

UB4B0

All-constellation
GNSS High Precision Board



100 x 60 x 11.4 mm

Product Characteristics

- » Based on Nebulas-II high-performance SoC, with 432 channels
- » Supports GPS, BDS, GLONASS, Galileo and QZSS, including Beidou-3 signal
- » Supports any single system standalone positioning and multi-system joint positioning
- » Multi-path suppression technology and low elevation angle tracking technology, adaptive anti-narrowband interference of up to 60 dB
- » Centimeter level high precision RTK positioning, better than 1 mm carrier phase observation
- » Supports serial port, Ethernet port, 1PPS, external clock input
- » Compatible with mainstream GNSS boards

Applications



CORS



Surveying and Mapping

Brief Introduction

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

Electrical Specifications

LNA	4.75 ~ 5.10 V, 0 ~ 100 mA
RTC	3.0 - 3.3 VDC
Ripple Voltage	100 mVpp
Power Consumption	2.8 W (typical)

Physical Specifications

Dimensions	100 x 60 x 11.4 mm
Weight	45 g
IO Connectors	2 x 12 pin 2 x 8 pin
Antenna Input	MMCX
External Oscillator	MMCX

Functional Ports

1 x UART (RS-232)
2 x UART (LV-TTL)
1 x LAN, 10 / 100 M
2 x 1PPS (LV-TTL)
1 x Event

NOTE: Items marked with * are supported by specific firmware.

Performance Specifications

Channel	432 channels, based on NebulasII chip			
Frequency	BDS B1I/B2I/B3I/B1C/B2a GPS L1/L2C/L2P(Y)/L5 GLONASS G1/G2 Galileo E1/E5a/E5b QZSS L1/L2/L5			
Single Point Positioning(RMS)	Horizontal: 1.5 m	Vertical: 2.5 m		
DGPS (RMS)	Horizontal: 0.4 m	Vertical: 0.8 m		
RTK(RMS)	Horizontal: 0.8 cm + 1 ppm	Vertical: 1.5 cm + 1 ppm		
Cold Start	< 40 s	Time Accuracy (RMS)	20 ns	
Reacquisition	< 1 s	Velocity Accuracy(RMS)	0.03 m/s	
Initialization Time	< 5 s (Typical)	Correction	RTCM V3.0/3.2	
Initialization Reliability	> 99.9%	Data Format	NMEA-0183, Unicore*	
Observation Update Rate	20 Hz*	Positioning Update Rate	20 Hz*	
Observation Accuracy (RMS)	BDS	GPS	GLONASS	Galileo
B1/B1C/L1 C/A/G1/E1 Code	10 cm	10 cm	10 cm	10 cm
B1/L1 C/A/G1/E1 Carrier Phase	1 mm	1 mm	1 mm	1 mm
B2/L2P(Y)/L2C/G2/E5b Code	10 cm	10 cm	10 cm	10 cm
B2/L2P(Y)/L2C/E5a Carrier Phase	1 mm	1 mm	1 mm	1 mm
B3/B2a/L5/E5a Code	10 cm	10 cm	10 cm	10 cm
B3/B2a/L5/E5a Carrier Phase	1 mm	1 mm	1 mm	1 mm

Environmental Specifications

Operating Temperature	-40 °C ~ +85 °C
Storage Temperature	-55 °C ~ +95 °C
Humidity	95% Non-condensing
Vibration	MIL-STD-810
Shock	MIL-STD-810