
STM32
CubeMX

1. Description

1.1. Project

Project Name	STM32CubeMX
Board Name	NUCLEO-H563ZI
Generated with:	STM32CubeMX 6.9.1
Date	08/24/2023

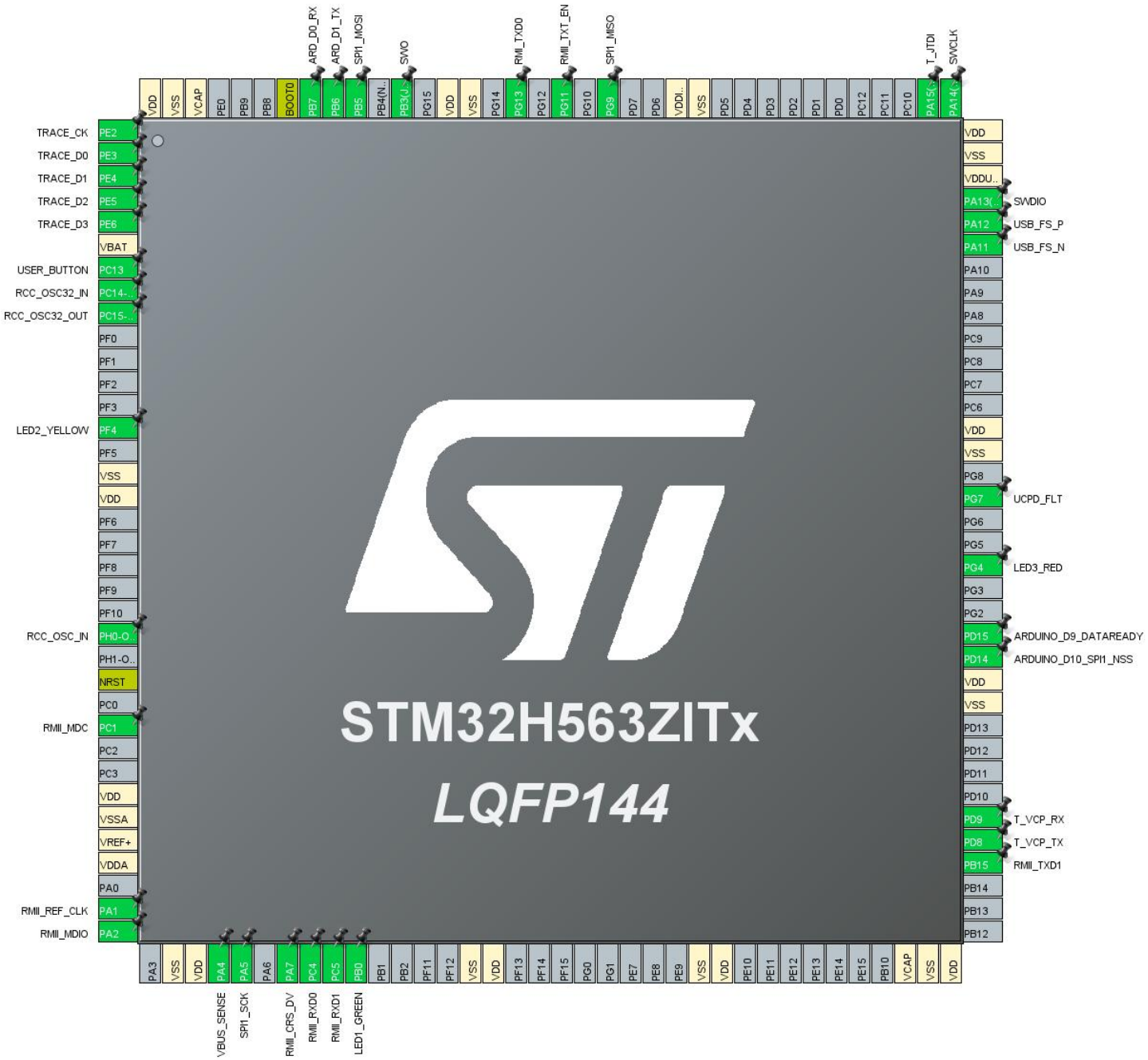
1.2. MCU

MCU Series	STM32H5
MCU Line	STM32H563/H573
MCU name	STM32H563ZITx
MCU Package	LQFP144
MCU Pin number	144

