UB4B0

GPS/BDS/GLONASS/Galileo All-Constellation Multi-Frequency High Precision Board

Brief Introduction

UB4B0 is the first system-wide GNSS high-precision board based on new-generation Nebulas-II high-performance SoC chips developed by Unicore Communications, supporting multiple satellite navigation systems and triple-frequency RTK technology including BDS, GPS, GLONASS, Galileo, SBAS and QZSS, mainly facing to applications of high-precision positioning, navigation and mapping, etc.

■Multi-system multi-frequency signal processing

UB4B0 can simultaneously track signals of BDS, GPS, GLONASS, GALIELO ,SBAS and QZSS satellite navigation systems, supporting triple-frequency signals of BDS, GPS and GALILEO. Due to more signals of satellite navigation systems and reliable triple-frequency RTK technology, UB4B0 can realize “immediate” RTK initialization, and achieve 1-2cm positioning accuracy. In scenarios of under tree and long distance, etc.,UB4B0 can still acquire reliable RTK positioning result.

■Self-adaptive anti-interference

UB4B0 is equipped with excellent self-adaptive anti-interference performance. Because of powerful Nebulas-II chips and the frontier high-linearity wide dynamic frequency design, the potential narrowband and single-radio interference signal of BDS, GPS, GLONASS and GALIELO signal bands can be effectively restrained by UB4B0. Signal to interference ratio can reach 60dB, ensuring customers to acquire accurate positioning results in complex electromagnetic environment of vehicles and drones, etc.

■ Onboard MEMS integrated navigation

UB4B0 integrates onboard MEMS chips and improved U-Fusion integrated navigation algorithm. In some complex environment of buildings, tunnels, viaducts and woods, etc., such technology can effectively resolve issues of interrupted positioning results brought by satellite signal obstruction, which can provide continuous, high-quality and high-output ratio positioning results. In addition, UB4B0 also supports odometer input and external high-precision IMU interface, which can provide better integrated navigation positioning performance.

■ Abundant device interfaces

UB4B0 provides abundant device interfaces, including serial ports, USB interface, and Ethernet interface. UB4B0 onboard ports can support high-speed output of big amount of data and multiple data streams, as well as supports WEB interface; USB interface can support high-speed data transmission and external USB storage device. In addition, UB4B0 is also equipped with interfaces of 1PPS, external clock, CAN and odometer, which can satisfy the needs of multiple applications on interfaces.

Application Field

- Precision surveying
- Continuous Operational Reference System(CORS)
- Deformation monitoring
- Precison Agriculture
- Mechanical control

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[1] Unicore Nebulas™-II (UC4C0) is multi-system multi-frequency high performance SoC chip, which supports all existing GNSS, including BDS B1/B2/B3, GPS L1/L2/L5, GLONASS L1/L2 Galileo E1/E5a/E5b and QZSS L1 CA L2C L5,SBAS.

Basic Features

- Brand-new Nebulas-II high-performance SoC chips
- Independent positioning of any random system and combined positioning of multiple systems
- Supports advanced multi-path resistance technology and low-elevation tracking technology
- Centimeter-level high precision RTK positioning
- Heading precision superior to 0.2 degree/1m
- Supports traditional access including serial ports, internet access, 1PPS, external clock input, etc.
- Supports CAN and odometer input interface

Product Characteristics

- 432 super channels and specific fast acquisition engines
- Supports BDS, GPS, GLONASS, Galileo, SBAS and QZSS
- Self-adaptive anti-narrowband interference can reach 60dB
- Onboard MEMS integrated navigation
- the interface and size are compatible with the mainstream boards

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Performance Specifications

Channel	432 channels, bases on Nebulas-II UC4C0 [1] chip
Frequency	BDS B1/B2 /B3
	GPS L1/L2/L5
	GLONASS L1/L2
	GALILEO E1/E5a/E5b
	QZSS L1/L2/L5
	SBAS L1
Single Point Position (RMS)	Horizontal：1.5m
	Vertical: 3.0m
RTK (RMS)	Horizontal：1cm + 1ppm
	Vertical: 1.5cm + 1ppm

Cold Start	<45s
Hot Start	<10s
Recapture	<1s
Initiation Time	<10s (Typical)
Initiation Reliability	Larger than 99.9%
Differential Data	RTCM 2.X/3.X CMR
Data Format	NMEA-0183，Unicore
Data Updating Rate	20Hz
Positioning Updating Rate	20ns
Time Accuracy(RMS)	0.03m/s
Network Protocol	NTRIP、HTTP、FTP

Physical Specifications

Dimensions	100 x 60 x 11.4 mm
Weight	45g
Operating	-40°C~+85°C
Storage	-55°C~+95°C
Humidity	95% non-condensing
Vibration	GJB150.16-2009,MIL-STD-810
Shock	GJB150.18-2009,MIL-STD-810

I/O Connectors	2x12 pin
	2x8 pin
Antenna Input	MMCX
External Oscillator	MMCX

Electrical Specifications

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

Functional Ports

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

CONTACT US

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