1. Description

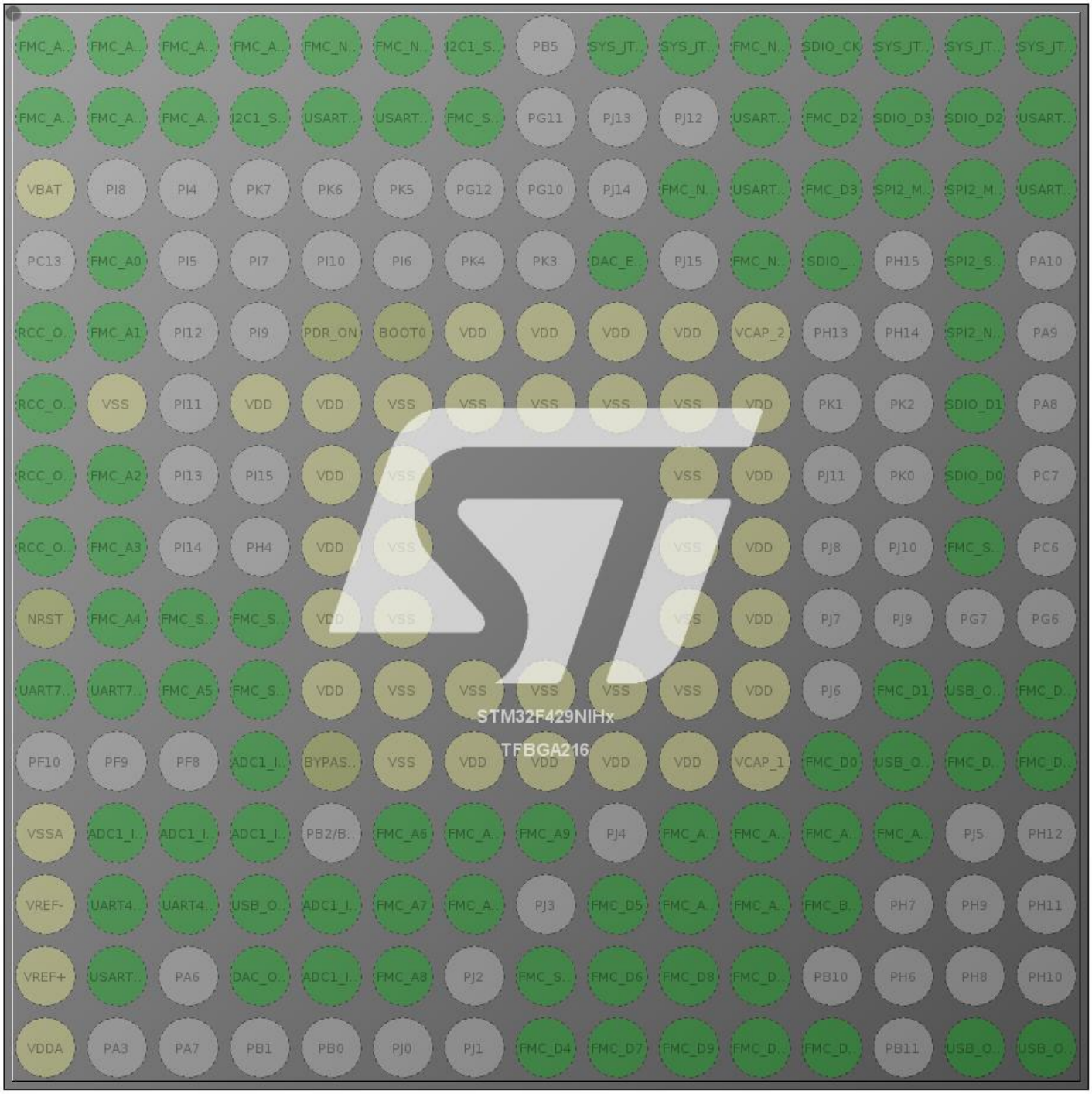
1.1. Project

Project Name	BIOS
Board Name	BIOS
Generated with:	STM32CubeMX 4.17.0
Date	10/22/2016

1.2. MCU

MCU Series	STM32F4
MCU Line	STM32F429/439
MCU name	STM32F429NIHx
MCU Package	TFBGA216
MCU Pin number	216

