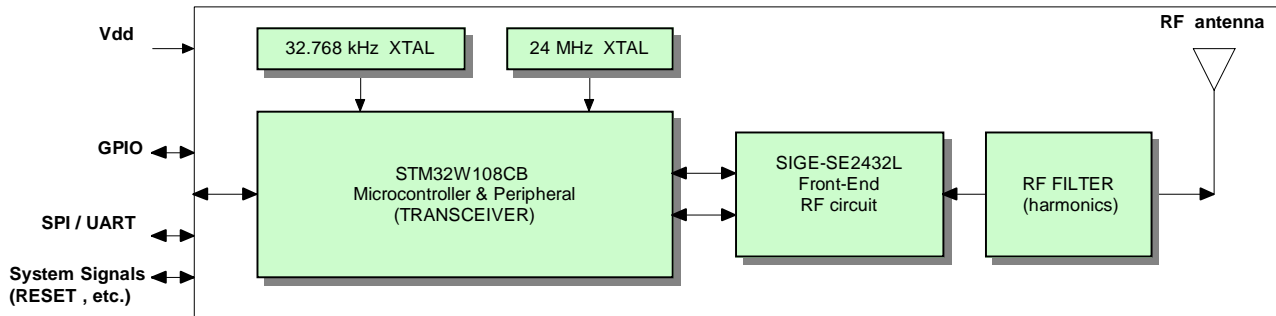
	Prepared: A. Rizzoli	
	Checked:	
	Design ref.:	File: SPZB32Wxy1_z - Block Diagram & behavior.DOC
	Date: 29/09/11	Rev.: 1.0
IMS - Subsystem Product Group / R&D	Title: SPZB32Wxy1.z module	

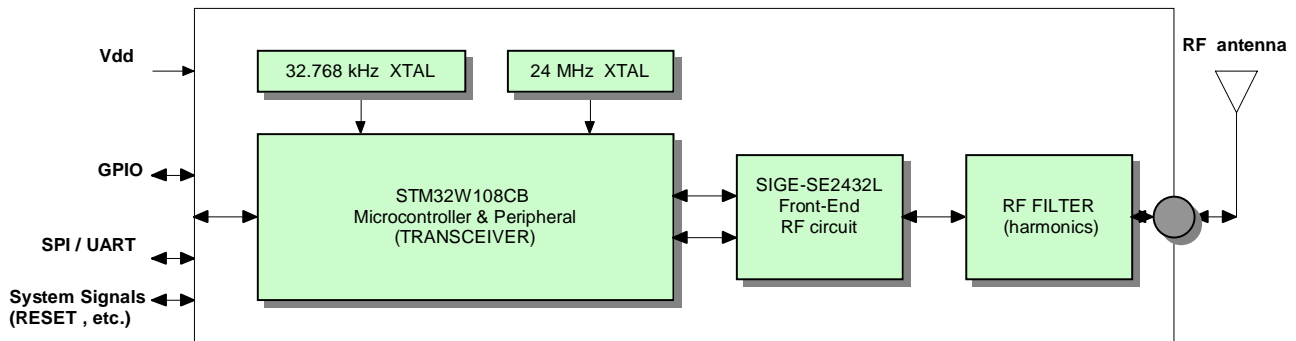
SPZB32W1A1.1 / SPZB32W1C1.1 IEEE 802.15.4 ZigBee module and SPZB32Wxy1.z family BLOCK DIAGRAM and behavior

Modules SPZB32W1A1.1 / SPZB32W1C1.1 and in general modules belonging to the family SPZB32Wxy1.z are based on the same hardware and the only difference is the use of an integrated antenna or a specified external antenna.

The block diagram are therefore the following:



SPZB32W1A1.1 & SPZB32WxA1.z block diagram



SPZB32W1C1.1 & SPZB32WxC1.z block diagram


The modules are based on the STM32W108 IC which is the core of the product ; it has integrated inside the IEEE 802.15.4 Phy and Mac to allow applications based on IEEE 802.15.4 standard (ZigBee, SimpleMac,.....).

As the output power of STM32W108 is limited an external power amplifier (PA) (Sige SE2432L) has been added to get the desired output power of typically 18 dBm.

After the PA has been put a filter to limits the unwanted harmonics.

Two Xtals are provided on the module

The 24 MHz oscillator is used to get the machine microcontroller main clock and also, after the proper internal PLL circuit, to get the fundamentals TX / RX frequencies carriers (starting from 2405 MHz to 2480 MHz with 5 MHz step, according to the IEEE802.15.4 standard).

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The 32.768 kHz oscillator is used by the module microcontroller to reduce the power consumption during the power states.

Module behavior:

The module can be seen as a peripheral dedicated to the IEEE802.15.4 standard and in particular to ZigBee , SimpleMAC ,RF4CE protocol stack.

Once the module is powered on , it make available its resources and in particular the main interface which can be SPI,UART,I2C port.

By means this port the user host is able to control the functionality of the module; that means the host can decide in which way the module has to work:

- make the network
- join the network
- transmit data
- receive data,
-

For example :

- if data must be transmitted , the module will receive to data from the host , it will pack the data according to the IEEE802.15.4 and driving properly the PA it will send the data.
- when data is received by the module, an interrupt is generated and the host can get the data from the module through the main port.

Some extra pins are provided on the module as : Reset to reset the module , JTAG to debug the module.