



1. Description

1.1. Project

Project Name	stm32f103zet6_hal
Board Name	custom
Generated with:	STM32CubeMX 6.2.0
Date	11/04/2021

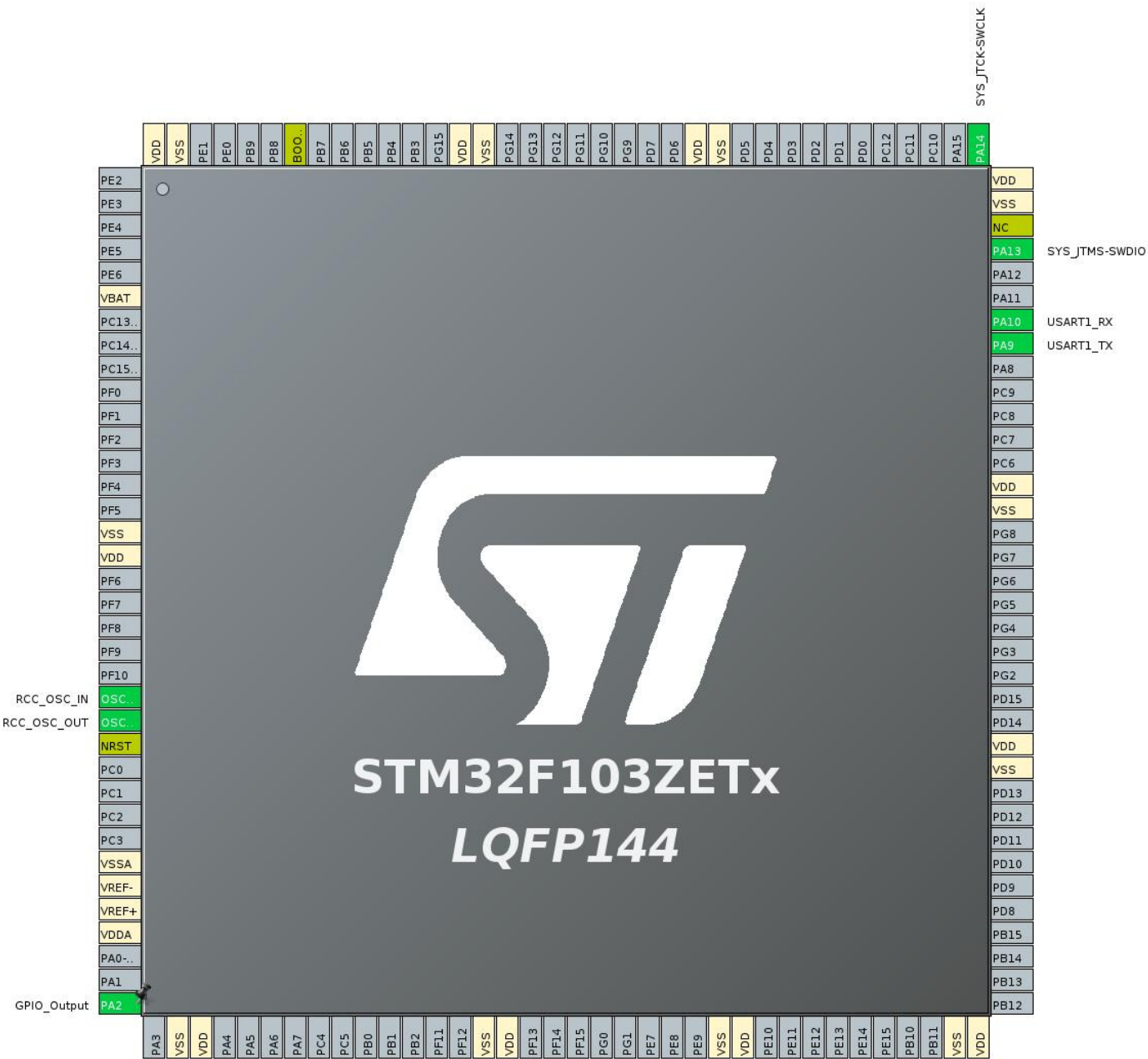
1.2. MCU

MCU Series	STM32F1
MCU Line	STM32F103
MCU name	STM32F103ZETx
MCU Package	LQFP144
MCU Pin number	144

1.3. Core(s) information

Core(s)	Arm Cortex-M3
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2. Pinout Configuration



