
STM32
CubeMX

1. Description

1.1. Project

Project Name	f437_fc_v4
Board Name	custom
Generated with:	STM32CubeMX 6.4.0
Date	02/11/2022

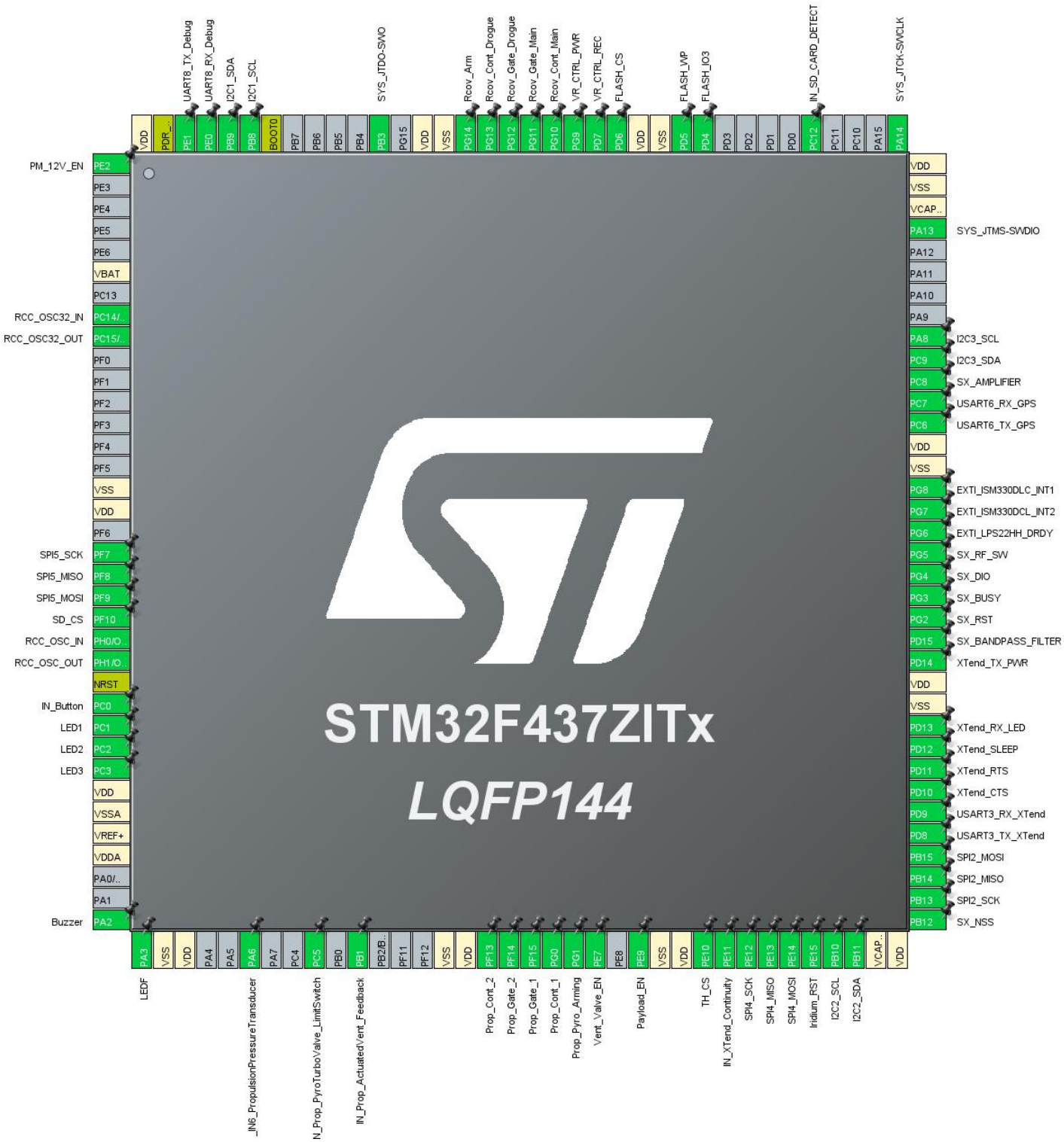
1.2. MCU

MCU Series	STM32F4
MCU Line	STM32F427/437
MCU name	STM32F437ZITx
MCU Package	LQFP144
MCU Pin number	144