2. Pinout Configuration



3. Pins Configuration

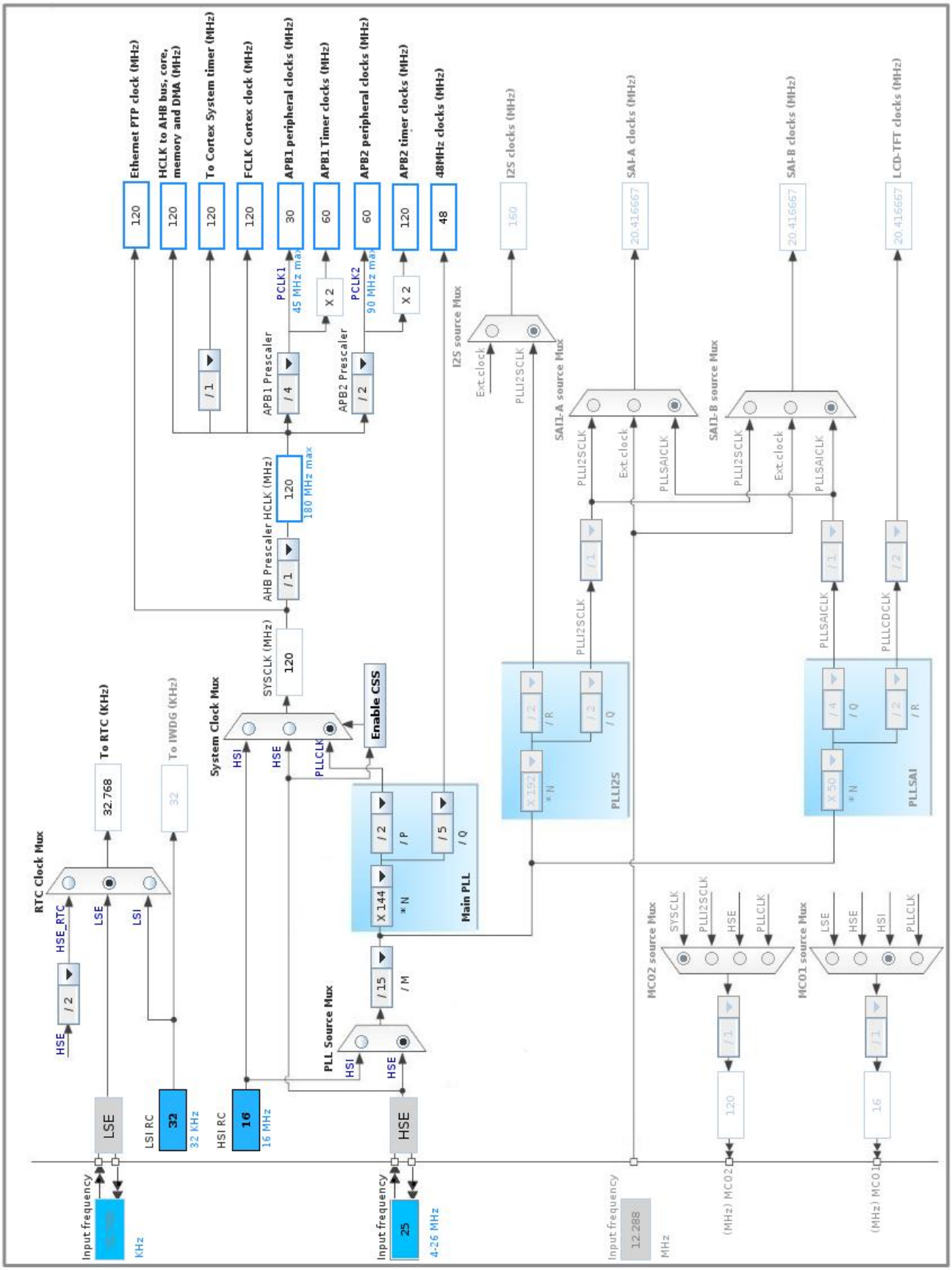
Pin Number TFBGA216	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
A1	PE4	I/O	FMC_A20	
A2	PE3	I/O	FMC_A19	
A3	PE2	I/O	FMC_A23	
A4	PG14	I/O	FMC_A25	
A5	PE1	I/O	FMC_NBL1	
A6	PE0	I/O	FMC_NBL0	
A7	PB8	I/O	I2C1_SCL	
A9	PB4	I/O	SYS_JTRST	
A10	PB3	I/O	SYS_JTDO-SWO	
A11	PD7	I/O	FMC_NE1	
A12	PC12	I/O	SDIO_CK	
A13	PA15	I/O	SYS_JTDI	
A14	PA14	I/O	SYS_JTCK-SWCLK	
A15	PA13	I/O	SYS_JTMS-SWDIO	
B1	PE5	I/O	FMC_A21	
B2	PE6	I/O	FMC_A22	
B3	PG13	I/O	FMC_A24	
B4	PB9	I/O	I2C1_SDA	
B5	PB7	I/O	USART1_RX	
B6	PB6	I/O	USART1_TX	
B7	PG15	I/O	FMC_SDNCAS	
B11	PD6	I/O	USART2_RX	
B12	PD0	I/O	FMC_D2	
B13	PC11	I/O	SDIO_D3	
B14	PC10	I/O	SDIO_D2	
B15	PA12	I/O	USART1_RTS	
C1	VBAT	Power		
C10	PD5	I/O	FMC_NWE	
C11	PD3	I/O	USART2_CTS	
C12	PD1	I/O	FMC_D3	
C13	PI3	I/O	SPI2_MOSI	
C14	PI2	I/O	SPI2_MISO	
C15	PA11	I/O	USART1_CTS	
D2	PF0	I/O	FMC_A0	
D9	PG9	I/O	DAC_EXTI9	
D11	PD4	I/O	FMC_NOE	

