GPS1005
OpenSource GPS Receiver

Introducing the GPS1005 OpenSource Receiver for educational, engineering, scientific and R&D applications.

Key Features

- Open Source Code

- PCI Design PC/Mac Compatible

- 12 Parallel Channels/WAAS Capable

- Multiple Screen Displays plus NMEA Output

- Interface and Configuration Ease

GPS Creations

Innovative Features

The all new GPS1005 receiver addresses the need for OpenSource GPS development on current PC hardware technology using a PCI bus design. OpenSource GPS is a very different approach to GPS receiver design providing a way for the user to experiment and tailor the application to specific requirements. The GPS1005 allows the user to program the receivers' software where various functions can be examined; a feature not offered on most other commercial GPS receivers.

The actual real-time 50 b.pb.s. data information transmitted by the GPS satellites is available for examination and further analysis. It is easy to see how the satellites are synchronized together as the individual pages and sub-frames are decoded. One can examine, even modify the frequency and C/A code tracking loops!

OpenSource Hardware

The GPS1005 PCI bus card uses a PLX Technologies 9052 Integrated Circuit to interface to the PC. An Altera EPLD IC is used for control of the signal switching between the PLX 9052 and the GP2021 GPS correlator IC. The OpenSource code has been modified to permit automatic and dynamic PCI bus addressing. PLX Technologies has assigned a sub-system ID to GPS Creations for use with the GPS1005 board. The RF section consists of Zarlink Gp2015 and GP2021 IC's. All of the hardware schematics, EEPROM and EPLD firmware code is included.

OpenSource Software

The GPS1005 Receiver is supplied with GPS OpenSource code. The software displays all 12 satellite channels, PRN numbers, reception status, lat/lon/ele, sub-frame number, carrier phase information, etc. In addition, the Borland C++ compiler is included to allow one to make modifications as desired.

Applications

The GPS1005 OpenSource Receiver is ideal for a wide range of GPS applications including:

- Educational
- Engineering
- Scientific
- Research & Development

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The GPS1005 OpenSource Receiver features a plug-in RF section called the GPSRF board (part number GPS500 - available separately to those who have purchased a GPS1000, GPS1005 or other designs using the GPSRF plug-in board). This smaller board contains two IC's - a RF chip and a GPS correlator chip. The GPSRF board has been designed to adapt to several different host board configurations. The GPSRF board is capable of being interfaced to single board computers (SBC's) or custom host processor boards. Using the GPS1005 as an evaluation system will help the user gain a greater knowledge and familiarity with GPS receiver design and become better equipped to utilize the GPSRF board in varied applications.

What do you get? The GPS1005 OpenSource Receiver is supplied complete with the hardware and soruce code that make all the above possible (no kits or circuit boards to assemble), The RF section of the receiver is integrated into a PCI bus card that installs in a PC. The PC runs the object code that is generated with the Borland C++ compiler included in the package. The CD includes a manual on C++ plus various examples of source code. All this is available at a fraction of the cost of most other GPS educational packages.

STANDARD FEATURES

- PC based solution (Requires X486 or later, 100MHz)
- OpenSource code
- 12 parallel channels
- L1 band (1575.42MHz) operation
- C/A code (1.023MHz chip rate)
- Two serial ports implemented in hardware (not active in current version of OpenSource code)

PHYSICAL CHARACTERISTICS

Size: 174.6 x 106.7mm (PCI Card)
(6.875 x 4.2 in.)
Weight: 198g (7 oz.)
Power Consumption: 250mA max @ 5 volts
Operating Temperature: 0° to 55° C

TECHNICAL SPECIFICATIONS

- RF Sensitivity: -135dBm for tracking
- TTFF: <30 sec hot start (with current almanac, ephemeris, time and position)
<60 sec warm start (with current almanac, time and position)
<15m cold start (with current time and position)
- Accuracy:
Position: 25m 2dRMS without S/A
Timing: 1pps<500 Nanoseconds (1 Sigma) of GPS
- Antenna connector: SMA female (on the ISA Card)
- GPSRF plug-in board (can be used on future upgrades)
Consists of Zarlink GP2015 RF and GP2021 correlator IC's
- Warranty: One year parts and labor FOB Mission Viejo, CA (Condition must be as original and unmodified)

ORDERING INFORMATION

PCI BUS OpenSource Receiver   **Part Number - GPS1005**

GPS Antenna Kit   **Part Number - GPS1010**

Visit us on the web at gpscreations.com for more information

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GPS Creations follows a policy of continuous product improvement; specifications and descriptions are therefore subject to change without notice. Please contact GPS Creations for the latest product information. Performance characteristics are subject to GPS system variables, US DOD operational degradation, ionospheric conditions, satellite geometry, signal multipath and assumes S/A is turned off.