
STM32
CubeMX

1. Description

1.1. Project

Project Name	Source_Code
Board Name	custom
Generated with:	STM32CubeMX 6.11.1
Date	11/19/2024

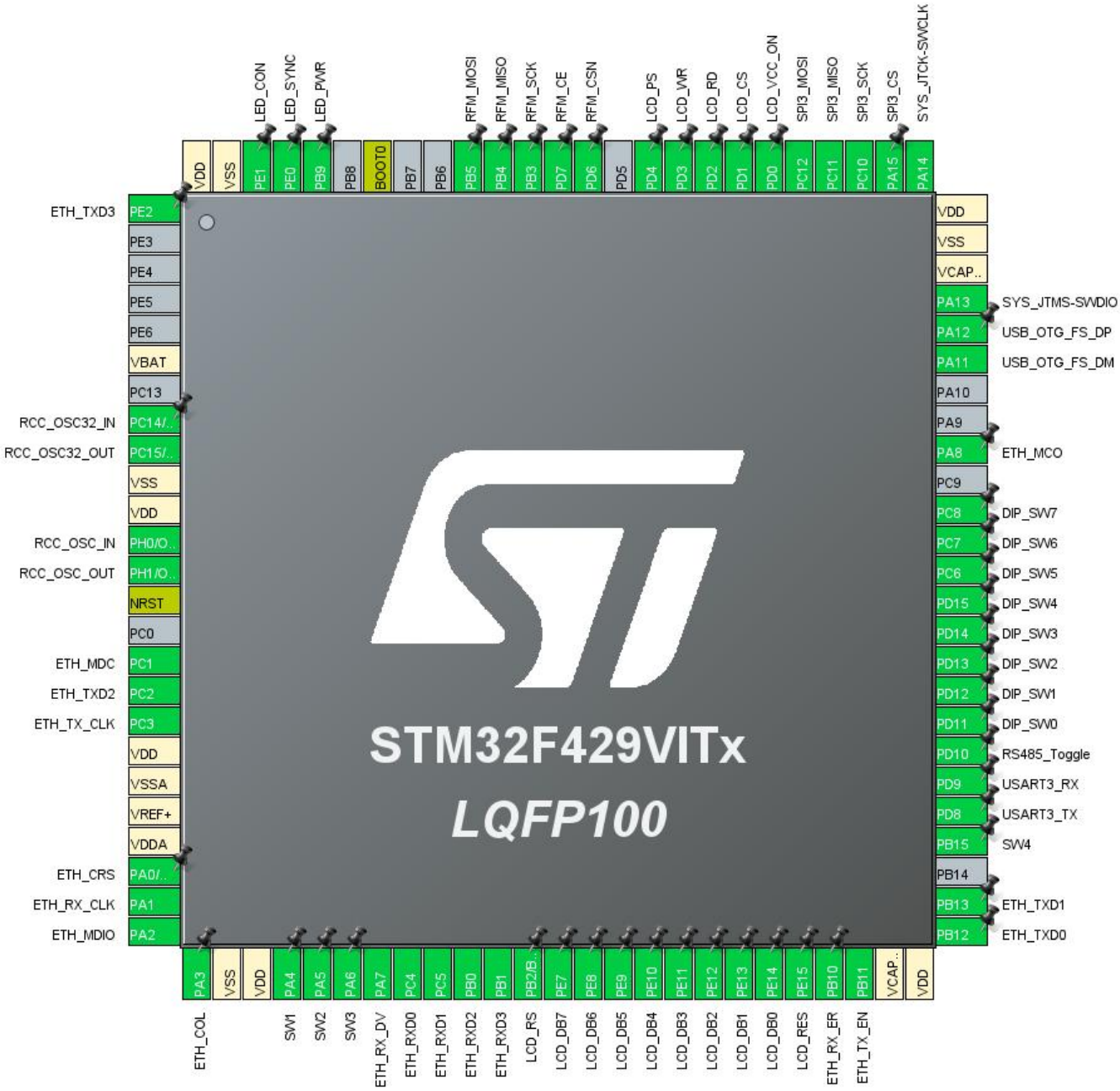
1.2. MCU

MCU Series	STM32F4
MCU Line	STM32F429/439
MCU name	STM32F429VITx
MCU Package	LQFP100
MCU Pin number	100

