MobiWAVE 2000

Dual Mode On-Board-Unit (OBU)
MW2000 OBU Family

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

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
- Ignition detect for graceful shutdown
- 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.
- HSM Secure Flash

The MobiWAVE® 2000 (MW2000) On-Board-Unit (OBU) is the next generation of MobiWAVE family of products that now support both CV2X and DSRC communication. The MW2000 can work simultaneously in both CV2X and DSRC modes. The product family includes the Vehicle Awareness Device (VAD) and the Aftermarket Safety Device (ASD). The device is based on the highly successful MW1000 which has been deployed in US Connected Vehicle Pilots (CVP). The MobiWAVE OBU supports a variety of automotive safety and commercial applications. To prepare for the European Market, the MW2000 is ETSI 202 663 compliant.

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 800 MHz processor, 2 GB of memory, GB on-board storage, multiple radios (DSRC, C-V2X, 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).
Leading-Edge Technology

- **Best-of-Breed Rugged Outdoor-Quality Wireless Radios**: MobiWAVE includes automotive-grade ITS Radio Modules (5.9 Ghz) WiFi Radio Modules (5 Ghz) and Cellular backhaul Radio Module (GSM/CDMA).
- **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.
- **Timing Corrections**: MobiWAVE accepts and applies over-the-air (OTA) RTCM corrections.
- **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 and ETSI-G5 standards to cover both US and EU regions.
- **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.

Product Specifications

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
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<tbody>
<tr>
<td>Processor</td>
<td>800 MHz iMX6 Dual Core</td>
</tr>
<tr>
<td>Memory</td>
<td>2 GB DDR3 DRAM</td>
</tr>
<tr>
<td>Storage</td>
<td>4 GB</td>
</tr>
<tr>
<td>DSRC Radio</td>
<td>Dual DSRC, 23 dBm Tx, 10/20 MHz optional antenna diversity</td>
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<tr>
<td>GPS</td>
<td>Tracking Sensitivity: -160dBm, +/- 1.5 meter with optional Dead Recknoning, GPS/GLONASS/BeiDou/Galileo/QZSS</td>
</tr>
<tr>
<td>C-V2X</td>
<td>TDD: B47 for Global, 26 Mbps Max, 10/20 MHz</td>
</tr>
<tr>
<td>Secure Flash</td>
<td>Provided by Infineon HSM SLI97</td>
</tr>
<tr>
<td>Temperature</td>
<td>-40C to +85C</td>
</tr>
<tr>
<td>Antenna /GPS Connectors</td>
<td>Fakra type Z/C</td>
</tr>
<tr>
<td>Other interfaces</td>
<td>CAN, 2 USB, MicroSD, Serial, Ethernet</td>
</tr>
<tr>
<td>Standards Compliance</td>
<td>802.11p, IEEE 1609.x and SAE J2735 (2016), J2945, ITS-G5, ETSI ES 202 663</td>
</tr>
<tr>
<td>Security</td>
<td>1609.2, IPSec &amp; SSL</td>
</tr>
<tr>
<td>Enclosure</td>
<td>140 x 133 x 42 (L x W x H)</td>
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<tr>
<td>Power</td>
<td>9V to 30V DC</td>
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<tr>
<td>Power Consumption</td>
<td>Nominal &lt;5W, Max 10W</td>
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