1. Description

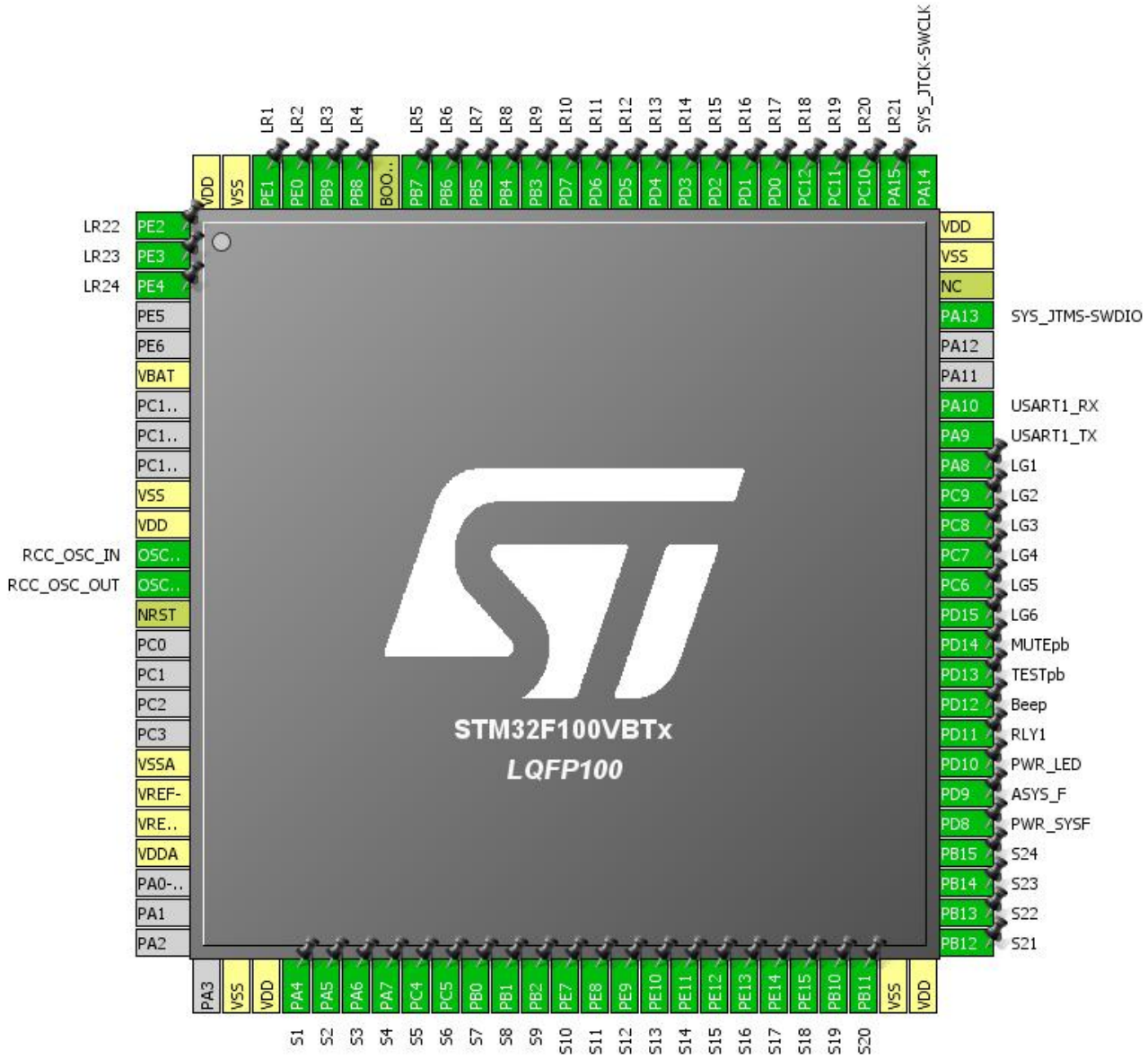
1.1. Project

Project Name	GAS_ALARM_BOARD
Board Name	GAS_ALARM_BOARD
Generated with:	STM32CubeMX 4.22.0
Date	08/16/2017

1.2. MCU

MCU Series	STM32F1
MCU Line	STM32F100 Value Line
MCU name	STM32F100VBTx
MCU Package	LQFP100
MCU Pin number	100