1.3. Core(s) information

Core(s)	Arm Cortex-M4

2. Pinout Configuration



3. Pins Configuration

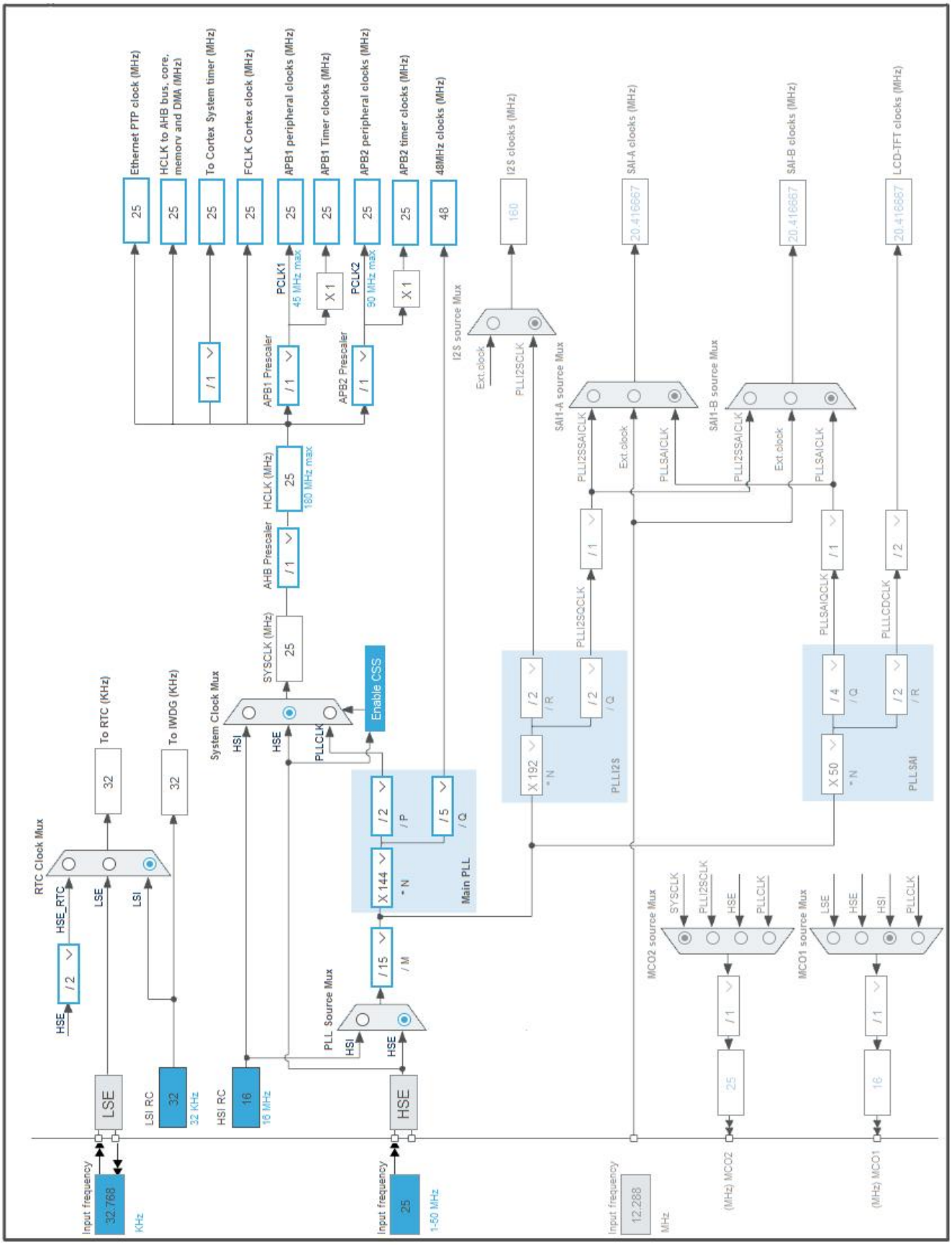
Pin Number LQFP100	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	PE2	I/O	ETH_TXD3	
6	VBAT	Power		
8	PC14/OSC32_IN	I/O	RCC_OSC32_IN	
9	PC15/OSC32_OUT	I/O	RCC_OSC32_OUT	
10	VSS	Power		
11	VDD	Power		
12	PH0/OSC_IN	I/O	RCC_OSC_IN	
13	PH1/OSC_OUT	I/O	RCC_OSC_OUT	
14	NRST	Reset		
16	PC1	I/O	ETH_MDC	
17	PC2	I/O	ETH_TXD2	
18	PC3	I/O	ETH_TX_CLK	
19	VDD	Power		
20	VSSA	Power		
21	VREF+	Power		
22	VDDA	Power		
23	PA0/WKUP *	I/O	GPIO_Output	ETH_CRS
24	PA1	I/O	ETH_RX_CLK	
25	PA2	I/O	ETH_MDIO	
26	PA3 *	I/O	GPIO_Output	ETH_COL
27	VSS	Power		
28	VDD	Power		
29	PA4 *	I/O	GPIO_Output	SW1
30	PA5 *	I/O	GPIO_Output	SW2
31	PA6 *	I/O	GPIO_Output	SW3
32	PA7	I/O	ETH_RX_DV	
33	PC4	I/O	ETH_RXD0	
34	PC5	I/O	ETH_RXD1	
35	PB0	I/O	ETH_RXD2	
36	PB1	I/O	ETH_RXD3	
37	PB2/BOOT1 *	I/O	GPIO_Output	LCD_RS
38	PE7 *	I/O	GPIO_Output	LCD_DB7
39	PE8 *	I/O	GPIO_Output	LCD_DB6
40	PE9 *	I/O	GPIO_Output	LCD_DB5
41	PE10 *	I/O	GPIO_Output	LCD_DB4
42	PE11 *	I/O	GPIO_Output	LCD_DB3

