

XE1610-OEMPVT

OEM GPS Receiver

Reference Design 2.0 / 2.2

GENERAL DESCRIPTION

The XE1610-OEMPVT GPS Receiver Reference Design from XEMICS is a GPS receiver product featuring the revolutionary FirstGPS[®] architecture. This complete enabled GPS receiver solution provides high position and speed accuracy performances as well as high sensitivity and tracking capabilities in urban canyon conditions. The solution enables a small form factor package. The XE1610-OEMPVT delivers major advancements in GPS performances, accuracy, integration, computing power and flexibility. It is designed to simplify the embedded system integration process.

The FirstGPS is a mixed hardware/software architecture based on the XE16BB10 advanced channel correlator IC and its companion RF down-converter.

APPLICATIONS

- Automotive
- Asset management/tracking
- Palmtop, Laptop, PDA
- Location Based Services enabled devices
- Handheld receivers

KEY FEATURES

- High sensitivity: to -143 dBm tracking, superior urban canyon performances
- Position accuracy: < 5m CEP (50%) without SA (horizontal)
- Warm Start is under 32 seconds (50%)
- Hot Start is under 12 seconds (50%)
- Ultra low power: 17 mA @ 3 Volts, full power
- Embedded ARM7TDMI
- Small form factor and low cost solution
- Ready-to-plug solution, fully autonomous PVT solution.
- Easily integrated into existing systems
- On-board RAM for GPS navigation data, on-board Flash memory back-up
- PPS output
- Bi-directional NMEA interface
- Real Time clock with separate back-up power supply

REFERENCE

- XE1610-OEMPVT 2.0.C – 4MB Flash option
- XE1610-OEMPVT 2.2.C – 16MB Flash option

FirstGPS ARCHITECTURE HIGHLIGHTS

Industry Leading GPS Performance

Builds on high performance FirstGPS core Satellite signal tracking engine to perform GPS acquisition and tracking functions without CPU intervention
 High sensitivity: to -143 dBm tracking, superior urban canyon performances
 Position accuracy: < 5m CEP (50%) without SA (horizontal)
 Warm Start is under 32 seconds (50%)
 Hot Start is under 12 seconds (50%)

Low Power

Ultra low power integrated circuit design, optimized RF and DSP architectures
 Further power saving thanks to 4 different power down mode

XE1610-OEMPVT GPS Receiver Reference design Highlights

Embedded AT91 MCU, ARM7TDMI-based
 Small form factor
 Low cost
 Ready-to-plug solution, fully autonomous PVT solution. Easily integrated into existing systems
 High signal acquisition & tracking performances
 On-board RAM for GPS navigation data. On-board Flash memory is used to back-up data such as the Almanac
 PPS output
 On-board RTC can be supplied by a separate back-up power supply if the main supply is turned off
 Application software can be customized for high volume applications (Flash memory)

PIN DESCRIPTION

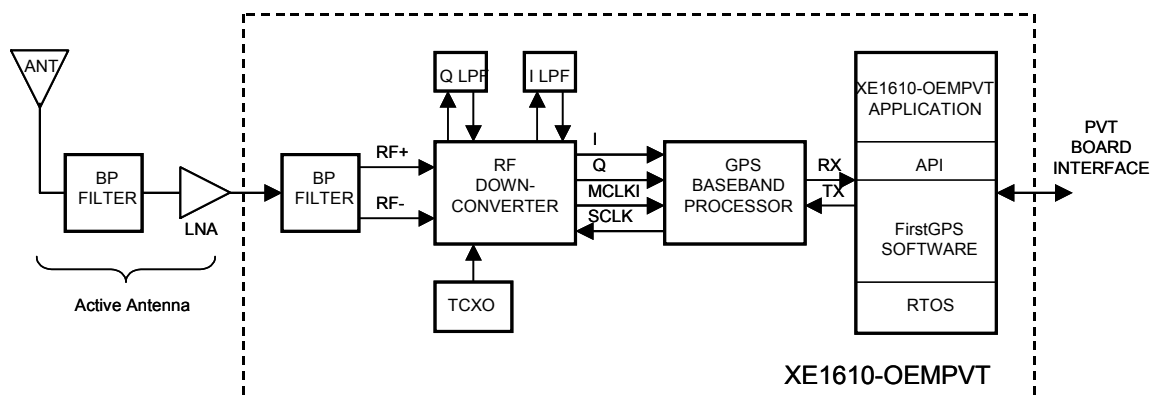
PIN	NAME	DESCRIPTION
1	GND	Power and Signal Ground
2	ON/OFF	ON / Off command line
3	VCC	3.0 to 3.6 Volts DC Input Power Supply
4	USPED	UART Speed
5	RXA	Serial Receive Data, Port A, GPS NMEA Data
6	VRTCBK	Back-up supply for the RTC
7	TXA	Serial Transmit Data, Port A, GPS NMEA Data
8	PPS	One Pulse Per Second timing output
9	GND	Power and Signal Ground
10	RESETN	Manual Reset, Active low
11	ALMRDY	Almanac full and up to date, output
12	STY1	for future use
13		N.C.
14	DELPOSN	Delete Initial Position
15		N.C.
16	STANDBYN	Stand-by (Active Low)

PHYSICAL CHARACTERISTICS

The XE1610-OEMPVT is demonstrated as 25 x 30 x 9.5 mm (approx. 1.0" x 1.2" x 0.38") module.

This design has an operating temperature range between -40C and +85C

FUNCTIONAL BLOCK DIAGRAM



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