1. Description

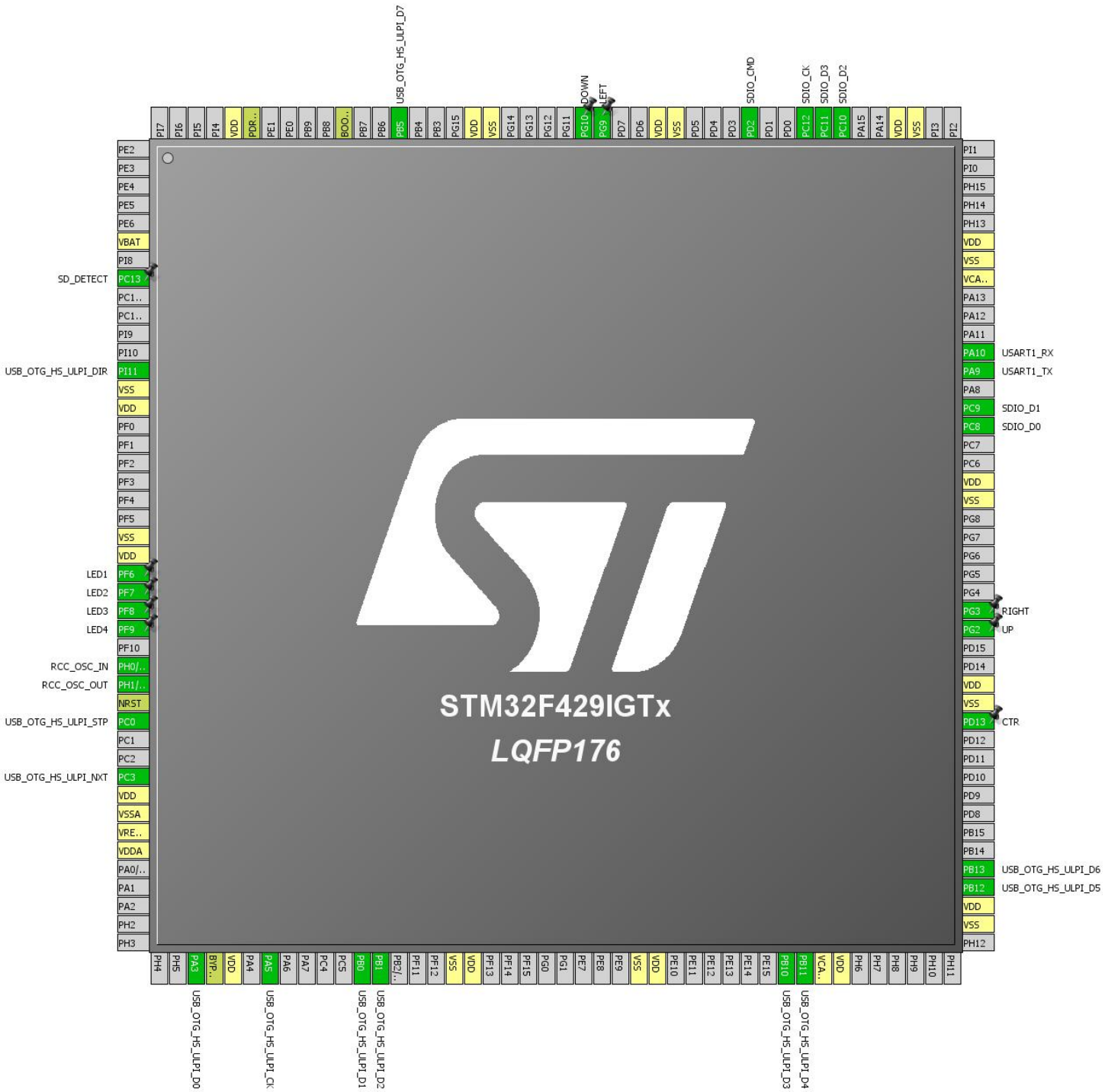
1.1. Project

Project Name	STM32F429I
Board Name	STM32F429I
Generated with:	STM32CubeMX 4.11.0
Date	12/10/2015

1.2. MCU

MCU Series	STM32F4
MCU Line	STM32F429/439
MCU name	STM32F429IGTx
MCU Package	LQFP176
MCU Pin number	176

