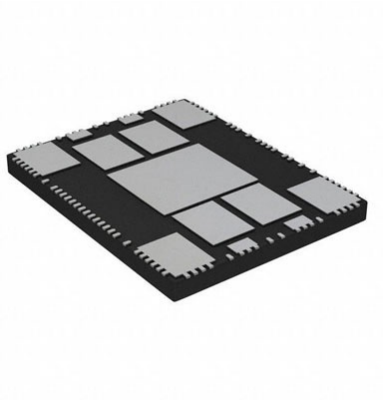
STM32WB55RGV6

BT+ZigBee Chip 2405MHz to 2480MHz 68-Pin VFQFPN EP Tray

Manufacturer:	STMicroelectronics, Inc
Package/Case:	VFQFPN68
Product Type:	RF Integrated Circuits
RoHS:	RoHS Compliant/Lead free
Lifecycle:	Active



Images are for reference only

Inquiry

General Description

The STM32WB55xx multiprotocol wireless and ultra-low-power devices embed a powerful and ultra-low-power radio compliant with the Bluetooth® Low Energy SIG specification v5.0 and with IEEE 802.15.4-2011. They contain a dedicated Arm® Cortex® -M0+ for performing all the real-time low layer operation.

The STM32WB55xx devices are designed to be extremely low-power and are based on the high-performance Arm® Cortex®-M4 32-bit RISC core operating at a frequency of up to 64 MHz. The Cortex®-M4 core features a Floating point unit (FPU) single precision that supports all Arm® single-precision data-processing instructions and data types. It also implements a full set of DSP instructions and a memory protection unit (MPU) that enhances application security.

Enhanced inter-processor communication is provided by the IPCC with six bidirectional channels. The HSEM provides hardware semaphores used to share common resources between the two processors.

The STM32WB55xx devices embed high-speed memories (up to 1 Mbyte of Flash memory, up to 256 Kbyte of SRAM), a Quad-SPI Flash memory interface (available on all packages) and an extensive range of enhanced I/Os and peripherals.

Direct data transfer between memory and peripherals and from memory to memory is supported by fourteen DMA channels with a full flexible channel mapping by the DMAMUX peripheral.

The STM32WB55xx devices feature several mechanisms for embedded Flash memory and SRAM: readout protection, write protection and proprietary code readout protection. Portions of the memory can be secured for Cortex® -M0+ exclusive access.

The two AES encryption engines, PKA and RNG enable lower layer MAC and upper layer cryptography. A customer key storage feature may be used to keep the keys hidden.

The devices offer a fast 12-bit ADC and two ultra-low-power comparators associated with a high accuracy reference voltage generator.

These devices embed a low-power RTC, one advanced 16-bit timer, one general-purpose32-bit timer, two general-purpose 16-bit timers, and two 16-bit low-power timers.

In addition, up to 18 capacitive sensing channels are available. The devices also embed an integrated LCD driver up to 8x40 or 4x44, with internal step-up converter.

The STM32WB55xx devices also feature standard and advanced communication interfaces, namely one USART (ISO 7816, IrDA, Modbus and Smartcard mode), one low- power UART (LPUART), two I2Cs (SMBus/PMBus), two SPIs (up to 32 MHz), one serial audio interface (SAI) with two channels and three PDMs, one USB 2.0 FS device with embedded crystal-less oscillator, supporting BCD and LPM and one Quad-SPI with execute-in-place (XIP) capability.

The STM32WB55xx operate in the -40 to +105 °C (+125 °C junction) and -40 to +85 °C (+105 °C junction) temperature ranges from a 1.71 to 3.6 V power supply. A comprehensive set of power-saving modes enables the design of low-power applications.

The STM32WB55xx include independent power supplies for analog input for ADC.

The STM32WB55xx integrate a high efficiency SMPS step-down converter with automatic bypass mode capability when the V_{DD} falls below V_{BORx} (x=1, 2, 3, 4) voltage level (default is 2.0 V). It includes independent power supplies for analog input for ADC and comparators, as well as a 3.3 V dedicated supply input for USB.

A V_{BAT} dedicated supply allows the devices to back up the LSE 32.768KHz oscillator, the RTC and the backup registers, thus enabling the STM32WB55xx to supply these functions even if the main V_{DD} is not present through a CR2032-like battery, a Supercap or a small rechargeable battery.

The STM32WB55xx offers four packages, from 48 to 129 pins.

Key Features

Ultra-low-power platform

Core: Arm 32-bit Cortex-M4 CPU with FPU, adaptive real-time accelerator (ART Accelerator) allowing 0-wait-state execution from Flash memory, frequency up to 64 MHz, MPU, 80 DMIPS and DSP instructions

Performance benchmark

Energy benckmark

Supply and reset management

BAT

Clock sources

Recommended For You

STA013
STMicroelectronics, Inc
SOP28

STPCI2GDYI
STMicroelectronics, Inc
BGA

STDP8028-AB
STMicroelectronics, Inc
BGA

STM8AF52AATCX
STMicroelectronics, Inc
LQFP100

STM8AF5289TCX
STMicroelectronics, Inc
LQFP-64

STM32WB55RCV6
STMicroelectronics, Inc
QFN68

STM32WLE5CCU6
STMicroelectronics, Inc
QFN48

STM32WB55VGQ6
STMicroelectronics, Inc
BGA129

STM32WB55VGY6TR
STMicroelectronics, Inc
WLCSP100

STM32WB35CEU6A
STMicroelectronics, Inc
UFQFPN-48

STM32WL55CCU6
STMicroelectronics, Inc
UFQFN48

STM32WB10CCU5
STMicroelectronics, Inc
QFN48

STM32MP151AAD3
STMicroelectronics, Inc
BGA257

STM32MP157CAC3
STMicroelectronics, Inc
TFBGA361

STM32WB55CGU6TR
STMicroelectronics, Inc
QFN48