

MobiWAVE On-Board-Unit (OBU)

MW-1000 OBU Family



The MobiWAVE™ On-Board-Unit (OBU) family of products includes the Vehicle Awareness Device (VAD), the Aftermarket Safety Device (ASD) and the next-generation COTS ASD. Designed to address the needs of the connected vehicle market, the MobiWAVE OBU supports a variety of automotive safety and commercial applications.

MobiWave's automotive-grade hardware provides a flexible, open platform for deploying Intelligent Transportation Systems (ITS) applications such as tolling, mobility and safety. The generic OBU features an automotive-grade dual core 1GHz processor, 1 GB of memory, 8GB on-board storage, multiple radios (DSRC, WiFi, BT and cellular) and a GPS receiver. The OBU can be powered using a range of input voltages (including vehicle 12V and 24V battery).

Key Benefits

Future Proof

The next-generation MobiWAVE has been engineered from the ground up to provide a variety of functionalities ranging from a basic Here-I-Am device, to ASD, to a COTS-like device supporting a range of applications.

- Supports Fast Boot Option
- Optional battery backup for specialized applications
- Expandable to incorporate other sensors
- Supports a variety of connectivity options such as BT, WiFi and Cellular

Security

Security is the primary concern for any wireless network. MobiWAVE incorporates advanced security methods at every level of the transmission.

- Optional Hardware Crypto Solution for verifications
- HSM Secure Flash

Leading-Edge Technology

- **Best-of-Breed Rugged Outdoor-Quality Wireless Radios:** MobiWAVE includes automotive-grade ITS Radio Module (5.9 Ghz) and Radio Module (5 Ghz), 3G Radio Module (GSM/CDMA). All WiFi radios transmit at 600mw with a range of over 50km (LOS) and -94dB receive sensitivity.
- **Security (incl. Secure Flash):** Advanced wireless security features include 1609.2 plus IPsec and SSL for application-level security. The products also provide a secure tamper-proof flash to store security certificates.
- **GPS:** MobiWAVE features the latest U-Blox GPS solution, Dead Reckoning (tethered and un-tethered), fast time to first fix (FTTF), assisted and un-assisted modes and other capabilities.

Applications

Selected V2X Safety (sample)

- I2V - Traffic signal violation warning
- I2V - Curve Speed warning
- I2V - Left turn assistant
- I2V - Stop sign movement assistance
- V2V - Approaching emergency vehicle warning
- P2V - Pedestrian crossing warning
- I2V - Red light violation warning
- I2V - Reduced speed zone warning
- V2V - Forward collision warning
- V2V - Lane change assist/blind spot warning
- V2V - Intersection movement assist

Selected V2X Mobility (sample)

- Travel time measurement
- Intelligent ramp metering
- Intelligent signal control
- Traffic congestion data collection
- Traffic signal priority for emergency and transit
- Tolling

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- **Timing Corrections:** MobiWAVE accepts and applies over-the-air (OTA) RTCM corrections, such as DSRC.
- **Flexible Connectivity Options:** An RJ45 Ethernet port connects to an additional device or can be used for device management. In addition, other options such as BT, WiFi and Cellular provide connectivity to phablets and uplink servers for HMI/GUI and other applications.
- **Audio:** A built-in speaker and mic provides driver alerts in real time.
- **Software Management:** The OBU supports an OTA upgrade, as well as redundant software images for high availability.
- **V2X Standards:** MobiWAVE supports the latest IEEE 1609.2, 1609.3 and IEEE 1609.4 standards-compliant WAVE protocol stack for rapid development and deployment of ITS applications.
- **Customized Applications:** The OBU is fully compatible with the Savari V2X SDK, enabling development of V2X applications.
- **Mechanical Design:** The entire OBU is automotive-grade and vibration-resistant.
- **Reliable Power Options:** The OBU supports optional battery backup with power management through a built-in battery.

Product Specifications

Component	Description
Processor	800 MHz iMX6 Dual Core
Memory	Up to 4GB DDR3 DRAM *1 GB DDR3 standard
Storage	Up to 16GB Flash *8 GB standard
Radio	Dual DSRC, WiFi/BT
GPS	U-Blox. Tracking Sensitivity: -160dBm
Secure Flash	Provided by Infineon HSM SLI97
Temperature	-40C to +85C
Antenna /GPS Connectors	Fakra type Z/C
Other interfaces	CAN, 2 USB, MicroSD, Serial, Ethernet
Standards Compliance	802.11p, IEEE 1609.x and SAE J2735 (2015), J2945
Security	1609.2, IPSec & SSL
Enclosure	140 x 133 x 42 (L x W x H)
Power Management	Optional battery backup for a range of functionality
Power	9V to 30V DC
Power Consumption	Nominal <5W, Max 10W

System Architecture