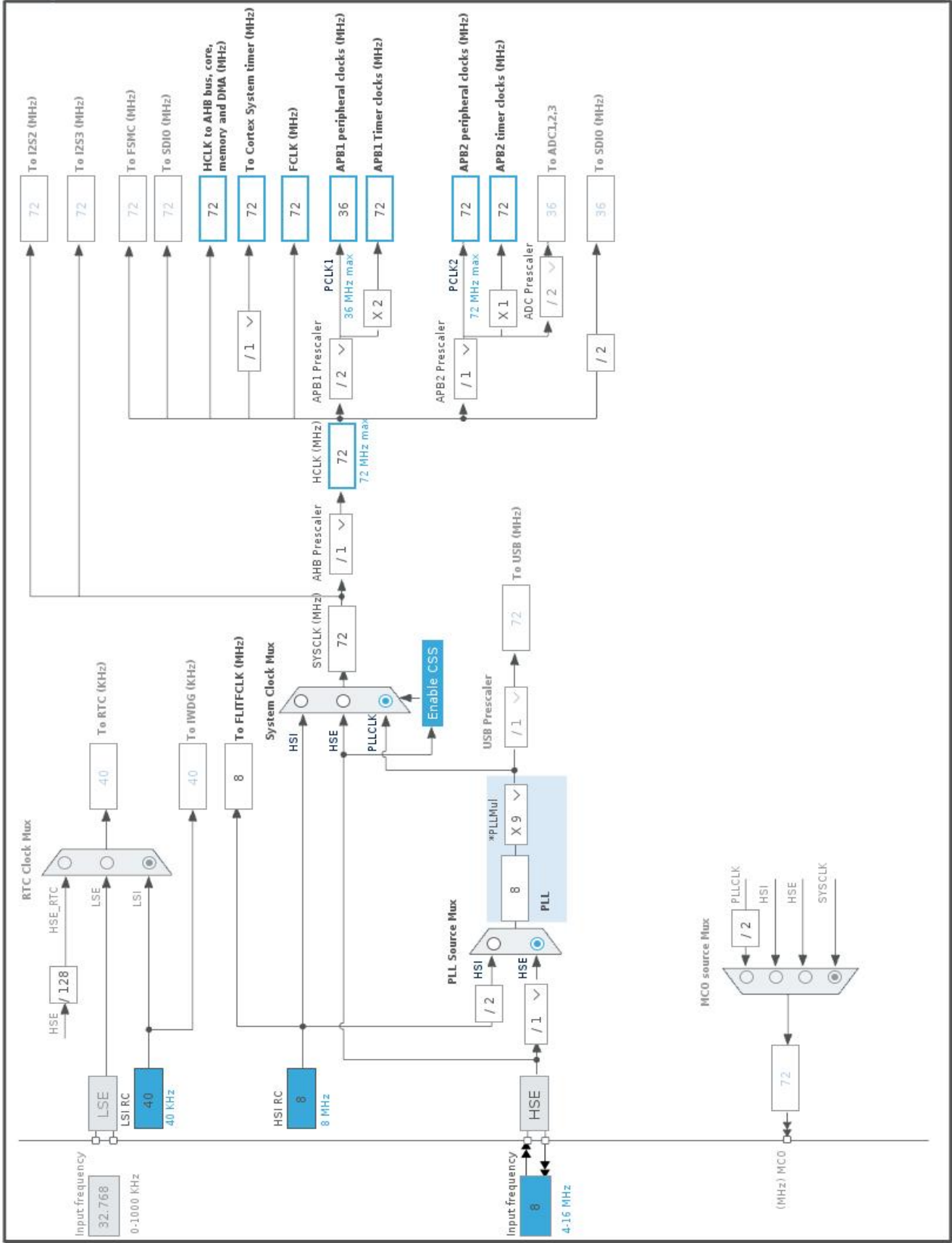
3. Pins Configuration

Pin Number LQFP144	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
6	VBAT	Power		
16	VSS	Power		
17	VDD	Power		
23	OSC_IN	I/O	RCC_OSC_IN	
24	OSC_OUT	I/O	RCC_OSC_OUT	
25	NRST	Reset		
30	VSSA	Power		
31	VREF-	Power		
32	VREF+	Power		
33	VDDA	Power		
36	PA2 *	I/O	GPIO_Output	
38	VSS	Power		
39	VDD	Power		
51	VSS	Power		
52	VDD	Power		
61	VSS	Power		
62	VDD	Power		
71	VSS	Power		
72	VDD	Power		
83	VSS	Power		
84	VDD	Power		
94	VSS	Power		
95	VDD	Power		
101	PA9	I/O	USART1_TX	
102	PA10	I/O	USART1_RX	
105	PA13	I/O	SYS_JTMS-SWDIO	
106	NC	NC		
107	VSS	Power		
108	VDD	Power		
109	PA14	I/O	SYS_JTCK-SWCLK	
120	VSS	Power		
121	VDD	Power		
130	VSS	Power		
131	VDD	Power		
138	BOOT0	Boot		
143	VSS	Power		