1.3. Core(s) information

Core(s)	ARM Cortex-M33

2. Pinout Configuration



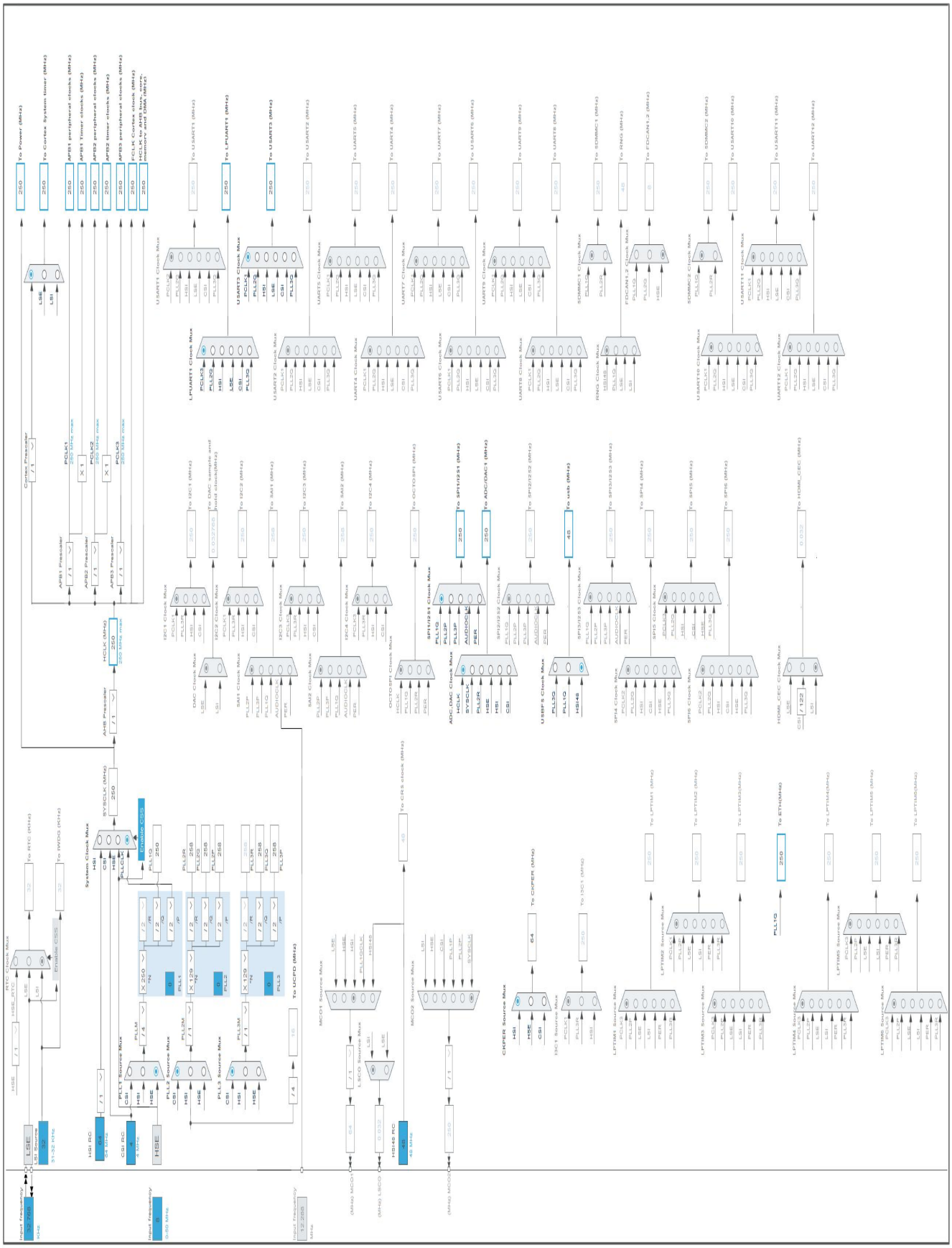
3. Pins Configuration

Pin Number LQFP144	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	PE2	I/O	DEBUG_TRACECLK	TRACE_CK
2	PE3	I/O	DEBUG_TRACED0	TRACE_D0
3	PE4	I/O	DEBUG_TRACED1	TRACE_D1
4	PE5	I/O	DEBUG_TRACED2	TRACE_D2
5	PE6	I/O	DEBUG_TRACED3	TRACE_D3
6	VBAT	Power		
7	PC13	I/O	GPIO_EXTI13	USER_BUTTON
8	PC14-OSC32_IN(OSC32_IN)	I/O	RCC_OSC32_IN	
9	PC15-OSC32_OUT(OSC32_OUT)	I/O	RCC_OSC32_OUT	
14	PF4 *	I/O	GPIO_Output	LED2_YELLOW
16	VSS	Power		
17	VDD	Power		
23	PH0-OSC_IN(PH0)	I/O	RCC_OSC_IN	
25	NRST	Reset		
27	PC1	I/O	ETH_MDC	RMII_MDC
30	VDD	Power		
31	VSSA	Power		
32	VREF+	Power		
33	VDDA	Power		
35	PA1	I/O	ETH_REF_CLK	RMII_REF_CLK
36	PA2	I/O	ETH_MDIO	RMII_MDIO
38	VSS	Power		
39	VDD	Power		
40	PA4	I/O	ADC1_INP18	VBUS_SENSE
41	PA5	I/O	SPI1_SCK	
43	PA7	I/O	ETH_CRS_DV	RMII_CRS_DV
44	PC4	I/O	ETH_RXD0	RMII_RXD0
45	PC5	I/O	ETH_RXD1	RMII_RXD1
46	PB0 *	I/O	GPIO_Output	LED1_GREEN
51	VSS	Power		
52	VDD	Power		
61	VSS	Power		
62	VDD	Power		
70	VCAP	Power		

Pin Number LQFP144	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
71	VSS	Power		
72	VDD	Power		
76	PB15	I/O	ETH_TXD1	RMII_TXD1
77	PD8	I/O	USART3_TX	T_VCP_TX
78	PD9	I/O	USART3_RX	T_VCP_RX
