE15	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	GPIO1
	PD10	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	USB_OTG_FS_PWR_EN
	PD11	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PD12	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PD13	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PG7	GPIO_EXTI7	External Interrupt Mode with Rising edge trigger detection	No pull-up and no pull-down	n/a	USB_OTG_FS_OVCR
	PE0	GPIO_EXTI0	External Interrupt Mode with Rising edge trigger detection	No pull-up and no pull-down	n/a	FAULT
	PE1	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LD2 [Yellow Led]

8.2. DMA configuration

nothing configured in DMA service

8.3. BDMA configuration

nothing configured in DMA service

8.4. MDMA configuration

nothing configured in DMA service

8.5. NVIC configuration

8.5.1. 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
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	15	0
System tick timer	true	15	0
Ethernet global interrupt	true	5	0
TIM16 global interrupt	true	5	0
TIM17 global interrupt	true	15	0
PVD and AVD interrupts through EXTI line 16	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		
EXTI line0 interrupt	unused		
ADC1 and ADC2 global interrupts	unused		
FDCAN1 interrupt 0	unused		
FDCAN2 interrupt 0	unused		
FDCAN1 interrupt 1	unused		
FDCAN2 interrupt 1	unused		
EXTI line[9:5] interrupts	unused		
TIM1 break interrupt	unused		
TIM1 update interrupt	unused		
TIM1 trigger and commutation interrupts	unused		
TIM1 capture compare interrupt	unused		
TIM2 global interrupt	unused		
I2C2 event interrupt	unused		
I2C2 error interrupt	unused		
USART2 global interrupt	unused		
USART3 global interrupt	unused		
TIM8 break interrupt and TIM12 global interrupt	unused		
UART4 global interrupt	unused		
UART5 global interrupt	unused		
TIM6 global interrupt, DAC1_CH1 and DAC1_CH2 underrun error interrupts	unused		
Ethernet wake-up interrupt through EXTI line 86	unused		
FDCAN calibration unit interrupt	unused		

Interrupt Table	Enable	Preenmption Priority	SubPriority
USART6 global interrupt	unused		
FPU 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		
HSEM1 global interrupt	unused		
ADC3 global interrupt	unused		

8.5.2. NVIC Code generation

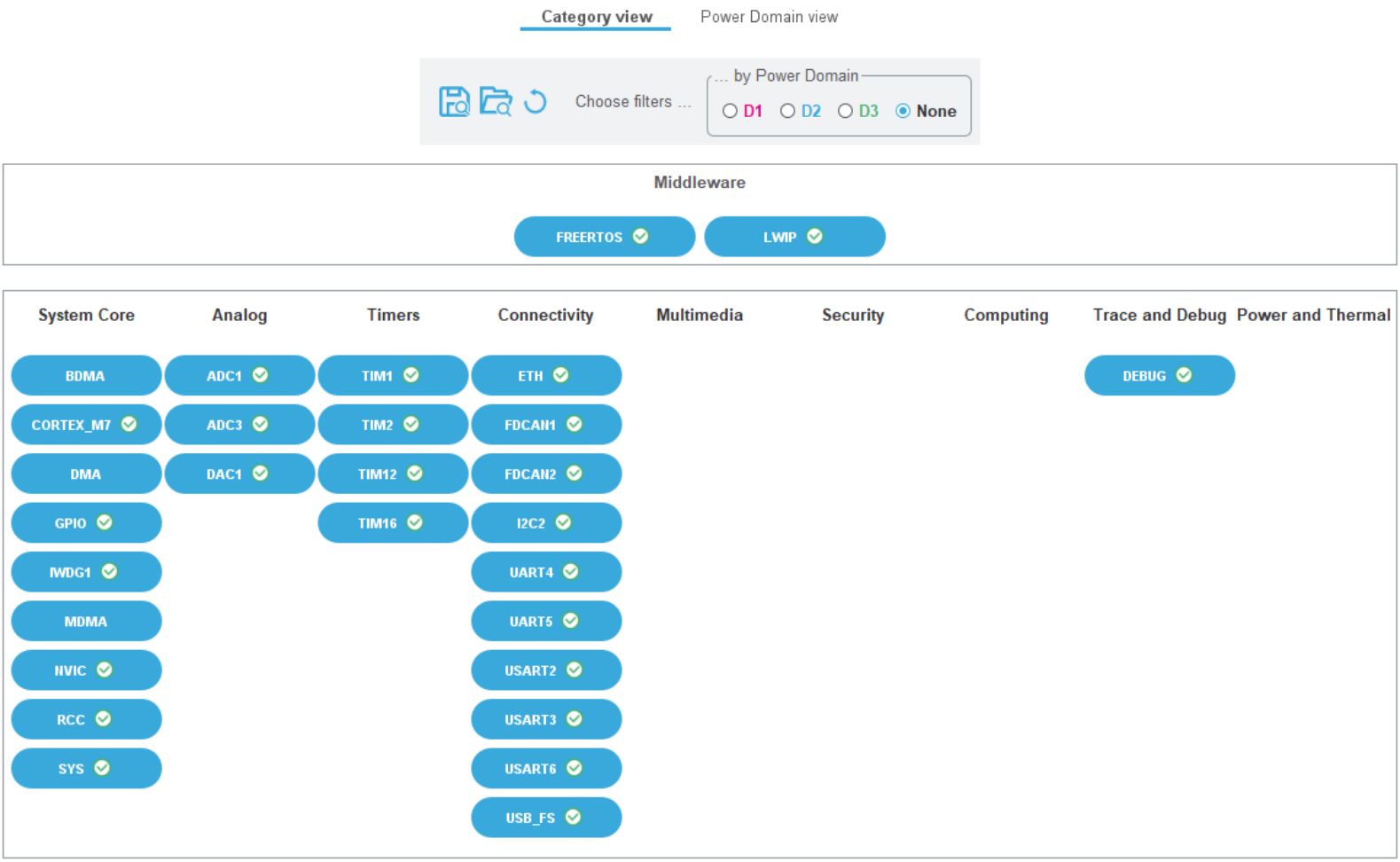
Enabled interrupt Table	Select for init sequence ordering	Generate IRQ handler	Call HAL handler
Non maskable interrupt	false	true	false
Hard fault interrupt	false	true	false
Memory management fault	false	true	false
Pre-fetch fault, memory access fault	false	true	false
Undefined instruction or illegal state	false	true	false
System service call via SWI instruction	false	false	false
Debug monitor	false	true	false
Pendable request for system service	false	false	false
System tick timer	false	false	true
Ethernet global interrupt	false	true	true
TIM16 global interrupt	false	true	true
TIM17 global interrupt	false	true	true

