1. Description

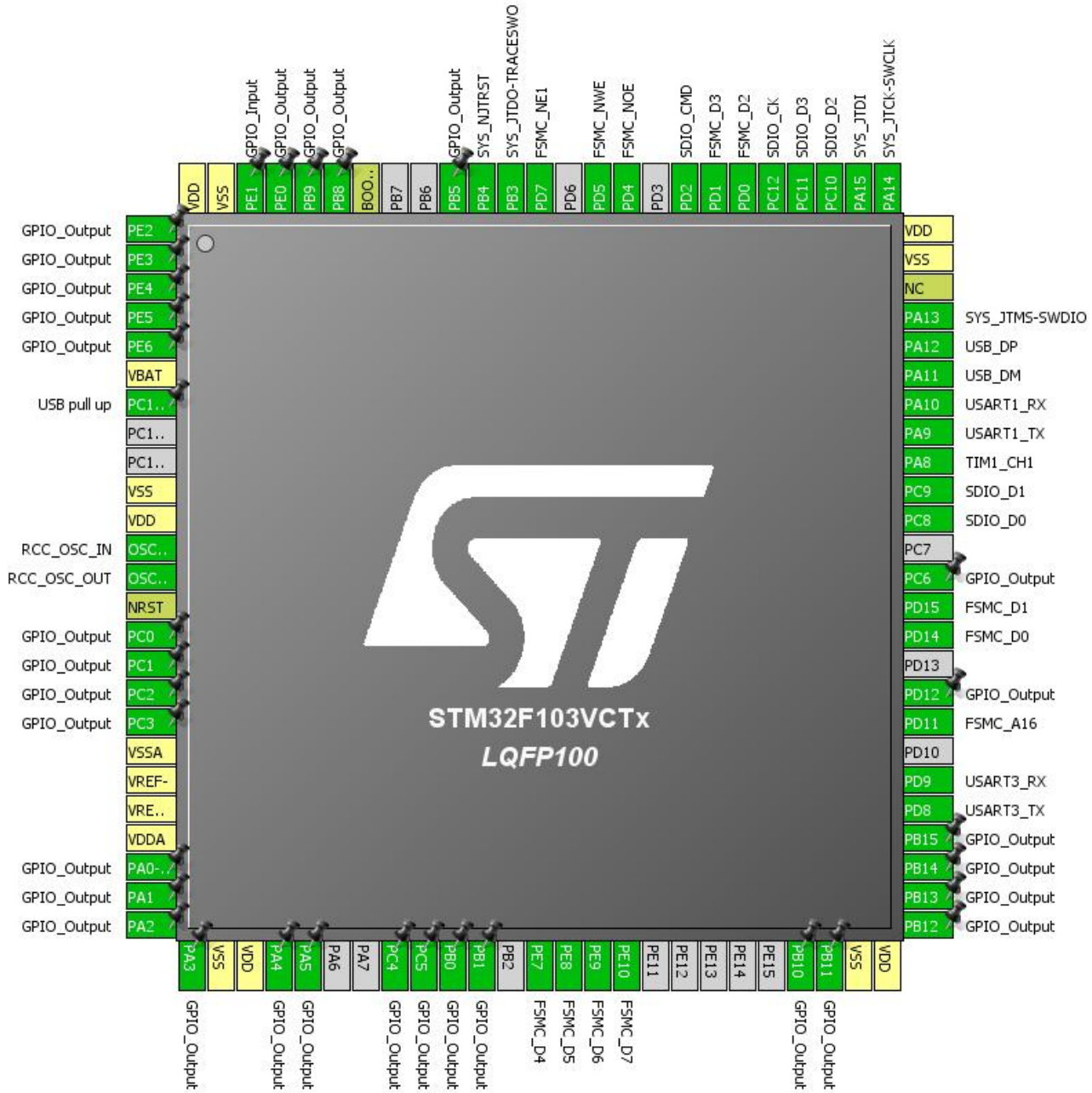
1.1. Project

Project Name	CsSlave
Board Name	CsSlave
Generated with:	STM32CubeMX 4.15.1
Date	07/31/2016