2. Pinout Configuration



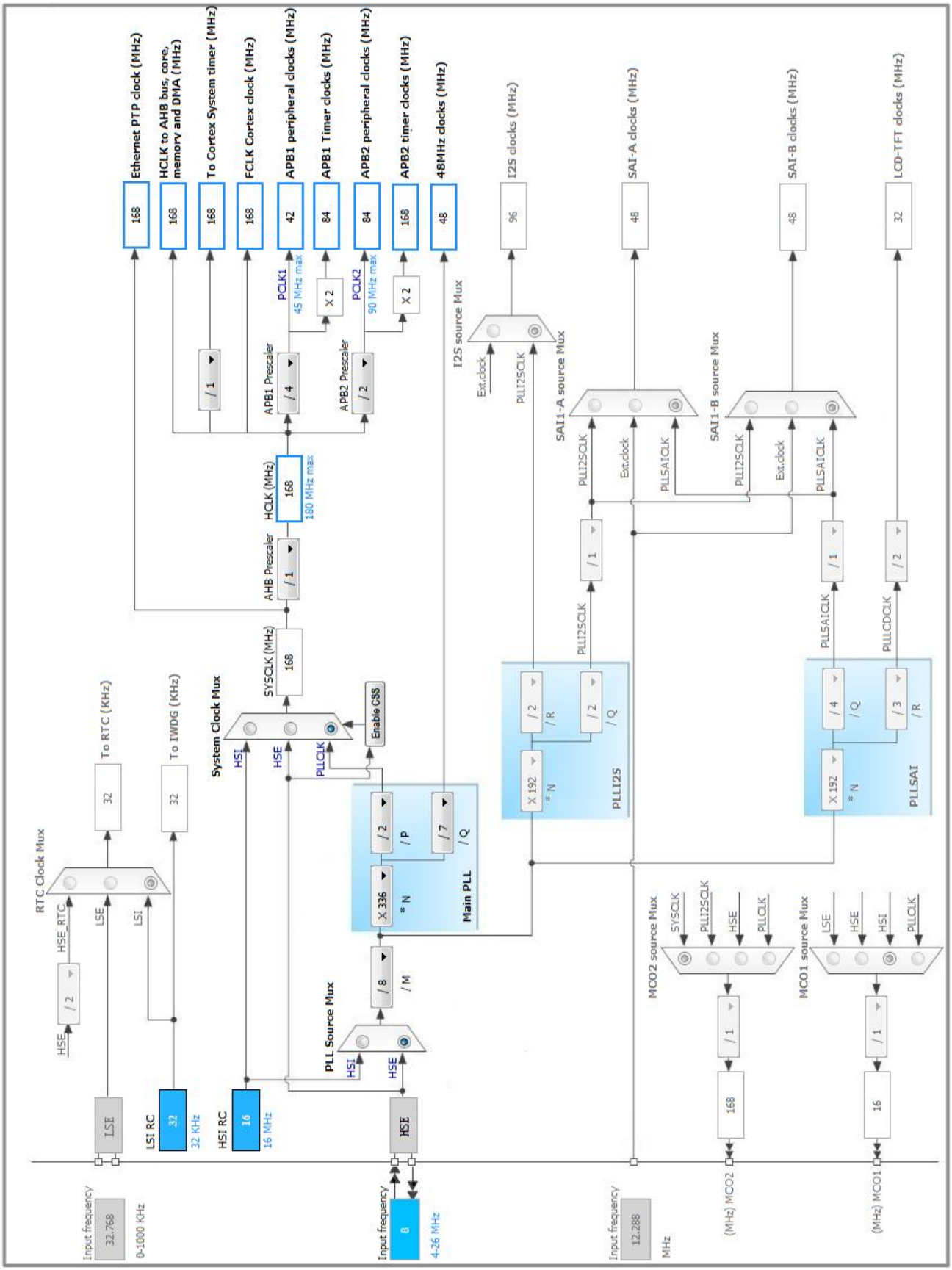
3. Pins Configuration

Pin Number LQFP176	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
6	VBAT	Power		
8	PC13 *	I/O	GPIO_Input	SD_DETECT
13	PI11	I/O	USB_OTG_HS_ULPI_DIR	
14	VSS	Power		
15	VDD	Power		
22	VSS	Power		
23	VDD	Power		
24	PF6 *	I/O	GPIO_Output	LED1
25	PF7 *	I/O	GPIO_Output	LED2
26	PF8 *	I/O	GPIO_Output	LED3
27	PF9 *	I/O	GPIO_Output	LED4
29	PH0/OSC_IN	I/O	RCC_OSC_IN	
30	PH1/OSC_OUT	I/O	RCC_OSC_OUT	
31	NRST	Reset		
32	PC0	I/O	USB_OTG_HS_ULPI_STP	
35	PC3	I/O	USB_OTG_HS_ULPI_NXT	
36	VDD	Power		
37	VSSA	Power		
38	VREF+	Power		
39	VDDA	Power		
47	PA3	I/O	USB_OTG_HS_ULPI_D0	
48	BYPASS_REG	Reset		
49	VDD	Power		
51	PA5	I/O	USB_OTG_HS_ULPI_CK	
56	PB0	I/O	USB_OTG_HS_ULPI_D1	
57	PB1	I/O	USB_OTG_HS_ULPI_D2	
61	VSS	Power		
62	VDD	Power		
71	VSS	Power		
72	VDD	Power		
79	PB10	I/O	USB_OTG_HS_ULPI_D3	
80	PB11	I/O	USB_OTG_HS_ULPI_D4	
81	VCAP_1	Power		
82	VDD	Power		
90	VSS	Power		
91	VDD	Power		

