

## 1. Description

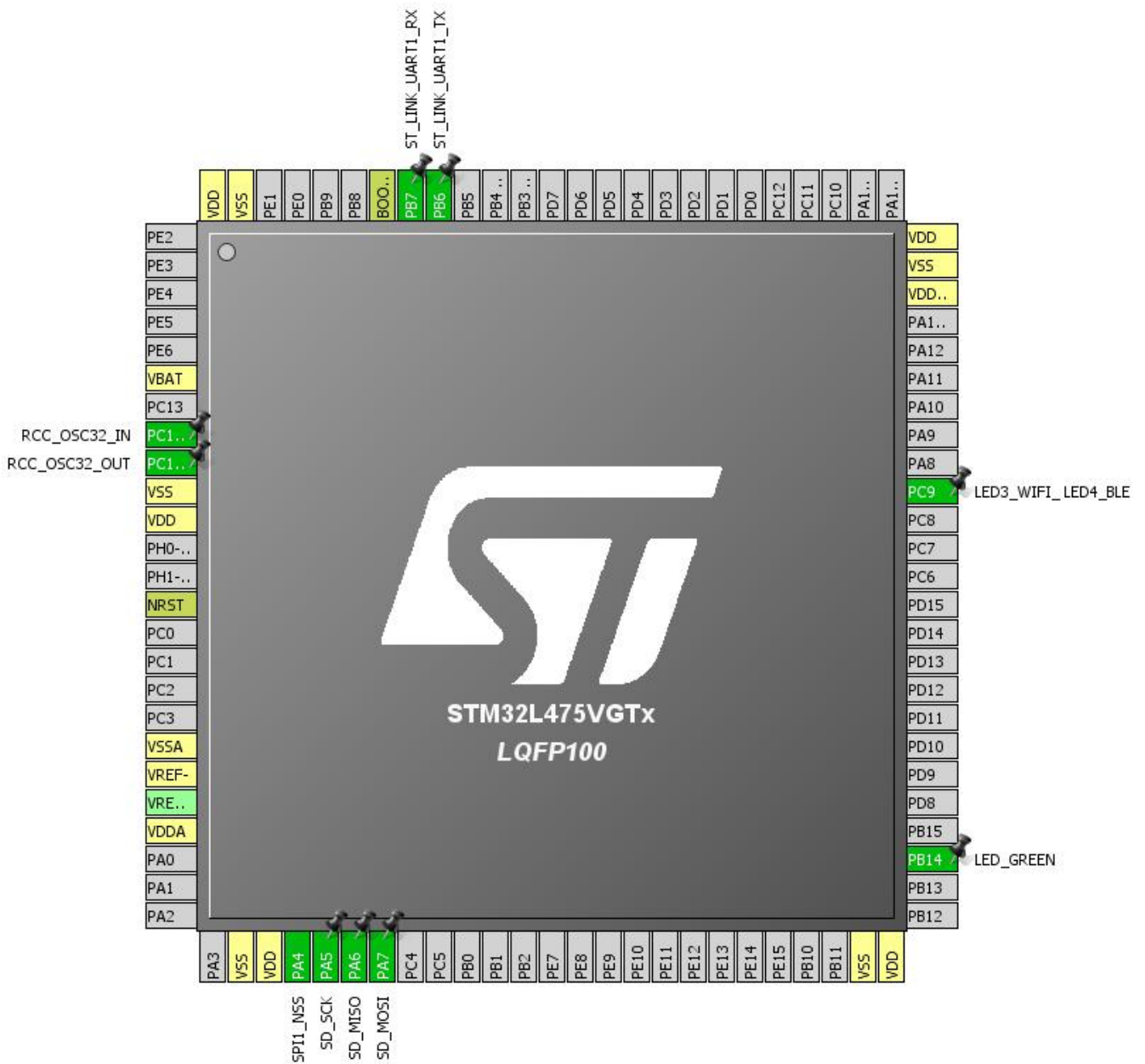
### 1.1. Project

Project Name	SD_Card
Board Name	B-L475E-IOT01A
Generated with:	STM32CubeMX 4.25.0
Date	04/08/2018

### 1.2. MCU

MCU Series	STM32L4
MCU Line	STM32L4x5
MCU name	STM32L475VGTx
MCU Package	LQFP100
MCU Pin number	100

