# TGB2000S-IP, GPS Baseband IP Solution

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## Overview

- Navigation S/W can be ported into a customer host processor.
- Tailored for customer interface and applications
- High accuracy with adaptive processing against a variety of signal level and variation
- Integrated signal processing with navigation S/W against multipath environments
- Resource sharing techniques and configurable architecture
- Low power structure and managements
- Matured proprietary CDM technology

## Features

### High Performance GPS Navigation
- Adaptive operation for high sensitivity and dynamics
- Advanced tracking loop and filter techniques against multipath environments
- Patented fast acquisition architecture
- SBAS support
- Real-time raw data and timing control processing

### Multiple Environments Support
- Stationary, land vehicle, high dynamic airborne and military area

### Multiple Protocol Support
- NMEA protocol
- TGB protocol
- Satellites and PVT information
- Customer configuration and masks
- Test and monitoring

### A-GPS Support
- Fast position fix with aiding information

### Architecture Highlights
- GPS core H/W and host navigation S/W partitioning
- Flexible IP structure
  - Customizable GPS core structure for size optimized application
  - Customizable host and peripherals interface support (AHB/EMI, various peripherals)
  - Various IP type (netlist, GDS support)
  - BBR and RTC for hot start and navigation parameter storage
  - Expansive peripherals with UARTs, I2Cs, SPIs, Timers, Watchdog Timer, 1PPS, Interrupt controller, and GPIOs

### Applied Products
- RTLS-GPS chip (2009)
- WiFi-GPS connectivity chip (2010)

## Specifications

### Position Accuracy
| | |
|---|---|
| Autonomous CEP[1] | < 2m |
| SBAS | < 1.5m |

### TTFF[2]
| | |
|---|---|
| Hot | < 1s |
| Cold | < 30s |
| Aiding | < 1s |

### Sensitivity
| | |
|---|---|
| Acquisition | -145dBm |
| Navigation | -158dBm |
| Tracking | -162dBm |

### Receiver
| | |
|---|---|
| Tracking signal | L1 C/A, SBAS |
| Max update rate | 2 Hz |
| Protocol support | NMEA<br>TGB binary |

### Host I/F
- AHB
- EMI

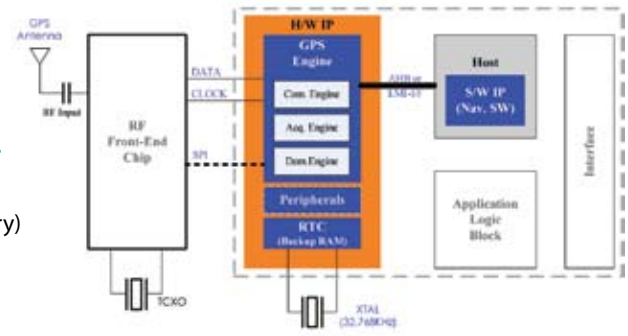
### IP Type
- S/W : Host Navigation S/W Lib.
- H/W : netlist, GDS

### Expansive peripherals
- UARTs
- I2Cs
- SPIs
- Timers
- 1PPS
- Interrupt Controller
- GPIOs

1. Static, -130dBm
2. 50%, -130dBm

## Interface

- GPS RF front-end chip interface
- Host CPU interface : AHB/EMI interface (can be customized)
- RF clock : TCXO (16,368, 16.367667 or 16.369 MHz)
- RTC clock : XTAL (32.768KHz)




## Host Requirements

- MIPS : ≥ 20 (Avg.)
- Memory : ≥ 256KB (program memory + data memory)
- Host I/F : EMI, AHB (or customized I/F)

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