



## 1. Description

### 1.1. Project

Project Name	pinMapF3
Board Name	custom
Generated with:	STM32CubeMX 6.0.1
Date	09/23/2020

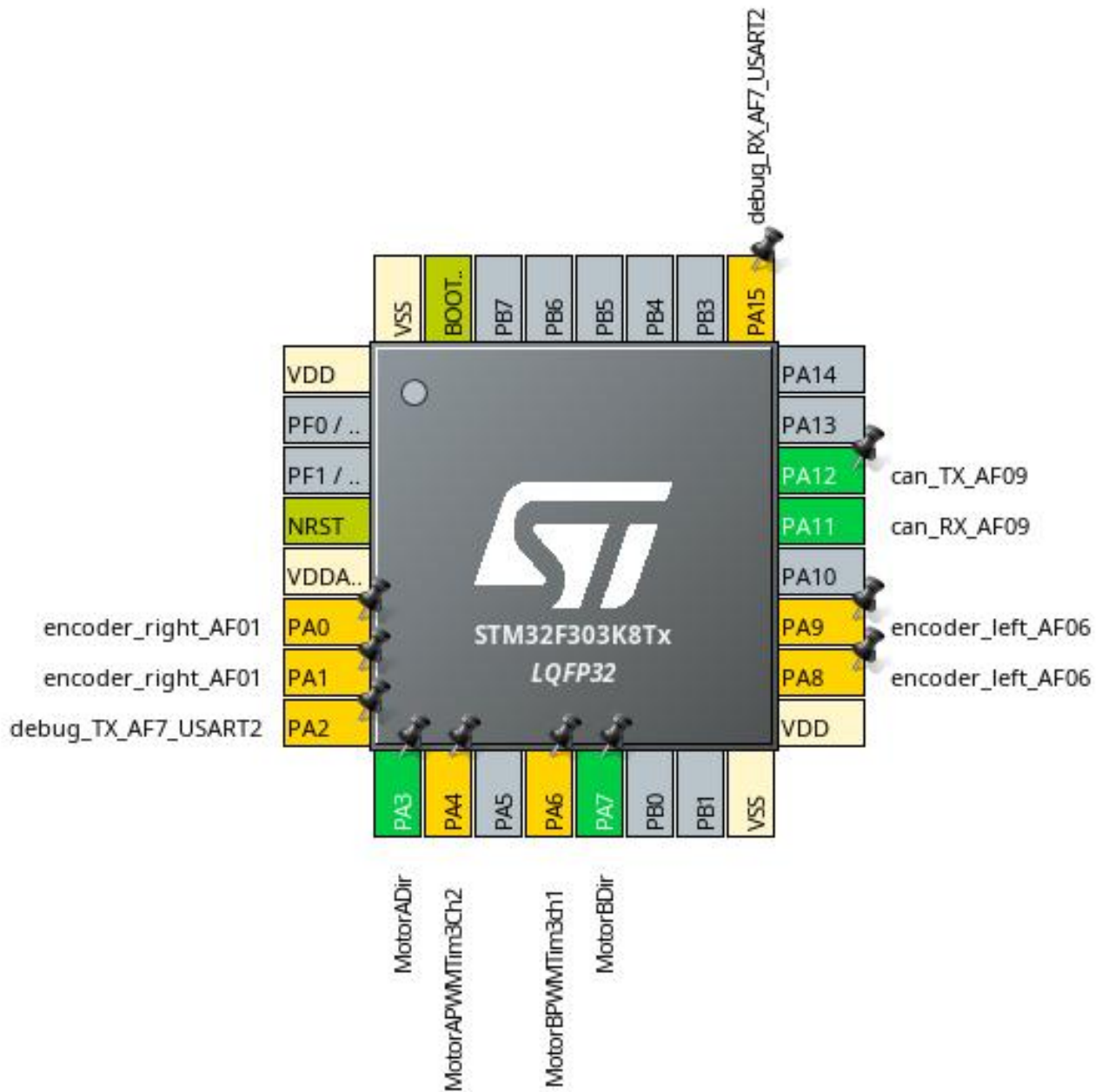
### 1.2. MCU

MCU Series	STM32F3
MCU Line	STM32F303
MCU name	STM32F303K8Tx
MCU Package	LQFP32
MCU Pin number	32

### 1.3. Core(s) information

Core(s)	Arm Cortex-M4
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## 2. Pinout Configuration