83	VSS	Power		
84	VDD	Power		
85	PD14 *	I/O	GPIO_Output	ARDUINO_D10_SPI1_NSS
86	PD15 *	I/O	GPIO_Input	ARDUINO_D9_DATAREADY
89	PG4 *	I/O	GPIO_Output	LED3_RED
92	PG7	I/O	GPIO_EXTI7	UCPD_FLT
94	VSS	Power		
95	VDD	Power		
103	PA11	I/O	USB_DM	USB_FS_N
104	PA12	I/O	USB_DP	USB_FS_P
105	PA13(JTMS/SWDIO)	I/O	DEBUG_JTMS-SWDIO	SWDIO
106	VDDUSB	Power		
107	VSS	Power		
108	VDD	Power		
109	PA14(JTCK/SWCLK)	I/O	DEBUG_JTCK-SWCLK	SWCLK
110	PA15(JTDI)	I/O	DEBUG_JTDI	T_JTDI
120	VSS	Power		
121	VDDIO2	Power		
124	PG9	I/O	SPI1_MISO	
126	PG11	I/O	ETH_TX_EN	RMII_TXT_EN
128	PG13	I/O	ETH_TXD0	RMI_TXD0
130	VSS	Power		
131	VDD	Power		
133	PB3(JTDO/TRACESWO)	I/O	DEBUG_JTDO-SWO	SWO
135	PB5	I/O	SPI1_MOSI	
136	PB6	I/O	LPUART1_TX	ARD_D1_TX
137	PB7	I/O	LPUART1_RX	ARD_D0_RX
138	BOOT0	Boot		
142	VCAP	Power		
143	VSS	Power		
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	STM32CubeMX
Project Folder	D:\Temp\Projects\Platform\Board\NUCLEO-H563ZI\STM32CubeMX
Toolchain / IDE	MDK-ARM V5.37
Firmware Package Name and Version	STM32Cube FW_H5 V1.1.0
Application Structure	Basic
Generate Under Root	No
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	Add necessary library files as reference in the toolchain project configuration file
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