1.3. Core(s) information

Core(s)	Arm Cortex-M4

2. Pinout Configuration



3. Pins Configuration

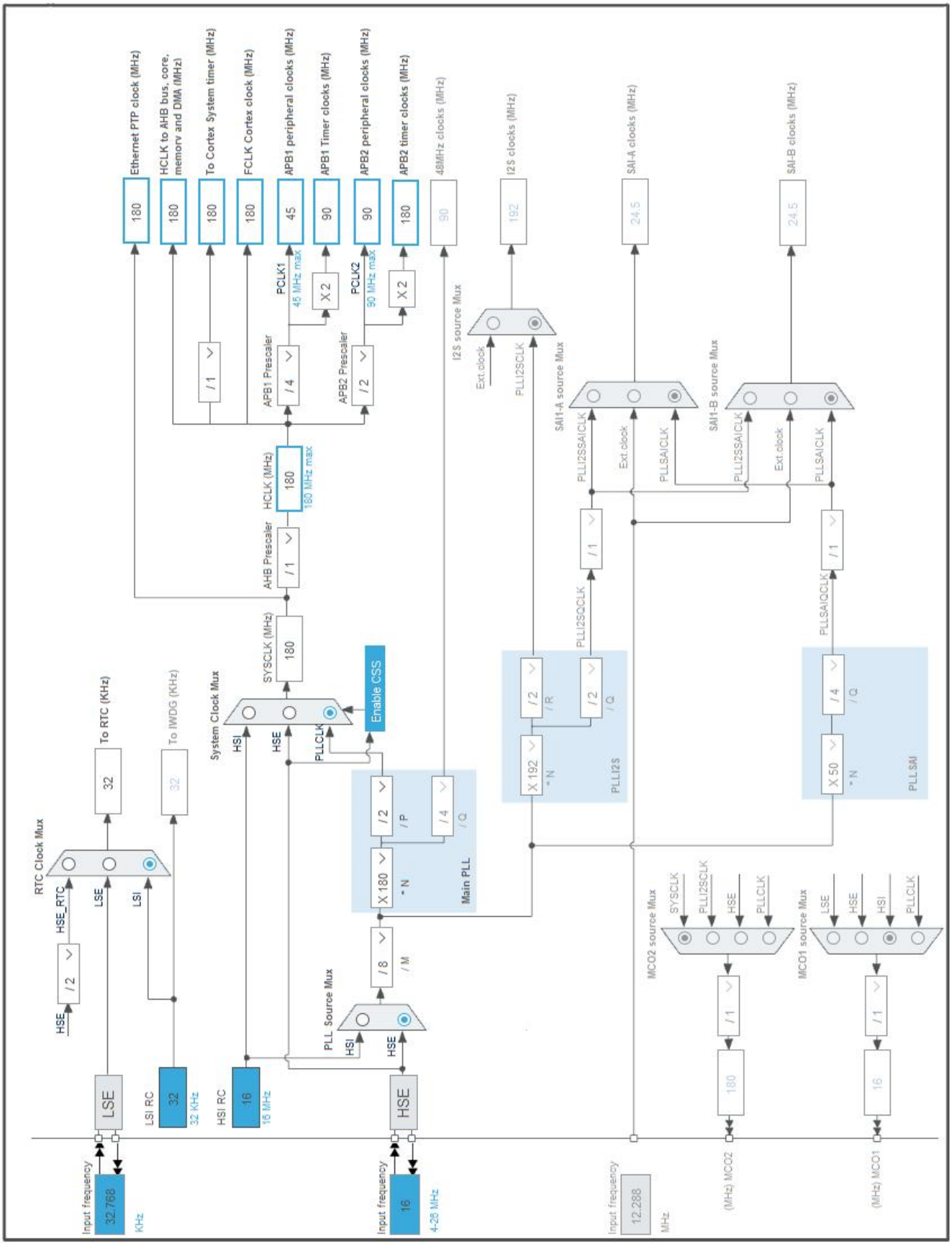
Pin Number LQFP144	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	PE2 *	I/O	GPIO_Output	PM_12V_EN
6	VBAT	Power		
8	PC14/OSC32_IN	I/O	RCC_OSC32_IN	
9	PC15/OSC32_OUT	I/O	RCC_OSC32_OUT	
16	VSS	Power		
17	VDD	Power		
19	PF7	I/O	SPI5_SCK	
20	PF8	I/O	SPI5_MISO	
21	PF9	I/O	SPI5_MOSI	
22	PF10 *	I/O	GPIO_Output	SD_CS
23	PH0/OSC_IN	I/O	RCC_OSC_IN	
24	PH1/OSC_OUT	I/O	RCC_OSC_OUT	
25	NRST	Reset		
26	PC0	I/O	GPIO_EXTI0	IN_Button
27	PC1 *	I/O	GPIO_Output	LED1
28	PC2 *	I/O	GPIO_Output	LED2
29	PC3 *	I/O	GPIO_Output	LED3
30	VDD	Power		
31	VSSA	Power		
32	VREF+	Power		
33	VDDA	Power		
36	PA2	I/O	TIM2_CH3	Buzzer
37	PA3 *	I/O	GPIO_Output	LEDF
38	VSS	Power		
39	VDD	Power		
42	PA6	I/O	ADC1_IN6	ADC1_IN6_PropulsionPressureTransducer
45	PC5 *	I/O	GPIO_Input	IN_Prop_PyroTurboValve_LimitSwitch
47	PB1 *	I/O	GPIO_Input	IN_Prop_ActuatedVent_Feedback
51	VSS	Power		
52	VDD	Power		
53	PF13 *	I/O	GPIO_Input	Prop_Cont_2
54	PF14 *	I/O	GPIO_Output	Prop_Gate_2
55	PF15 *	I/O	GPIO_Output	Prop_Gate_1