Pin Number LQFP144	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
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	stm32f103zet6_hal
Project Folder	/home/ysh/Desktop/github/___ysh___/STM32_HAL/project/stm32f103zet6_hal
Toolchain / IDE	STM32CubeIDE
Firmware Package Name and Version	STM32Cube FW_F1 V1.8.4
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	MX_GPIO_Init	GPIO
2	SystemClock_Config	RCC
3	MX_USART1_UART_Init	USART1

6. Power Consumption Calculator report

6.1. Microcontroller Selection

Series	STM32F1
Line	STM32F103
MCU	STM32F103ZETx
Datasheet	DS5792_Rev12

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

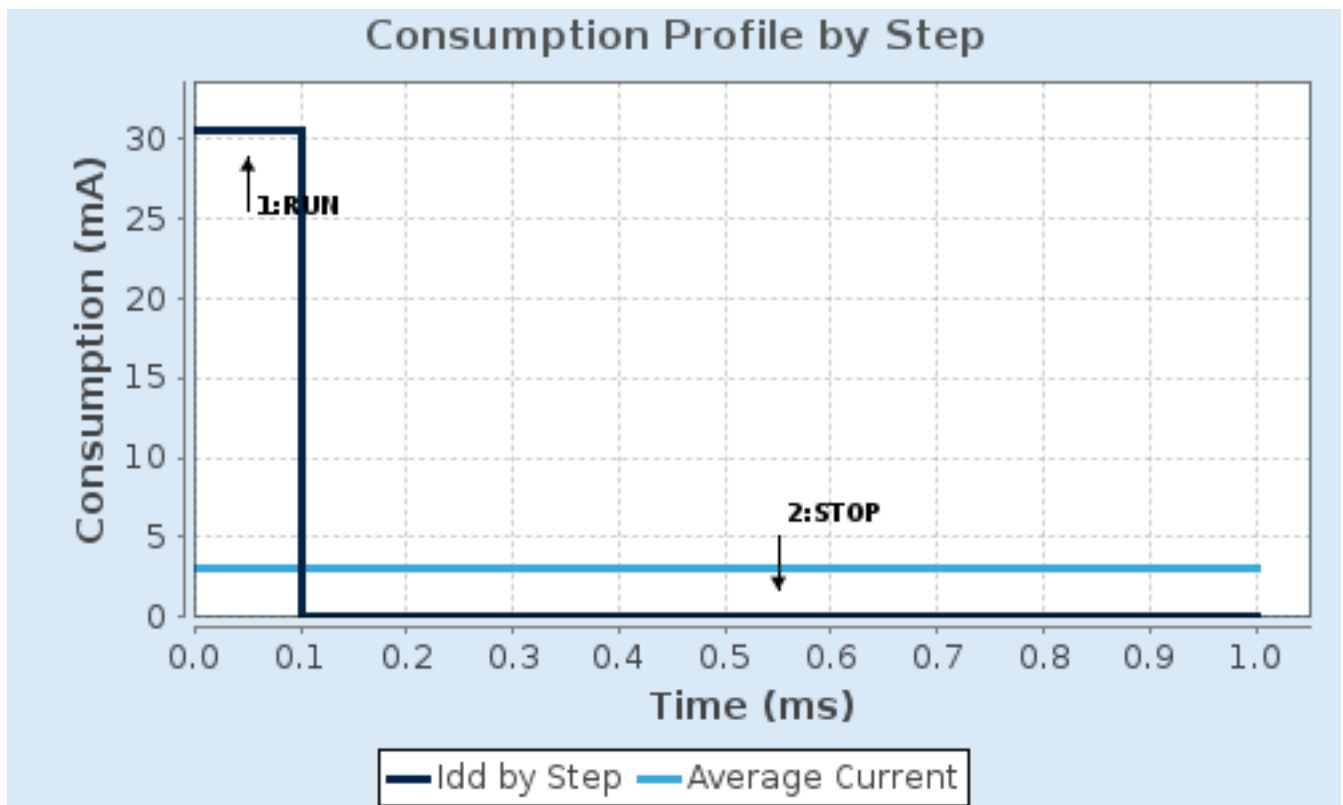
6.4. Sequence

Step	Step1	Step2
Mode	RUN	STOP
Vdd	3.3	3.3
Voltage Source	Battery	Battery
Range	No Scale	No Scale
Fetch Type	FLASH	n/a
CPU Frequency	72 MHz	0 Hz
Clock Configuration	HSE PLL	Regulator LP
Clock Source Frequency	8 MHz	0 Hz
Peripherals		
Additional Cons.	0 mA	0 mA
Average Current	30.5 mA	25 μ A
Duration	0.1 ms	0.9 ms
DMIPS	90.0	0.0
Ta Max	101.98	105
Category	In DS Table	In DS Table

6.5. Results

Sequence Time	1 ms	Average Current	3.07 mA
Battery Life	1 month, 15 days, 15 hours	Average DMIPS	61.0 DMIPS

6.6. Chart



7. Peripherals and Middlewares Configuration

7.1. RCC

High Speed Clock (HSE): Crystal/Ceramic Resonator

7.1.1. Parameter Settings:

System Parameters:

VDD voltage (V)	3.3
Prefetch Buffer	Enabled
Flash Latency(WS)	2 WS (3 CPU cycle)

RCC Parameters:

HSI Calibration Value	16
HSE Startup Timeout Value (ms)	100
LSE Startup Timeout Value (ms)	5000

7.2. SYS

Debug: Serial Wire

Timebase Source: SysTick

7.3. USART1

Mode: Asynchronous

7.3.1. 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

* User modified value

8. System Configuration

8.1. GPIO configuration

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
RCC	OSC_IN	RCC_OSC_IN	n/a	n/a	n/a	
	OSC_OUT	RCC_OSC_OUT	n/a	n/a	n/a	
SYS	PA13	SYS_JTMS-SWDIO	n/a	n/a	n/a	
	PA14	SYS_JTCK-SWCLK	n/a	n/a	n/a	
USART1	PA9	USART1_TX	Alternate Function Push Pull	n/a	High *	
	PA10	USART1_RX	Input mode	No pull-up and no pull-down	n/a	
GPIO	PA2	GPIO_Output	Output Push Pull	Pull-up *	High *	

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
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
USART1 global interrupt	true	14	0
PVD interrupt through EXTI line 16	unused		
Flash global interrupt	unused		
RCC 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
