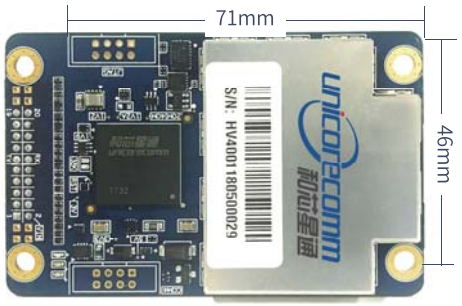

UB4B0M

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

Brief Introduction

Unicore UB4B0M is a compact RTK board particularly suitable for high precision positioning and navigation. Based on a proprietary Nebulas-II GNSS System-on-a-Chip (SoC), the board delivers low power consumption, millimeter-level carrier phase observations, centimeter-level RTK positioning and supports multi-path mitigation.

Multi-system and Multi-frequency Signal Processing

UB4B0M 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.

Adaptive Anti-interference

Thanks to powerful Nebulas-II chip and high linearity, wide dynamic RF front-end design, UB4B0M 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.

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.

Integrated MEMS Navigation

The UB4B0M integrates 6-axis on-board MEMS chip and U-Fusion INS algorithm, resulting in optimized continuity and reliability of accurate heading and positioning output in tough environments such as city canyons, tunnels and overpasses. The board also supports odometer inputs to provide better navigation and positioning performance.

Application Fields

- High precision surveying and mapping.
- Vehicle.
- Displacement and deformation detection.
- Precision agricultural
- Machine control

Product Characteristics

- Supports BDS B1/B2/B3; GPS L1/L2/L5; GLONASS L1/L2; Galileo E1/E5a/E5b; QZSS L1/L2/L5
- 432 channels
- Better than 1 mm carrier phase observation
- Centimeter-level RTK positioning
- Integrated MEMS navigation
- Mainstream board

Basic Features

- Multi system and multi-channel high performance SoC chip based on Nebulas-IItm
- Supporting single system independent location and multi system joint location.
- Support advanced multi-path mitigation technology.
- Support 3 serial ports, one 1PPS

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Technical Specifications

Performance Specifications

Channel	432 channels, based on Nebulas-II 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：1.5 m
	Vertical：3 m
DGPS(RMS)	Horizontal：0.4 m
	Vertical：0.8 m
RTK(RMS)	Horizontal：1 cm + 1ppm
	Vertical：1.5 cm + 1ppm

Cold start	<25 s
Warm start	<10 s
Reacquisition	<1 s
Initialization time	<5 s(typical)
Initialization reliability	>99.9%
Correction	RTCM v2.3/3.0/3.2
Data Output	NMEA-0183，Unicore
Data update rate	20 Hz
Location update rate	20 Hz
Time accuracy (RMS)	20 ns
Velocity Accuracy (RMS)	0.03 m/s
Dead Reckoning Error	<5% of distance travelled during GPS denied conditions

Observation accuracy	BDS	GPS	GLONASS	Galileo
B1/L1 C/A/E1 Code	10cm	10cm	10cm	10cm
B1/L1/E1 Carrier Phase	1mm	1mm	1mm	1mm
B2/L2P(Y)/L2C/E5b Code	10cm	10cm	10cm	10cm
B2/L2P(Y)/L2C/E5b Carrier Phase	1mm	1mm	1mm	1mm

Physical Specifications

Dimensions	46 × 71 × 11.5 mm
Weight	26 g
I/O Connectors	2 x 10 pin
Antenna input	1 × MCX

Electrical Specifications

Voltage	3V~5V DC
Ripple Voltage	100 mV p-p(max)
LNA	4.75 ~ 5.10 V, 100 mA
Power Consumption	2 W (typical)

Environmental Specifications

Temperature	Working：-40 °C~+85 °C
	Storage：-55 °C~+95 °C
Humidity	95% No condensation
Vibration	GJB150.16-2009,MIL-STD-810
Shock	GJB150.18-2009,MIL-STD-810

Functional Ports

Serial	3x UART (LV-TTL)
PPS	1x1PPS（LV-TTL）

CONTACT US

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