Pin Number LQFP144	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
56	PG0 *	I/O	GPIO_Input	Prop_Cont_1
57	PG1 *	I/O	GPIO_Output	Prop_Pyro_Arming
58	PE7 *	I/O	GPIO_Output	Vent_Valve_EN
60	PE9 *	I/O	GPIO_Input	Payload_EN
61	VSS	Power		
62	VDD	Power		
63	PE10 *	I/O	GPIO_Output	TH_CS
64	PE11 *	I/O	GPIO_Input	IN_XTend_Continuity
65	PE12	I/O	SPI4_SCK	
66	PE13	I/O	SPI4_MISO	
67	PE14	I/O	SPI4_MOSI	
68	PE15 *	I/O	GPIO_Output	Iridium_RST
69	PB10	I/O	I2C2_SCL	
70	PB11	I/O	I2C2_SDA	
71	VCAP_1	Power		
72	VDD	Power		
73	PB12 *	I/O	GPIO_Output	SX_NSS
74	PB13	I/O	SPI2_SCK	
75	PB14	I/O	SPI2_MISO	
76	PB15	I/O	SPI2_MOSI	
77	PD8	I/O	USART3_TX	USART3_TX_XTend
78	PD9	I/O	USART3_RX	USART3_RX_XTend
79	PD10 *	I/O	GPIO_Output	XTend_CTS
80	PD11 *	I/O	GPIO_Output	XTend_RTS
81	PD12 *	I/O	GPIO_Output	XTend_SLEEP
82	PD13 *	I/O	GPIO_Output	XTend_RX_LED
83	VSS	Power		
84	VDD	Power		
85	PD14 *	I/O	GPIO_Output	XTend_TX_PWR
86	PD15 *	I/O	GPIO_Input	SX_BANDPASS_FILTER
87	PG2 *	I/O	GPIO_Output	SX_RST
88	PG3 *	I/O	GPIO_Output	SX_BUSY
89	PG4 *	I/O	GPIO_Output	SX_DIO
90	PG5 *	I/O	GPIO_Output	SX_RF_SW
91	PG6	I/O	GPIO_EXTI6	EXTI_LPS22HH_DRDY
92	PG7	I/O	GPIO_EXTI7	EXTI_ISM330DCL_INT2
93	PG8	I/O	GPIO_EXTI8	EXTI_ISM330DLC_INT1
94	VSS	Power		
95	VDD	Power		

Pin Number LQFP144	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
96	PC6	I/O	USART6_TX	USART6_TX_GPS
97	PC7	I/O	USART6_RX	USART6_RX_GPS
98	PC8 *	I/O	GPIO_Output	SX_AMPLIFIER
99	PC9	I/O	I2C3_SDA	
100	PA8	I/O	I2C3_SCL	
105	PA13	I/O	SYS_JTMS-SWDIO	
106	VCAP_2	Power		
107	VSS	Power		
108	VDD	Power		
109	PA14	I/O	SYS_JTCK-SWCLK	
113	PC12 *	I/O	GPIO_Input	IN_SD_CARD_DETECT
118	PD4 *	I/O	GPIO_Output	FLASH_IO3
119	PD5 *	I/O	GPIO_Output	FLASH_WP
120	VSS	Power		
121	VDD	Power		
122	PD6 *	I/O	GPIO_Output	FLASH_CS
123	PD7 *	I/O	GPIO_Output	VR_CTRL_REC
124	PG9 *	I/O	GPIO_Output	VR_CTRL_PWR
125	PG10 *	I/O	GPIO_Input	Rcov_Cont_Main
126	PG11 *	I/O	GPIO_Output	Rcov_Gate_Main
127	PG12 *	I/O	GPIO_Output	Rcov_Gate_Drogue
128	PG13 *	I/O	GPIO_Input	Rcov_Cont_Drogue
129	PG14 *	I/O	GPIO_Output	Rcov_Arm
130	VSS	Power		
131	VDD	Power		
133	PB3	I/O	SYS_JTDO-SWO	
138	BOOT0	Boot		
139	PB8	I/O	I2C1_SCL	
140	PB9	I/O	I2C1_SDA	
141	PE0	I/O	UART8_RX	UART8_RX_Debug
142	PE1	I/O	UART8_TX	UART8_TX_Debug
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	f437_fc_v4.3_megaloop
Project Folder	C:\Users\jaspe\Desktop\Rocket Team STM32\00 STM32 Workspace\avionics-
Toolchain / IDE	STM32CubeIDE
Firmware Package Name and Version	STM32Cube FW_F4 V1.25.2
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	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	MX_GPIO_Init	GPIO
2	SystemClock_Config	RCC
3	MX_ADC1_Init	ADC1
4	MX_I2C1_Init	I2C1
5	MX_I2C2_Init	I2C2
6	MX_I2C3_Init	I2C3
7	MX_SPI2_Init	SPI2
8	MX_SPI4_Init	SPI4
9	MX_SPI5_Init	SPI5
10	MX_TIM2_Init	TIM2
11	MX_UART8_Init	UART8