Pin Number TFBGA216	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
D12	PD2	I/O	SDIO_CMD	
D14	PI1	I/O	SPI2_SCK	
E1	PC14/OSC32_IN	I/O	RCC_OSC32_IN	
E2	PF1	I/O	FMC_A1	
E5	PDR_ON	Reset		
E6	BOOT0	Boot		
E7	VDD	Power		
E8	VDD	Power		
E9	VDD	Power		
E10	VDD	Power		
E11	VCAP_2	Power		
E14	PI0	I/O	SPI2_NSS	
F1	PC15/OSC32_OUT	I/O	RCC_OSC32_OUT	
F2	VSS	Power		
F4	VDD	Power		
F5	VDD	Power		
F6	VSS	Power		
F7	VSS	Power		
F8	VSS	Power		
F9	VSS	Power		
F10	VSS	Power		
F11	VDD	Power		
F14	PC9	I/O	SDIO_D1	
G1	PH0/OSC_IN	I/O	RCC_OSC_IN	
G2	PF2	I/O	FMC_A2	
G5	VDD	Power		
G6	VSS	Power		
G10	VSS	Power		
G11	VDD	Power		
G14	PC8	I/O	SDIO_D0	
H1	PH1/OSC_OUT	I/O	RCC_OSC_OUT	
H2	PF3	I/O	FMC_A3	
H5	VDD	Power		
H6	VSS	Power		
H10	VSS	Power		
H11	VDD	Power		
H14	PG8	I/O	FMC_SDCLK	
J1	NRST	Reset		
J2	PF4	I/O	FMC_A4	

Pin Number TFBGA216	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
J3	PH5	I/O	FMC_SDNWE	
J4	PH3	I/O	FMC_SDNE0	
J5	VDD	Power		
J6	VSS	Power		
J10	VSS	Power		
J11	VDD	Power		
K1	PF7	I/O	UART7_TX	
K2	PF6	I/O	UART7_RX	
K3	PF5	I/O	FMC_A5	
K4	PH2	I/O	FMC_SDCKE0	
K5	VDD	Power		
K6	VSS	Power		
K7	VSS	Power		
K8	VSS	Power		
K9	VSS	Power		
K10	VSS	Power		
K11	VDD	Power		
K13	PD15	I/O	FMC_D1	
K14	PB13	I/O	USB_OTG_HS_VBUS	
K15	PD10	I/O	FMC_D15	
L4	PC3	I/O	ADC1_IN13	
L5	BYPASS_REG	Reset		
L6	VSS	Power		
L7	VDD	Power		
L8	VDD	Power		
L9	VDD	Power		
L10	VDD	Power		
L11	VCAP_1	Power		
L12	PD14	I/O	FMC_D0	
L13	PB12	I/O	USB_OTG_HS_ID	
L14	PD9	I/O	FMC_D14	
L15	PD8	I/O	FMC_D13	
M1	VSSA	Power		
M2	PC0	I/O	ADC1_IN10	
M3	PC1	I/O	ADC1_IN11	
M4	PC2	I/O	ADC1_IN12	
M6	PF12	I/O	FMC_A6	
M7	PG1	I/O	FMC_A11	
M8	PF15	I/O	FMC_A9	