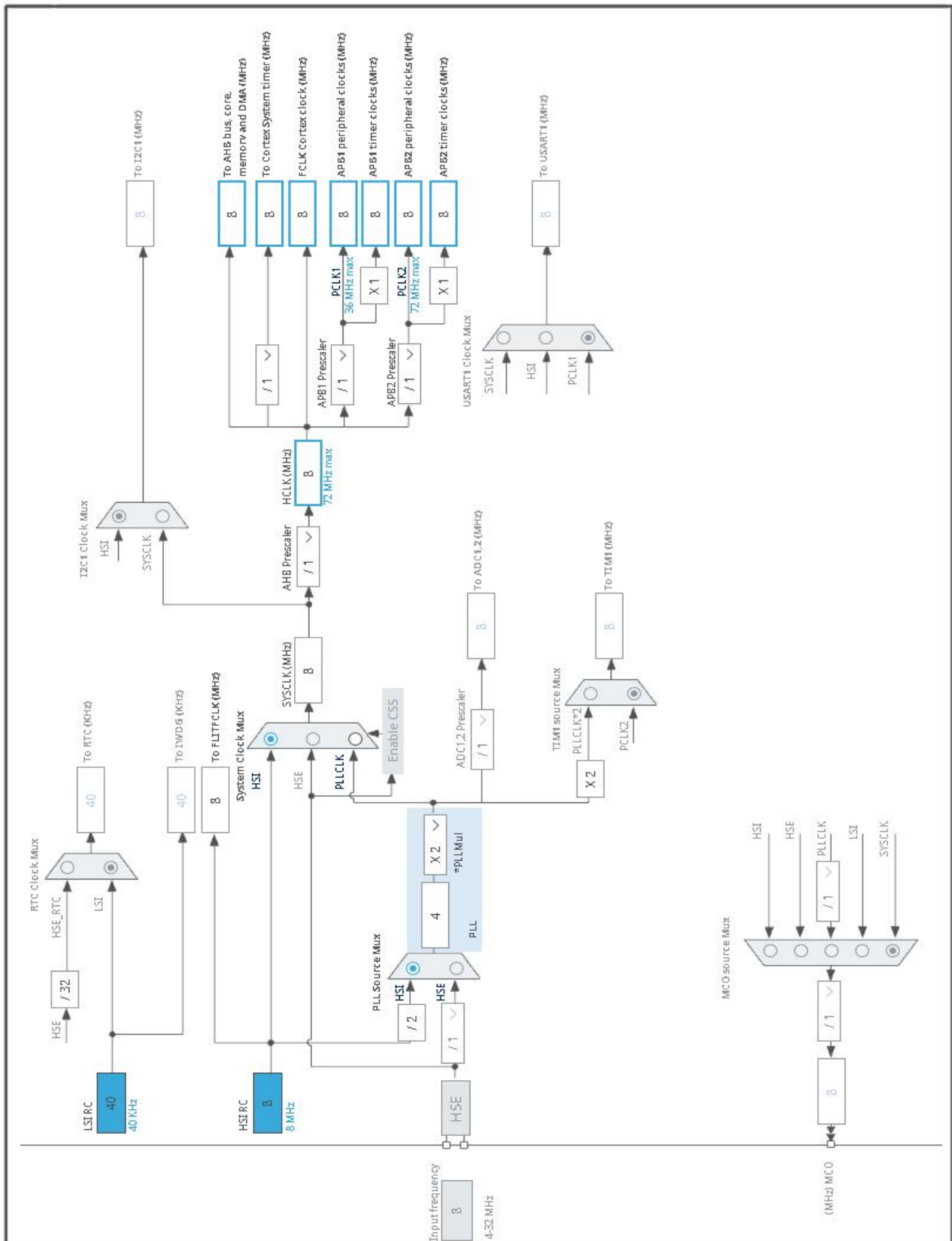
### 3. Pins Configuration

Pin Number LQFP32	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	VDD	Power		
4	NRST	Reset		
5	VDDA/VREF+	Power		
6	PA0 *	I/O	TIM2_CH1	encoder_right_AF01
7	PA1 *	I/O	TIM2_CH2	encoder_right_AF01
8	PA2 *	I/O	USART2_TX	debug_TX_AF7_USART2
9	PA3 **	I/O	GPIO_Output	MotorADir
10	PA4 *	I/O	TIM3_CH2	MotorAPWMTim3Ch2
12	PA6 *	I/O	TIM3_CH1	MotorBPWMTim3ch1
13	PA7 **	I/O	GPIO_Output	MotorBDir
16	VSS	Power		
17	VDD	Power		
18	PA8 *	I/O	TIM1_CH1	encoder_left_AF06
19	PA9 *	I/O	TIM1_CH2	encoder_left_AF06
21	PA11	I/O	CAN_RX	can_RX_AF09
22	PA12	I/O	CAN_TX	can_TX_AF09
25	PA15 *	I/O	USART2_RX	debug_RX_AF7_USART2
31	BOOT0	Boot		
32	VSS	Power		

\*\* The pin is affected with an I/O function

\* The pin is affected with a peripheral function but no peripheral mode is activated

## 4. Clock Tree Configuration



## 5. Software Project

### 5.1. Project Settings

Name	Value
Project Name	pinMapF3
Project Folder	/home/akko/robotronik/pinMapF3
Toolchain / IDE	EWARM V8.32
