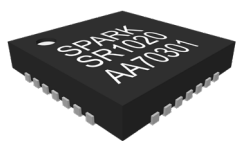


THE FUTURE OF WIRELESS GAMING!

High Polling Rate Low Latency Gaming Mouse Reference Design

SPARK's high polling rate low latency gaming mouse reference design takes full advantage of the SR1020 ultra-wideband (UWB) wireless transceiver capabilities, delivering phenomenal gaming performance equivalent to wired gaming mice. Outperforming traditional wireless solutions, SPARK UWB offers lower latency below 200 us and polling rates up to 8 kHz. It allows for lower power operation to reduce battery size and weight while extending battery life.



SR1020
6.0 GHz to 9.3 GHz

SPARK ULTRA-WIDEBAND TRANSCEIVER

Symbol rates up to 20.48 Mbits / sec

Single 32.768 kHz external XTAL

Programmable channel bandwidth

Ultra-low power

- 1.8 V – 3.3 V supply voltage
- 0.34 mA per Mbit / sec active Rx
- 0.10 mA per Mbit / sec active Tx
- 920 nA deep sleep
- 55 nA shutdown mode
- 28 pin QFN (4 x 4 mm)

High polling rate

- Up to 8 kHz
- 4 kHz / 2 kHz / 1 kHz fallback modes

Ultra-low latency

- ≤ 200 us latency (8 kHz mode)

Ultra-low power

USB 3.0 noise immunity

Additional data channels

- RGB LED lighting
- Additional controls / sensors

Avoids congested 2.4 GHz

- No impact to WiFi
- Co-existence with BLE peripherals

LOW LATENCY GAMING MOUSE REFERENCE DESIGN

UTILIZING SPARK SR1020 LOW LATENCY UWB TRANSCEIVER



This reference design kit demonstrates the high polling rate, low latency and low power capabilities of SPARK's SR1020 UWB transceiver. The ultra-low latency of SPARK UWB allows the SR1020 to deliver wireless gaming performance equivalent to wired mice. A 26,000 cpi optical sensor with illumination that can support polling rates of up to 8 kHz is included. The design offers configurable wireless polling rates up to 8 kHz. An additional auxiliary data channel allows control of LEDs and other custom peripherals. The reference design features NXP LPC55S28 microcontrollers and comes complete with all design files to simplify application specific implementations.



MOUSE

- SR1020 SPARK UWB transceiver
- NXP LPC55S28 microcontroller
- 26,000 cpi / up to 8 kHz optical sensor
- 4x RGB LEDs
- 500 mAh Li-Po battery
- USB-C (charging, configuration)



USB-C DONGLE

- SR1020 SPARK UWB transceiver
- NXP LPC55S28 microcontroller
- NXP debug connector



DESIGN FILES

- SPARK SDK
- Mouse & Dongle firmware
- Schematics, PCB layout, BoM

ABOUT SPARK UWB

SPARK Microsystems is building next generation short-range wireless communication devices. SPARK UWB provides high data rate and very low latency wireless communication links at an ultra-low power profile, making it ideal for personal area networks (PANs) used in mobile, consumer and IoT-connected products. Leveraging patented technologies, SPARK Microsystems strives to minimize and ultimately eliminate wires and batteries from a wide range of applications. For more information, please visit sparkmicro.com.



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