Pin Number TFBGA216	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
M10	PD12	I/O	FMC_A17	
M11	PD13	I/O	FMC_A18	
M12	PG3	I/O	FMC_A13	
M13	PG2	I/O	FMC_A12	
N1	VREF-	Power		
N2	PA1	I/O	UART4_RX	
N3	PA0/WKUP	I/O	UART4_TX	
N4	PA4	I/O	USB_OTG_HS_SOF	
N5	PC4	I/O	ADC1_IN14	
N6	PF13	I/O	FMC_A7	
N7	PG0	I/O	FMC_A10	
N9	PE8	I/O	FMC_D5	
N10	PD11	I/O	FMC_A16	
N11	PG5	I/O	FMC_A15	
N12	PG4	I/O	FMC_BA0, FMC_A14	
P1	VREF+	Power		
P2	PA2	I/O	USART2_TX	
P4	PA5	I/O	DAC_OUT2	
P5	PC5	I/O	ADC1_IN15	
P6	PF14	I/O	FMC_A8	
P8	PF11	I/O	FMC_SDNRAS	
P9	PE9	I/O	FMC_D6	
P10	PE11	I/O	FMC_D8	
P11	PE14	I/O	FMC_D11	
R1	VDDA	Power		
R8	PE7	I/O	FMC_D4	
R9	PE10	I/O	FMC_D7	
R10	PE12	I/O	FMC_D9	
R11	PE15	I/O	FMC_D12	
R12	PE13	I/O	FMC_D10	
R14	PB14	I/O	USB_OTG_HS_DM	
R15	PB15	I/O	USB_OTG_HS_DP	

4. Clock Tree Configuration



5. IPs and Middleware Configuration

5.1. ADC1

mode: IN10

mode: IN11

mode: IN12

mode: IN13

mode: IN14

mode: IN15

5.1.1. Parameter Settings:

ADCs_Common_Settings:

Mode	Independent mode

ADC_Settings:

Clock Prescaler	PCLK2 divided by 2
Resolution	12 bits (15 ADC Clock cycles)
Data Alignment	Right alignment
Scan Conversion Mode	Disabled
Continuous Conversion Mode	Disabled
Discontinuous Conversion Mode	Disabled
DMA Continuous Requests	Disabled
End Of Conversion Selection	EOC flag at the end of single channel conversion

ADC_Regular_ConversionMode:

Number Of Conversion	1
External Trigger Conversion Edge	None
Rank	1
Channel	Channel 10
Sampling Time	3 Cycles

ADC_Injected_ConversionMode:

Number Of Conversions	0

WatchDog:

Enable Analog WatchDog Mode	false

5.2. CRC

mode: Activated

5.3. DAC

mode: OUT2 Configuration
mode: External Trigger

5.3.1. Parameter Settings:

DAC Out2 Settings:

Output Buffer	Enable
Trigger	None

5.4. DMA2D

mode: Activated

5.4.1. Parameter Settings:

Basic Parameters:

Transfer Mode	**Memory to Memory with Blending ***
Color Mode	ARGB8888
Output Offset	0

Foreground layer Configuration:

DMA2D Input Color Mode	ARGB8888
DMA2D ALPHA MODE	No modification of the alpha channel value
Input Alpha	0
Input Offset	0

Background layer Configuration:

DMA2D Input Color Mode	ARGB8888
DMA2D ALPHA MODE	No modification of the alpha channel value
Input Alpha	0
Input Offset	0

5.5. FMC

NOR Flash/PSRAM/SRAM/ROM/LCD 1

Chip Select: NE1
Memory type: NOR Flash
Address: 26 bits
Data: 16 bits
SDRAM 1
Clock and chip enable: SDCKE0+SDNE0
Internal bank number: 2 banks
Address: 12 bits
Data: 16 bits
Byte enable: 16-bit byte enable

