

SiRFstarII[™] Chip Set and SiRFNav[™] Software GPS Tracker Chip Set and Software for Consumer Products

ARCHITECTURE HIGHLIGHTS

SiRF's Industry Leading GPS available for Host System Applications

- Builds on high performance SiRFstarII
- GPS tracking engine chipset plus navigation software
- Signal acquisition using 1920 time/frequency search channels
- SBAS (WAAS, EGNOS, MSAS) support
- Satellite signal tracking engine performs GPS acquisition and tracking functions
- Multipath-mitigation hardware
- Cold Start averages 45 seconds

Low Power

- Only 175 mW at full power
- Snap Start mode allows reduced power fixes

Maximizes Position Availability

- SingleSat[™] updates in reduced visibility
- Superior urban canyon performance
- FoliageLock[™] for weak signal tracking
- Optional SiRFDrive[™] dead reckoning for continuous, reliable navigation

FAMILY HIGHLIGHTS

GSP2t- Digital Tracker IC

- Integrated Signal Processor acquires and tracks satellites autonomously
- Raw measurements and GPS data output via serial-port to host
- Uses on-chip high precision Real-Time Clock or host processor's RTC
- Analog to Digital converter for dead reckoning heading gyro or other input
- Odometer counter and forward/reverse indicator input
- On-chip UART

GRF2i/LP – Low Power RFIC

- On-chip VCO and reference oscillator
- Integrated LNA
- Uses less than 30mA's of current
- Simplified digital interface

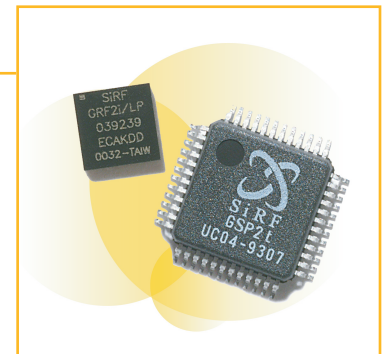
SiRFNav[™] Host Processor Software

- Runs on host system processor and memory
- Easily portable to multi-thread processors and operating systems
- Uses 300Kbytes ROM and 100Kbytes RAM, dependent on host
- Optional SiRFDrive[™] dead reckoning for continuous, reliable navigation

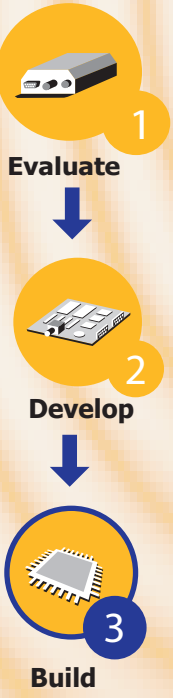
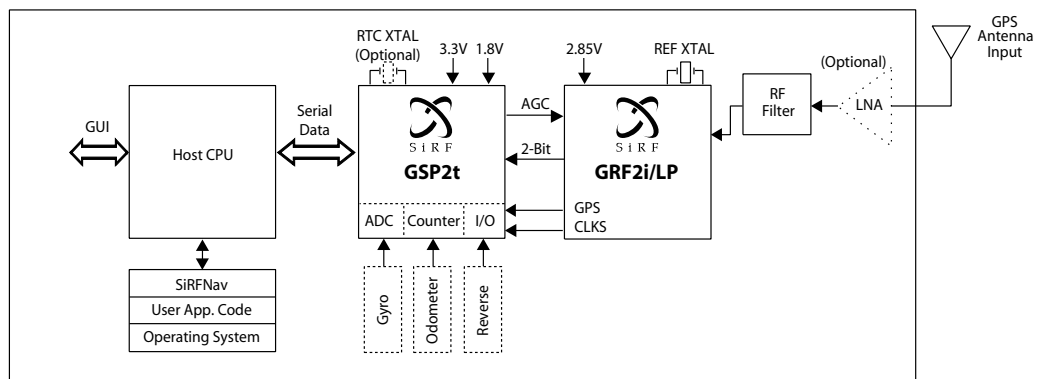
SiRFstarII[™] ARCHITECTURE

SiRFstarII[™] makes it easy and economical to add high-performance SiRFstarII technology to systems that are based on many popular processors and operating systems. The SiRFstarII solution allows GPS function to be added at minimal cost in components and circuit board area, by sharing the host system's processor, memory resources and Real Time Clock. The chipset acquires and tracks satellites, then sends raw measurements to the host processor running the SiRFNav software in parallel with the host applications. The SiRFNav software module computes position time and velocity. For enhanced accuracy and navigation reliability, SiRFDrive[™] dead reckoning data and SBAS corrections can also be processed.

The chipset consists of the GSP2t, highly integrated digital chip, GRF2i/LP integrated RF receiver and the SiRFNav software. The GSP2t is packaged as 7mm 48 pin LQFP packages and the GRF2i/LP is in a 5mm 32 pin QFN package. External components are minimized thanks to their high level of integration. SiRFNav software is designed for easy porting to most common host systems.



SiRFstarII[™] BLOCK DIAGRAM



TECHNICAL SPECIFICATIONS

Position Accuracy		
Autonomous	□	<10m
SBAS	□	<5m
Receiver		
Tracking	□	L1, CA code
Channels	□	12
Max. Update Rate	□	1Hz
Sensitivity	□	-172dBW
Max. Altitude	□	<60,000 ft
Max. Velocity	□	<1,000 knots
Protocol Support	□	SiRF Binary
Acquisition		
Reacquisition Time	□	100msec
SnapStart	□	<3sec
Hot Start	□	<8sec
Warm Start	□	<38sec
Cold Start	□	<45sec
Power		
Full Power	□	<175mW
Voltage		GRF: 2.85V, GSP: Core 1.8V, IO 3.3V

APPLICATIONS

The SiRFstarII is designed to be embedded into large volume applications that use multi-thread processors and real time operating systems. The SiRFstarII hardware can be added to the host motherboard within an area smaller than two centimeters square, and with minimal increment in bill of material. The accurate positioning and optimal built in dead reckoning sensor support provide optimum performance for automotive navigation and telematics systems. Small size and low cost also make the SiRFstarII the solution for portable devices such as hand-held navigators and Personal Digital Assistants where space and cost are critical.

The GSP2's on-chip wheel tick counter and analog to digital convertor for heading gyros make the SiRFstarII particularly well suited to automotive applications. The SiRFDRive closely coupled dead reckoning software combines GPS and DR measurements to provide continuous and accurate navigation in the most challenging operating environments such as urban canyons and tunnels. GPS measurements calibrate the dead reckoning sensors allowing the use of economical hardware, while dead reckoning data optimizes and cross-checks the GPS solutions.

CHIP ORDERING CONFIGURATION

RF CHIP PACKAGE

Chip Name	Chip PN	Package
SiRFstarII GRF2i/LP	GRF2i/LP-0214	QFN, 32 pin

DIGITAL CHIP PACKAGE

Chip Name	Chip PN	Package
SiRFstarII GSP2t	GSP2t-7200	LQFP, 48 pin

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