1.2. MCU

MCU Series	STM32F1
MCU Line	STM32F103
MCU name	STM32F103VCTx
MCU Package	LQFP100
MCU Pin number	100

2. Pinout Configuration



3. Pins Configuration

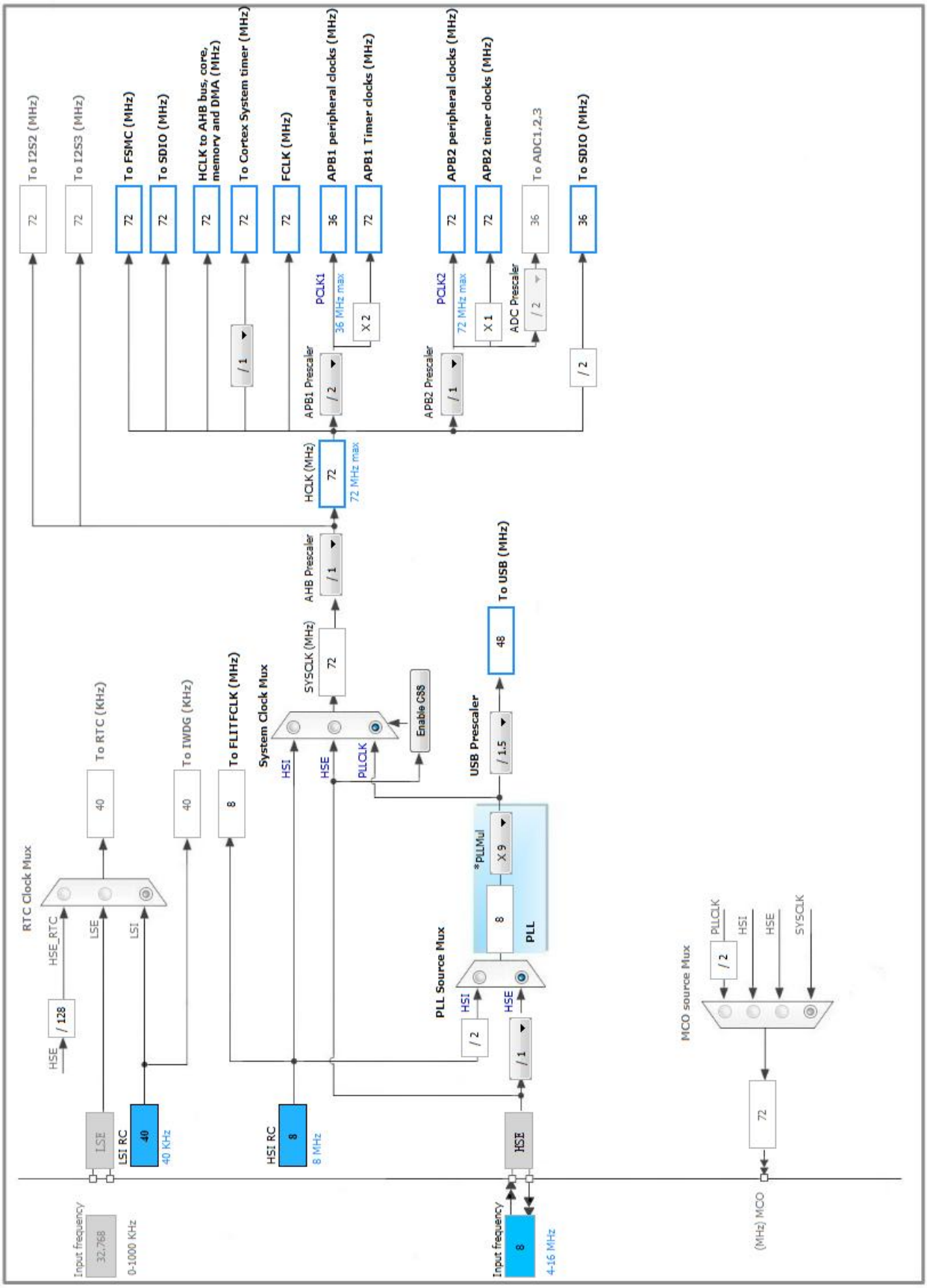
Pin Number LQFP100	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	PE2 *	I/O	GPIO_Output	
2	PE3 *	I/O	GPIO_Output	
3	PE4 *	I/O	GPIO_Output	
4	PE5 *	I/O	GPIO_Output	
5	PE6 *	I/O	GPIO_Output	
6	VBAT	Power		
7	PC13-TAMPER-RTC *	I/O	GPIO_Output	USB pull up
10	VSS	Power		
11	VDD	Power		
12	OSC_IN	I/O	RCC_OSC_IN	
13	OSC_OUT	I/O	RCC_OSC_OUT	
14	NRST	Reset		
15	PC0 *	I/O	GPIO_Output	
16	PC1 *	I/O	GPIO_Output	
17	PC2 *	I/O	GPIO_Output	
18	PC3 *	I/O	GPIO_Output	
19	VSSA	Power		
20	VREF-	Power		
21	VREF+	Power		
22	VDDA	Power		
23	PA0-WKUP *	I/O	GPIO_Output	
24	PA1 *	I/O	GPIO_Output	
25	PA2 *	I/O	GPIO_Output	
26	PA3 *	I/O	GPIO_Output	
27	VSS	Power		
28	VDD	Power		
29	PA4 *	I/O	GPIO_Output	
30	PA5 *	I/O	GPIO_Output	
33	PC4 *	I/O	GPIO_Output	
34	PC5 *	I/O	GPIO_Output	
35	PB0 *	I/O	GPIO_Output	
36	PB1 *	I/O	GPIO_Output	
38	PE7	I/O	FSMC_D4	
39	PE8	I/O	FSMC_D5	
40	PE9	I/O	FSMC_D6	
41	PE10	I/O	FSMC_D7	