5.5.1. NOR/PSRAM 1:

NOR/PSRAM control:

Memory type	NOR Flash
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

5.5.2. SDRAM 1:

SDRAM control:

Bank	SDRAM bank 1
Number of column address bits	8 bits
Number of row address bits	12 bits
CAS latency	1 memory clock cycle
Write protection	Disabled
SDRAM common clock	Disabled
SDRAM common burst read	Disabled
SDRAM common read pipe delay	0 HCLK clock cycle

SDRAM timing in memory clock cycles:

Load mode register to active delay	16
Exit self-refresh delay	16
Self-refresh time	16
SDRAM common row cycle delay	16

Write recovery time	16
SDRAM common row precharge delay	16
Row to column delay	16

5.6. I2C1

I2C: I2C

5.6.1. Parameter Settings:

Master Features:

I2C Speed Mode	Standard Mode
I2C Clock Speed (Hz)	100000

Slave Features:

Clock No Stretch Mode	**Enabled ***
Primary Address Length selection	7-bit
Dual Address Acknowledged	Disabled
Primary slave address	0
General Call address detection	Disabled

5.7. RCC

High Speed Clock (HSE): Crystal/Ceramic Resonator

Low Speed Clock (LSE) : Crystal/Ceramic Resonator

5.7.1. Parameter Settings:

System Parameters:

VDD voltage (V)	3.3
Instruction Cache	Enabled
Prefetch Buffer	Enabled
Data Cache	Enabled
Flash Latency(WS)	3 WS (4 CPU cycle)

RCC Parameters:

HSI Calibration Value	16
TIM Prescaler Selection	Disabled
HSE Startup Timout Value (ms)	100
LSE Startup Timout Value (ms)	5000

Power Parameters:

Power Regulatror Voltage Scale	Power Regulator Voltage Scale 3
Power Over Drive	Disabled

5.8. RNG

mode: Activated

5.9. RTC

mode: Activate Clock Source

mode: Activate Calendar

5.9.1. Parameter Settings:

General:

Hour Format	Hourformat 24
Asynchronous Predivider value	127
Synchronous Predivider value	255

Calendar Time:

Data Format	BCD data format
Hours	0
Minutes	0
Seconds	0
Day Light Saving: value of hour adjustment	Daylightsaving None
Store Operation	Storeoperation Reset

Calendar Date:

Week Day	Monday
Month	January
Date	1
Year	0

5.10. SDIO

Mode: SD 4 bits Wide bus

5.10.1. Parameter Settings:

SDIO parameters:

SDIOCLK clock divide factor	0

5.11. SPI2

Mode: Full-Duplex Master

Hardware NSS Signal: Hardware NSS Output Signal

5.11.1. Parameter Settings:

Basic Parameters:

Frame Format	Motorola
Data Size	8 Bits
First Bit	MSB First

Clock Parameters:

Prescaler (for Baud Rate)	2
Baud Rate	**15.0 MBits/s ***
Clock Polarity (CPOL)	Low
Clock Phase (CPHA)	1 Edge

Advanced Parameters:

CRC Calculation	Disabled
NSS Signal Type	Output Hardware

5.12. SYS

Debug: JTAG (5 pins)

Timebase Source: SysTick

5.13. UART4

Mode: Asynchronous

5.13.1. 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

5.14. UART7

Mode: Asynchronous

5.14.1. 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

5.15. USART1

Mode: Asynchronous

Hardware Flow Control (RS232): CTS/RTS

5.15.1. 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

5.16. USART2

Mode: Asynchronous

Hardware Flow Control (RS232): CTS Only

5.16.1. 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

5.17. USB_OTG_HS

Internal FS Phy: OTG/Dual_Role_Device

mode: Activate_SOF

mode: Activate_VBUS

5.17.1. Parameter Settings:

Signal start of frame	Enabled

5.18. WWDG

mode: Activated

5.18.1. Parameter Settings:

Watchdog Clocking:

WWDG counter clock prescaler	1
WWDG window value	64
WWDG free-running downcounter value	64

Watchdog Interrupt:

EWI Mode	Disable

*** User modified value**

6. System Configuration

6.1. GPIO configuration

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
ADC1	PC3	ADC1_IN13	Analog mode	No pull-up and no pull-down	n/a	
	PC0	ADC1_IN10	Analog mode	No pull-up and no pull-down	n/a	
	PC1	ADC1_IN11	Analog mode	No pull-up and no pull-down	n/a	
	PC2	ADC1_IN12	Analog mode	No pull-up and no pull-down	n/a	
	PC4	ADC1_IN14	Analog mode	No pull-up and no pull-down	n/a	
	PC5	ADC1_IN15	Analog mode	No pull-up and no pull-down	n/a	
DAC	PG9	DAC_EXTI9	External Interrupt Mode with Rising edge trigger detection	No pull-up and no pull-down	n/a	
	PA5	DAC_OUT2	Analog mode	No pull-up and no pull-down	n/a	
FMC	PE4	FMC_A20	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PE3	FMC_A19	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PE2	FMC_A23	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PG14	FMC_A25	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PE1	FMC_NBL1	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PE0	FMC_NBL0	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PD7	FMC_NE1	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PE5	FMC_A21	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PE6	FMC_A22	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PG13	FMC_A24	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PG15	FMC_SDNCAS	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PD0	FMC_D2	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PD5	FMC_NWE	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PD1	FMC_D3	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PF0	FMC_A0	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PD4	FMC_NOE	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PF1	FMC_A1	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PF2	FMC_A2	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PF3	FMC_A3	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PG8	FMC_SDCLK	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PF4	FMC_A4	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PH5	FMC_SDNWE	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PH3	FMC_SDNE0	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PF5	FMC_A5	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PH2	FMC_SDCKE0	Alternate Function Push Pull	No pull-up and no pull-down	Very High	

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
	PD15	FMC_D1	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PD10	FMC_D15	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PD14	FMC_D0	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PD9	FMC_D14	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PD8	FMC_D13	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PF12	FMC_A6	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PG1	FMC_A11	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PF15	FMC_A9	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PD12	FMC_A17	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PD13	FMC_A18	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PG3	FMC_A13	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PG2	FMC_A12	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PF13	FMC_A7	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PG0	FMC_A10	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PE8	FMC_D5	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PD11	FMC_A16	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PG5	FMC_A15	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PG4	FMC_BA0	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PF14	FMC_A8	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PF11	FMC_SDNRAS	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PE9	FMC_D6	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PE11	FMC_D8	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PE14	FMC_D11	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PE7	FMC_D4	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PE10	FMC_D7	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PE12	FMC_D9	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PE15	FMC_D12	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PE13	FMC_D10	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
I2C1	PB8	I2C1_SCL	Alternate Function Open Drain	Pull-up	**Very High ***	
	PB9	I2C1_SDA	Alternate Function Open Drain	Pull-up	**Very High ***	
RCC	PC14/OSC32_IN	RCC_OSC32_IN	n/a	n/a	n/a	
	PC15/OSC32_OUT	RCC_OSC32_OUT	n/a	n/a	n/a	
	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	PC12	SDIO_CK	Alternate Function Push Pull	No pull-up and no pull-down	Very High	

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
	PC11	SDIO_D3	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PC10	SDIO_D2	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PD2	SDIO_CMD	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PC9	SDIO_D1	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
	PC8	SDIO_D0	Alternate Function Push Pull	No pull-up and no pull-down	Very High	
SPI2	PI3	SPI2_MOSI	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	
	PI2	SPI2_MISO	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	
	PI1	SPI2_SCK	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	
	PI0	SPI2_NSS	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	
SYS	PB4	SYS_JTRST	n/a	n/a	n/a	
	PB3	SYS_JTDO-SWO	n/a	n/a	n/a	
	PA15	SYS_JTDI	n/a	n/a	n/a	
	PA14	SYS_JTCK-SWCLK	n/a	n/a	n/a	
	PA13	SYS_JTMS-SWDIO	n/a	n/a	n/a	
UART4	PA1	UART4_RX	Alternate Function Push Pull	Pull-up	**Very High ***	
	PA0/WKUP	UART4_TX	Alternate Function Push Pull	Pull-up	**Very High ***	
UART7	PF7	UART7_TX	Alternate Function Push Pull	Pull-up	**Very High ***	
	PF6	UART7_RX	Alternate Function Push Pull	Pull-up	**Very High ***	
USART1	PB7	USART1_RX	Alternate Function Push Pull	Pull-up	**Very High ***	
	PB6	USART1_TX	Alternate Function Push Pull	Pull-up	**Very High ***	
	PA12	USART1_RTS	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	
	PA11	USART1_CTS	Alternate Function Push Pull	No pull-up and no pull-down	**Very High ***	
USART2	PD6	USART2_RX	Alternate Function Push Pull	Pull-up	**Very High**	

