Synaptics' SYN4778 is a third-generation dual-frequency (L1/L5) GNSS receiver that is capable of innovative features like L5 acquisition and simultaneous tracking of multiple reflected signals from the same satellite. Voltage supply requirements are eased by integrating a high-efficiency single-inductor, multiple-output switching regulator.

The SYN4778 simultaneously supports GPS, GLONASS (GLO), NAVIC, BeiDou (BDS), Galileo (GAL), SBAS, and QZSS in both the L1/B1/E1 and L5/E5/B2a frequency bands. This industry-leading dual-band capability provides the most accurate positioning available in the market today.

To accommodate ever-growing satellites, constellations, and bands, the SYN4778 has increased tracking and acquisition capabilities.

The SYN4778 has a low noise figure, high-linearity analog radio where the external LNA and second SAW filter are optional, thus reducing the overall system bill of materials (BOM). The ultrasmall PCB footprint and reduced BOM provide flexibility in laying out PCBs and optimizing the RF input path, such that the SYN4778 can be placed near the antenna.

Features

- Massively parallel search and track engines.
- Capable of L5 acquisition.
- Low noise, high-linearity RF front-end, which optionally eliminates the need for an external LNA and a second SAW filter.
- Significantly improved LTE filtering.
- Configurable band support between L1 and L5.
- Configurable power modes.
- For out-of-band interference, radio settings are reoptimized.
- For near-band interference, the LTE filter is engaged if necessary.
- Standards support for AGPS applications, including GSM/UMTS/LTE (3GPP 44.031, 44.035, 25.331, and 36.355).

- Enhanced autonomous acquisition: multiday, multi-constellation long-term orbit (LTO) data accelerates the acquisition of satellite signals.
- Synchronization pulse input enables the SYN4778 to be synchronized to an external timing reference or to provide precise GNSS time to another device.
- A GNSS location library API with protocol engines for control-plane (RRLP and RRC) and user-plane (SUPL) interfaces.
- Autonomous, MS-based, MS-assisted, and enhanced autonomous GNSS operation. Enhanced autonomous operation includes LTO data for the GPS, GLO, GAL, and BDS constellations.
- Time-stamped GNSS data and a multi-second data buffer.
- High-speed host interfaces.
- Six programmable GPIOs.

Benefits

- Ultralow power consumption
- Ultrasmall PCB footprint
- Highest levels of urban multi-path mitigation
- Highest levels of navigation performance
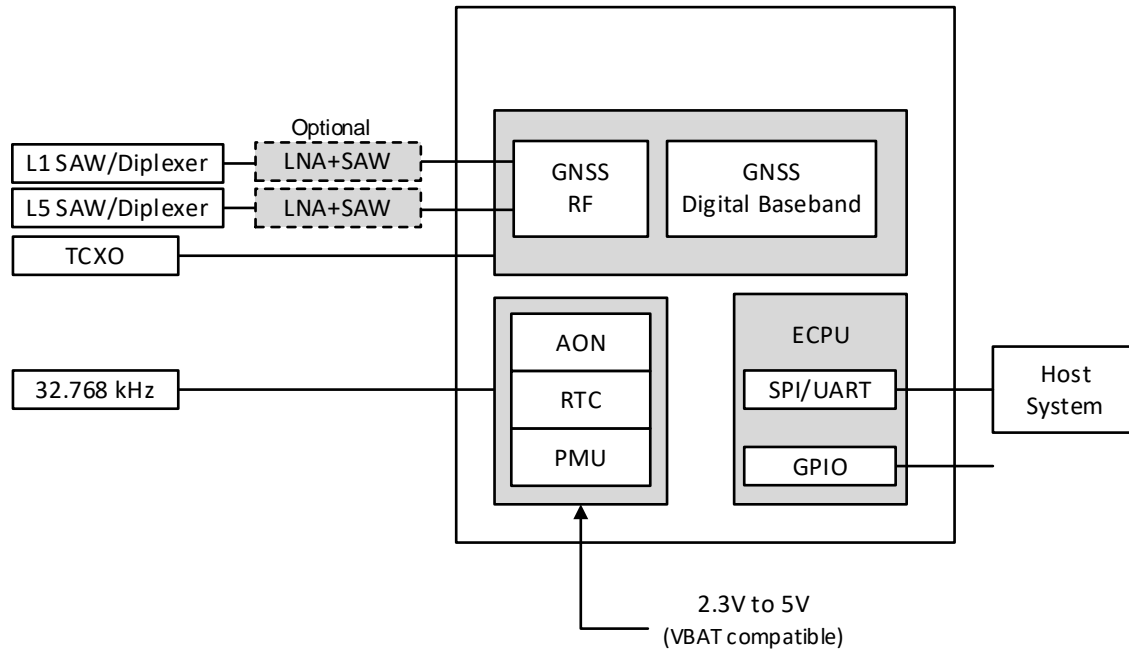- Industry-leading position accuracy

Applications

- Tablets
- Mobile accessories
- Wearables

Package

- 40-Ball FCBGA

SYN4778 Multi-band GNSS Receiver

Product Brief

System Block Diagram

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