Pin Number LQFP100	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
43	PE12 *	I/O	GPIO_Output	LCD_DB2
44	PE13 *	I/O	GPIO_Output	LCD_DB1
45	PE14 *	I/O	GPIO_Output	LCD_DB0
46	PE15 *	I/O	GPIO_Output	LCD_RES
47	PB10	I/O	ETH_RX_ER	
48	PB11	I/O	ETH_TX_EN	
49	VCAP_1	Power		
50	VDD	Power		
51	PB12	I/O	ETH_TXD0	
52	PB13	I/O	ETH_TXD1	
54	PB15 *	I/O	GPIO_Output	SW4
55	PD8	I/O	USART3_TX	
56	PD9	I/O	USART3_RX	
57	PD10 *	I/O	GPIO_Input	RS485_Toggle
58	PD11 *	I/O	GPIO_Input	DIP_SW0
59	PD12 *	I/O	GPIO_Input	DIP_SW1
60	PD13 *	I/O	GPIO_Input	DIP_SW2
61	PD14 *	I/O	GPIO_Input	DIP_SW3
62	PD15 *	I/O	GPIO_Input	DIP_SW4
63	PC6 *	I/O	GPIO_Input	DIP_SW5
64	PC7 *	I/O	GPIO_Input	DIP_SW6
65	PC8 *	I/O	GPIO_Input	DIP_SW7
67	PA8 *	I/O	GPIO_Output	ETH_MCO
70	PA11	I/O	USB_OTG_FS_DM	
71	PA12	I/O	USB_OTG_FS_DP	
72	PA13	I/O	SYS_JTMS-SWDIO	
73	VCAP_2	Power		
74	VSS	Power		
75	VDD	Power		
76	PA14	I/O	SYS_JTCK-SWCLK	
77	PA15 *	I/O	GPIO_Output	SPI3_CS
78	PC10	I/O	SPI3_SCK	
79	PC11	I/O	SPI3_MISO	
80	PC12	I/O	SPI3_MOSI	
81	PD0 *	I/O	GPIO_Output	LCD_VCC_ON
82	PD1 *	I/O	GPIO_Output	LCD_CS
83	PD2 *	I/O	GPIO_Output	LCD_RD
84	PD3 *	I/O	GPIO_Output	LCD_WR
85	PD4 *	I/O	GPIO_Output	LCD_PS

Pin Number LQFP100	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
87	PD6 *	I/O	GPIO_Output	RFM_CSN
88	PD7 *	I/O	GPIO_Output	RFM_CE
89	PB3 *	I/O	GPIO_Output	RFM_SCK
90	PB4 *	I/O	GPIO_Input	RFM_MISO
91	PB5 *	I/O	GPIO_Output	RFM_MOSI
94	BOOT0	Boot		
96	PB9 *	I/O	GPIO_Output	LED_PWR
97	PE0 *	I/O	GPIO_Output	LED_SYNC
98	PE1 *	I/O	GPIO_Output	LED_CON
99	VSS	Power		
100	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	Source_Code
Project Folder	D:\STM32\new-work\Wire_Clap_Cluster\Source_Code
Toolchain / IDE	EWARM V8.50
Firmware Package Name and Version	STM32Cube FW_F4 V1.28.1
Application Structure	Advanced
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	Copy all used libraries into the project folder
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_CRC_Init	CRC
4	MX_IWDG_Init	IWDG
5	MX_RTC_Init	RTC
6	MX_SPI3_Init	SPI3
7	MX_USART3_UART_Init	USART3
8	MX_LWIP_Init	LWIP
9	MX_USB_HOST_Init	USB_HOST

1. Power Consumption Calculator report

1.1. Microcontroller Selection

Series	STM32F4
Line	STM32F429/439
MCU	STM32F429VITx
Datasheet	DS9405_Rev9

1.2. Parameter Selection

Temperature	25
Vdd	3.3

1.3. Battery Selection

Battery	Li-SOCL2(A3400)
Capacity	3400.0 mAh
Self Discharge	0.08 %/month
Nominal Voltage	3.6 V
Max Cont Current	100.0 mA
Max Pulse Current	200.0 mA
Cells in series	1
Cells in parallel	1