5.3. Advanced Settings - Generated Function Calls

Rank	Function Name	Peripheral Instance Name
1	SystemClock_Config	RCC
2	MX_GPIO_Init	GPIO
3	MX_GPDMA1_Init	GPDMA1
4	MX_ICACHE_Init	ICACHE
5	MX_LPUART1_UART_Init	LPUART1
6	MX_USART3_UART_Init	USART3
7	MX_ADC1_Init	ADC1
8	MX_ETH_Init	ETH
9	MX_SPI1_Init	SPI1
10	MX_USB_PCD_Init	USB

1. Power Consumption Calculator report

1.1. Microcontroller Selection

Series	STM32H5
Line	STM32H563/H573
MCU	STM32H563ZITx
Datasheet	DS00000_Rev0

1.2. Parameter Selection

Temperature	25
Vdd	3.0

1.3. 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

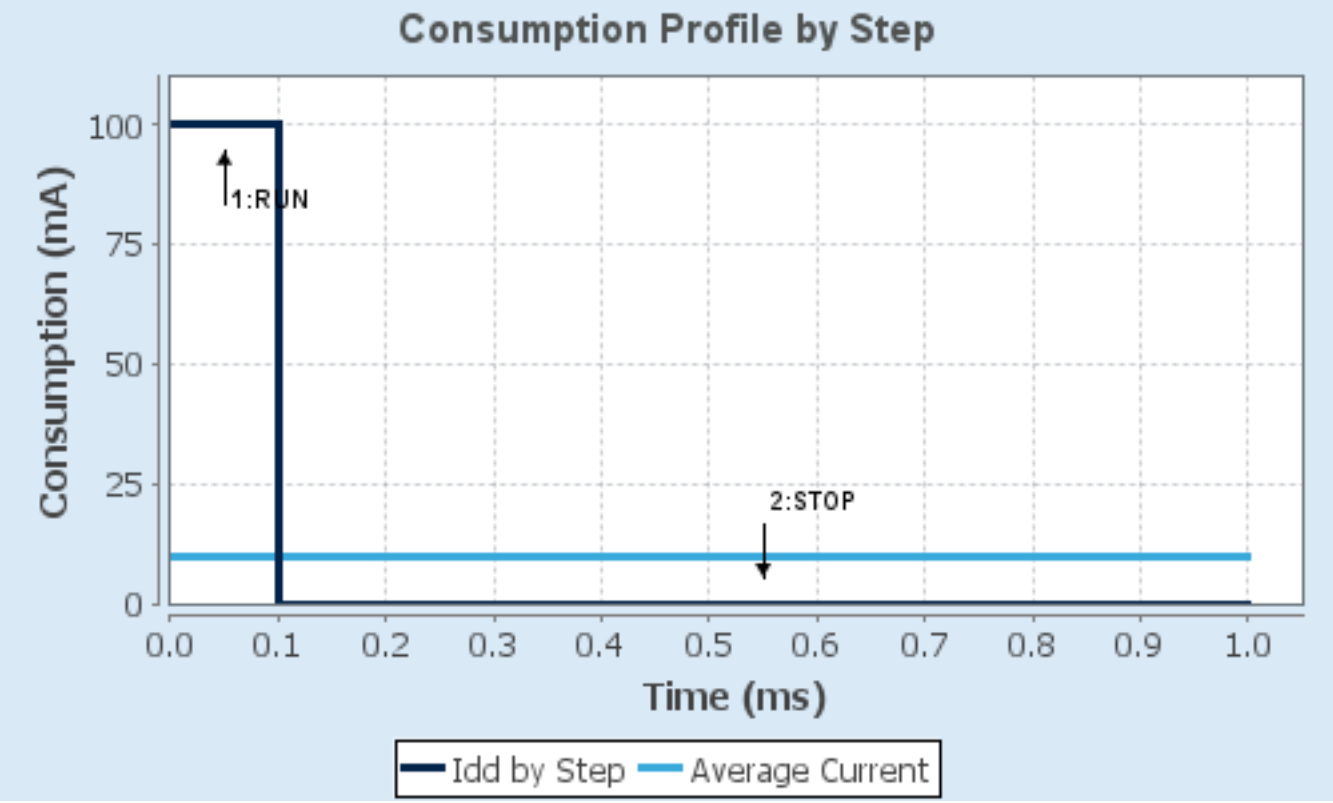
1.4. Sequence

Step	Step1	Step2
Mode	RUN	STOP
Vdd	3.0	3.0
Voltage Source	Battery	Battery
Range	VOS0: Scale0	SVOS5: System-Scale5/SMPS
Fetch Type	FLASH_ON/Cache2Ways_ALL_RAM_RETENTION	Flash-PwrDwn_PwrDwnStop_OFF
CPU Frequency	250 MHz	0 Hz
Clock Configuration	HSE BYP PLL ALL_IPs_ON	ALL_CLOCKS_OFF
Clock Source Frequency	8 MHz	0 Hz
Peripherals		
Additional Cons.	0 mA	0 mA
Average Current	100 mA	51.5 µA
Duration	0.1 ms	0.9 ms
DMIPS	535.0	0.0
Ta Max	111.8	124.99
Category	In DS Table	In DS Table

1.5. Results

Sequence Time	1 ms	Average Current	10.05 mA
Battery Life	2 days, 14 hours	Average DMIPS	535.0 DMIPS

1.6. Chart


Consumption Profile by Step
Consumption (mA)
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

2. Peripherals and Middlewares Configuration

2.1. ADC1

IN18: IN18 Single-ended

2.1.1. Parameter Settings:

ADCs_Common_Settings:

Mode	Independent mode

ADC_Settings:

Clock Prescaler	Asynchronous clock mode divided by 2
Resolution	ADC 12-bit resolution
Scan Conversion Mode	Disabled
Data Alignment	Right alignment
Continuous Conversion Mode	Disabled
Discontinuous Conversion Mode	Disabled
DMA Continuous Requests	Disabled
End Of Conversion Selection	End of single conversion
Overrun behaviour	Overrun data preserved
Low Power Auto Wait	Disabled

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
Sampling Mode	Normal
Rank	1
Channel	Channel 18