Rank	Function Name	Peripheral Instance Name
12	MX_USART3_UART_Init	USART3
13	MX_USART6_UART_Init	USART6
14	MX_FATFS_Init	FATFS
15	MX_RTC_Init	RTC
16	MX_TIM4_Init	TIM4

6. Power Consumption Calculator report

6.1. Microcontroller Selection

Series	STM32F4
Line	STM32F427/437
MCU	STM32F437ZITx
Datasheet	DS9484_Rev10

6.2. Parameter Selection

Temperature	25
Vdd	3.3

6.3. 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

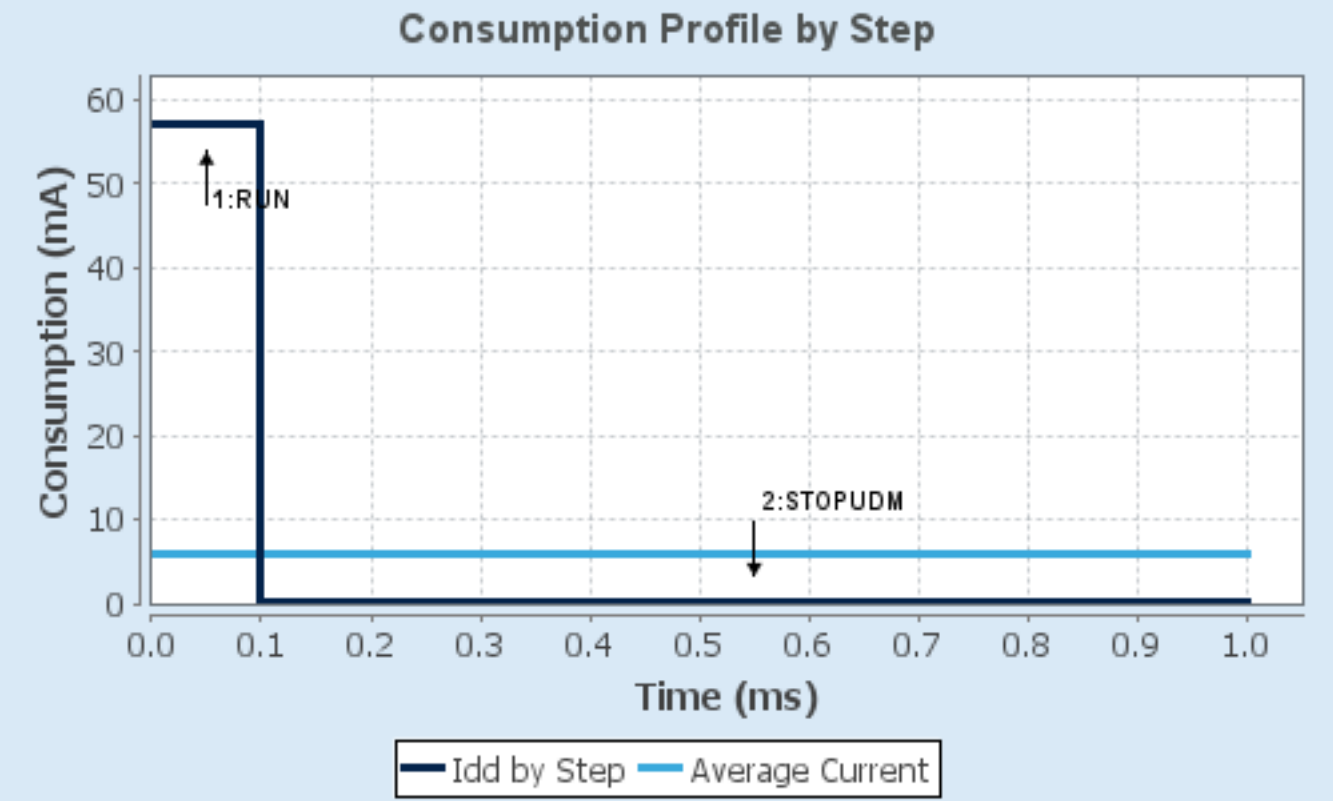
6.4. Sequence

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	97.48	104.99
Category	In DS Table	In DS Table

6.5. Results

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

6.6. 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

7. Peripherals and Middlewares Configuration

7.1. ADC1

mode: IN6

7.1.1. Parameter Settings:

ADCs_Common_Settings:

Mode	Independent mode

ADC_Settings:

Clock Prescaler	PCLK2 divided by 4
Resolution	12 bits (15 ADC Clock cycles)
Data Alignment	Right alignment
Scan Conversion Mode	Disabled
Continuous Conversion Mode	Disabled
Discontinuous Conversion Mode	Disabled
DMA Continuous Requests	Disabled
End Of Conversion Selection	EOC flag at the end of single channel conversion

ADC_Regular_ConversionMode:

Number Of Conversion	1
External Trigger Conversion Source	Regular Conversion launched by software
External Trigger Conversion Edge	None
Rank	1
Channel	Channel 6
Sampling Time	**112 Cycles ***

ADC_Injected_ConversionMode:

Number Of Conversions	0

WatchDog:

Enable Analog WatchDog Mode	false

7.2. I2C1

I2C: I2C

7.2.1. Parameter Settings:

Master Features:

I2C Speed Mode	Standard Mode
I2C Clock Speed (Hz)	100000

Timing configuration:

Coefficient of Digital Filter	0
Analog Filter	Enabled

Slave Features:

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

7.3. I2C2

I2C: I2C

7.3.1. Parameter Settings:

Master Features:

I2C Speed Mode	Standard Mode
I2C Clock Speed (Hz)	100000

Timing configuration:

Coefficient of Digital Filter	0
Analog Filter	Enabled

Slave Features:

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

7.4. I2C3

I2C: I2C

7.4.1. Parameter Settings:

Master Features:

I2C Speed Mode	Standard Mode
I2C Clock Speed (Hz)	100000

Timing configuration:

Coefficient of Digital Filter	0
Analog Filter	Enabled

Slave Features:

Clock No Stretch Mode	Disabled
Primary Address Length selection	7-bit

Dual Address Acknowledged	Disabled
Primary slave address	0
General Call address detection	Disabled

7.5. RCC

High Speed Clock (HSE): Crystal/Ceramic Resonator

Low Speed Clock (LSE) : Crystal/Ceramic Resonator

7.5.1. Parameter Settings:

System Parameters:

VDD voltage (V)	3.3
Instruction Cache	Enabled
Prefetch Buffer	Enabled
Data Cache	Enabled
Flash Latency(WS)	5 WS (6 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 1
Power Over Drive	Enabled

7.6. RTC

mode: Activate Clock Source

mode: Activate Calendar

7.6.1. Parameter Settings:

General:

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

Calendar Time:

Data Format	BCD data format
Hours	**10 ***
Minutes	**20 ***

Seconds	**30 ***
Day Light Saving: value of hour adjustment	Daylightsaving None
Store Operation	Storeoperation Reset

Calendar Date:

Week Day	Monday
Month	**February ***
Date	**12 ***
Year	**21 ***

7.7. SPI2

Mode: Full-Duplex Master

7.7.1. Parameter Settings:

Basic Parameters:

Frame Format	Motorola
Data Size	8 Bits
First Bit	MSB First

Clock Parameters:

Prescaler (for Baud Rate)	**8 ***
Baud Rate	**5.625 MBits/s ***
Clock Polarity (CPOL)	Low
Clock Phase (CPHA)	1 Edge

Advanced Parameters:

CRC Calculation	Disabled
NSS Signal Type	Software

7.8. SPI4

Mode: Full-Duplex Master

7.8.1. Parameter Settings:

Basic Parameters:

Frame Format	Motorola
Data Size	8 Bits
First Bit	MSB First

Clock Parameters:

Prescaler (for Baud Rate)	**64 ***

Baud Rate	**1.40625 MBits/s ***
Clock Polarity (CPOL)	Low
Clock Phase (CPHA)	1 Edge

Advanced Parameters:

CRC Calculation	Disabled
NSS Signal Type	Software

7.9. SPI5

Mode: Full-Duplex Master

7.9.1. Parameter Settings:

Basic Parameters:

Frame Format	Motorola
Data Size	8 Bits
First Bit	MSB First

Clock Parameters:

Prescaler (for Baud Rate)	2
Baud Rate	**45.0 MBits/s ***
Clock Polarity (CPOL)	Low
Clock Phase (CPHA)	1 Edge

Advanced Parameters:

CRC Calculation	Disabled
NSS Signal Type	Software

7.10. SYS

Debug: Trace Asynchronous Sw

Timebase Source: SysTick

7.11. TIM2

Clock Source : Internal Clock

Channel3: PWM Generation CH3

7.11.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	**90-1 ***
Counter Mode	Up

Counter Period (AutoReload Register - 32 bits value)	**400-1 ***
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	**Update Event ***

PWM Generation Channel 3:

Mode	PWM mode 1
Pulse (32 bits value)	**100 ***
Output compare preload	Enable
Fast Mode	Disable
CH Polarity	High

7.12. TIM4

Clock Source : Internal Clock

7.12.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	**9000-1 ***
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	**1000-1 ***
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	**Update Event ***

7.13. UART8

Mode: Asynchronous

7.13.1. Parameter Settings:

Basic Parameters:

Baud Rate	**9600 ***
Word Length	8 Bits (including Parity)
Parity	None
Stop Bits	1

Advanced Parameters:

Data Direction	Receive and Transmit
Over Sampling	16 Samples

7.14. USART3

Mode: Asynchronous

7.14.1. Parameter Settings:

Basic Parameters:

Baud Rate	**9600 ***
Word Length	8 Bits (including Parity)
Parity	None
Stop Bits	1

Advanced Parameters:

Data Direction	Receive and Transmit
Over Sampling	16 Samples

7.15. USART6

Mode: Asynchronous

7.15.1. Parameter Settings:

Basic Parameters:

Baud Rate	**9600 ***
Word Length	8 Bits (including Parity)
Parity	None
Stop Bits	1

Advanced Parameters:

Data Direction	Receive and Transmit
Over Sampling	16 Samples

7.16. FATFS

mode: User-defined

7.16.1. Set Defines:

Version:

FATFS version	R0.12c

Function Parameters:

FS_READONLY (Read-only mode)	Disabled
FS_MINIMIZE (Minimization level)	Disabled
USE_STRFUNC (String functions)	Enabled with LF -> CRLF conversion
USE_FIND (Find functions)	Disabled
USE_MKFS (Make filesystem function)	Enabled
USE_FASTSEEK (Fast seek function)	Enabled
USE_EXPAND (Use f_expand function)	Disabled
USE_CHMOD (Change attributes function)	Disabled
USE_LABEL (Volume label functions)	Disabled
USE_FORWARD (Forward function)	Disabled

Locale and Namespace Parameters:

CODE_PAGE (Code page on target)	Latin 1
USE_LFN (Use Long Filename)	Disabled
MAX_LFN (Max Long Filename)	255
LFN_UNICODE (Enable Unicode)	ANSI/OEM
STRF_ENCODE (Character encoding)	UTF-8
FS_RPATH (Relative Path)	Disabled

Physical Drive Parameters:

VOLUMES (Logical drives)	1
MAX_SS (Maximum Sector Size)	512
MIN_SS (Minimum Sector Size)	512
MULTI_PARTITION (Volume partitions feature)	Disabled
USE_TRIM (Erase feature)	Disabled
FS_NOFSINFO (Force full FAT scan)	0

System Parameters:

FS_TINY (Tiny mode)	Disabled
FS_EXFAT (Support of exFAT file system)	Disabled
FS_NORTC (Timestamp feature)	Dynamic timestamp
FS_REENTRANT (Re-Entrancy)	Disabled
FS_TIMEOUT (Timeout ticks)	1000
FS_LOCK (Number of files opened simultaneously)	2