## 2. Pinout Configuration

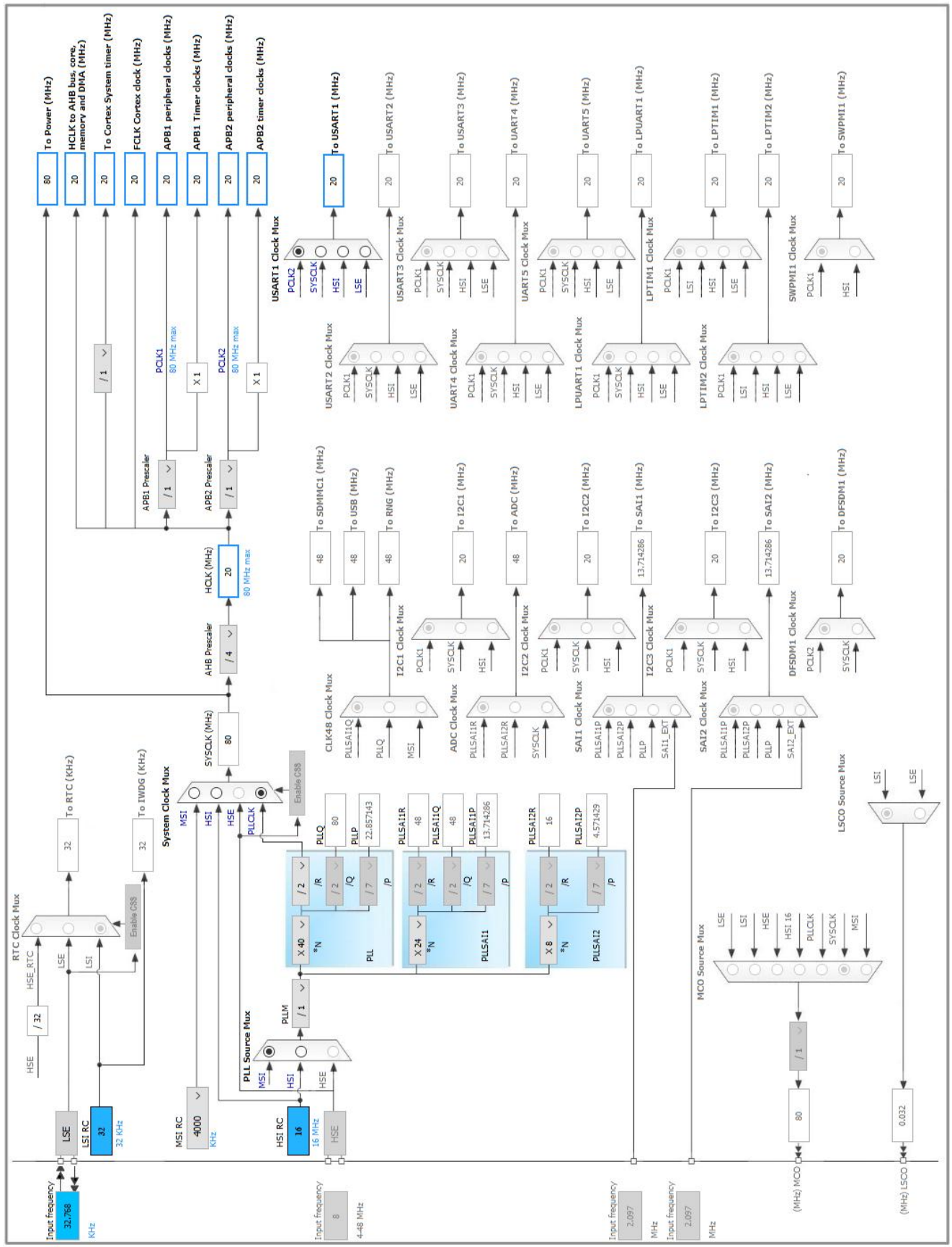


### 3. Pins Configuration

Pin Number LQFP100	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
6	VBAT	Power		
8	PC14-OSC32_IN (PC14)	I/O	RCC_OSC32_IN	
9	PC15-OSC32_OUT (PC15)	I/O	RCC_OSC32_OUT	
10	VSS	Power		
11	VDD	Power		
14	NRST	Reset		
19	VSSA	Power		
20	VREF-	Power		
22	VDDA	Power		
27	VSS	Power		
28	VDD	Power		
29	PA4	I/O	SPI1_NSS	
30	PA5	I/O	SPI1_SCK	SD_SCK
31	PA6	I/O	SPI1_MISO	SD_MISO
32	PA7	I/O	SPI1_MOSI	SD_MOSI
49	VSS	Power		
50	VDD	Power		
53	PB14 *	I/O	GPIO_Output	LED_GREEN
66	PC9 *	I/O	GPIO_Output	LED3_WIFI_LED4_BLE
73	VDDUSB	Power		
74	VSS	Power		
75	VDD	Power		
92	PB6	I/O	USART1_TX	ST_LINK_UART1_TX
93	PB7	I/O	USART1_RX	ST_LINK_UART1_RX
94	BOOT0	Boot		
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. RCC

#### Low Speed Clock (LSE) : Crystal/Ceramic Resonator

##### 5.1.1. Parameter Settings:

###### System Parameters:

VDD voltage (V)	3.3
Instruction Cache	Enabled
Prefetch Buffer	Disabled
Data Cache	Enabled
Flash Latency(WS)	1 WS (2 CPU cycle)

###### RCC Parameters:

HSI Calibration Value	16
MSI Calibration Value	0
MSI Auto Calibration	Enabled
HSE Startup Timeout Value (ms)	100
LSE Startup Timeout Value (ms)	5000
LSE Drive Capability	LSE oscillator low drive capability