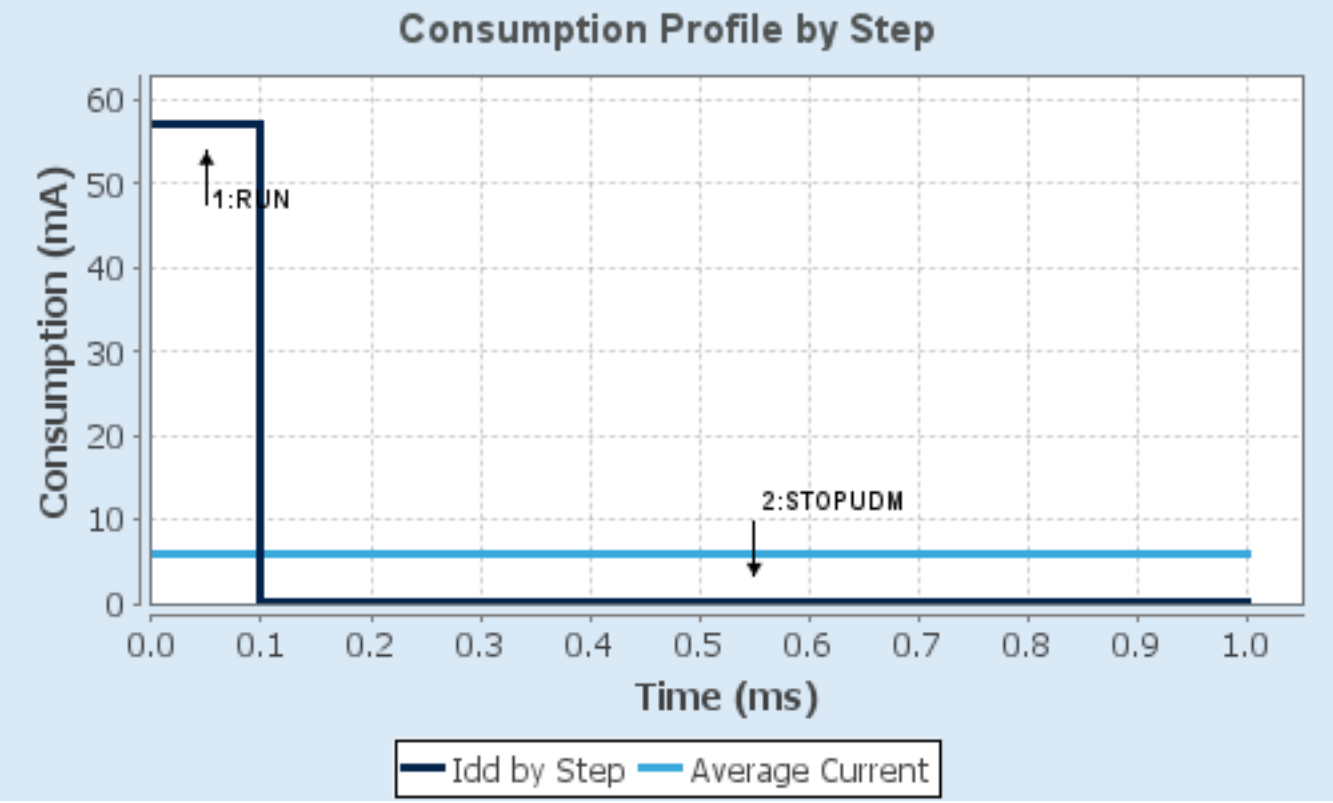
1.4. Sequence

Step	Step1	Step2
Mode	RUN	STOP_UDM (Under Drive)
Vdd	3.3	3.3
Voltage Source	Battery	Battery
Range	Scale1-High	No Scale
Fetch Type	FLASH	n/a
CPU Frequency	180 MHz	0 Hz
Clock Configuration	HSE PLL	Regulator_LP Flash-PwrDwn
Clock Source Frequency	4 MHz	0 Hz
Peripherals		
Additional Cons.	0 mA	0 mA
Average Current	57 mA	100 µA
Duration	0.1 ms	0.9 ms
DMIPS	225.0	0.0
Ta Max	96.91	104.99
Category	In DS Table	In DS Table

1.5. Results

Sequence Time	1 ms	Average Current	5.79 mA
Battery Life	24 days, 10 hours	Average DMIPS	225.0 DMIPS

1.6. Chart


Consumption Profile by Step
Consumption (mA)
60
50
40
30
20
10
0
1:RUN
2:STOPUDM
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. CRC

mode: Activated

2.2. ETH

Mode: MII Full Duplex Only

mode: Activate Rx Err signal

2.2.1. Parameter Settings:

General : Ethernet Configuration:

Note	PHY Driver must be configured from the LwIP 'Platform Settings' top right tab
Ethernet MAC Address	00:80:E1:00:00:00
Rx Buffers Length	1536

Ethernet Basic Configuration:

Rx Mode	Polling Mode

2.3. IWDG

mode: Activated

2.3.1. Parameter Settings:

Clocking:

IWDG counter clock prescaler	4
IWDG down-counter reload value	4095

2.4. RCC

High Speed Clock (HSE): BYPASS Clock Source

Low Speed Clock (LSE) : Crystal/Ceramic Resonator

2.4.1. Parameter Settings:

System Parameters:

VDD voltage (V)	3.3
Instruction Cache	Enabled
Prefetch Buffer	Enabled
Data Cache	Enabled
Flash Latency(WS)	0 WS (1 CPU cycle)

RCC Parameters:

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

Power Parameters:

Power Regulator Voltage Scale	Power Regulator Voltage Scale 3
Power Over Drive	Disabled

2.5. RTC

mode: Activate Clock Source

mode: Activate Calendar

Alarm A: Internal Alarm

2.5.1. Parameter Settings:

General:

Hour Format	Hourformat 24
Asynchronous Predivider value	127
Synchronous Predivider value	255

Calendar Time:

Data Format	BCD data format
Hours	0
Minutes	0
Seconds	0
Day Light Saving: value of hour adjustment	Daylightsaving None
Store Operation	Storeoperation Reset

Calendar Date:

Week Day	Monday
Month	January
Date	1
Year	0

Alarm A:

Hours	0
Minutes	0
Seconds	0
Sub Seconds	0
Alarm Mask Date Week day	Disable
Alarm Mask Hours	Disable
Alarm Mask Minutes	Disable

Alarm Mask Seconds	Disable
Alarm Sub Second Mask	All Alarm SS fields are masked.
Alarm Date Week Day Sel	Date
Alarm Date	1

2.6. SPI3

Mode: Full-Duplex Master

2.6.1. Parameter Settings:

Basic Parameters:

Frame Format	Motorola
Data Size	8 Bits
First Bit	MSB First

Clock Parameters:

Prescaler (for Baud Rate)	2
Baud Rate	**12.5 MBits/s ***
Clock Polarity (CPOL)	Low
Clock Phase (CPHA)	1 Edge

Advanced Parameters:

CRC Calculation	Disabled
NSS Signal Type	Software

2.7. SYS

Debug: Serial Wire

Timebase Source: SysTick

2.8. USART3

Mode: Asynchronous

2.8.1. 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

2.9. USB_OTG_FS

Mode: Host_Only

2.9.1. Parameter Settings:

Speed	Host Full Speed 12MBit/s
Signal start of frame	**Enabled ***

2.10. LWIP

mode: Enabled

Advanced parameters are not listed except if modified by user.

2.10.1. 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)	000.000.000.000
NETMASK_ADDRESS (Netmask Address)	000.000.000.000
GATEWAY_ADDRESS (Gateway Address)	000.000.000.000
RTOS Dependency:	
WITH_RTOS (Use FREERTOS ** CubeMX specific **)	Disabled
RTOS_USE_NEWLIB_REENTRANT (No RTOS - 2)	Disabled
Platform Settings:	
PHY Driver	Choose/LAN8742/DP83848
Protocols Options:	
LWIP_ICMP (ICMP Module Activation)	Enabled
LWIP_IGMP (IGMP Module)	Disabled
LWIP_DNS (DNS Module)	Disabled
LWIP_UDP (UDP Module)	**Disabled ***
MEMP_NUM_UDP_PCB (Number of UDP Connections)	4
LWIP_TCP (TCP Module)	Enabled
MEMP_NUM_TCP_PCB (Number of TCP Connections)	5

2.10.2. Key Options:

Infrastructure - OS Awarness Option:	
NO_SYS (OS Awarness)	OS Not Used
Infrastructure - Timers Options:	
LWIP_TIMERS (Use Support For sys_timeout)	Enabled
Infrastructure - Core Locking and MPU Options:	
SYS_LIGHTWEIGHT_PROT (Memory Functions Protection)	Disabled
Infrastructure - Heap and Memory Pools Options:	
MEM_SIZE (Heap Memory Size)	1600
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)	16
PBUF_POOL_BUFSIZE (Size of each pbuf in the pbuf pool)	592
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
Thread Safe APIs - Socket Options:	
LWIP_SOCKET (Socket API)	Disabled

2.10.3. PPP:

PPP Options:

PPP_SUPPORT (PPP Module)	Disabled

2.10.4. IPv6:

IPv6 Options:

LWIP_IPV6 (IPv6 Protocol)	Disabled

2.10.5. HTTPD:

HTTPD Options:

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

2.10.6. SNMP:

SNMP Options:

LWIP_SNMP (LwIP SNMP Agent)	Disabled

2.10.7. SNTP/SMTP:

SNTP Options:

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

SMTP Options:

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

2.10.8. MDNS/TFTP:

MDNS Options:

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

TFTP Options:

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

2.10.9. 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

2.10.10. Statistics:

Debug - Statistics Options:

LWIP_STATS (Statictics Collection)	**Enabled ***

2.10.11. 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)	Disabled
CHECKSUM_GEN_ICMP (Generate Software Checksum for Outgoing ICMP Packets)	Disabled
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)	Disabled
CHECKSUM_CHECK_ICMP (Generate Software Checksum for Incoming ICMP Packets)	Disabled
CHECKSUM_CHECK_ICMP6 (Generate Software Checksum for Incoming ICMP6 Packets)	Disabled

2.10.12. Debug:

LwIP Main Debugging Options:

LWIP_DBG_MIN_LEVEL (Minimum Level)	All

2.10.13. Platform Settings:

Driver_PHY	DP83848

2.11. USB_HOST

Class for FS IP: Communication Host Class (Virtual Port Com)

2.11.1. Parameter Settings:

NO_SW_VBUS_DRIVE_FS	**true ***
Host Configuration:	
USBH_MAX_NUM_ENDPOINTS (Maximum number of endpoints)	2
USBH_MAX_NUM_INTERFACES (Maximun number of interfaces)	2
USBH_MAX_NUM_SUPPORTED_CLASS (Maximun number of supported class)	1
USBH_MAX_NUM_CONFIGURATION (Maximun number of supported configuration)	1
USBH_KEEP_CFG_DESCRIPTOR (Keep the configuration into RAM)	Enabled
USBH_MAX_SIZE_CONFIGURATION (Maximun size in bytes for the Configuration Descriptor)	256
USBH_MAX_DATA_BUFFER (Maximun size of temporary data)	512
USBH_DEBUG_LEVEL (USBH Debug Level)	0: No debug message
CMSIS_RTOS:	
USBH_USE_OS (Enable the support of an RTOS)	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
ETH	PE2	ETH_TXD3	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	
	PC1	ETH_MDC	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	
	PC2	ETH_TXD2	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	
	PC3	ETH_TX_CLK	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	
	PA1	ETH_RX_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_RX_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 ***	
	PB0	ETH_RXD2	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	
	PB1	ETH_RXD3	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	
	PB10	ETH_RX_ER	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	
	PB11	ETH_TX_EN	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	
	PB12	ETH_TXD0	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 ***	
RCC	PC14/OSC32_IN	RCC_OSC32_IN	n/a	n/a	n/a	
	PC15/OSC32_OUT	RCC_OSC32_OUT	n/a	n/a	n/a	

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
	PH0/OSC_IN	RCC_OSC_IN	n/a	n/a	n/a	
	PH1/OSC_OUT	RCC_OSC_OUT	n/a	n/a	n/a	
SPI3	PC10	SPI3_SCK	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	
	PC11	SPI3_MISO	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	
	PC12	SPI3_MOSI	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	
SYS	PA13	SYS_JTMS-SWDIO	n/a	n/a	n/a	
	PA14	SYS_JTCK-SWCLK	n/a	n/a	n/a	
USART3	PD8	USART3_TX	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	
	PD9	USART3_RX	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	
USB_OTG_FS	PA11	USB_OTG_FS_DM	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	
	PA12	USB_OTG_FS_DP	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	
GPIO	PA0/WKUP	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	ETH_CRS
	PA3	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	ETH_COL
	PA4	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	SW1
	PA5	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	SW2
	PA6	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	SW3
	PB2/BOOT1	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LCD_RS
	PE7	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LCD_DB7
	PE8	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LCD_DB6
	PE9	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LCD_DB5
	PE10	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LCD_DB4
	PE11	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LCD_DB3
	PE12	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LCD_DB2
	PE13	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LCD_DB1
	PE14	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LCD_DB0
	PE15	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LCD_RES
	PB15	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	SW4
	PD10	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	RS485_Toggle
	PD11	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	DIP_SW0

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
	PD12	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	DIP_SW1
	PD13	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	DIP_SW2
	PD14	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	DIP_SW3
	PD15	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	DIP_SW4
	PC6	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	DIP_SW5
	PC7	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	DIP_SW6
	PC8	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	DIP_SW7
	PA8	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	ETH_MCO
	PA15	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	SPI3_CS
	PD0	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LCD_VCC_ON
	PD1	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LCD_CS
	PD2	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LCD_RD
	PD3	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LCD_WR
	PD4	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LCD_PS
	PD6	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	RFM_CSN
	PD7	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	RFM_CE
	PB3	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	RFM_SCK
	PB4	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	RFM_MISO
	PB5	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	RFM_MOSI
	PB9	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LED_PWR
	PE0	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LED_SYNC
	PE1	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LED_CON