2. Pinout Configuration



3. Pins Configuration

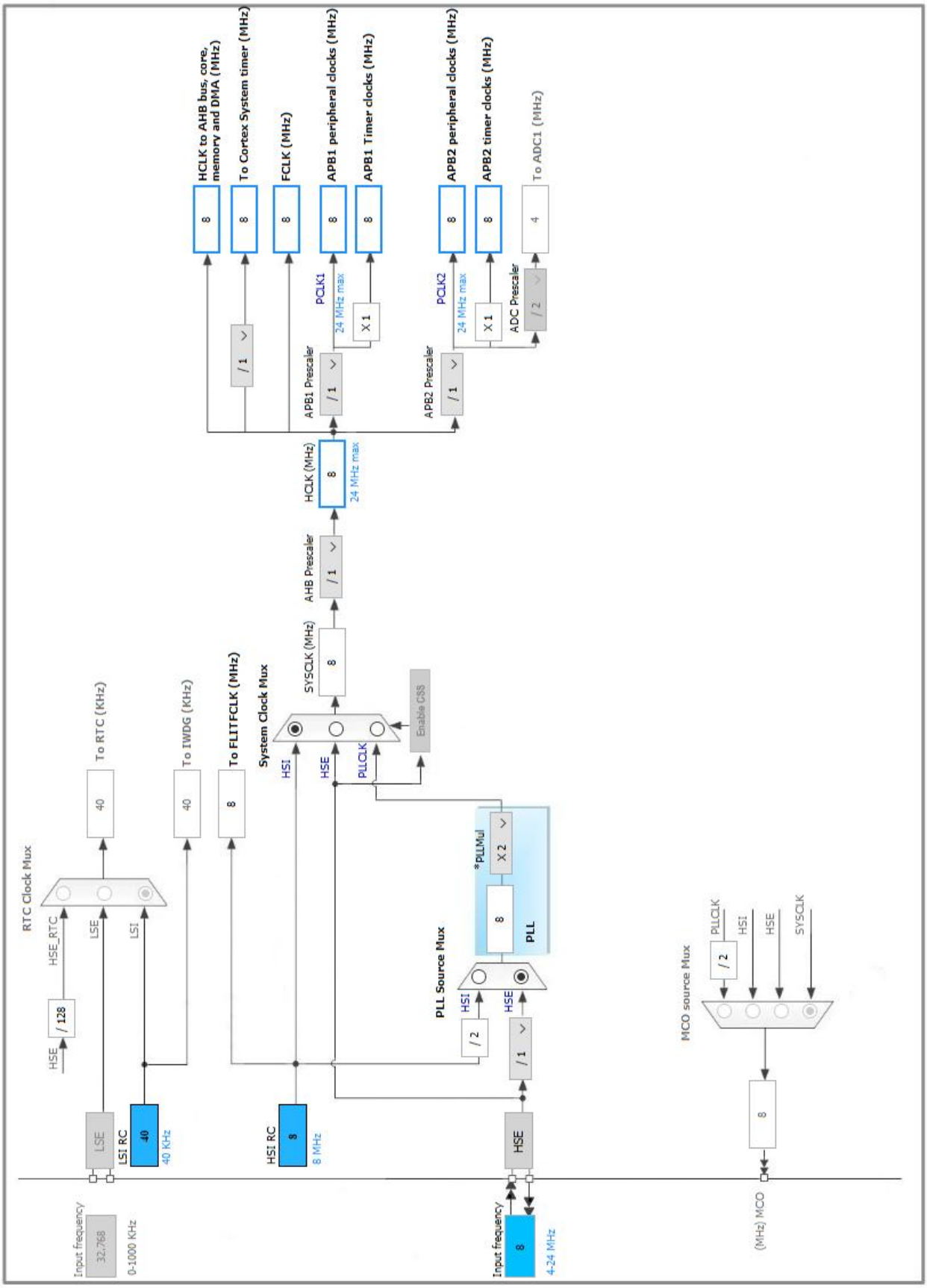
Pin Number LQFP100	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	PE2 *	I/O	GPIO_Output	LR22
2	PE3 *	I/O	GPIO_Output	LR23
3	PE4 *	I/O	GPIO_Output	LR24
6	VBAT	Power		
10	VSS	Power		
11	VDD	Power		
12	OSC_IN	I/O	RCC_OSC_IN	
13	OSC_OUT	I/O	RCC_OSC_OUT	
14	NRST	Reset		
19	VSSA	Power		
20	VREF-	Power		
21	VREF+	Power		
22	VDDA	Power		
27	VSS	Power		
28	VDD	Power		
29	PA4 *	I/O	GPIO_Input	S1
30	PA5 *	I/O	GPIO_Input	S2
31	PA6 *	I/O	GPIO_Input	S3
32	PA7 *	I/O	GPIO_Input	S4
33	PC4 *	I/O	GPIO_Input	S5
34	PC5 *	I/O	GPIO_Input	S6
35	PB0 *	I/O	GPIO_Input	S7
36	PB1 *	I/O	GPIO_Input	S8
37	PB2 *	I/O	GPIO_Input	S9
38	PE7 *	I/O	GPIO_Input	S10
39	PE8 *	I/O	GPIO_Input	S11
40	PE9 *	I/O	GPIO_Input	S12
41	PE10 *	I/O	GPIO_Input	S13
42	PE11 *	I/O	GPIO_Input	S14
43	PE12 *	I/O	GPIO_Input	S15
44	PE13 *	I/O	GPIO_Input	S16
45	PE14 *	I/O	GPIO_Input	S17
46	PE15 *	I/O	GPIO_Input	S18
47	PB10 *	I/O	GPIO_Input	S19
48	PB11 *	I/O	GPIO_Input	S20
49	VSS	Power		

