UB4B0

All-constellation
GNSS High Precision Board

100 x 60 x 10 mm

Applications

- Ground-Based Augmentation System
- Surveying and Mapping

Product Characteristics

» Nebulas-II high-performance SoC, with 432 super channels and dedicated fast capture engine
» Support BDS, GPS, GLONASS, Galileo and QZSS, including Beidou-3 signal
» Support any single system standalone positioning and multi-system joint positioning
» Support multi-path suppression technology and low elevation angle tracking technology, adaptive anti-narrowband interference of up to 60 dB

Core Technology

» Adaptive anti-interference
» Multi-system multi-frequency signal processing
» Plenty of interfaces

Brief Introduction

UB4B0 is an all-system GNSS high-precision board based on Nebulas-II high-performance SoC, which is developed by Unicore Communications. It supports multiple satellite navigation systems, including BDS, GPS, GLONASS, Galileo and QZSS, and adopts triple-frequency RTK technology. It can be used in Ground-Based Augmentation System, high-precision positioning, surveying and mapping, etc.

Electrical Specifications

Voltage	3.3VDC +5%/–3%
LNA	4.75~5.10V, 0~100 mA
RTC	3.0-3.3 VDC
Ripple Voltage	100mVp-p(max)
Power Consumption	2.8W(Typical)

Physical Specifications

Dimensions	100 x 60 x 10 mm
Weight	45 g
IO Connectors	2x12pin
	2x8pin
Antenna Input	MMCX
External Oscillator	MMCX

Functional Ports

Serial Port	1 x UART (RS-232),
	2 x UART(LV-TTL)
Internet Access	1 x LAN,(10 / 100 M)
1PPS interface	2×1PPS (LVTTL)
External Input	EVENT MARK*

NOTE: The parts marked with * are optional configurations; B2b can be supported by firmware upgrade.

Performance Specifications

Channel	432 channels, based on NebulasII UC4C0 chip			
Frequency	BDS B1I/B2I/B3I/B1C/B2a			
	GPS L1/L2C/L2P(Y)/L5			
	GLONASS L1/L2			
	Galileo E1/E5a/E5b			
	QZSS L1/L2/L5			
Single Point Positioning(RMS)	Horizontal: 1.5m	Vertical: 2.5m		
DGPS (RMS)	Horizontal: 0.4m	Vertical: 0.8m		
RTK(RMS)	Horizontal: 0.8cm + 1ppm	Vertical: 1.5cm + 1ppm		
Cold Start	<40s	Time Accuracy (RMS)	20ns	
Reacquisition	<1s	Velocity Accuracy(RMS)	0.03m/s	
Initialization Time	<5s (Typical)	Differential	RTCM V3.0/3.2	
Initialization Reliability	> 99.9%	Data Format	NMEA-0183,Unicore	
Data Updating Rate	20Hz			

Observation Accuracy (RMS)	BDS	GPS	GLONASS	Galileo
B1/B1C/L1 C/A/G1/E1 Code	10cm	10cm	10cm	10cm
B1/L1 C/A/G1/E1 Carrier Phase	1mm	1mm	1mm	1mm
B2/L2P(Y)/L2C/G2/E5b Code	10cm	10cm	10cm	10cm
B2/L2P(Y)/L2C/E5a Carrier Phase	1mm	1mm	1mm	1mm
B3/B2a/L5/E5a Code	10cm	10cm	10cm	10cm
B3/B2a/L5/E5a Carrier Phase	1mm	1mm	1mm	1mm

Environmental Specifications

Operating Temperature	-40°C~+85°C
Storage Temperature	-40°C~+85°C
Humidity	95% Non-condensing
Vibration	GJB150.16-2009, MIL-STD-810
Shock	GJB150.18-2009, MIL-STD-810