3.2. DMA configuration

nothing configured in DMA service

3.3. NVIC configuration

3.3.1. NVIC

Interrupt Table	Enable	Preenmption Priority	SubPriority
Non maskable interrupt	true	0	0
Hard fault interrupt	true	0	0
Memory management fault	true	0	0
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
Ethernet global interrupt	true	0	0
Ethernet wake-up interrupt through EXTI line 19	true	0	0
USB On The Go FS global interrupt	true	0	0
PVD interrupt through EXTI line 16	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		
USART3 global interrupt	unused		
RTC alarms A and B interrupt through EXTI line 17	unused		
SPI3 global interrupt	unused		
FPU global interrupt	unused		

3.3.2. NVIC Code generation

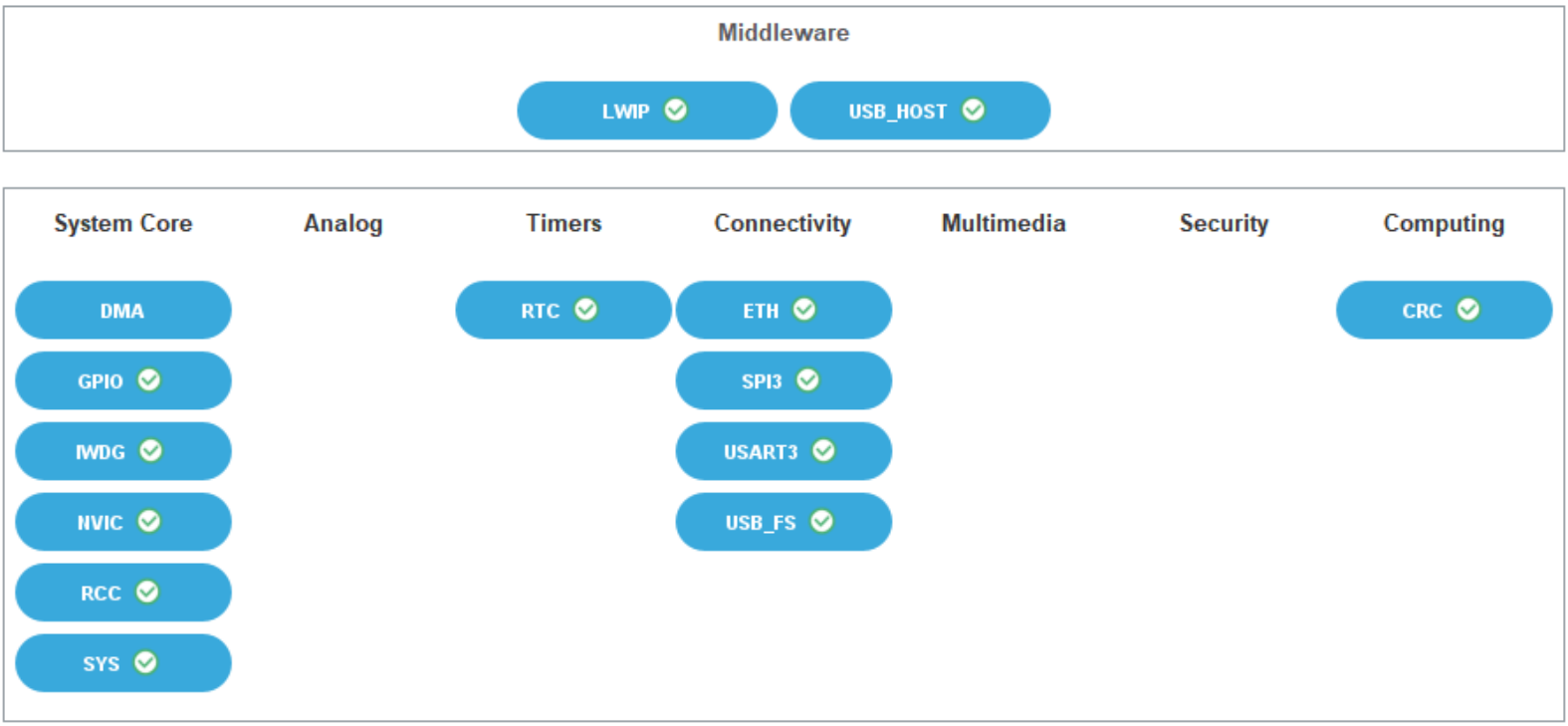
Enabled interrupt Table	Select for init sequence ordering	Generate IRQ handler	Call HAL handler
Non maskable interrupt	false	true	false
Hard fault interrupt	false	true	false
Memory management fault	false	true	false
Pre-fetch fault, memory access fault	false	true	false
Undefined instruction or illegal 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
Ethernet global interrupt	false	true	true
Ethernet wake-up interrupt through EXTI line 19	false	true	true
USB On The Go FS 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/stm32f427-437_429-439_bsdl.zip
IBIS models	https://www.st.com/resource/en/ibis_model/stm32f427-437_429-439_ibis.zip
System View Description	https://www.st.com/resource/en/svd/stm32f4-svd.zip
Presentations	https://www.st.com/resource/en/product_presentation/stm32-stm8_embedded_software_solutions.pdf
Presentations	https://www.st.com/resource/en/product_presentation/stm32_eval-tools_portfolio.pdf
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Presentations	https://www.st.com/resource/en/product_presentation/stm32-stm8_software_development_tools.pdf
Presentations	https://www.st.com/resource/en/product_presentation/microcontrollers-stm32-family-overview.pdf
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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/flstmcsuite.pdf
Flyers	https://www.st.com/resource/en/flyer/flstm32trust.pdf
Flyers	https://www.st.com/resource/en/flyer/flstm32gui.pdf
Product Certifications	https://www.st.com/resource/en/certification_document/stm32_authentication_can.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/an2945-stm8s-and-stm32-mcus-a-consistent-832bit-product-line-for-painless-migration-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an3070-managing-the-driver-enable-signal-for-rs485-and-iolink-communications-with-the-stm32s-usart-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an3126-audio-and-waveform-generation-using-the-dac-in-stm32-products-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an3154-can-protocol-used-in-the-stm32-bootloader-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
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Application Notes	https://www.st.com/resource/en/application_note/an3998-pdm-audio-software-decoding-on-stm32-microcontrollers-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4031-using-the-stm32f2-stm32f4-and-stm32f7-series-dma-controller-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4073-how-to-improve-adc-accuracy-when-using-stm32f2xx-and-stm32f4xx-microcontrollers-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/an4286-spi-protocol-used-in-the-stm32-bootloader-stmicroelectronics.pdf
Application Notes	https://www.st.com/resource/en/application_note/an4488-getting-started-with-stm32f4xxxx-mcu-hardware-development-stmicroelectronics.pdf