Prefetch 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
USART1 global interrupt	false	true	true

* User modified value

9. System Views

9.1. Category view

9.1.1. Current

Middleware

System Core	Analog	Timers	Connectivity	Multimedia	Computing
DMA			USART1 ✓		
GPIO ✓					
NVIC ✓					
RCC ✓					
SYS ✓					

10. Docs & Resources

Type	Link
Datasheet	http://www.st.com/resource/en/datasheet/CD00191185.pdf
Reference manual	http://www.st.com/resource/en/reference_manual/CD00171190.pdf
Programming manual	http://www.st.com/resource/en/programming_manual/CD00228163.pdf
Programming manual	http://www.st.com/resource/en/programming_manual/CD00283419.pdf
Errata sheet	http://www.st.com/resource/en/errata_sheet/CD00197763.pdf
Application note	http://www.st.com/resource/en/application_note/CD00160362.pdf
Application note	http://www.st.com/resource/en/application_note/CD00164185.pdf
Application note	http://www.st.com/resource/en/application_note/CD00167594.pdf
Application note	http://www.st.com/resource/en/application_note/CD00200423.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
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Application note	http://www.st.com/resource/en/application_note/DM00032987.pdf
Application note	http://www.st.com/resource/en/application_note/DM00033267.pdf
Application note	http://www.st.com/resource/en/application_note/DM00033344.pdf
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Application note	http://www.st.com/resource/en/application_note/DM00052530.pdf
Application note	http://www.st.com/resource/en/application_note/DM00073742.pdf
Application note	http://www.st.com/resource/en/application_note/DM00080497.pdf
Application note	http://www.st.com/resource/en/application_note/DM00129215.pdf

Application note http://www.st.com/resource/en/application_note/DM00160482.pdf
Application note http://www.st.com/resource/en/application_note/DM00156964.pdf
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Application note http://www.st.com/resource/en/application_note/DM00236305.pdf
Application note http://www.st.com/resource/en/application_note/DM00296349.pdf
Application note http://www.st.com/resource/en/application_note/DM00325582.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/DM00315319.pdf
Application note http://www.st.com/resource/en/application_note/DM00380469.pdf
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