SiRFstarIIe/LP Chip Set
A Low Power GPS Chip Set for Consumer Products

ARCHITECTURE HIGHLIGHTS

Industry Leading GPS Performance
- Builds on high performance SiRFstarIIe
- Architecture supports user task integration
- Signal acquisition using 1920 time/frequency search channels
- SBAS (WAAS and EGNOS), and DGPS support
- Multipath-mitigation hardware
- Cold Start under 45 seconds

Low Power
- Under 175 mW at full power
- TricklePower™ mode reduces power to under 60 mW
- Adaptive TricklePower intelligently switches between full and TricklePower.
- Push to fix reduces power by as much as 98%

Maximizes GPS Position Availability
- SingleSat™ updates in reduced visibility
- Superior urban canyon performance
- FoliageLock™ for weak signal tracking

FAMILY HIGHLIGHTS

GSP2e/LP - Flexible Digital IC
- Microprocessor throughput measured at up to 40 MIPS
- 8k of cache for improved throughput
- On-chip 1Mb SRAM for GPS navigation
- Integrated high-precision Real-Time Clock
- Extensive GPS receiver peripherals 2 UARTS, high speed serial bus, battery backed SRAM, >40 GPIO,

GRF2i/LP - Low Power RFIC
- On-chip VCO and reference oscillator
- Integrated LNA
- Uses less than 30 mA's of current
- Simplified digital interface

GSW2 Modular Software
- Easily integrated into existing systems
- 95% CPU throughput available for user tasks
- Tunable performance in all applications
- Robust development environment
- Compatible with SiRFloc and SiRFXtrac

SiRFstarII ARCHITECTURE

SiRFstarIIe/LP architecture sets the standard for high volume GPS performance. The SiRFstarIIe/LP still uses 1,920 corrolators and 12 channels to provide fast acquisition and re-aquisition times, while keeping peak current to under 65 mA. TricklePower extends battery life even further by reducing average current to under 20mA. Now superior performance features like SingleSat, SnapLock, and FoliageLock are available using less power.

The chipset consists of the GSP2e/LP, a highly integrated digital chip with 40 MIPS of processing power and the GRF2i/LP, a lower power version of the GRF2i integrated front end. The GSW2 software completes the package providing flexible system architechture for stand-alone GPS based products. The SiRFstarIIe/LP also supports SiRF's high sensitivity stand alone software, SiRFXtrac and mult-mode software,SiRFLoc. When low power, low cost, and high performance matter SiRFstarIIe/LP is the best solution.
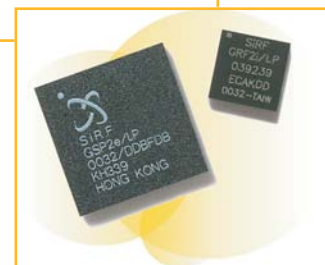
SiRFstarIIe/LP BLOCK DIAGRAM

- Evaluate **1**
- Develop **2**
- Build **3**
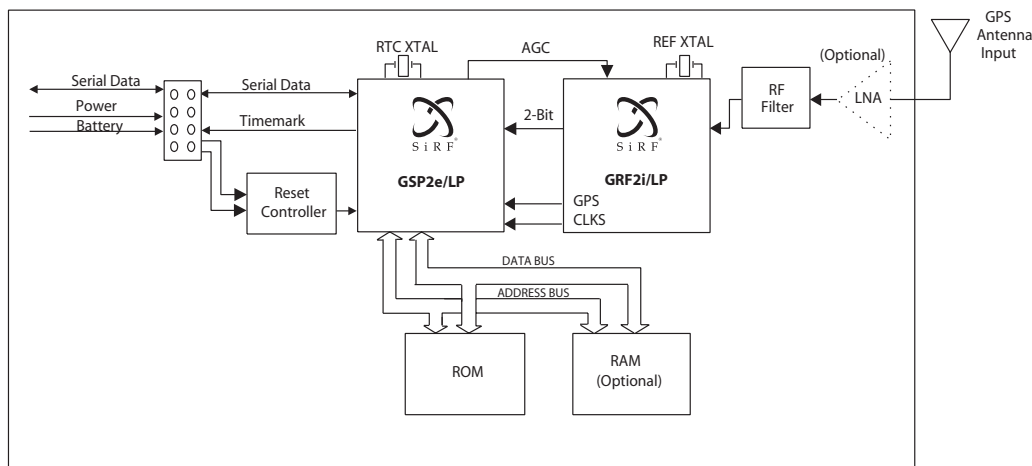
TECHNICAL SPECIFICATIONS

Position Accuracy
Autonomous	<10m
WAAS	<5m
Beacon DGPS	<2.5m

Receiver
Tracking	L1, CA code
Channels	12
Max. Update Rate	10Hz
Sensitivity	-172dBW
Max. Altitude	<60,000 ft
Max. Velocity	<1,000 knots
Protocol Support	NMEA, SiRF Binary

Acquisition
Reacquisition Time	100msec
SnapStart	<3sec
Hot Start	<8sec
Warm Start	<38sec
Cold Start	<45sec

Power
Full Power (S2AM Module)	<175mW
TricklePower (1Hz)	<60mW
Voltage	2.7-3.3V (5V I/O capable)

Processor
Processor Type	ARM7/TDMI
Processor Speeds	6MHz, 12.5MHz, 25MHz, 49MHZ
Data Bus	16 Bit or 32 Bit
Ports	>40 GPIO

Specifications above are for GSW2

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APPLICATIONS

The SiRFstarIIe/LP is a flexible low-power GPS chip set that integrates into a postage-stamp sized receiver. It works well where GPS is the main function such as handheld GPS, marine GPS, or personal locators or where the design calls for stand-alone GPS functionality such as GPS integrated into the batteryback of a cell phone or in an add on compact flash card. The excess processing power can be used for user tasks such as running an LCD or controlling an Automatic Vehicle Location module.

CHIP ORDERING CONFIGURATION

RF CHIP PACKAGES
Chip Name	Chip PN	Package
SiRFstarII GRF2i/LP	GRF2I/LP-0210	LQFP, 48 pin
SiRFstarII GRF2i/LP (QFN)	GRF2I/LP-0214	(LPCC), 32 pin

DIGITAL CHIP PACKAGES
Chip Name	Chip PN	Package
SiRFstarII GSP2e/LP	GSP2E/LP-7450	TQFP, 16-bit, 100 pin
SiRFstarII GSP2e/LP	GSP2E/LP-7451	BGA, 16-bit, 144 pin
SiRFstarII GSP2e/LP	GSP2E/LP-7460	LQFP, 32-bit, 144 pin

ADDITIONAL SOFTWARE OPTIONS

SiRFXtrac (High Sensitivity stand alone software)
SiRFLoc (High Sensitivity multimode software)

For more information, contact your SiRF representative, call our sales force on +1 (408) 467-0410, or visit us at www.sirf.com.

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