Pin Number LQFP100	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
47	PB10 *	I/O	GPIO_Output	
48	PB11 *	I/O	GPIO_Output	
49	VSS	Power		
50	VDD	Power		
51	PB12 *	I/O	GPIO_Output	
52	PB13 *	I/O	GPIO_Output	
53	PB14 *	I/O	GPIO_Output	
54	PB15 *	I/O	GPIO_Output	
55	PD8	I/O	USART3_TX	
56	PD9	I/O	USART3_RX	
58	PD11	I/O	FSMC_A16	
59	PD12 *	I/O	GPIO_Output	
61	PD14	I/O	FSMC_D0	
62	PD15	I/O	FSMC_D1	
63	PC6 *	I/O	GPIO_Output	
65	PC8	I/O	SDIO_D0	
66	PC9	I/O	SDIO_D1	
67	PA8	I/O	TIM1_CH1	
68	PA9	I/O	USART1_TX	
69	PA10	I/O	USART1_RX	
70	PA11	I/O	USB_DM	
71	PA12	I/O	USB_DP	
72	PA13	I/O	SYS_JTMS-SWDIO	
73	NC	NC		
74	VSS	Power		
75	VDD	Power		
76	PA14	I/O	SYS_JTCK-SWCLK	
77	PA15	I/O	SYS_JTDI	
78	PC10	I/O	SDIO_D2	
79	PC11	I/O	SDIO_D3	
80	PC12	I/O	SDIO_CK	
81	PD0	I/O	FSMC_D2	
82	PD1	I/O	FSMC_D3	
83	PD2	I/O	SDIO_CMD	
85	PD4	I/O	FSMC_NOE	
86	PD5	I/O	FSMC_NWE	
88	PD7	I/O	FSMC_NE1	
89	PB3	I/O	SYS_JTDO-TRACESWO	
90	PB4	I/O	SYS_NJTRST	

Pin Number LQFP100	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
91	PB5 *	I/O	GPIO_Output	
94	BOOT0	Boot		
95	PB8 *	I/O	GPIO_Output	
96	PB9 *	I/O	GPIO_Output	
97	PE0 *	I/O	GPIO_Output	
98	PE1 *	I/O	GPIO_Input	
99	VSS	Power		
100	VDD	Power		

