



XEMICS

Product Brief
XE1610



XE1610

Low Power, Low Voltage GPS Receiver

Chipset for Hosted and Autonomous Platform

General Description

The XE1610 is a complete GPS receiver chipset optimized for high-volume, cost sensitive hand-held battery powered devices.

The XE1610 chipset is based on the advanced FirstGPS™ architecture and is shipped with its own software that runs on most 32-bit host processors. The navigation software is compatible with the NMEA standard interface, therefore suitable for most Mapping GIS end user programs.

The XE1610 chipset is aimed at custom integration. Full optimization of both target hardware and software platform is provided during the design-in phase.

Applications

- Palmtops/PDAs
- Mobile phones
- Watches/Wrist instruments
- Digital cameras
- Handheld receiver
- Transportation/Asset management
- Automotive

Key Product Features

Specifications

- L1 frequency, C/A code (SPS), 8 channels, continuous tracking receiver, 32 correlators
- Ultra low power, 2.7 V operation
- Update rate from 1 per second to 1 per minute
- High sensitivity: programmable to -143 dBm tracking (-173 dBW)

Accuracy

- Position: 5 meters CEP (50%) without SA (horizontal)
- Velocity: < 0.1 meter/second without SA
- Time: ± 400 nano-second (nominal)

Acquisition

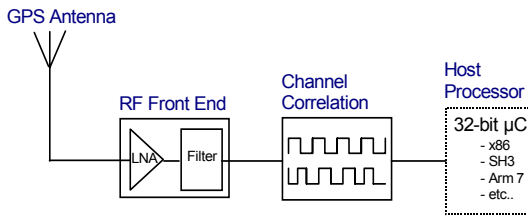
- Cold start: < 120 seconds (50%)
- Warm start: < 40 seconds (50%)
- Hot start: < 12 seconds (50%)
- Reacquisition: < 1 second

DGPS Ready

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Block Descriptions



RF Front End IC

Double conversion radio receiver with pseudo-baseband I/Q outputs, designed specifically for GPS.

Features:

- Supply voltage: 2.7 V
- Low power: ≈ 20 mW typical *
- Integrated VCO, no external components
- TSSOP-24 package

*With power-saving modes, the power consumption may be even further reduced.

Channel Correlator IC

Enhanced 8 channel GPS correlator, outputs measurements such as pseudo-range, carrier phase and doppler.

Features:

- Supply voltage: 1.8 V
- Low power: < 3 mW *
- Power management for both correlator and RF ICs
- SO16 package
- RS232 interface to the host processor

*With power-saving modes, the power consumption may be even further reduced.

Navigation Software

The navigation software API is processor and OS independent. It retrieves data from the correlator IC and produces position, velocity and time information.

Features:

- Runs on most 32-bit CPUs
- Requires 2 (steady state) to 4MIPS (peak) of processing power *
- Requires 40 kB to 80 kB of RAM *
- Requires 220 kB of ROM *

* for example on Hitachi SH2 / VxWorks / WindRiver IDE, or ARM7TDMI / Nucleus+, or StrongARM / PocketPC2002, or Pentium / Win2000

GPS Front End Design

For quick time to market and to ensure an optimized solution for each customer specific platform, XEMICS offer comprehensive design-in support. This includes:

- Port of the navigation software onto the target host processor platform.
- Optimization of the navigation software for the current OS or RTOS.
- Consulting and advice on the RF PCB design.
- Validation of the complete GPS solution.

Availability

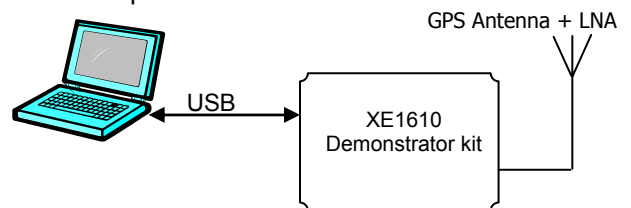
Both RF IC and Channel Correlator IC are fully qualified and in production. The chips are sold together in kit, along with the ported navigation software.

General Characteristics

- Operating temperature range -40°C to $+85^{\circ}\text{C}$
- Storage temperature -55°C to $+125^{\circ}\text{C}$
- Voltage on pins vs. V_{Gnd} -0.6 V to $+5$ V

Low Power GPS Demonstrator Kit

The XE1610 hosted GPS front end solution can be easily and quickly validated with the readily available low power GPS demonstrator kit.



Demonstration navigation software runs on a Windows 9x, NT based PC and communicates via a USB port, which emulates a COM port, directly with the GPS demonstrator kit. Information on satellite acquisition, coordinates, velocity, time, almanac and reception sensitivity is displayed on the PC.



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