Sampling Time	2.5 Cycles
Offset Number	No offset
Monitored by	None

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

2.2. DEBUG

Debug: JTAG with Trace Synchro(4 bits)

2.3. ETH

Mode: RMII

2.3.1. Parameter Settings:

General : Ethernet Configuration:

Ethernet MAC Address	00:80:E1:00:00:00
Tx Descriptor Length	4
Rx Descriptor Length	4
Rx Buffers Length	1524

2.4. ICACHE

Mode: 2-ways set associative cache

2.5. LPUART1

Mode: Asynchronous

2.5.1. Parameter Settings:

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

2.6. PWR

mode: Privilege attributes

2.6.1. PWR Privilege :

Privilege PWR:

PWR Privilege	Disable

2.7. RCC

High Speed Clock (HSE): DIGBYPASS Clock Source

Low Speed Clock (LSE) : Crystal/Ceramic Resonator

2.7.1. RCC Privilege :

Privilege RCC:

Privilege of RCC Non-Secure Items	Disable

2.7.2. Parameter Settings:

System Parameters:

VDD voltage (V)	3.3
Flash Latency(WS)	5 WS (6 CPU cycle)

RCC Parameters:

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

Power Parameters:

Power Regulator Voltage Scale	Power Regulator Voltage Scale 0

PLL1/2/3 Parameters:

PLL1 input frequency range	Between 2 and 4 MHz

2.8. SPI1

Mode: Full-Duplex Master

2.8.1. Parameter Settings:

Basic Parameters:

Frame Format	Motorola
Data Size	4 Bits
First Bit	MSB First

Clock Parameters:

Prescaler (for Baud Rate)	2
Baud Rate	**125.0 MBits/s ***
Clock Polarity (CPOL)	Low
Clock Phase (CPHA)	1 Edge

CRC Parameters:

CRC Calculation	Disabled

Advanced Parameters:

NSSP Mode	Enabled
NSS Signal Type	Software
Fifo Threshold	Fifo Threshold 01 Data
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
Ready Master Management	Internal
Ready Signal Polarity	High

2.9. SYS

Timebase Source: SysTick

2.10. USART3

Mode: Asynchronous

2.10.1. 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	**8 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	**Enable ***
Data Inversion	Disable
TX and RX Pins Swapping	Disable
Overrun	Enable
DMA on RX Error	Enable
MSB First	Disable