Pin Number LQFP100	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
50	VDD	Power		
51	PB12 *	I/O	GPIO_Input	S21
52	PB13 *	I/O	GPIO_Input	S22
53	PB14 *	I/O	GPIO_Input	S23
54	PB15 *	I/O	GPIO_Input	S24
55	PD8 *	I/O	GPIO_Output	PWR_SYSF
56	PD9 *	I/O	GPIO_Output	ASYS_F
57	PD10 *	I/O	GPIO_Output	PWR_LED
58	PD11 *	I/O	GPIO_Output	RLY1
59	PD12 *	I/O	GPIO_Output	Beep
60	PD13 *	I/O	GPIO_Output	TESTpb
61	PD14 *	I/O	GPIO_Output	MUTEpb
62	PD15 *	I/O	GPIO_Output	LG6
63	PC6 *	I/O	GPIO_Output	LG5
64	PC7 *	I/O	GPIO_Output	LG4
65	PC8 *	I/O	GPIO_Output	LG3
66	PC9 *	I/O	GPIO_Output	LG2
67	PA8 *	I/O	GPIO_Output	LG1
68	PA9	I/O	USART1_TX	
69	PA10	I/O	USART1_RX	
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	GPIO_Output	LR21
78	PC10 *	I/O	GPIO_Output	LR20
79	PC11 *	I/O	GPIO_Output	LR19
80	PC12 *	I/O	GPIO_Output	LR18
81	PD0 *	I/O	GPIO_Output	LR17
82	PD1 *	I/O	GPIO_Output	LR16
83	PD2 *	I/O	GPIO_Output	LR15
84	PD3 *	I/O	GPIO_Output	LR14
85	PD4 *	I/O	GPIO_Output	LR13
86	PD5 *	I/O	GPIO_Output	LR12
87	PD6 *	I/O	GPIO_Output	LR11
88	PD7 *	I/O	GPIO_Output	LR10
89	PB3 *	I/O	GPIO_Output	LR9
90	PB4 *	I/O	GPIO_Output	LR8

Pin Number LQFP100	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
91	PB5 *	I/O	GPIO_Output	LR7
92	PB6 *	I/O	GPIO_Output	LR6
93	PB7 *	I/O	GPIO_Output	LR5
94	BOOT0	Boot		
95	PB8 *	I/O	GPIO_Output	LR4
96	PB9 *	I/O	GPIO_Output	LR3
97	PE0 *	I/O	GPIO_Output	LR2
98	PE1 *	I/O	GPIO_Output	LR1
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

High Speed Clock (HSE): Crystal/Ceramic Resonator

5.1.1. Parameter Settings:

System Parameters:

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

RCC Parameters:

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

5.2. SYS

Debug: Serial Wire

Timebase Source: SysTick

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

*** 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	OSC_IN	RCC_OSC_IN	n/a	n/a	n/a	
	OSC_OUT	RCC_OSC_OUT	n/a	n/a	n/a	
SYS	PA13	SYS_JTMS-SWDIO	n/a	n/a	n/a	
	PA14	SYS_JTCK-SWCLK	n/a	n/a	n/a	
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**	
GPIO	PE2	GPIO_Output	Output Push Pull	n/a	Low	LR22
	PE3	GPIO_Output	Output Push Pull	n/a	Low	LR23
	PE4	GPIO_Output	Output Push Pull	n/a	Low	LR24
	PA4	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	S1
	PA5	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	S2
	PA6	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	S3
	PA7	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	S4
	PC4	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	S5
	PC5	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	S6
	PB0	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	S7
	PB1	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	S8
	PB2	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	S9
	PE7	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	S10
	PE8	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	S11
	PE9	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	S12
	PE10	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	S13
	PE11	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	S14
	PE12	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	S15
	PE13	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	S16
	PE14	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	S17
	PE15	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	S18
	PB10	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	S19
	PB11	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	S20
	PB12	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	S21
	PB13	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	S22
	PB14	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	S23

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
	PB15	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	S24
	PD8	GPIO_Output	Output Push Pull	n/a	Low	PWR_SYSF
	PD9	GPIO_Output	Output Push Pull	n/a	Low	ASYS_F
	PD10	GPIO_Output	Output Push Pull	n/a	Low	PWR_LED
	PD11	GPIO_Output	Output Push Pull	n/a	Low	RLY1
	PD12	GPIO_Output	Output Push Pull	n/a	Low	Beep
	PD13	GPIO_Output	Output Push Pull	n/a	Low	TESTpb
	PD14	GPIO_Output	Output Push Pull	n/a	Low	MUTEpb
	PD15	GPIO_Output	Output Push Pull	n/a	Low	LG6
	PC6	GPIO_Output	Output Push Pull	n/a	Low	LG5
	PC7	GPIO_Output	Output Push Pull	n/a	Low	LG4
	PC8	GPIO_Output	Output Push Pull	n/a	Low	LG3
	PC9	GPIO_Output	Output Push Pull	n/a	Low	LG2
	PA8	GPIO_Output	Output Push Pull	n/a	Low	LG1
	PA15	GPIO_Output	Output Push Pull	n/a	Low	LR21
	PC10	GPIO_Output	Output Push Pull	n/a	Low	LR20
	PC11	GPIO_Output	Output Push Pull	n/a	Low	LR19
	PC12	GPIO_Output	Output Push Pull	n/a	Low	LR18
	PD0	GPIO_Output	Output Push Pull	n/a	Low	LR17
	PD1	GPIO_Output	Output Push Pull	n/a	Low	LR16
	PD2	GPIO_Output	Output Push Pull	n/a	Low	LR15
	PD3	GPIO_Output	Output Push Pull	n/a	Low	LR14
	PD4	GPIO_Output	Output Push Pull	n/a	Low	LR13
	PD5	GPIO_Output	Output Push Pull	n/a	Low	LR12
	PD6	GPIO_Output	Output Push Pull	n/a	Low	LR11
	PD7	GPIO_Output	Output Push Pull	n/a	Low	LR10
	PB3	GPIO_Output	Output Push Pull	n/a	Low	LR9
	PB4	GPIO_Output	Output Push Pull	n/a	Low	LR8
	PB5	GPIO_Output	Output Push Pull	n/a	Low	LR7
	PB6	GPIO_Output	Output Push Pull	n/a	Low	LR6
	PB7	GPIO_Output	Output Push Pull	n/a	Low	LR5
	PB8	GPIO_Output	Output Push Pull	n/a	Low	LR4
	PB9	GPIO_Output	Output Push Pull	n/a	Low	LR3
	PE0	GPIO_Output	Output Push Pull	n/a	Low	LR2
	PE1	GPIO_Output	Output Push Pull	n/a	Low	LR1

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
PVD interrupt through EXTI line 16	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		
USART1 global interrupt	unused		

*** User modified value**

7. Power Consumption Calculator report

7.1. Microcontroller Selection

Series	STM32F1
Line	STM32F100 Value Line
MCU	STM32F100VBTx
Datasheet	16455_Rev8

7.2. Parameter Selection

Temperature	25
Vdd	3.3

8. Software Project

8.1. Project Settings

Name	Value
Project Name	GAS_ALARM_BOARD
Project Folder	C:\Users\Tze Wei\Desktop\GAS_ALARM_BOARD
Toolchain / IDE	MDK-ARM V5
Firmware Package Name and Version	STM32Cube FW_F1 V1.6.0

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