

Hammerhead™ II

PMB 2525



The Industry's Highest Performance GPS Receiver in the smallest package yet.

Hammerhead II delivers all the performance of its predecessor, while achieving a new benchmark for high performance Positioning & Navigation integration into mobile devices.

USING CHIP scale packaging (CSP) technology, its size (3.59 x 3.75 mm²) now offers possibilities of integration into the miniaturizing world of mobile handhelds.

Hammerhead II integrates a high performance A-GPS baseband processor and a low-noise GPS RF front end. It comes packed with new software features such as advanced multi-path mitigation that avoid large errors in urban environments caused by reflected signal-in buildings and other structures.

Key Features and Benefits

- Single-chip minimizing board space (< 50 mm² PCB area for complete A-GPS solution)
- Advanced low-power 0.13 μ RFCMOS technology with smart power management
- Real-time hardware correlator engine (fast acquisition and high sensitivity)
- High sensitivity, -160 dBm, enabling indoor and deep urban operation
- Built-in voltage regulators supporting single-power supply source
- Multiple-mode operation
 - MS-based (calculation of position in mobile handset)
 - MS-assisted (calculation of position in base station)
 - Autonomous (no assistance by network)
 - Enhanced autonomous (using four day assistance data)
- Multiple protocol operation
 - Control plane (RRLP & RRC)
 - User plane (SUPL)
- A-GPS control software enables non disrupting call flow and ease integration
- Standard compliant (exceeds requirements for 2.5 G and 3 G networks)

Note: The Hammerhead trade mark is owned by Global Locate, Inc

Specification

- -160 dBm sensitivity
- Time-to-First Fix (Mobile-Based)
 - 1 second @ 5 m accuracy (cold start, -130 dBm)
- 2 m steady state accuracy
- Reference frequencies: 10 – 40 MHz
- Assistance data standards support
 - UMTS/GSM: 3GPP TS 25.331, TS 44.031, and OMA SUPL
 - CDMA: 3GPP2 C.S0022-0-1

Devices

- Mobile phones
- Smartphones
- PDAs
- PND (Personal Navigation Devices)

Applications

- Emergency Assistance (E911, E112)
- Navigation: Point-to-Point, POI, Business finder, Real-time Traffic information
- Child safety and Friend-finder
- Fleet and workforce management
- Location Games



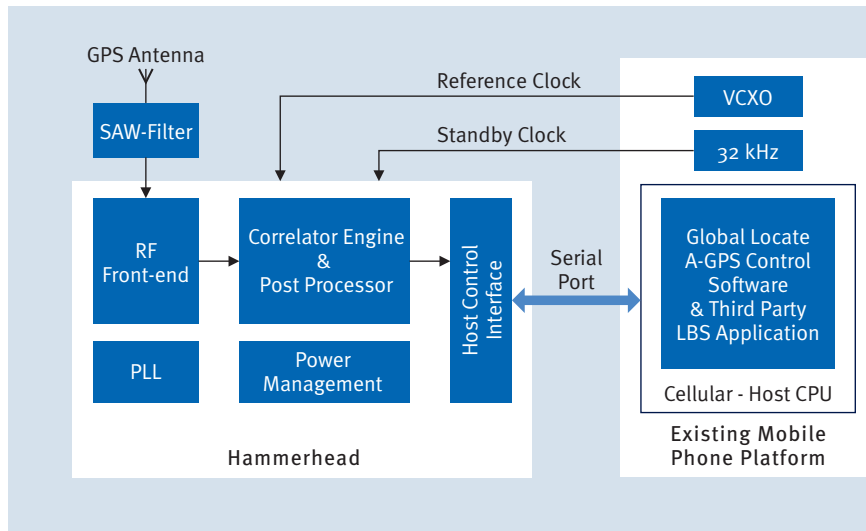
www.infineon.com/gps
www.globallocate.com

Communication Solutions



Never stop thinking

Block Diagram



- Cost-optimized architecture for integration into mobile phones
- No additional external CPU or memory required
- Both A-GPS control software and LBS (location based services) application executed on host CPU of cellular processor
- Serial host interface (UART, SPI or I²C)
- No additional TCXO required, uses host 32 kHz standby clock & reference clock (10 to 40 MHz)

Product Summary

Product	Sales Code	Package
Hammerhead II	PMB 2525	SG-UFWLB-49 (3.59 x 3.75 mm ²) lead-free/halogen-free

Application Examples

- **Personal Navigation:** Never get lost again in foreign cities. Your mobile phone is leading the way to your destination, whether you start indoors or outdoors. Avoid being delayed in traffic jams by utilizing real-time traffic information.
- **Location-based Services:** Finding the way to points of interest simplifies your life. Take the short way to restaurants in your neighborhood, the nearest gas station or metro station. Use your LBS application indoors to start planning your trip before you get in your car.
- **Emergency Assistance:** A-GPS-enabled mobile telephones are in demand to allow accurate tracking of emergency calls placed from mobile telephones by the end of 2005. Hammerhead II will enable mobile users calling emergency telephone codes to provide emergency services with very accurate location information, both from indoors and outdoors.
- **Friend-Finder and Child-Safety:** Meeting with friends and family is now an easy task by sharing your personal location. Keep an eye on the current position of your children and keep them away from dangerous places.

For further information on the Hammerhead product please contact Global Locate (www.globallocate.com) or Infineon Technologies (www.infineon.com/gps).

Advantages

Hammerhead II is based on Global Locate IP and state-of-the-art Infineon RFCMOS IP and process technology. This ground breaking chip is the key for enabling location-based services such as emergency assistance and personal navigation in deep urban canyons, in moving vehicles, and indoors.

Hammerhead II uses the proven host-based architecture pioneered by GL as the best fit for mobile devices as proven in mass market 2.5 G and 3 G devices shipping now. GL host-based architecture leverages some of the resources already existing in the mobile device without imposing a big CPU load (~ 3 – 6 MIPS) or any real time requirements. Hammerhead II uses standard serial communication interfaces with speeds as low as 38,400 bps. Global Locate's Host-based architecture yields the lowest system cost solution as well as the smallest footprint without compromising performance.

How to reach us:
<http://www.infineon.com>

Published by
Infineon Technologies AG
81726 Munich, Germany

© Infineon Technologies AG 2006.
All Rights Reserved.

Legal Disclaimer

The information given in this Product Brief shall in no event be regarded as a guarantee of conditions or characteristics ("Beschaffenheitsgarantie"). With respect to any examples or hints given herein, any typical values stated herein and/or any information regarding the application of the device, Infineon Technologies hereby disclaims any and all warranties and liabilities of any kind, including without limitation warranties of non-infringement of intellectual property rights of any third party.

Information

For further information on technology, delivery terms and conditions and prices please contact your nearest Infineon Technologies Office (www.infineon.com).

Warnings

Due to technical requirements components may contain dangerous substances. For information on the types in question please contact your nearest Infineon Technologies Office. Infineon Technologies Components may only be used in life-support devices or systems with the express written approval of Infineon Technologies, if a failure of such components can reasonably be expected to cause the failure of that life-support device or system, or to affect the safety or effectiveness of that device or system. Life support devices or systems are intended to be implanted in the human body, or to support and/or maintain and sustain and/or protect human life. If they fail, it is reasonable to assume that the health of the user or other persons may be endangered.

Ordering No. B130-H8965-X-X-7600
Printed in Germany
PS 010775 nb