2.11. USB

Mode: Device_Only

2.11.1. Parameter Settings:

Basic Parameters:

Speed	Full Speed 12MBit/s
Physical interface	Internal Phy
Signal start of frame	Disabled

Power Parameters:

Low Power	Disabled
Link Power Management	Disabled
Battery Charging	Disabled

EndPoint Parameters:

Bulk double buffer	Disabled
Iso single buffer	Disabled

*** User modified value**

3. System Configuration

3.1. GPIO configuration

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
ADC1	PA4	ADC1_INP18	Analog mode	No pull-up and no pull-down	n/a	VBUS_SENSE
DEBUG	PE2	DEBUG_TRACECLK	n/a	n/a	n/a	TRACE_CK
	PE3	DEBUG_TRACED0	n/a	n/a	n/a	TRACE_D0
	PE4	DEBUG_TRACED1	n/a	n/a	n/a	TRACE_D1
	PE5	DEBUG_TRACED2	n/a	n/a	n/a	TRACE_D2
	PE6	DEBUG_TRACED3	n/a	n/a	n/a	TRACE_D3
	PA13(JTMS/SWDIO)	DEBUG_JTMS-SWDIO	n/a	n/a	n/a	SWDIO
	PA14(JTCK/SWCLK)	DEBUG_JTCK-SWCLK	n/a	n/a	n/a	SWCLK
	PA15(JTDI)	DEBUG_JTDI	n/a	n/a	n/a	T_JTDI
	PB3(JTDO/TRACESWO)	DEBUG_JTDO-SWO	n/a	n/a	n/a	SWO
ETH	PC1	ETH_MDC	Alternate Function Push Pull	No pull-up and no pull-down	High	RMII_MDC
	PA1	ETH_REF_CLK	Alternate Function Push Pull	No pull-up and no pull-down	High	RMII_REF_CLK
	PA2	ETH_MDIO	Alternate Function Push Pull	No pull-up and no pull-down	High	RMII_MDIO
	PA7	ETH_CRS_DV	Alternate Function Push Pull	No pull-up and no pull-down	High	RMII_CRS_DV
	PC4	ETH_RXD0	Alternate Function Push Pull	No pull-up and no pull-down	High	RMII_RXD0
	PC5	ETH_RXD1	Alternate Function Push Pull	No pull-up and no pull-down	High	RMII_RXD1
	PB15	ETH_TXD1	Alternate Function Push Pull	No pull-up and no pull-down	High	RMII_TXD1
	PG11	ETH_TX_EN	Alternate Function Push Pull	No pull-up and no pull-down	High	RMII_TXT_EN
	PG13	ETH_TXD0	Alternate Function Push Pull	No pull-up and no pull-down	High	RMI_TXD0
LPUART1	PB6	LPUART1_TX	Alternate Function Push Pull	No pull-up and no pull-down	Low	ARD_D1_TX
	PB7	LPUART1_RX	Alternate Function Push Pull	No pull-up and no pull-down	Low	ARD_D0_RX
RCC	PC14-OSC32_IN(OSC32_IN)	RCC_OSC32_IN	n/a	n/a	n/a	
	PC15-OSC32_OUT(OSC32_O	RCC_OSC32_OUT	n/a	n/a	n/a	
	PH0-OSC_IN(PH0)	RCC_OSC_IN	n/a	n/a	n/a	
SPI1	PA5	SPI1_SCK	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
	PG9	SPI1_MISO	Alternate Function Push Pull	No pull-up and no pull-down	Low	
	PB5	SPI1_MOSI	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	T_VCP_TX
	PD9	USART3_RX	Alternate Function Push Pull	No pull-up and no pull-down	Low	T_VCP_RX
USB	PA11	USB_DM	Alternate Function Push Pull	No pull-up and no pull-down	**High ***	USB_FS_N
	PA12	USB_DP	Alternate Function Push Pull	No pull-up and no pull-down	**High ***	USB_FS_P
GPIO	PC13	GPIO_EXTI13	External Interrupt Mode with Rising edge trigger detection	No pull-up and no pull-down	n/a	USER_BUTTON
	PF4	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LED2_YELLOW
	PB0	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LED1_GREEN
	PD14	GPIO_Output	Output Push Pull	No pull-up and no pull-down	**High ***	ARDUINO_D10_SPI1_NSS
	PD15	GPIO_Input	Input mode	No pull-up and no pull-down	**n/a**	ARDUINO_D9_DATAREADY
	PG4	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LED3_RED
	PG7	GPIO_EXTI7	External Interrupt Mode with Rising edge trigger detection	No pull-up and no pull-down	n/a	UCPD_FLT