Firmware Package Name and Version	STM32Cube FW_F3 V1.11.0
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	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	IP Instance Name
1	MX_GPIO_Init	GPIO
2	SystemClock_Config	RCC
3	MX_CAN_Init	CAN

## 6. Power Consumption Calculator report

### 6.1. Microcontroller Selection

Series	STM32F3
Line	STM32F303
MCU	STM32F303K8Tx
Datasheet	DS9866_Rev5

### 6.2. Parameter Selection

Temperature	25
Vdd	3.6

### 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

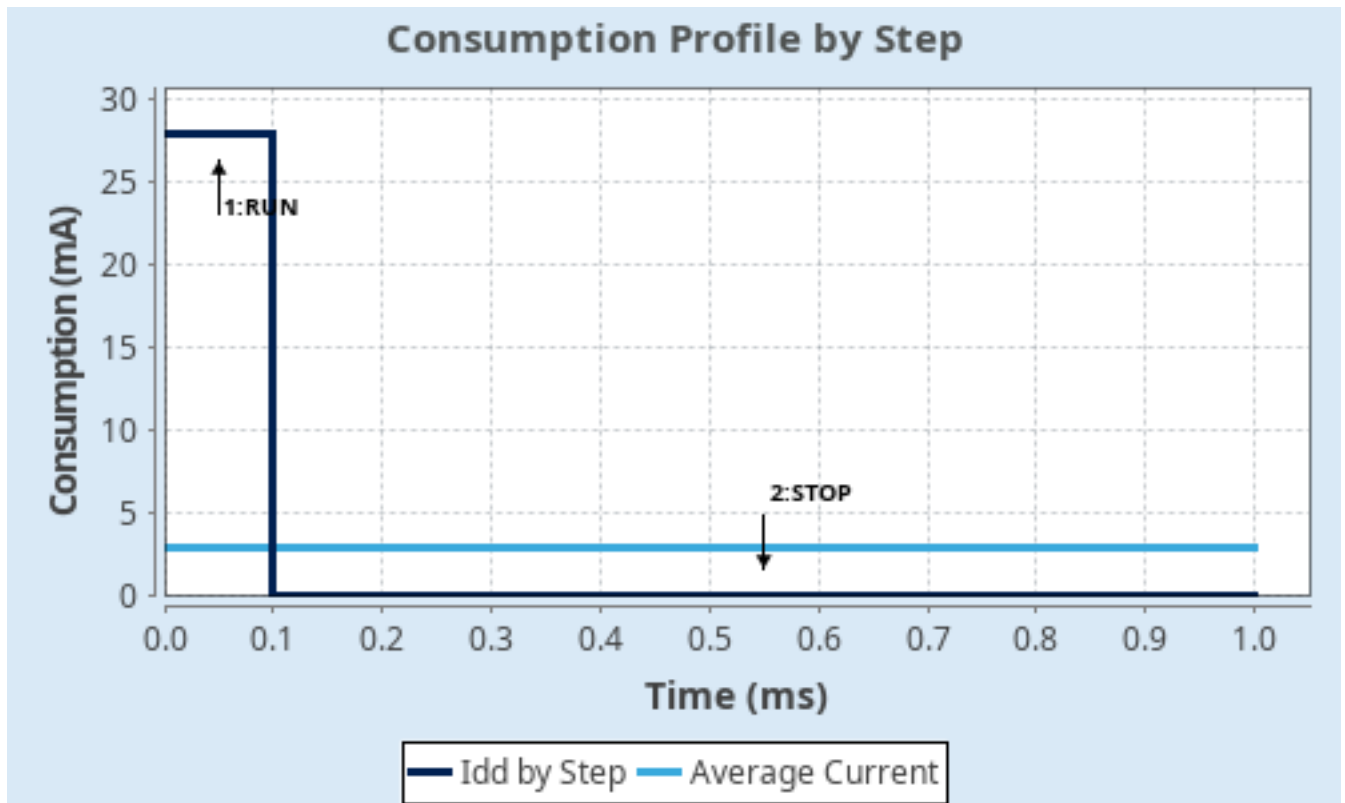
<b>Step</b>	Step1	Step2
<b>Mode</b>	RUN	STOP
<b>Vdd</b>	3.6	3.6
<b>Voltage Source</b>	Battery	Battery
<b>Range</b>	No Scale	No Scale
<b>Fetch Type</b>	RAM	n/a
<b>CPU Frequency</b>	72 MHz	0 Hz
<b>Clock Configuration</b>	HSEBYP PLL	Regulator LP
<b>Clock Source Frequency</b>	8 MHz	0 Hz
<b>Peripherals</b>		
<b>Additional Cons.</b>	0 mA	0 mA
<b>Average Current</b>	27.84 mA	9.55 $\mu$ A
<b>Duration</b>	0.1 ms	0.9 ms
<b>DMIPS</b>	90.0	0.0
<b>Ta Max</b>	98.99	105
<b>Category</b>	In DS Table	In DS Table