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
					*	
	PD3	USART2_CTS	Alternate Function Push Pull	No pull-up and no pull-down	**Very High** *	
	PA2	USART2_TX	Alternate Function Push Pull	Pull-up	**Very High** *	
USB_OTG_HS	PB13	USB_OTG_HS_VBUS	Input mode	No pull-up and no pull-down	n/a	
	PB12	USB_OTG_HS_ID	Alternate Function Push Pull	No pull-up and no pull-down	**Very High** *	
	PA4	USB_OTG_HS_SOF	Alternate Function Push Pull	No pull-up and no pull-down	**Very High** *	
	PB14	USB_OTG_HS_DM	Alternate Function Push Pull	No pull-up and no pull-down	**Very High** *	
	PB15	USB_OTG_HS_DP	Alternate Function Push Pull	No pull-up and no pull-down	**Very High** *	

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
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
Window watchdog interrupt	unused		
PVD interrupt through EXTI line 16	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		
ADC1, ADC2 and ADC3 global interrupts	unused		
EXTI line[9:5] interrupts	unused		
I2C1 event interrupt	unused		
I2C1 error interrupt	unused		
SPI2 global interrupt	unused		
USART1 global interrupt	unused		
USART2 global interrupt	unused		
FMC global interrupt	unused		
SDIO global interrupt	unused		
UART4 global interrupt	unused		
TIM6 global interrupt, DAC1 and DAC2 underrun error interrupts	unused		
HASH and RNG global interrupt	unused		
FPU global interrupt	unused		
UART7 global interrupt	unused		
DMA2D global interrupt	unused		

*** User modified value**

7. Power Consumption Calculator report

7.1. Microcontroller Selection

Series	STM32F4
Line	STM32F429/439
MCU	STM32F429NIHx
Datasheet	024030_Rev8

7.2. Parameter Selection

Temperature	25
Vdd	3.3

7.3. Battery Selection

Battery	Ni-MH(AA1800)
Capacity	1800.0 mAh
Self Discharge	30.0 %/month
Nominal Voltage	1.2 V
Max Cont Current	360.0 mA
Max Pulse Current	0.0 mA
Cells in series	2
Cells in parallel	1

