

Noitom Limited

Redefining Motion Capture with MAX17224 nanoPower Boost Converter



The Hi5 VR Glove Business Edition is designed to bring real-world hand interactions into virtual reality.

Headquartered in Beijing, [Noitom](#) was established in 2012 by a team of visionary engineers and scientists dedicated to redefining the motion capture paradigm. Founded by mechanics, software, robotics and sensor engineering experts, including Dr. Tristan Ruoli Dai, CTO, Noitom focuses its R&D on mapping the human body, its movements, and its interaction with the environment.

Challenge

- Meet system requirements for high efficiency, low quiescent current, large input range, low startup voltage, high data rate, and tiny size

Solution

- [MAX17224](#)
- [MAX14841E](#)
- [MAX809S](#)
- [MAX14527](#)
- [MAX8887](#)
- [DS3231M](#)
- [MAX8881](#)

Benefits

- Met technical criteria while enabling company's products to work in a stable and reliable manner

Since its inception, Noitom has released several product lines, including its Perception MOCAP wireless motion capture system, Perception Legacy for the film and gaming industry, mySwing portable golf swing analyzer, and its small, adaptable Perception Neuron motion capture system. For fully immersive hand interactions in virtual reality (VR), Noitom offers its Hi5 VR Glove. The company also provides an advanced B2B multiple-player VR system called Project Alice, which combines optical and inertial tracking.

CUSTOMER SUCCESS STORY: NOITOM LIMITED



"Maxim ICs are making our products work in a more stable and reliable manner."

- Dr. Tristan Ruoli Dai, CTO, Noitom

The Perception Neuron system is the first tool of its kind to deliver a small, adaptive, versatile, and affordable motion-capture solution.

Design Challenges

Noitom's Hi5 VR Glove provides wireless, full-finger action via a series of inertial measurement unit (IMU) sensors that can accurately relay un-occluded motion data from the glove to a computer in real time. Developing the glove, the engineering team had to meet tough requirements for high efficiency, low quiescent current, large input range, low startup voltage, and tiny size. The Perception Neuron motion capture system is based on an IMU consisting of a gyroscope, accelerometer, and magnetometer. Proprietary Embedded Data Fusion, Human Body Dynamics, and Physical Engine algorithms deliver smooth and true motion with minimal latency. To create the motion capture system, the engineering team needed to design a system that is able to support a high data rate and low current consumption in a small form factor.

Solution and Benefits

For the Hi5 VR Glove, the Noitom team found the underlying technology it needed in Maxim's **MAX17224** nanoPower boost converter. The MAX17224 provides 300nA quiescent supply current into OUT, 95% peak efficiency, and True Shutdown mode which disconnects the output from the input without forward or reverse current. For the Perception Neuron system, the company uses the **MAX14841E** 40Mbps, +3.3V, RS-485 half-duplex transceiver, which are optimized for high speeds over extended cable runs while maximizing noise tolerance. The company also uses a variety of other Maxim IC components in its solutions, including **MAX809S** 3-pin microprocessor reset circuits, **MAX14527** overvoltage protection devices, **MAX8887** low-dropout (LDO) linear regulators, **DS3231M** I2C real-time clock, and **MAX8881** LDO linear regulators with internal power-OK (POK) comparator.

For Noitom, Maxim's interface conversion devices met their requirements in areas such as maximum data rate, power supply, power consumption, package, and ESD protection. The power adjustment devices provided the input/output voltage range, efficiency, drive capability, ripple, package, and protection criteria needed for the company's solutions.

"Maxim ICs are making our products work in a more stable and reliable manner," said Dr. Dai. "Our trust in the Maxim brand is paying off."

Learn more at www.maximintegrated.com