#### 6.5. Results

Sequence Time	1 ms	Average Current	2.79 mA
Battery Life	1 month, 20 days, 5 hours	Average DMIPS	90.0 DMIPS

#### 6.6. Chart





## 7. IPs and Middleware Configuration

### 7.1. CAN

**mode: Mode**

#### 7.1.1. Parameter Settings:

##### **Bit Timings Parameters:**

Prescaler (for Time Quantum)	16
Time Quantum	<b>2000.0 *</b>
Time Quanta in Bit Segment 1	1 Time
Time Quanta in Bit Segment 2	1 Time
ReSynchronization Jump Width	1 Time

##### **Basic Parameters:**

Time Triggered Communication Mode	Disable
Automatic Bus-Off Management	Disable
Automatic Wake-Up Mode	Disable
Automatic Retransmission	Disable
Receive Fifo Locked Mode	Disable
Transmit Fifo Priority	Disable

##### **Advanced Parameters:**

Operating Mode	Normal
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### 7.2. GPIO

### 7.3. RCC

#### 7.3.1. Parameter Settings:

##### **System Parameters:**

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

##### **RCC Parameters:**

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

#### **7.4. SYS**

**Timebase Source: SysTick**

**\* User modified value**

## 8. System Configuration

### 8.1. GPIO configuration

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
CAN	PA11	CAN_RX	Alternate Function Push Pull	No pull up pull down	<b>High *</b>	can_RX_AF09
	PA12	CAN_TX	Alternate Function Push Pull	No pull up pull down	<b>High *</b>	can_TX_AF09
Single Mapped Signals	PA0	TIM2_CH1	Alternate Function Push Pull	No pull up pull down	Low	encoder_right_AF01
	PA1	TIM2_CH2	Alternate Function Push Pull	No pull up pull down	Low	encoder_right_AF01
	PA2	USART2_TX	Alternate Function Push Pull	No pull up pull down	<b>High *</b>	debug_TX_AF7_USART2
	PA4	TIM3_CH2	Alternate Function Push Pull	No pull up pull down	Low	MotorAPWMTim3Ch2
	PA6	TIM3_CH1	Alternate Function Push Pull	No pull up pull down	Low	MotorBPWMTim3ch1
	PA8	TIM1_CH1	Alternate Function Push Pull	No pull up pull down	Low	encoder_left_AF06
	PA9	TIM1_CH2	Alternate Function Push Pull	No pull up pull down	Low	encoder_left_AF06
	PA15	USART2_RX	Alternate Function Push Pull	No pull up pull down	<b>High *</b>	debug_RX_AF7_USART2
GPIO	PA3	GPIO_Output	Output Push Pull	No pull up pull down	Low	MotorADir
	PA7	GPIO_Output	Output Push Pull	No pull up pull down	Low	MotorBDir

