



UB4B0

GPS/BDS/GLONASS/Galileo Multi-system High Precision Board

Brief Introduction

UB4B0 is a multi-system GNSS high-precision board based on a new-generation Nebulas-II high-performance GNSS SoC developed by Unicore Communications. It supports BDS, GPS, GLONASS, Galileo and QZSS satellite navigation systems. The board adopts triple-frequency RTK technology and can be used for high-precision positioning, navigation and mapping, etc.

Multi-system and Multi-frequency Signal Processing

UB4B0 simultaneously tracks signals from BDS, GPS, GLONASS, Galileo and QZSS and supports tri-band signals from BDS, GPS and Galileo, delivering “instantaneous” RTK initialization and achieving 1-2 cm positioning accuracy. Even in shades or from a long distance, the board still obtains RTK positioning results quickly and reliably.

Nebulas-II GNSS SoC

UB4B0M is based on Unicore’s Nebulas-II multi-system, multi-core, high precision SoC. The SoC supports 432 channels, includes a built-in high performance ADC, an anti-interference unit, two 600MHz ARM processors and two precision floating-point processing units, providing powerful GNSS signal processing capability. capabilities.

Adaptive Anti-interference

Due to a powerful Nebulas-II chip and its high linearity, wide dynamic RF front-end design UB4B0 can effectively suppress narrow band and single-tone radio interference in the GNSS signals. Thus, the customers obtain accurate positioning results even in complex electromagnetic environments.

Rich set of interfaces

UB4B0 is also equipped with interfaces of serial port, USB port, Ethernet port, 1PPS, external clock, CAN and odometer, which can satisfy the needs of various applications. UB4B0 onboard LAN ports can support high-speed output of large amount of data and multiple data streams. It also supports network protocols of TCP / IP, FTP, NTRIP and HTTP.

Application Field

- Precision surveying
- Ground-based augmentation systems(GBAS)
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Basic Features

- Supports both single and multi-system positioning
- Advanced multi-path mitigation technology and low elevation tracking technology
- Supports serial port, Ethernet port, 1PPS and external timer, odometer interface
- Compatible with mainstream board interface and dimension

Product Characteristics

- Nebulas-II System-on-a-Chip
- 432 channels
- Supports BDS, GPS, GLONASS, Galileo and QZSS
- Supports BDS BD3 signal
- High precision RTK positioning
- Millimeter-level carrier phase observation



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Multi-system High Precision Board

Technical Specifications

Performance Specifications

Channel	432 channels, bases on	Cold Start	<25 s
	Nebulas-II chip	Hot Start	<10 s
Frequency	BDS B1 / B2 / B3	Recapture	<1 s
	GPS L1 / L2 / L5	Initiation Time	<10 s (Typical)
	GLONASS L1 / L2	Initiation Reliability	Larger than 99.9%
	GALILEO E1 / E5a / E5b	Differential Data	RTCM v2.3/3.0/3.2 CMR
	QZSS L1 / L2c / L5	Data Format	NMEA-0183, Unicore
	SBAS L1	Data Updating Rate	20 Hz
Single Point	Horizontal : 1.5 m	Positioning Updating Rate	20 ns
Position (RMS)	Vertical: 3.0 m	Time Accuracy(RMS)	0.03 m/s
RTK (RMS)	Horizontal : 1 cm + 1 ppm	Network Protocol	NTRIP、HTTP、FTP
	Vertical: 1.5 cm + 1 ppm		

Physical Specifications

Dimensions	100 x 60 x 11.4 mm
Weight	45 g
/O Connectors	2x12 pin
	2x8 pin
Antenna Input	MMCX
External Oscillator	MMCX

Electrical Specifications

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

Environmental Specifications

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

Functional Ports

Serial Port	1 x UART (RS-232),
	2 x UART(LV-TTL),
	460800bps
Internet Access	1 x LAN, (10 / 100 M)
USB Port	1 x USB 2.0 Host & Device
CAN Port	1 x CAN
Odometer	1 x wheel pulse,
	1 x driving direction
1PPS interface	2 x LV-TTL

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