HS-GNSS Software Receiver
Developed by SPCOMNAV-UAB under the ESA funded DINGPOS project

Technical Specifications:

+ Supported GNSS signals:
  - GPS L1, GPS L5
  - Galileo E1, Galileo E5a

+ Main features:
  - Snapshot receiver
  - High-sensitivity signal acquisition
  - Indoor operation via A-GNSS

+ Functionalities:
  - Extensive use of FFT processors for HS acquisition
  - Selectable integration time
  - Extended correlations with advanced non-coherent integration
  - Selectable linear / quadratic interpolation
  - Selectable fine acquisition / algebraic refinement

+ Ephemeris and A-GNSS capabilities:
  - Imports YUMA almanac files
  - Imports RINEX navigation files
  - Accepts assistance information from LBS
  - Imports XML formatted data compliant with 3GPP RRLP
+ Signal quality monitoring:  
  - C/N0 monitoring for visible SV  
  - Near-far detection  
  - Interference mitigation

+ Input signal interface:  
  - Real-valued IF samples  
  - Complex-valued baseband samples  
  - User-defined IF and sampling frequencies

+ User interface:  
  - Structure-oriented configuration file

+ Output interface:  
  - Matlab plots  
    - 3D plot with SV position  
    - SV correlation peaks  
    - SV estimated C/N0  
    - Estimated user’s trajectory  
    - Estimated user’s TOW  
  - Log file @ snapshot rate  
    - SV p-range  
    - SV estimated Doppler  
    - SV estimated position in ECEF coordinates  
    - Estimated user’s position and time

+ Position fixes:  
  - Push-to-fix receiver implementation  
  - No time stamp is required for position fixes  
  - No navigation bits are required for position fixes  
  - Coarse reference position with uncertainty up to 75km  
  - Correction of ionospheric/tropospheric errors

+ Acquisition performance:  
  - Sensitivity of 15dBHz  
    (90% detection, 5% false alarm, 3 sec. integration)

+ Optional software extensions:  
  - GNSS signal generator  
  - Multipath analysis tool  
  - GoogleMaps representation tool

+ Software requirements:  
  - Matlab 6.0 or higher  
    (with signal processing and statistics toolboxes)

+ Hardware requirements:  
  - CPU at 1.6GHz (or higher)  
  - RAM of 2GB (or higher)