3.2. GPDMA1

Channel 1 - 2 Words Internal FIFO : Standard Request Mode

Channel 0 - 2 Words Internal FIFO : Standard Request Mode

3.2.1. All Channels:

Channel 0:

Request GPDMA1_REQUEST_LPUART1_TX

Channel 1:

Request GPDMA1_REQUEST_LPUART1_RX

3.2.2. SECURITY:

CH1:

Enable Channel as Privileged NON PRIVILEDGED

CH0:

Enable Channel as Privileged NON PRIVILEDGED

3.2.3. CH1:

Circular configuration:

Circular Mode	Disable

Request Configuration:

Request	**LPUART1_RX ***
DMA Handle in IP Structure	hdmarx
Block HW request protocol	Single/Burst Level

Channel configuration:

Priority	Low
Transaction Mode	Normal
Direction	Peripheral To Memory

Source Data Setting:

Source Address Increment After Transfer	Disabled
Data Width	Byte
Burst Length	1
Allocated Port for Transfer	Port 0

Destination Data Setting:

Destination Address Increment After Transfer	Disabled
Data Width	Byte
Burst Length	1
Allocated Port for Transfer	Port 0

Data Handling:

Data Handling Configuration	Disable

Trigger:

Trigger Configuration	Disable

Transfer Event Configuration:

Transfer Event Generation	The TC (and the HT) event is generated at the (respectively half) end of each block

3.2.4. CH0:

Circular configuration:

Circular Mode	Disable

Request Configuration:

Request	**LPUART1_TX ***
DMA Handle in IP Structure	hdmatx
Block HW request protocol	Single/Burst Level

Channel configuration:

Priority	Low
Transaction Mode	Normal
Direction	

	Memory To Peripheral *
Source Data Setting:	
Source Address Increment After Transfer	Disabled
Data Width	Byte
Burst Length	1
Allocated Port for Transfer	Port 0
Destination Data Setting:	
Destination Address Increment After Transfer	Disabled
Data Width	Byte
Burst Length	1
Allocated Port for Transfer	Port 0
Data Handling:	
Data Handling Configuration	Disable
Trigger:	
Trigger Configuration	Disable
Transfer Event Configuration:	
Transfer Event Generation	The TC (and the HT) event is generated at the (respectively half) end of each block

3.3. GPDMA2

3.4. LINKEDLIST

3.5. NVIC configuration

3.5.1. 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
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
GPDMA1 Channel 0 global interrupt	true	0	0
GPDMA1 Channel 1 global interrupt	true	0	0
SPI1 global interrupt	true	8	0
USART3 global interrupt	true	0	0
LPUART1 global interrupt	true	8	0
USB FS global interrupt	true	0	0
Ethernet global interrupt	true	0	0
Ethernet Wakeup global interrupt	true	0	0
Flash non-secure global interrupt	unused		
RCC non-secure global interrupt	unused		
EXTI Line7 interrupt	unused		
EXTI Line13 interrupt	unused		
ADC1 global interrupt	unused		
FPU global interrupt	unused		
Instruction cache global interrupt	unused		

3.5.2. 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
Prefetch 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