*** User modified value**

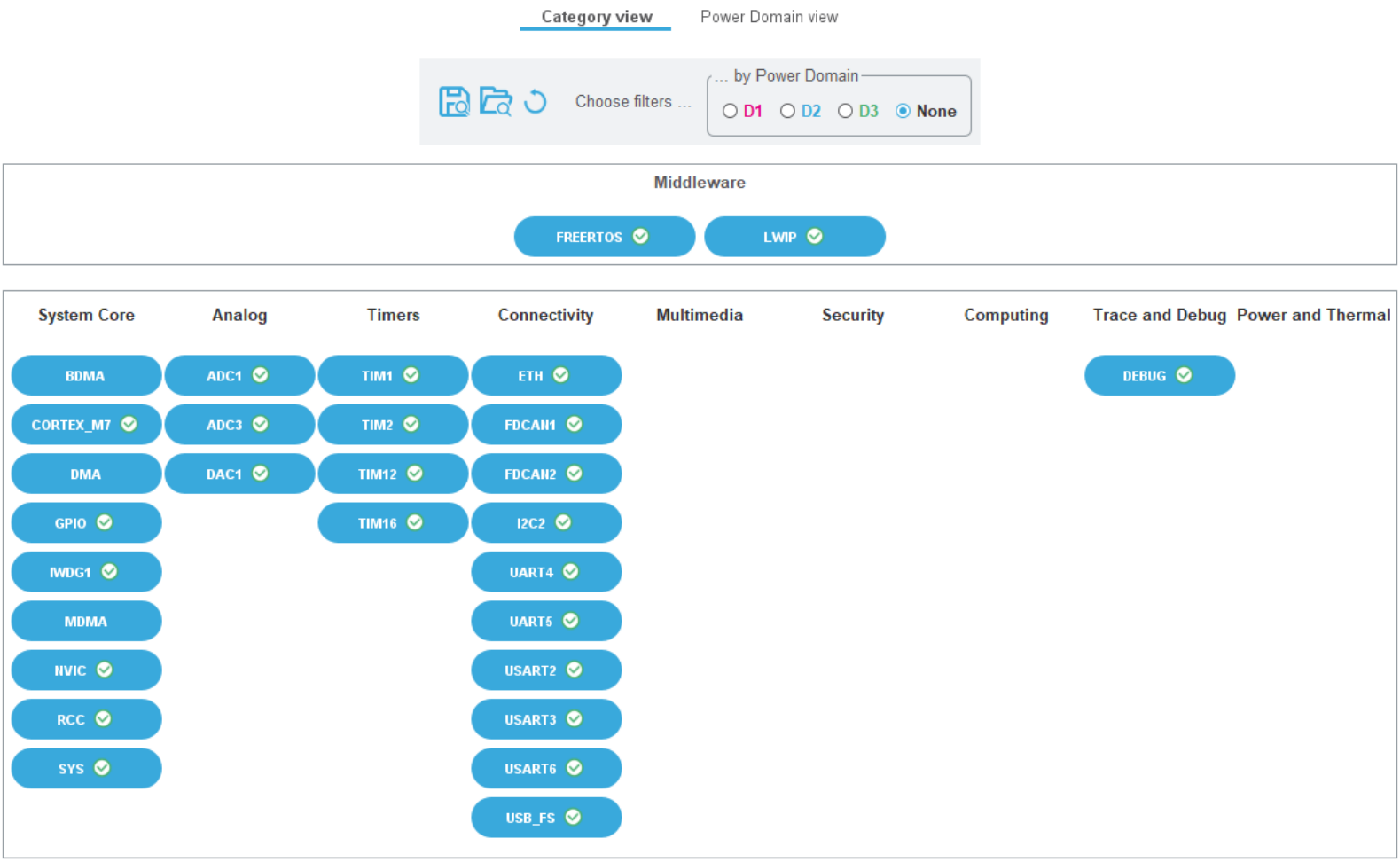
9. System Views

9.1. Category view

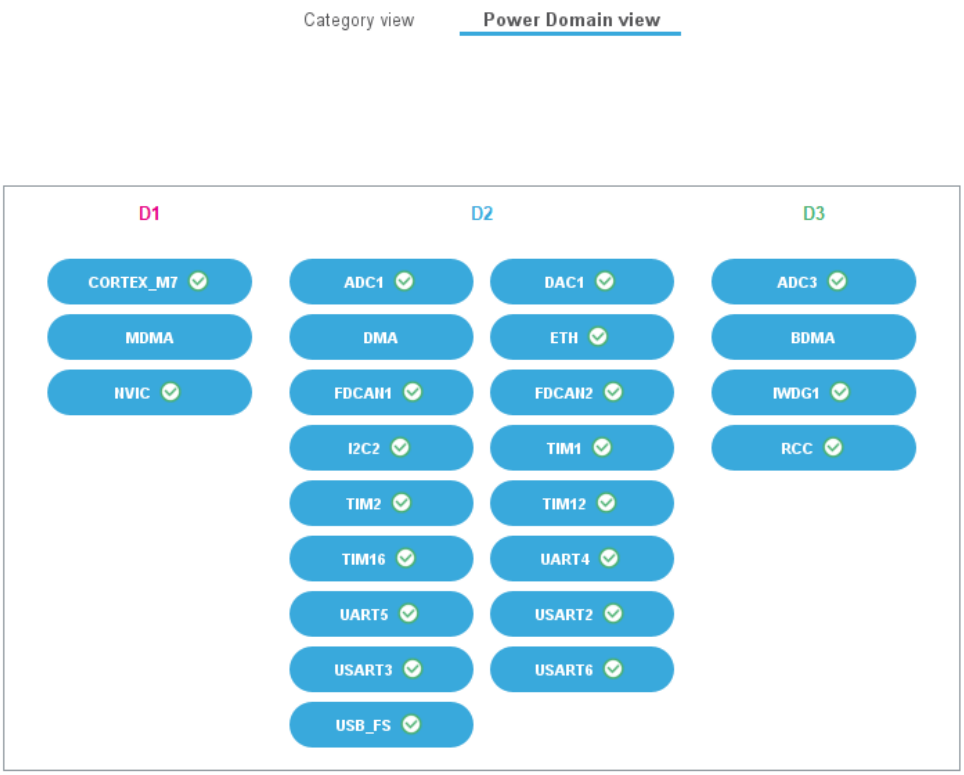
9.1.1. Current



9.1.2. Without filters



9.2. Power Domain view



10. Docs & Resources

Type	Link
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
Training Material	https://www.st.com/resource/en/sales_guide/sg_sc2154.pdf
Training Material	https://www.st.com/resource/en/training_certification/faecp_stm32h7_dualcore_edr.pdf
Training Material	https://www.st.com/resource/en/training_certification/faecp_stm32h7_edr.pdf
Brochures	https://www.st.com/resource/en/brochure/brstm32h7.pdf
Brochures	https://www.st.com/resource/en/brochure/brstm32h7vl.pdf
Flyers	https://www.st.com/resource/en/flyer/flnucleolrwan.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/flpowerstbd.pdf
Application Notes	https://www.st.com/resource/en/application_note/an1181-electrostatic-discharge-sensitivity-measurement-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/an2639-soldering-recommendations-and-package-information-for-leadfree-ecopack-mcus-

	and-mpus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an2834-how-to-get-the-best-adc-accuracy-in-stm32-microcontrollers-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an2867-oscillator-design-guide-for-stm8afals-stm32-mcus-and-mpus-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/an4013-stm32-crossseries-timer-overview-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4221-i2c-protocol-used-in-the-stm32-bootloader-stmicroelectronics.pdf
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	applications-stmicroelectronics.pdf
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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
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Application Notes	https://www.st.com/resource/en/application_note/an4996-hardware-jpeg-

	codec-peripheral-in-stm32f7677xxx-and-stm32h743534555475750a3b3b0xx-microcontrollers-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5020-digital-camera-interface-dcmi-on-stm32-mcus-stmicroelectronics.pdf
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Application Notes	https://www.st.com/resource/en/application_note/an5312-migration-from-revy-to-revv-for-stm32h743753-and-stm32h750-value-line-microcontrollers-stmicroelectronics.pdf
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