7.4. Sequence

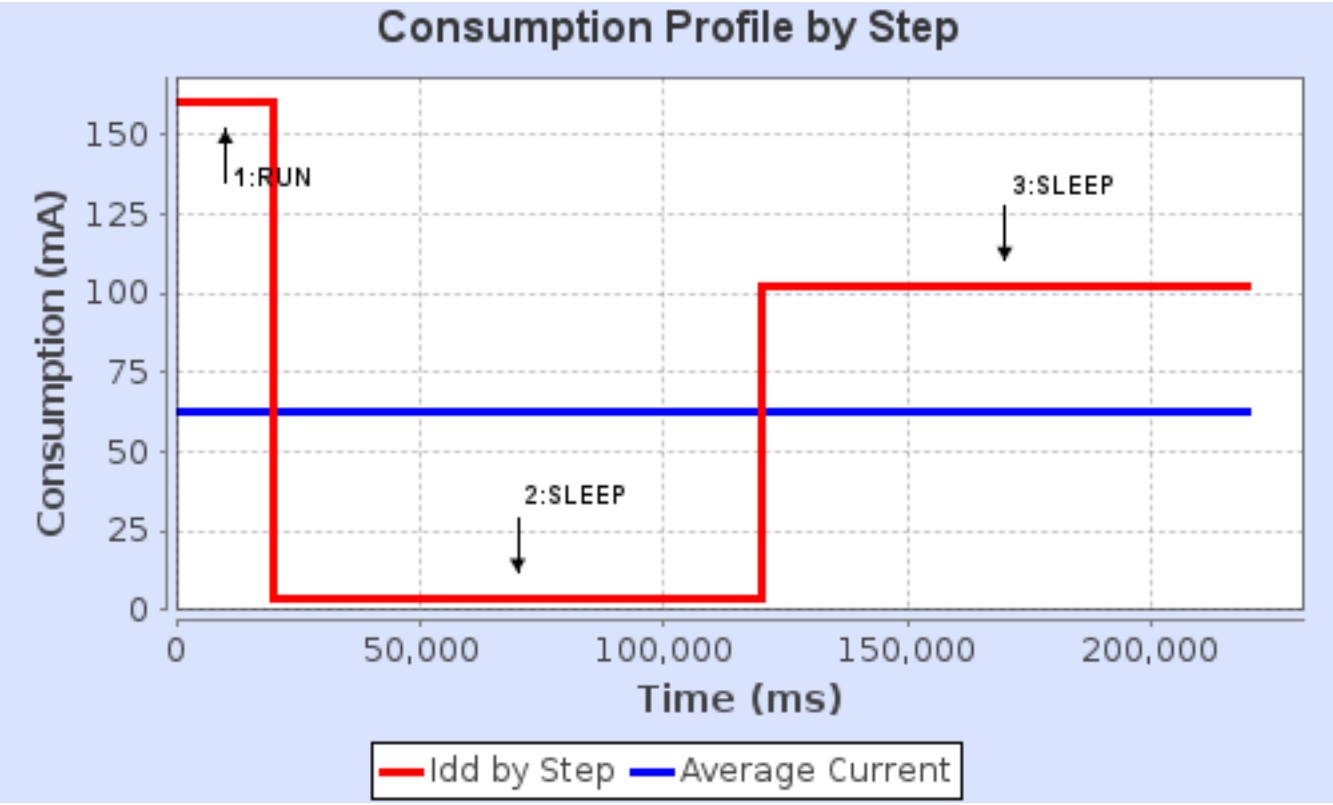
Step	Step1	Step2	Step3
Mode	RUN	SLEEP	SLEEP
Vdd	3.3	3.3	3.3
Voltage Source	Battery	Battery	Battery
Range	Scale1-High	Scale3-Low	Scale3-Low
Fetch Type	RAM/FLASH/ART	RAM/FLASH	RAM/FLASH

Clock Configuration	HSE PLL	HSE	HSE
Clock Source Frequency	4.0 MHz	2.0 MHz	2.0 MHz
CPU Frequency	150000000 Hz	2.0 MHz	2.0 MHz
Peripherals	ADC1 BKPSRAM BusMatrix CRC DMA1 DMA2 DMA2D GPIOA GPIOB GPIOC GPIOD GPIOE GPIOF GPIOG GPIOH GPIOI GPIOJ GPIOK I2C1 PVD/BOR RNG RTC SDIO SPI1 SYS TIM1 TIM2 UART4 UART7 USART1 USART2 WWDG	ADC1 PVD/BOR USART1 WWDG	
Additional Cons.	100 mA	0 mA	100 mA
Average Current	160.02 mA	3.61 mA	102 mA
Duration	20 s	100 s	100 s
DMIPS	187.5	2.5	2.5
Ta Max	89.69	104.65	95.24
Category	Interpolation	In DS Table	In DS Table

7.5. RESULTS

Sequence Time	220 s	Average Current	62.55 mA
Battery Life	1 day, 4 hours	Average DMIPS	19.32 DMIPS

7.6. Chart


Consumption Profile by Step
Consumption (mA)
150
125
100
75
50
25
0
1:RUN
2:SLEEP
3:SLEEP
0
50,000
100,000
150,000
200,000
Time (ms)
Idd by Step
Average Current

8. Software Project

8.1. Project Settings

Name	Value
Project Name	BIOS
Project Folder	/home/bastian/Dokumente/NokiaRetrofit/Firmware/BIOS
Toolchain / IDE	SW4STM32
Firmware Package Name and Version	STM32Cube FW_F4 V1.13.1

8.2. Code Generation Settings

Name	Value
STM32Cube Firmware Library Package	Copy only the necessary library files
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