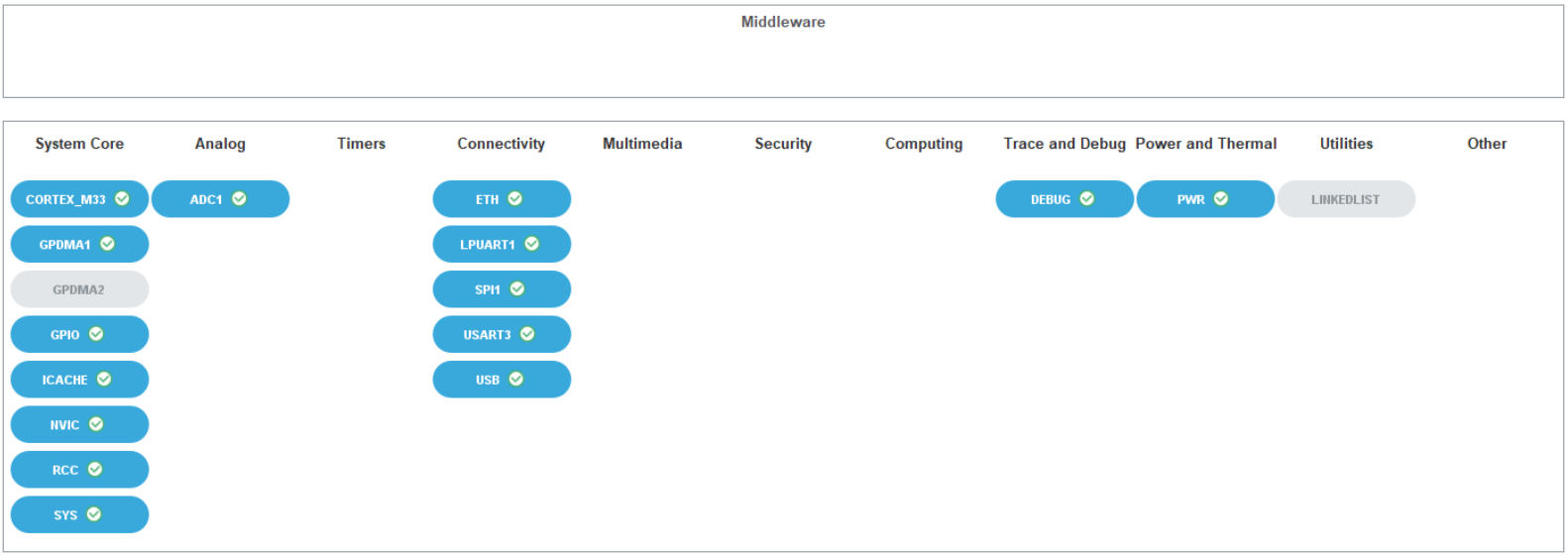
Enabled interrupt Table	Select for init sequence ordering	Generate IRQ handler	Call HAL handler
GPDMA1 Channel 0 global interrupt	false	true	true
GPDMA1 Channel 1 global interrupt	false	true	true
SPI1 global interrupt	false	true	true
USART3 global interrupt	false	true	true
LPUART1 global interrupt	false	true	true
USB FS global interrupt	false	true	true
Ethernet global interrupt	false	true	true
Ethernet Wakeup global interrupt	false	true	true

*** User modified value**

4. System Views

4.1. Category view

4.1.1. Current



5. Docs & Resources

Type	Link
BSDL files	https://www.st.com/resource/en/bsdl_model/stm32h5-bsdl.zip
IBIS models	https://www.st.com/resource/en/ibis_model/stm32h5-ibis.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
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-stm32h5-series-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/flstm32h5.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
Application Notes	https://www.st.com/resource/en/application_note/an4229-how-to-implement-a-vocoder-solution-using-stm32-microcontrollers-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4277-using-stm32-device-pwm-shutdown-features-for-motor-control-and-digital-power-conversion-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/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/an4759-using-the-hardware-realtime-clock-rtc-and-the-tamper-management-unit-tamp-with-stm32-microcontrollers-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/an4989-stm32-microcontroller-debug-toolbox-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5020-digital-camera-

	interface-dcmi-on-stm32-mcus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an5027-interfacing-pdm-digital-microphones-using-stm32-mcus-and-mpus-stmicroelectronics.pdf
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Application Notes	https://www.st.com/resource/en/application_note/an5225-usb-typec-power-delivery-using-stm32-mcus-and-mpus-stmicroelectronics.pdf
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	used-in-the-stm32-bootloader-stmicroelectronics.pdf
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Application Notes	https://www.st.com/resource/en/application_note/an5688-migrating-microcontroller-applications-from-stm32f427437-and-stm32f429439-to-stm32h573563-and-stm32h562-mcus-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4879-introduction-to-usb-hardware-and-pcb-guidelines-using-stm32-mcus-stmicroelectronics.pdf
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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
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