*** 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	PA6	ADC1_IN6	Analog mode	No pull-up and no pull-down	n/a	ADC1_IN6_PropulsionPressureTransducer
I2C1	PB8	I2C1_SCL	Alternate Function Open Drain	Pull-up	**Very High ***	
	PB9	I2C1_SDA	Alternate Function Open Drain	Pull-up	**Very High ***	
I2C2	PB10	I2C2_SCL	Alternate Function Open Drain	Pull-up	**Very High ***	
	PB11	I2C2_SDA	Alternate Function Open Drain	Pull-up	**Very High ***	
I2C3	PC9	I2C3_SDA	Alternate Function Open Drain	Pull-up	**Very High ***	
	PA8	I2C3_SCL	Alternate Function Open Drain	Pull-up	**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	
	PH0/OSC_IN	RCC_OSC_IN	n/a	n/a	n/a	
	PH1/OSC_OUT	RCC_OSC_OUT	n/a	n/a	n/a	
SPI2	PB13	SPI2_SCK	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	
	PB14	SPI2_MISO	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	
	PB15	SPI2_MOSI	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	
SPI4	PE12	SPI4_SCK	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	
	PE13	SPI4_MISO	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	
	PE14	SPI4_MOSI	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	
SPI5	PF7	SPI5_SCK	Alternate Function Push Pull	**Pull-up ***	**Very High**	

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
					*	
	PF8	SPI5_MISO	Alternate Function Push Pull	**Pull-up ***	**Very High ***	
	PF9	SPI5_MOSI	Alternate Function Push Pull	**Pull-up ***	**Very High ***	
SYS	PA13	SYS_JTMS-SWDIO	n/a	n/a	n/a	
	PA14	SYS_JTCK-SWCLK	n/a	n/a	n/a	
	PB3	SYS_JTDO-SWO	n/a	n/a	n/a	
TIM2	PA2	TIM2_CH3	Alternate Function Push Pull	No pull-up and no pull-down	Low	Buzzer
UART8	PE0	UART8_RX	Alternate Function Push Pull	Pull-up	**Very High ***	UART8_RX_Debug
	PE1	UART8_TX	Alternate Function Push Pull	Pull-up	**Very High ***	UART8_TX_Debug
USART3	PD8	USART3_TX	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	USART3_TX_XTend
	PD9	USART3_RX	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	USART3_RX_XTend
USART6	PC6	USART6_TX	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	USART6_TX_GPS
	PC7	USART6_RX	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	USART6_RX_GPS
GPIO	PE2	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	PM_12V_EN
	PF10	GPIO_Output	Output Push Pull	**Pull-up ***	Low	SD_CS
	PC0	GPIO_EXTI0	External Interrupt Mode with Rising edge trigger detection	No pull-up and no pull-down	n/a	IN_Button
	PC1	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LED1
	PC2	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LED2
	PC3	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LED3
	PA3	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LEDF
	PC5	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	IN_Prop_PyroTurboValve_LimitSwitch
	PB1	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	IN_Prop_ActuatedVent_Feedback
	PF13	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	Prop_Cont_2
	PF14	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	Prop_Gate_2
	PF15	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	Prop_Gate_1
	PG0	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	Prop_Cont_1

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
	PG1	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	Prop_Pyro_Arming
	PE7	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	Vent_Valve_EN
	PE9	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	Payload_EN
	PE10	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	TH_CS
	PE11	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	IN_XTend_Continuity
	PE15	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	Iridium_RST
	PB12	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	SX_NSS
	PD10	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	XTend_CTS
	PD11	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	XTend_RTS
	PD12	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	XTend_SLEEP
	PD13	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	XTend_RX_LED
	PD14	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	XTend_TX_PWR
	PD15	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	SX_BANDPASS_FILTER
	PG2	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	SX_RST
	PG3	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	SX_BUSY
	PG4	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	SX_DIO
	PG5	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	SX_RF_SW
	PG6	GPIO_EXTI6	External Interrupt Mode with Rising edge trigger detection	No pull-up and no pull-down	n/a	EXTI_LPS22HH_DRDY
	PG7	GPIO_EXTI7	External Interrupt Mode with Rising edge trigger detection	No pull-up and no pull-down	n/a	EXTI_ISM330DCL_INT2
	PG8	GPIO_EXTI8	External Interrupt Mode with Rising edge trigger detection	No pull-up and no pull-down	n/a	EXTI_ISM330DLC_INT1
	PC8	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	SX_AMPLIFIER
	PC12	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	IN_SD_CARD_DETECT
	PD4	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	FLASH_IO3
	PD5	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	FLASH_WP
	PD6	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	FLASH_CS
	PD7	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	VR_CTRL_REC
	PG9	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	VR_CTRL_PWR
	PG10	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	Rcov_Cont_Main
	PG11	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	Rcov_Gate_Main
	PG12	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	Rcov_Gate_Drogue
	PG13	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	Rcov_Cont_Drogue
	PG14	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	Rcov_Arm

