NebulasII UC4C0

All-constellation All-frequency High Precision GNSS Navigation and Positioning Baseband SoC

NebulasII UC4C0 is an all-constellation all-frequency high precision GNSS navigation and positioning baseband SoC developed by Unicore Communications. With 55nm low power consumption design and proprietary GNSS technology, the chip supports 12 digital intermediate frequencies or 8 broadband analog intermediate frequencies, and it tracks 15 navigation signals with 432 channels. There is an advanced anti-jamming module in the chip, which makes it possible to provide high-quality observation data and information about position and velocity even in complicated electromagnetic environment, providing high-reliability and high-performance service to users.

NebulasII UC4C0 is compatible with BDS/GPS/GLONASS/Galileo/QZSS, supporting both single-system standalone positioning and multi-system joint positioning. It has two 600MHz high-speed processors that integrate floating point units, and four 10bit dual-channel broadband ADCs, supporting eight 80MHz differential IF inputs. UC4C0 can be used with the broadband radio frequency chip to form a dual-chip solution, which can realize all-system all-frequency positioning and heading on a 30×40mm module.

Technical Characteristics

High Performance

- 432 channels, tracking all systems and all frequencies of GNSS
- Enhanced multi-frequency multi-system RTK technology, stable millimeter-level positioning

High Integration

- Built-in 4 dual-channel high-speed ADCs, simplified RF design
- Dual-core 600MHz processor, single chip to realize RTK and multi-antenna heading

High Reliability

- Built-in multi-frequency anti-jamming module

Target Market

UAV

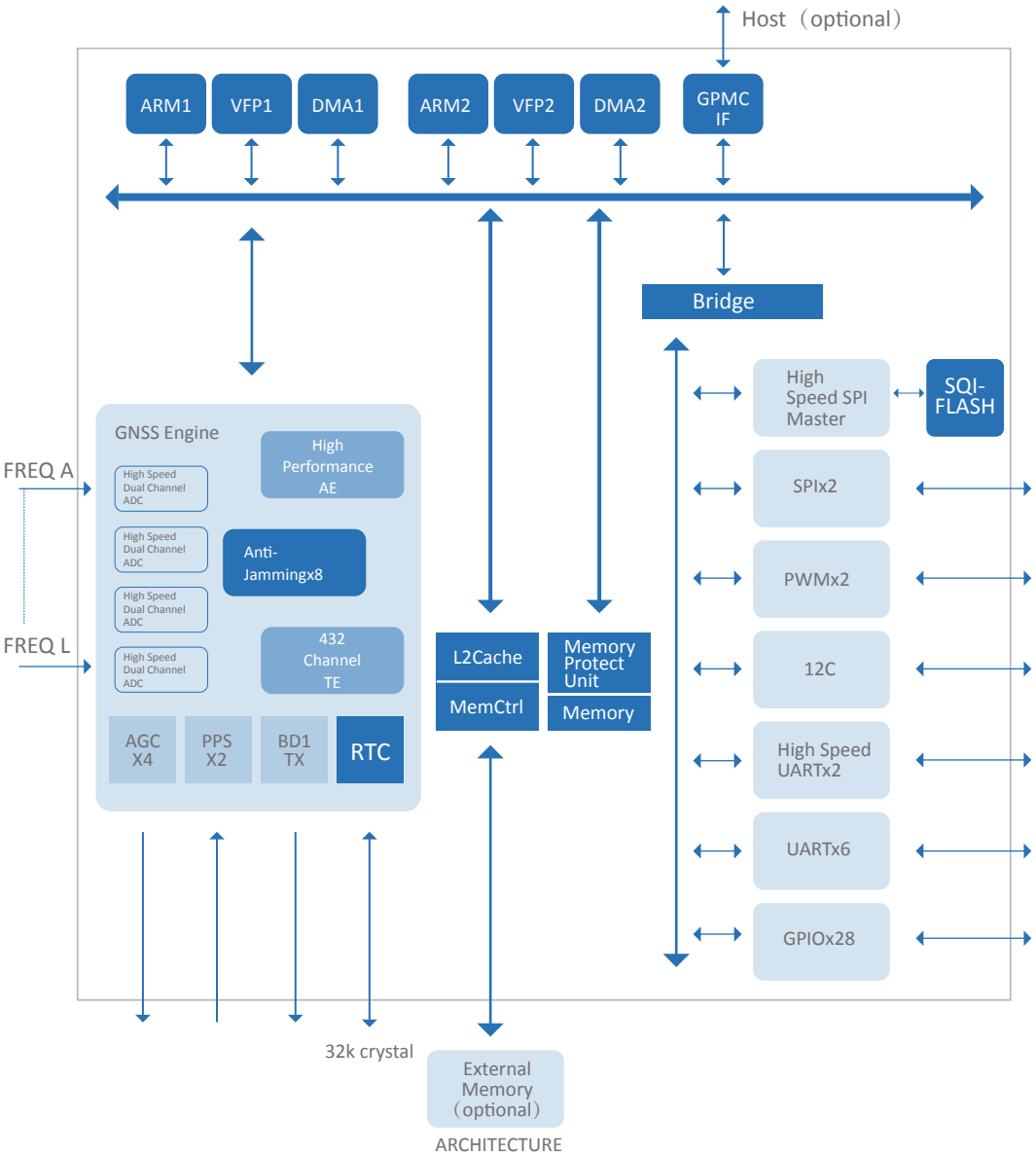
GIS Handheld Surveying and Mapping

Robot

CORS

Deformation Monitoring

Precision Agriculture



ARCHITECTURE

Performance Specifications

Channel	432
Satellite System	BDS B1I/B2I/B3I/B1C/B2a/B2b*
	GPS L1/L2C/L2P(Y)/L5
	GLONASS G1/G2
	Galileo E1/E5a/E5b
	QZSS L1C/A/L2C/L5
	SBAS
Frequency	15
Built-in CPU Frequency	600MHz
Positioning Accuracy	Single Point 1.5m
Heading Accuracy	0.2°/1m baseline

DGPS Positioning Accuracy	0.4m
RTK Positioning Accuracy(Horizontal)	0.8cm+1ppm
Velocity Accuracy	0.03m/s
Update Rate	100Hz*
1PPS	20ns
Power Consumption	1.0W@12 frequencies

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