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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/an4640-peripherals-interconnections-on-stm32f4057xx-stm32f4157xx-stm32f42xxx-stm32f43xxx-stm32f446xx-and-stm32f469479xx-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/an4658-migration-of-applications-from-stm32f429439-lines-to-stm32f446-line-stmicroelectronics.pdf
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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
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Application Notes	https://www.st.com/resource/en/application_note/an4879-introduction-to-usb-hardware-and-pcb-guidelines-using-stm32-mcus-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
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Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an3174-implementing-receivers-for-infrared-remote-control-protocols-using-stm32f10xxx-microcontrollers-stmicroelectronics.pdf
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for related Tools & Software	direct-drive-using-the-stm32f10xx-fsmc-peripheral-stmicroelectronics.pdf
Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an3307-guidelines-for-obtaining-iec-60335-class-b-certification-for-any-stm32-application-stmicroelectronics.pdf
Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an3965-stm32f40xstm32f41x-inapplication-programming-using-the-usart-stmicroelectronics.pdf
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Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an3990-upgrading-stm32f4discovery-board-firmware-using-a-usb-key-stmicroelectronics.pdf
Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an4044-floating-point-unit-demonstration-on-stm32-microcontrollers-stmicroelectronics.pdf
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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/an4457-implementing-an-emulated-uart-on-stm32f4-microcontrollers-stmicroelectronics.pdf
Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an4499-stm32--nrf51822-bluetooth-low-energy-system-solution-stmicroelectronics.pdf
Application Notes for related Tools	https://www.st.com/resource/en/application_note/an4657-stm32-inapplication-programming-iap-using-the-usart-stmicroelectronics.pdf

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Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an4666-parallel-synchronous-transmission-using-gpio-and-dma-stmicroelectronics.pdf
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Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an4701-proprietary-code-readout-protection-on-microcontrollers-of-the-stm32f4-series-stmicroelectronics.pdf
Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an4739-stm32cube-firmware-examples-for-stm32f4-series-stmicroelectronics.pdf
Application Notes for related Tools & Software	https://www.st.com/resource/en/application_note/an4758-proprietary-code-readout-protection-on-stm32l4-stm32l4-stm32g4-and-stm32wb-series-mcus-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/an4968-proprietary-code-read-out-protection-pcrop-on-stm32f72xxx-and-stm32f73xxx-microcontrollers-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

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Errata Sheets	https://www.st.com/resource/en/errata_sheet/es0206-stm32f427437-and-stm32f429439-device-errata-stmicroelectronics.pdf
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