Pin Number LQFP176	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
92	PB12	I/O	USB_OTG_HS_ULPI_D5	
93	PB13	I/O	USB_OTG_HS_ULPI_D6	
101	PD13 *	I/O	GPIO_Input	CTR
102	VSS	Power		
103	VDD	Power		
106	PG2 *	I/O	GPIO_Input	UP
107	PG3 *	I/O	GPIO_Input	RIGHT
113	VSS	Power		
114	VDD	Power		
117	PC8	I/O	SDIO_D0	
118	PC9	I/O	SDIO_D1	
120	PA9	I/O	USART1_TX	
121	PA10	I/O	USART1_RX	
125	VCAP_2	Power		
126	VSS	Power		
127	VDD	Power		
135	VSS	Power		
136	VDD	Power		
139	PC10	I/O	SDIO_D2	
140	PC11	I/O	SDIO_D3	
141	PC12	I/O	SDIO_CK	
144	PD2	I/O	SDIO_CMD	
148	VSS	Power		
149	VDD	Power		
152	PG9 *	I/O	GPIO_Input	LEFT
153	PG10 *	I/O	GPIO_Input	DOWN
158	VSS	Power		
159	VDD	Power		
163	PB5	I/O	USB_OTG_HS_ULPI_D7	
166	BOOT0	Boot		
171	PDR_ON	Reset		
172	VDD	Power		

* The pin is affected with an I/O function

4. Clock Tree Configuration



5. IPs and Middleware Configuration

5.1. RCC

High Speed Clock (HSE): Crystal/Ceramic Resonator

5.1.1. 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

Power Parameters:

Power Regulatror Voltage Scale	Power Regulator Voltage Scale 1
Power Over Drive	Disabled

5.2. SDIO

Mode: SD 4 bits Wide bus

5.2.1. Parameter Settings:

SDIO parameters:

SDIOCLK clock divide factor	0

5.3. USART1

Mode: Asynchronous

5.3.1. 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

5.4. USB_OTG_HS

External Phy: Host_Only

5.4.1. Parameter Settings:

Speed	**Host Full Speed 12MBit/s ***
Enable internal IP DMA	Disabled
Physical interface	External Phy
Use external vbus	Enabled

5.5. FATFS

mode: USB Disk

5.5.1. 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
USE_BUFF_WO_ALIGNMENT (Data alignment management)	Enabled

Locale and Namespace Parameters:

CODE_PAGE (Code page on target)	**Simplified Chinese GBK (DBCS, OEM, Windows) ***
USE_LFN (Use Long Filename)	Enabled with dynamic working buffer on the HEAP
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

5.5.2. IPs instances:

USBH:

USBH instance	USB Host MSC HS

5.6. USB_HOST

Class for HS IP: Mass Storage Host Class

5.6.1. Parameter Settings:

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)	**0x200 ***
USBH_MAX_DATA_BUFFER (Maximun size of temporary data)	0x200
USBH_DEBUG_LEVEL (USBH Debug Level)	**2: User + Error messages ***

CMSIS_RTOS:

USBH_USE_OS (Enable the support of an RTOS)	Disabled

*** User modified value**

6. System Configuration

6.1. GPIO configuration

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
RCC	PH0/OSC_IN	RCC_OSC_IN	n/a	n/a	n/a	
	PH1/OSC_OUT	RCC_OSC_OUT	n/a	n/a	n/a	
SDIO	PC8	SDIO_D0	Alternate Function Push Pull	**Pull-up ***	High	
	PC9	SDIO_D1	Alternate Function Push Pull	**Pull-up ***	High	
	PC10	SDIO_D2	Alternate Function Push Pull	**Pull-up ***	High	
	PC11	SDIO_D3	Alternate Function Push Pull	**Pull-up ***	High	
	PC12	SDIO_CK	Alternate Function Push Pull	No pull-up and no pull-down	High	
	PD2	SDIO_CMD	Alternate Function Push Pull	**Pull-up ***	High	
USART1	PA9	USART1_TX	Alternate Function Push Pull	Pull-up	**High ***	
	PA10	USART1_RX	Alternate Function Push Pull	Pull-up	**High ***	
USB_OTG_HS	PI11	USB_OTG_HS_ULPI_DIR	Alternate Function Push Pull	No pull-up and no pull-down	High	
	PC0	USB_OTG_HS_ULPI_STP	Alternate Function Push Pull	No pull-up and no pull-down	High	
	PC3	USB_OTG_HS_ULPI_NXT	Alternate Function Push Pull	No pull-up and no pull-down	High	
	PA3	USB_OTG_HS_ULPI_D0	Alternate Function Push Pull	No pull-up and no pull-down	High	
	PA5	USB_OTG_HS_ULPI_CK	Alternate Function Push Pull	No pull-up and no pull-down	High	
	PB0	USB_OTG_HS_ULPI_D1	Alternate Function Push Pull	No pull-up and no pull-down	High	
	PB1	USB_OTG_HS_ULPI_D2	Alternate Function Push Pull	No pull-up and no pull-down	High	
	PB10	USB_OTG_HS_ULPI_D3	Alternate Function Push Pull	No pull-up and no pull-down	High	
	PB11	USB_OTG_HS_ULPI_D4	Alternate Function Push Pull	No pull-up and no pull-down	High	
	PB12	USB_OTG_HS_ULPI_D5	Alternate Function Push Pull	No pull-up and no pull-down	High	
	PB13	USB_OTG_HS_ULPI_D6	Alternate Function Push Pull	No pull-up and no pull-down	High	
	PB5	USB_OTG_HS_	Alternate Function Push Pull	No pull-up and no pull-down	High	

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
		ULPI_D7				
GPIO	PC13	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	SD_DETECT
	PF6	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LED1
	PF7	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LED2
	PF8	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LED3
	PF9	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LED4
	PD13	GPIO_Input	Input mode	**Pull-up ***	n/a	CTR
	PG2	GPIO_Input	Input mode	**Pull-up ***	n/a	UP
	PG3	GPIO_Input	Input mode	**Pull-up ***	n/a	RIGHT
	PG9	GPIO_Input	Input mode	**Pull-up ***	n/a	LEFT
	PG10	GPIO_Input	Input mode	**Pull-up ***	n/a	DOWN

6.2. DMA configuration

DMA request	Stream	Direction	Priority
MEMTOMEM	DMA2_Stream0	Memory To Memory	Low
SDIO_RX	DMA2_Stream3	Peripheral To Memory	Low
SDIO_TX	DMA2_Stream6	Memory To Peripheral	Low

MEMTOMEM: DMA2_Stream0 DMA request Settings:

Mode:	Normal
Use fifo:	**Enable ***
FIFO Threshold:	Full
Src Memory Increment:	**Enable ***
Dst Memormy Increment:	**Enable ***
Src Memory Data Width:	**Word ***
Dst Memormy Data Width:	**Word ***
Src Memory Burst Size:	Single
Dst Memormy Burst Size:	Single

SDIO_RX: DMA2_Stream3 DMA request Settings:

Mode:	**Peripheral Flow Control ***
Use fifo:	**Enable ***
FIFO Threshold:	Full
Peripheral Increment:	Disable
Memory Increment:	**Enable ***
Peripheral Data Width:	**Word ***
Memory Data Width:	Word
Peripheral Burst Size:	**4 Increment ***
Memory Burst Size:	4 Increment

SDIO_TX: DMA2_Stream6 DMA request Settings:

Mode:	**Peripheral Flow Control ***
Use fifo:	**Enable ***
FIFO Threshold:	Full
Peripheral Increment:	Disable
Memory Increment:	

	Enable *
Peripheral Data Width:	**Word ***
Memory Data Width:	Word
Peripheral Burst Size:	**4 Increment ***
Memory Burst Size:	4 Increment

6.3. NVIC configuration

Interrupt Table	Enable	Preenmption Priority	SubPriority
System tick timer	true	0	0
SDIO global interrupt	true	5	0
DMA2 stream3 global interrupt	true	6	0
DMA2 stream6 global interrupt	true	6	0
USB On The Go HS global interrupt	true	7	0
Non maskable interrupt	unused		
Memory management fault	unused		
Pre-fetch fault, memory access fault	unused		
Undefined instruction or illegal state	unused		
Debug monitor	unused		
PVD interrupt through EXTI line 16	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		
USART1 global interrupt	unused		
DMA2 stream0 global interrupt	unused		
USB On The Go HS End Point 1 Out global interrupt	unused		
USB On The Go HS End Point 1 In global interrupt	unused		

*** User modified value**

7. Power Plugin report

7.1. Microcontroller Selection

Series	STM32F4
Line	STM32F429/439
MCU	STM32F429IGTx
Datasheet	024030_Rev5

7.2. Parameter Selection

Temperature	25
Vdd	null

8. Software Project

8.1. Project Settings

Name	Value
Project Name	STM32F429I
Project Folder	C:\Users\Administrator\Desktop\MSC_Standalone
Toolchain / IDE	MDK-ARM V5
Firmware Package Name and Version	STM32Cube FW_F4 V1.9.0

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