

UM980

FEATURES

- Based on new generation GNSS SoC – Nebulus IV™, with integrated RF-baseband and precision algorithms
- 17.0 x 22.0 mm surface-mount package
- Supports all-constellation all-frequency on-chip RTK positioning solution
- Supports GPS L1/L2/L5, Glonass L1/L2, Galileo E1/E5a/E5b, Beidou B1/B2/B31, QZSS L1/L2/L5 and SBAS
- Instantaneous RTK initialization technology
- Independent tracking of each frequency and 60dB narrowband anti-jamming technology

PRODUCT BENEFITS

- 1408 channels
- Small footprint
- Centimeter-level RTK positioning
- Low power consumption of <500mW

EXAMPLE APPLICATIONS

- UAV, UVS, Robotics
- Survey and Mapping
- Machine Control
- Precision Agriculture

GPS / Glonass / Galileo / Beidou / QZSS High Precision RTK Module

UM980 is Unicore's new-generation proprietary high-precision positioning, based on the **Nebulus IV** SoC. The **UM980** simultaneously tracks multiple frequencies of all GNSS systems, enabling the module to output high-precision RTK positioning. The built-in advanced anti-interference technology ensures the **UM980** delivers reliable and accurate positioning data even in complex electromagnetic environments. Featuring extraordinary positioning performance and stability, **UM980** is a perfect choice for high precision navigation and positioning applications.

ALL-SYSTEM, ALL-FREQUENCY SIGNAL PROCESSING

UM980 simultaneously tracks signals from GPS, Glonass, Galileo, Beidou and QZSS systems and supports tri-band signals from GPS, Galileo and Beidou and QZSS, delivering "instantaneous" RTK initialization achieving centimeter level positioning accuracy. In areas of partial signal blockage or over long baseline distance, the **UM980** obtains RTK positioning results quickly and reliably.

RTK KEEP

RTK KEEP technology eliminates the positioning errors affected by satellite orbits, clock difference's, ionospheric and tropospheric delays by means of models and parameter estimation after the loss of base station data. Centimeter-level positioning accuracy can be maintained for up to 10 minutes.

NEBULAS IV™ SoC

NebulasIV™ is Unicore's latest generation proprietary GNSS SoC. By leveraging 22nm process node architecture, high-performance multi-mode baseband processor and embedded microprocessor, NebulasIV™ delivers superb performance and maintains low power consumption. The integrated RTK matrix processing technology allows the chip to deliver an enhanced and robust all-system all-frequency centimeter-level RTK position.

UM980 TECHNICAL SPECIFICATIONS

PERFORMANCE

| | |
|--------------|--|
| Channels: | 1408 channels, based on Nebulas-IV™ |
| Frequencies: | |
| GPS | L1C/A, L1C*, L2P(Y), L2C, L5 |
| Galileo | E1, E5a, E5b, E6* |
| Beidou | B1I, B2I, B3I, B1C, B2a, B2b* |
| GLONASS | L1, L2 |
| QZSS | L1, L2, L5, L6* |
| SBAS | L1 |

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|---------------------------------|--|
| Single Point Positioning: (RMS) | Horizontal: 1.5m Vertical: 2.5m |
| DGNSS: (RMS) | Horizontal: 0.4m Vertical: 0.8m |
| RTK: (RMS) | Horizontal: 0.8cm + 1ppm Vertical: 1.5cm + 1ppm |

PHYSICAL

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|-------------|------------------|
| Dimensions: | 17 x 22 x 2.6 mm |
| Package: | 54 pin LGA |
| Weight: | 1.88 +/- 0.03g |

ENVIRONMENTAL

| | |
|------------------------|----------------------------------|
| Operating Temperature: | -40° C to +85° C |
| Storage Temperature: | -55° C to +95° C |
| Humidity: | 95% non-condensing |
| Vibration: | GJB150.16A-2009, MIL-STD-810F |
| Shock: | GJB150.18A-2009, MIL-STD-810F |

| | |
|-----------------------------|----------------|
| Warm start: | <20 s |
| Hot start: | <5 s |
| Reacquisition time: | <1 s |
| Initialization time: | <5 s (typical) |
| Initialization reliability: | >99.9% |
| Correction Input Protocol: | RTCM V3.x |

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|-----------------------|-----------------------|
| Data Output Protocol: | NMEA-0183, Unicore |
| Data update rate: | 50 Hz* |
| Time accuracy: (RMS) | 20 ns |

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|--------------------------|----------|
| Velocity Accuracy: (RMS) | 0.03 m/s |
|--------------------------|----------|

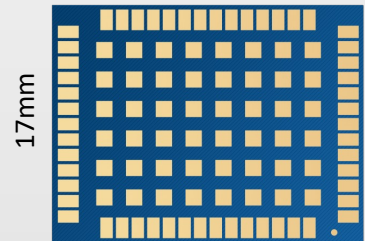
ELECTRICAL

| | |
|-------------------|---------------------|
| Voltage | +3.0 ~ +3.6VDC |
| Ripple Voltage | 100 mV p-p (max) |
| Power Consumption | 480mW (typical) |

COMMUNICATION INTERFACE

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|--|------------------------------|
| | 3 x UART (LV-TTL) |
| | 1 x I ² C* |
| | 1 x SPI* |
| | 1 x CAN* (shared with UART3) |

* Supported by future firmware.



17mm

22mm

CONTACT INFORMATION



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Ordering Information

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