SONY

Sony's GPS Receiver Module

Development of GPS Receiver-Based Product for Automobiles

With the coming of the information age, Mobile Internet access, wireless phones, security systems, audio/video entertainment units, and other electronics-based products are becoming the basic equipment for vehicles. This will become more prevalent as costs drop driven by new technologies.

A popular automobile electronics manufacturer has developed a next generation multi-media system, which integrates wireless phone, Global Positioning System (GPS) receiver, audio/video entertainment unit and controller. The system can communicate between service centers and the vehicle to bring more safety, security, convenience, and entertainment to automobile passengers. The role of the GPS receiver in this multi-media system is to provide services such as:

- Car navigation assistance: Driving directions can be provided on the vehicle's video display or over the phone from a service center
- Automatic accident reporting to a service center
- Locating a stolen vehicle

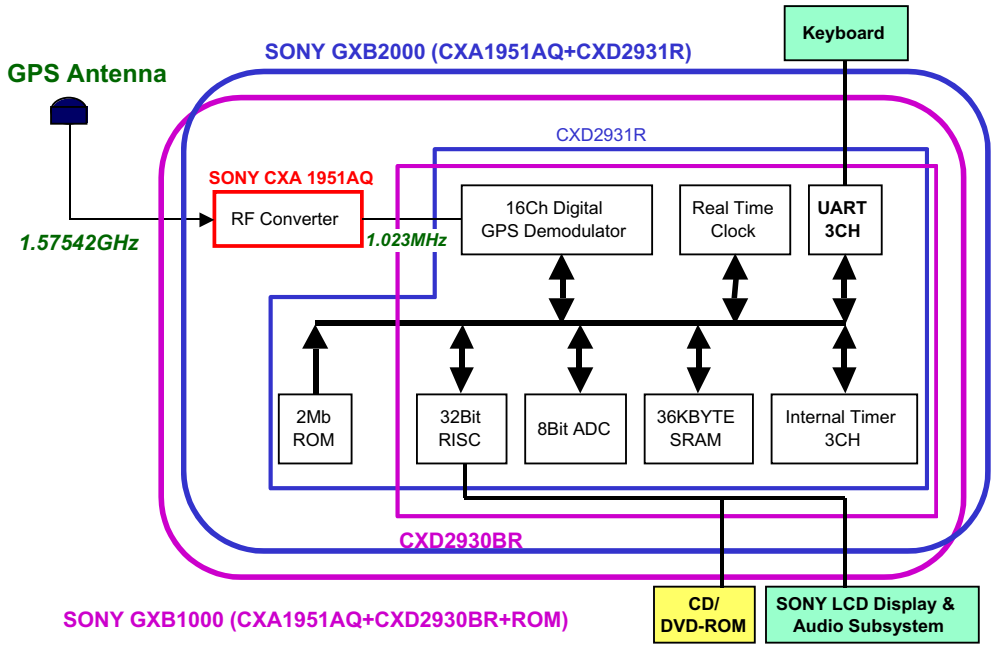

Figure 1. Sony GPS Receiver Module in GPS Navigation System

Why customers choose the Sony GPS Receiver Module

Sony Electronics has played an important role in the integration of the GPS receiver to the next generation multi-media system for our automobile electronics manufacturing customer.

The main challenge for Sony and its customer was that the customer had never worked with a project using a GPS receiver before developing this multi-media system.

During this project, Sony provided the customer with a GPS receiver module (GXB1000) for the GPS navigation system. Sony provided the best solution and field support to resolve issues for system integration and testing, especially in the areas of sensitivity and position degradation.

The final version of the GPS receiver module was tested and certified to meet our customer's requirements and project schedule. In addition to Sony's strong technical support and problem-solving capability, our GPS receiver module has the additional following advantages.

Sony GPS Receiver Module GXB1000/GXB2000

The GXB1000 is a 16-channel GPS receiver module, which is small and light, and includes all the functions required for GPS except the antenna. It can support various kinds of portable applications such as car navigation systems.

The GXB2000 includes all the functions of the GXB1000, plus 2Mbit of ROM integrated in the LSI CXD2931R (GPS Measurement System Chip).

GXB1000/GXB2000 Features

- 16-channel GPS receiver, which is capable of simultaneously receiving 16 satellite signals. Our competitors receive only 8-12 satellites, maximum
- Measurement method: All-in-view measurement or 2-satellite measurement
- 2-satellite measurement requires only 2 satellites to our competitors' 3-satellite
- DGPS (Differential GPS)
  - — RTCM SC104 version 2.1
    RTCM (Radio Technical Commission for Maritime service) is a DGPS standard protocol, which can receive corrections anywhere there are reference stations. The RTCM standard is supported by all manufacturers
  - — DARC BTA R-003 standard
    DARC (DAta Radio Channel) is a high speed FM multiplex broadcasting system for mobile service such as traffic information, paging data, or DGPS information. The DARC standard is defined by the BTC (Broadcasting Technical Association)
- Low power consumption (GXB1000, 275mW; GXB2000, 270mW)
- Small and light package type
- Reception sensibility is – 130dBm
- Hot Start: 7 to 20s (time, position, with ephemeris and almanac)

Roadmap of Sony GPS Receiver Module

The successful launch of the first generation of Sony GPS receiver module product has brought significant value to the most important customers in the automobile industry. Sony has committed to and will provide smaller, lighter and more cost-effective GPS receiver module products to our customers with the best features and support to meet their needs in automobile, wireless phone, personal and other GPS applications.