8.2. DMA configuration

nothing configured in DMA service

8.3. NVIC configuration

8.3.1. 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	0	0
EXTI line0 interrupt	true	0	0
TIM4 global interrupt	true	0	0
PVD interrupt through EXTI line 16	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		
ADC1, ADC2 and ADC3 global interrupts	unused		
EXTI line[9:5] interrupts	unused		
TIM2 global interrupt	unused		
I2C1 event interrupt	unused		
I2C1 error interrupt	unused		
I2C2 event interrupt	unused		
I2C2 error interrupt	unused		
SPI2 global interrupt	unused		
USART3 global interrupt	unused		
USART6 global interrupt	unused		
I2C3 event interrupt	unused		
I2C3 error interrupt	unused		
FPU global interrupt	unused		
UART8 global interrupt	unused		
SPI4 global interrupt	unused		
SPI5 global interrupt	unused		

8.3.2. 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

Enabled interrupt Table	Select for init sequence ordering	Generate IRQ handler	Call HAL handler
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
EXTI line0 interrupt	false	true	true
TIM4 global interrupt	false	true	true

*** User modified value**

9. System Views

9.1. Category view

9.1.1. Current

10. Docs & Resources

Type	Link
Datasheet	http://www.st.com/resource/en/datasheet/DM00077036.pdf
Reference manual	http://www.st.com/resource/en/reference_manual/DM00031020.pdf
Programming manual	http://www.st.com/resource/en/programming_manual/DM00046982.pdf
Errata sheet	http://www.st.com/resource/en/errata_sheet/DM00068628.pdf
Application note	http://www.st.com/resource/en/application_note/CD00167594.pdf
Application note	http://www.st.com/resource/en/application_note/CD00211314.pdf
Application note	http://www.st.com/resource/en/application_note/CD00249778.pdf
Application note	http://www.st.com/resource/en/application_note/CD00259245.pdf
Application note	http://www.st.com/resource/en/application_note/CD00264321.pdf
Application note	http://www.st.com/resource/en/application_note/CD00264342.pdf
Application note	http://www.st.com/resource/en/application_note/CD00264379.pdf
Application note	http://www.st.com/resource/en/application_note/DM00024853.pdf
Application note	http://www.st.com/resource/en/application_note/DM00025071.pdf
Application note	http://www.st.com/resource/en/application_note/DM00040802.pdf
Application note	http://www.st.com/resource/en/application_note/DM00040808.pdf
Application note	http://www.st.com/resource/en/application_note/DM00042534.pdf
Application note	http://www.st.com/resource/en/application_note/DM00046011.pdf
Application note	http://www.st.com/resource/en/application_note/DM00050879.pdf
Application note	http://www.st.com/resource/en/application_note/DM00072315.pdf
Application note	http://www.st.com/resource/en/application_note/DM00073742.pdf
Application note	http://www.st.com/resource/en/application_note/DM00073853.pdf
Application note	http://www.st.com/resource/en/application_note/DM00080497.pdf
Application note	http://www.st.com/resource/en/application_note/DM00081379.pdf
Application note	http://www.st.com/resource/en/application_note/DM00115714.pdf
Application note	http://www.st.com/resource/en/application_note/DM00123028.pdf

Application note	http://www.st.com/resource/en/application_note/DM00129215.pdf
Application note	http://www.st.com/resource/en/application_note/DM00154959.pdf
Application note	http://www.st.com/resource/en/application_note/DM00160482.pdf
Application note	http://www.st.com/resource/en/application_note/DM00164538.pdf
Application note	http://www.st.com/resource/en/application_note/DM00172465.pdf
Application note	http://www.st.com/resource/en/application_note/DM00213525.pdf
Application note	http://www.st.com/resource/en/application_note/DM00220769.pdf
Application note	http://www.st.com/resource/en/application_note/DM00226326.pdf
Application note	http://www.st.com/resource/en/application_note/DM00236305.pdf
Application note	http://www.st.com/resource/en/application_note/DM00257177.pdf
Application note	http://www.st.com/resource/en/application_note/DM00272912.pdf
Application note	http://www.st.com/resource/en/application_note/DM00281138.pdf
Application note	http://www.st.com/resource/en/application_note/DM00296349.pdf
Application note	http://www.st.com/resource/en/application_note/DM00315319.pdf
Application note	http://www.st.com/resource/en/application_note/DM00327191.pdf
Application note	http://www.st.com/resource/en/application_note/DM00354244.pdf
Application note	http://www.st.com/resource/en/application_note/DM00373474.pdf
Application note	http://www.st.com/resource/en/application_note/DM00380469.pdf
Application note	http://www.st.com/resource/en/application_note/DM00395696.pdf
Application note	http://www.st.com/resource/en/application_note/DM00431633.pdf
Application note	http://www.st.com/resource/en/application_note/DM00493651.pdf
Application note	http://www.st.com/resource/en/application_note/DM00536349.pdf
Application note	http://www.st.com/resource/en/application_note/DM00725181.pdf