* The pin is affected with an I/O function

4. Clock Tree Configuration



5. IPs and Middleware Configuration

5.1. CRC

mode: Activated

5.2. FSMC

NOR Flash/PSRAM/SRAM/ROM/LCD 1

Chip Select: set

Memory type: LCD Interface

LCD Register Select: A16

Data: 8 bits

5.2.1. NOR/PSRAM 1:

NOR/PSRAM control:

Memory type	LCD Interface
Bank	Bank 1 NOR/PSRAM 1
Write operation	Enabled
Extended mode	Disabled

NOR/PSRAM timing:

Address setup time in HCLK clock cycles	15
Data setup time in HCLK clock cycles	255
Bus turn around time in HCLK clock cycles	15

5.3. RCC

High Speed Clock (HSE): Crystal/Ceramic Resonator

5.3.1. 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 Timout Value (ms)	100
LSE Startup Timout Value (ms)	5000

5.4. SDIO

Mode: SD 4 bits Wide bus

5.4.1. Parameter Settings:

SDIO parameters:

SDIOCLK clock divide factor	**2 ***

5.5. SYS

Debug: JTAG (5 pins)

Timebase Source: SysTick

5.6. TIM1

Clock Source : Internal Clock

Channel1: PWM Generation CH1

5.6.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	**18 ***
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	**100 ***
Internal Clock Division (CKD)	No Division
Repetition Counter (RCR - 8 bits value)	0

Trigger Output (TRGO) Parameters:

Master/Slave Mode	Disable (no sync between this TIM (Master) and its Slaves
Trigger Event Selection	Reset (UG bit from TIMx_EGR)

Break And Dead Time management - BRK Configuration:

BRK State	Disable
BRK Polarity	High

Break And Dead Time management - Output Configuration:

Automatic Output State	Disable

Off State Selection for Run Mode (OSSR)	Disable
Off State Selection for Idle Mode (OSSI)	Disable
Lock Configuration	Off

PWM Generation Channel 1:

Mode	PWM mode 1
Pulse (16 bits value)	**100 ***
Fast Mode	Disable
CH Polarity	**Low ***
CH Idle State	Reset

5.7. USART1

Mode: Asynchronous

5.7.1. 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

5.8. USART3

Mode: Asynchronous

5.8.1. 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

5.9. USB

mode: Device (FS)

5.9.1. Parameter Settings:

Basic Parameters:

Speed	Full Speed 12MBit/s
Endpoint 0 Max Packet size	8 Bytes

Power Parameters:

Low Power	Disabled
Link Power Management	Disabled
Battery Charging	Disabled

5.10. FATFS

mode: SD Card

5.10.1. Set Defines:

Version:

FATFS version	R0.11

Function Parameters:

FS_TINY (Tiny mode)	Disabled
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_FORWARD (Forward function)	Disabled
USE_LABEL (Volume label functions)	Disabled
USE_FASTSEEK (Fast seek function)	Enabled

Locale and Namespace Parameters:

CODE_PAGE (Code page on target)	Latin 1 (Windows)
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_NORTC (Timestamp feature)	Dynamic timestamp
NORTC_YEAR (Year for timestamp)	2015
NORTC_MON (Month for timestamp)	6
NORTC_MDAY (Day for timestamp)	4
WORD_ACCESS (Platform dependent access option)	Byte access
FS_REENTRANT (Re-Entrancy)	Disabled
FS_TIMEOUT (Timeout ticks)	1000
SYNC_t (O/S sync object)	osSemaphoreId
FS_LOCK (Number of files opened simultaneously)	2

5.10.2. IPs instances:

SDIO/SDMMC:

SDIO instance	SDIO

5.11. USB_DEVICE

Class For FS IP: Communication Device Class (Virtual Port Com)

5.11.1. Parameter Settings:

Basic Parameters:

USBD_MAX_NUM_INTERFACES (Maximum number of supported interfaces)	1
USBD_MAX_NUM_CONFIGURATION (Maximum number of supported configuration)	1
USBD_MAX_STR_DESC_SIZ (Maximum size for the string descriptors)	512
USBD_SUPPORT_USER_STRING (Enable user string descriptor)	Disabled
USBD_SELF_POWERED (Enabled self power)	Enabled
USBD_DEBUG_LEVEL (USBD Debug Level)	0: No debug message

Class Parameters:

USBD_CDC_INTERVAL (Number of micro-frames interval)	1000

5.11.2. Device Descriptor:

Device Descriptor:

VID (Vendor IDentifier)	1155
LANGID_STRING (Language Identifier)	English(United States)
MANUFACTURER_STRING (Manufacturer Identifier)	**CoolSaven ***

Device Descriptor FS:

PID (Product IDentifier)	22336
PRODUCT_STRING (Product Identifier)	**CoolSaven Virtual ComPort ***
SERIALNUMBER_STRING (Serial number)	00000000001A
CONFIGURATION_STRING (Configuration Identifier)	CDC Config
INTERFACE_STRING (Interface Identifier)	CDC Interface

*** User modified value**

6. System Configuration

6.1. GPIO configuration

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
FSMC	PE7	FSMC_D4	Alternate Function Push Pull	n/a	High	
	PE8	FSMC_D5	Alternate Function Push Pull	n/a	High	
	PE9	FSMC_D6	Alternate Function Push Pull	n/a	High	
	PE10	FSMC_D7	Alternate Function Push Pull	n/a	High	
	PD11	FSMC_A16	Alternate Function Push Pull	n/a	High	
	PD14	FSMC_D0	Alternate Function Push Pull	n/a	High	
	PD15	FSMC_D1	Alternate Function Push Pull	n/a	High	
	PD0	FSMC_D2	Alternate Function Push Pull	n/a	High	
	PD1	FSMC_D3	Alternate Function Push Pull	n/a	High	
	PD4	FSMC_NOE	Alternate Function Push Pull	n/a	High	
	PD5	FSMC_NWE	Alternate Function Push Pull	n/a	High	
	PD7	FSMC_NE1	Alternate Function Push Pull	n/a	High	
RCC	OSC_IN	RCC_OSC_IN	n/a	n/a	n/a	
	OSC_OUT	RCC_OSC_OUT	n/a	n/a	n/a	
SDIO	PC8	SDIO_D0	Alternate Function Push Pull	n/a	High	
	PC9	SDIO_D1	Alternate Function Push Pull	n/a	High	
	PC10	SDIO_D2	Alternate Function Push Pull	n/a	High	
	PC11	SDIO_D3	Alternate Function Push Pull	n/a	High	
	PC12	SDIO_CK	Alternate Function Push Pull	n/a	High	
	PD2	SDIO_CMD	Alternate Function Push Pull	n/a	High	
SYS	PA13	SYS_JTMS-SWDIO	n/a	n/a	n/a	
	PA14	SYS_JTCK-SWCLK	n/a	n/a	n/a	
	PA15	SYS_JTDI	n/a	n/a	n/a	
	PB3	SYS_JTDO-TRACESWO	n/a	n/a	n/a	
	PB4	SYS_NJTRST	n/a	n/a	n/a	
TIM1	PA8	TIM1_CH1	Alternate Function Push Pull	n/a	**High ***	
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**	
USART3	PD8	USART3_TX	Alternate Function Push Pull	n/a	**High ***	
	PD9	USART3_RX	Input mode	No pull-up and no pull-down	**n/a**	
USB	PA11	USB_DM	n/a	n/a	n/a	