###### Power Parameters:

Power Regulator Voltage Scale	Power Regulator Voltage Scale 1
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### 5.2. SPI1

#### Mode: Full-Duplex Master

#### Hardware NSS Signal: Hardware NSS Output Signal

##### 5.2.1. Parameter Settings:

###### Basic Parameters:

Frame Format	Motorola
Data Size	4 Bits
First Bit	MSB First

###### Clock Parameters:

Prescaler (for Baud Rate)	2
Baud Rate	10.0 MBits/s *

Clock Polarity (CPOL)	Low
Clock Phase (CPHA)	1 Edge
<b>Advanced Parameters:</b>	
CRC Calculation	Disabled
NSSP Mode	Enabled
NSS Signal Type	Output Hardware

## 5.3. SYS

**Timebase Source: SysTick**

## 5.4. TIM17

**mode: Activated**

### 5.4.1. Parameter Settings:

#### Counter Settings:

Prescaler (PSC - 16 bits value)	<b>157 *</b>
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value )	<b>15999 *</b>
Internal Clock Division (CKD)	No Division
Repetition Counter (RCR - 8 bits value)	0
auto-reload preload	Disable

## 5.5. USART1

**Mode: Asynchronous**

### 5.5.1. Parameter Settings:

#### Basic Parameters:

Baud Rate	115200
Word Length	7 Bits (including Parity)
Parity	None
Stop Bits	1

#### Advanced Parameters:

Data Direction	Receive and Transmit
Over Sampling	16 Samples

Single Sample Disable

**Advanced Features:**

Auto Baudrate	Disable
TX Pin Active Level Inversion	Disable
RX Pin Active Level Inversion	Disable
Data Inversion	Disable
TX and RX Pins Swapping	Disable
Overrun	Enable
DMA on RX Error	Enable
MSB First	Disable

**5.6. FATFS**

**mode: User-defined**

**5.6.1. 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
NORTC_YEAR (Year for timestamp)	2015
NORTC_MON (Month for timestamp)	6
NORTC_MDAY (Day for timestamp)	4
FS_REENRANT (Re-Entrancy)	Disabled
FS_TIMEOUT (Timeout ticks)	1000
SYNC_t (O/S sync object)	osSemaphoreId
FS_LOCK (Number of files opened simultaneously)	2

\* 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	PC14-OSC32_IN (PC14)	RCC_OSC32_IN	n/a	n/a	n/a	
	PC15-OSC32_OUT (PC15)	RCC_OSC32_OUT	n/a	n/a	n/a	
SPI1	PA4	SPI1_NSS	Alternate Function Push Pull	No pull-up and no pull-down	Very High *	
	PA5	SPI1_SCK	Alternate Function Push Pull	No pull-up and no pull-down	Very High *	SD_SCK
	PA6	SPI1_MISO	Alternate Function Push Pull	No pull-up and no pull-down	Very High *	SD_MISO
	PA7	SPI1_MOSI	Alternate Function Push Pull	No pull-up and no pull-down	Very High *	SD_MOSI
USART1	PB6	USART1_TX	Alternate Function Push Pull	No pull-up and no pull-down	Very High *	ST_LINK_UART1_TX
	PB7	USART1_RX	Alternate Function Push Pull	No pull-up and no pull-down	Very High *	ST_LINK_UART1_RX
GPIO	PB14	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LED_GREEN
	PC9	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LED3_WIFI_LED4_BLE

### 6.2. DMA configuration

nothing configured in DMA service

### 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
TIM1 trigger and commutation interrupts and TIM17 global interrupt	true	0	0
SPI1 global interrupt	true	0	0
PVD/PVM1/PVM2/PVM3/PVM4 interrupts through EXTI lines 16/35/36/37/38		unused	
Flash global interrupt		unused	
RCC global interrupt		unused	
USART1 global interrupt		unused	
FPU global interrupt		unused	

\* User modified value

## 7. Power Consumption Calculator report

### 7.1. Microcontroller Selection

Series	STM32L4
Line	STM32L4x5
MCU	STM32L475VGTx
Datasheet	027692_Rev2

### 7.2. Parameter Selection

Temperature	25
Vdd	3.6

### 7.3. Battery Selection

Battery	Li-SOCL2(C9000)
Capacity	9000.0 mAh
Self Discharge	0.08 %/month
Nominal Voltage	3.6 V
Max Cont Current	230.0 mA
Max Pulse Current	400.0 mA
Cells in series	1
Cells in parallel	1

## 8. Software Project

### 8.1. Project Settings

Name	Value
Project Name	SD_Card
Project Folder	C:\Users\Emin\Desktop\HealthSensorPlatform\SD_Card
Toolchain / IDE	MDK-ARM V5
Firmware Package Name and Version	STM32Cube FW_L4 V1.11.0

### 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	No
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

## ***9. Software Pack Report***