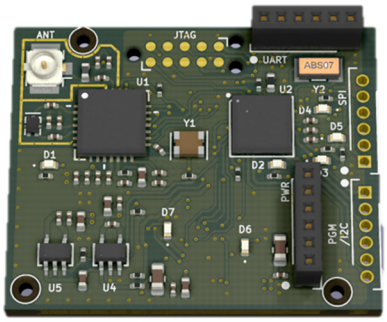
Ultra Low-Power GPS Receiver Stamp-Sized Module



Energy always comes at a premium with IoT & wearables applications because it is typically powered by a tiny battery. This is why using power hungry chipset receivers is often not a viable option.

Our snapshot receiver technology operates counter-intuitively by forcing the receiver to be always OFF to conserve the precious battery. Leveraging our patented signal processing techniques, our receiver only needs to be turned ON for a few milliseconds. In comparison, a conventional chipset receiver may require up to tens of seconds to compute the first position.

Applications for IoT and wearables typically require energy consumption to be kept to a minimum while position updates can range from a few times an hour to a few times a day, using our snapshot receiver, a small 100 mAh battery can last for about a year.

ULTRA LOW-POWER

Unlike conventional GNSS chipset, our receiver can extend your battery life by several orders of magnitude.

CLOUD-PROCESSING

Turn ON the receiver for milliseconds and offload the computationally intense tasks to our cloud server to reduce energy consumption significantly.

AUTONOMOUS

Receiver can be configured to compute positions autonomously without interacting with the cloud-server.

Our ultra low power GPS receiver is implemented in software using our patented advanced baseband processing algorithm that runs on a low-cost ARM™ Cortex M4 MCU. Compared to the hardware-based chipset receivers, software-based approach makes customizing our receiver to suit your unique application an option that you have never had.

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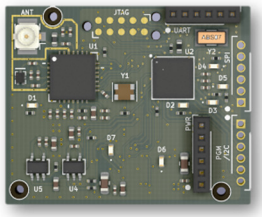
For evaulation or low volume applications, our stamp-sized receiver module has the RFIC front-end and an ARM Cortex-M4 MCU fully integrated to host the receiver algorithm. This feature-rich module allows you to configure the receiver to different operating modes that differentiate our receiver from the power-hungry GNSS chipset receivers.

If you prefer to design your own board, we have the stamp-sized receiver module implemented in a Reference Design package in open-source KiCad format. The Reference Design was designed to significantly reduce the implmentaton time and risks so that you don't have to starting from scratch.

If you prefer a different board dimension, using an MCU that you are more familiar with, firmware modification or an algorithm for your unique application, our consulting service would be happy to create a custom solution to suit your requirements or even solving any complex GNSS problems that you may have.

If you have any questions, please feel free to contact us at info@basebandtech.com.

Features and Benefits



- Ultra low-power energy consumption
- Ultra fast 2ms captures
- Ultra flexible operating modes
- Optimized for ARM™ Cortex-M4 MCU
- Autonomous or cloud-processing
- Compact message formats (11 – 81 bytes)

COMPACT MESSAGES

Expaning choice of standard and custom message formats (11 to 81 bytes in size).

HIGHLY CUSTOMIZABLE

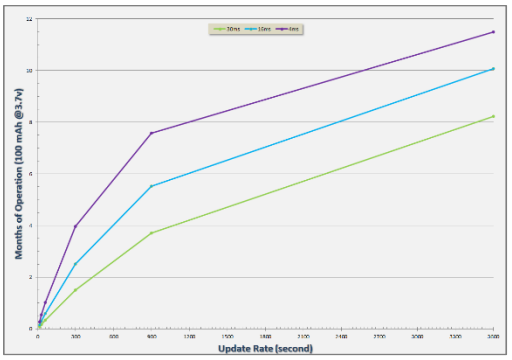
Our extremely flexible architecture means we can customize many aspects of our receiver to suit your unique application requirements however complex it might be.

ASIC IMPLEMENTATION

If you want to incorporate our technology in your ASIC or GNSS chipset, we can show you how.

Performance

- Captures user-determined length of I/Q data
- Pre-process I/Q data to obtain Doppler & measurement for each visible satellite
- Position accuracy: 5m CEP[1,2]
- Energy consumption: 7.8 - 25.58 uWh per snapshot[3]
- Time accuracy: 5ms[1,4]
- I/Q data capture length: 2 - 30ms[5]
- Outputs data via UART port[6]
- Message size[7]:
  - MS1: 11 bytes
  - MS5: 50 bytes
  - MS8: 81 bytes



Hardware Specifications

- UART, SPI, I2C and Power connectors
- U.FL active antenna connector
- Maxim Integrated™ MAX2769 RFIC
- Maxim Integrated™ MAX32632 MCU (Cortex-M4)
- LED indicators
- On-board power regulators

(1) Environmental conditions: No obstructions >15° elevation, min. 5 detected satellites, HDOP <2, converged to steady state and age of ephemeris <2 days.
(2) Calculated position shall be accurate to 5m CEP using 30 ms of data capture.
(3) Depending on sampling duration
(4) Calculated time of measurement shall be accurate to 5ms.
(5) 30+ms requires custom firmware.
(6) Output to SPI & I2C ports requires custom firmware.
(7) Custom message format available upon request.

If you have any questions, please feel free to contact us at info@basebandtech.com.