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
	PA12	USB_DP	n/a	n/a	n/a	
GPIO	PE2	GPIO_Output	Output Push Pull	n/a	**Medium ***	
	PE3	GPIO_Output	Output Push Pull	n/a	**Medium ***	
	PE4	GPIO_Output	Output Push Pull	n/a	Low	
	PE5	GPIO_Output	Output Push Pull	n/a	Low	
	PE6	GPIO_Output	Output Push Pull	n/a	Low	
	PC13-TAMPER-RTC	GPIO_Output	Output Push Pull	n/a	Low	USB pull up
	PC0	GPIO_Output	Output Push Pull	n/a	Low	
	PC1	GPIO_Output	Output Push Pull	n/a	Low	
	PC2	GPIO_Output	Output Push Pull	n/a	Low	
	PC3	GPIO_Output	Output Push Pull	n/a	Low	
	PA0-WKUP	GPIO_Output	Output Push Pull	n/a	Low	
	PA1	GPIO_Output	Output Push Pull	n/a	Low	
	PA2	GPIO_Output	Output Push Pull	n/a	Low	
	PA3	GPIO_Output	Output Push Pull	n/a	Low	
	PA4	GPIO_Output	Output Push Pull	n/a	Low	
	PA5	GPIO_Output	Output Push Pull	n/a	Low	
	PC4	GPIO_Output	Output Push Pull	n/a	Low	
	PC5	GPIO_Output	Output Push Pull	n/a	Low	
	PB0	GPIO_Output	Output Push Pull	n/a	Low	
	PB1	GPIO_Output	Output Push Pull	n/a	Low	
	PB10	GPIO_Output	Output Push Pull	n/a	Low	
	PB11	GPIO_Output	Output Push Pull	n/a	Low	
	PB12	GPIO_Output	Output Push Pull	n/a	Low	
	PB13	GPIO_Output	Output Push Pull	n/a	Low	
	PB14	GPIO_Output	Output Push Pull	n/a	Low	
	PB15	GPIO_Output	Output Push Pull	n/a	Low	
	PD12	GPIO_Output	Output Push Pull	n/a	Low	
	PC6	GPIO_Output	Output Push Pull	n/a	Low	
	PB5	GPIO_Output	Output Push Pull	n/a	Low	
	PB8	GPIO_Output	**Output Open Drain ***	n/a	**High ***	
	PB9	GPIO_Output	**Output Open Drain ***	n/a	**High ***	
	PE0	GPIO_Output	Output Push Pull	n/a	Low	
	PE1	GPIO_Input	Input mode	**Pull-up ***	n/a	

6.2. DMA configuration

DMA request	Stream	Direction	Priority
USART1_RX	DMA1_Channel5	Peripheral To Memory	Low

USART1_RX: DMA1_Channel5 DMA request Settings:

Mode:	Normal
Peripheral Increment:	Disable
Memory Increment:	**Enable ***
Peripheral Data Width:	Byte
Memory Data Width:	Byte

6.3. NVIC configuration

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	0	0
DMA1 channel5 global interrupt	true	0	0
USB low priority or CAN RX0 interrupts	true	0	0
USART1 global interrupt	true	3	0
USART3 global interrupt	true	2	0
SDIO global interrupt	true	1	0
PVD interrupt through EXTI line 16	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		
USB high priority or CAN TX interrupts	unused		
TIM1 break interrupt	unused		
TIM1 update interrupt	unused		
TIM1 trigger and commutation interrupts	unused		
TIM1 capture compare interrupt	unused		

*** User modified value**

7. Power Consumption Calculator report

7.1. Microcontroller Selection

Series	STM32F1
Line	STM32F103
MCU	STM32F103VCTx
Datasheet	14611_Rev12

7.2. Parameter Selection

Temperature	25
Vdd	3.3

8. Software Project

8.1. Project Settings

Name	Value
Project Name	CsSlave
Project Folder	E:\CoolSaven\CsSlave\CsSlave_App
Toolchain / IDE	MDK-ARM V5
Firmware Package Name and Version	STM32Cube FW_F1 V1.4.0

8.2. Code Generation Settings

Name	Value
STM32Cube Firmware Library Package	Copy all used libraries into the project folder
Generate peripheral initialization as a pair of '.c/.h' files	Yes
Backup previously generated files when re-generating	No
Delete previously generated files when not re-generated	Yes
Set all free pins as analog (to optimize the power consumption)	No