### 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
PVD interrupt through EXTI line 16	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		
CAN TX interrupt	unused		
CAN RX0 interrupt	unused		
CAN RX1 interrupt	unused		
CAN SCE interrupt	unused		
Floating point unit 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	true	true	false
Hard fault interrupt	true	true	false
Memory management fault	true	true	false
Pre-fetch fault, memory access fault	true	true	false
Undefined instruction or illegal state	true	true	false
System service call via SWI instruction	true	true	false
Debug monitor	true	true	false
Pendable request for system service	true	true	false
System tick timer	true	true	true

\* User modified value

## 9. System Views

### 9.1. Category view

#### 9.1.1. Current

#### Middleware

#### System Core

#### Analog

#### Timers

#### Connectivity

#### Computing

DMA

GPIO 

NVIC 

RCC 

SYS 

CAN 

## 10. Docs & Resources

Type	Link
Datasheet	<a href="http://www.st.com/resource/en/datasheet/DM00092070.pdf">http://www.st.com/resource/en/datasheet/DM00092070.pdf</a>
Reference manual	<a href="http://www.st.com/resource/en/reference_manual/DM00043574.pdf">http://www.st.com/resource/en/reference_manual/DM00043574.pdf</a>
Programming manual	<a href="http://www.st.com/resource/en/programming_manual/DM00046982.pdf">http://www.st.com/resource/en/programming_manual/DM00046982.pdf</a>
Errata sheet	<a href="http://www.st.com/resource/en/errata_sheet/DM00109011.pdf">http://www.st.com/resource/en/errata_sheet/DM00109011.pdf</a>
Application note	<a href="http://www.st.com/resource/en/application_note/CD00160362.pdf">http://www.st.com/resource/en/application_note/CD00160362.pdf</a>
Application note	<a href="http://www.st.com/resource/en/application_note/CD00167594.pdf">http://www.st.com/resource/en/application_note/CD00167594.pdf</a>
Application note	<a href="http://www.st.com/resource/en/application_note/CD00211314.pdf">http://www.st.com/resource/en/application_note/CD00211314.pdf</a>
Application note	<a href="http://www.st.com/resource/en/application_note/CD00259245.pdf">http://www.st.com/resource/en/application_note/CD00259245.pdf</a>
Application note	<a href="http://www.st.com/resource/en/application_note/CD00264342.pdf">http://www.st.com/resource/en/application_note/CD00264342.pdf</a>
Application note	<a href="http://www.st.com/resource/en/application_note/CD00264379.pdf">http://www.st.com/resource/en/application_note/CD00264379.pdf</a>
Application note	<a href="http://www.st.com/resource/en/application_note/DM00042534.pdf">http://www.st.com/resource/en/application_note/DM00042534.pdf</a>
Application note	<a href="http://www.st.com/resource/en/application_note/DM00047998.pdf">http://www.st.com/resource/en/application_note/DM00047998.pdf</a>
Application note	<a href="http://www.st.com/resource/en/application_note/DM00053084.pdf">http://www.st.com/resource/en/application_note/DM00053084.pdf</a>
Application note	<a href="http://www.st.com/resource/en/application_note/DM00070391.pdf">http://www.st.com/resource/en/application_note/DM00070391.pdf</a>
Application note	<a href="http://www.st.com/resource/en/application_note/DM00072315.pdf">http://www.st.com/resource/en/application_note/DM00072315.pdf</a>
Application note	<a href="http://www.st.com/resource/en/application_note/DM00073742.pdf">http://www.st.com/resource/en/application_note/DM00073742.pdf</a>
Application note	<a href="http://www.st.com/resource/en/application_note/DM00074240.pdf">http://www.st.com/resource/en/application_note/DM00074240.pdf</a>
Application note	<a href="http://www.st.com/resource/en/application_note/DM00080497.pdf">http://www.st.com/resource/en/application_note/DM00080497.pdf</a>
Application note	<a href="http://www.st.com/resource/en/application_note/DM00083249.pdf">http://www.st.com/resource/en/application_note/DM00083249.pdf</a>
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Application note	<a href="http://www.st.com/resource/en/application_note/DM00160482.pdf">http://www.st.com/resource/en/application_note/DM00160482.pdf</a>

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