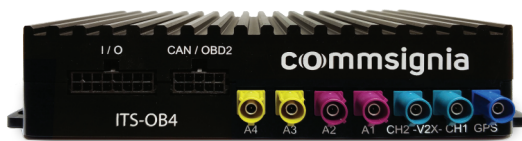


ITS-OB4

Powerful V2X Onboard Unit

The fourth generation of Commsignia's vehicular connectivity system offers superior performance coupled with V2X Software stack. The unit provides low-cost and easy OEM / aftermarket integration, offering built in Tamper-proof Hardware Security Module, CAN, high range V2X radio and easy HMI integration. By combining the benefits of automotive grade design, high performance application CPU and dual channel V2X radio performance, the ITS-OB4 offers a professional, complete and future proof solution.



- Improved connectivity (DSRC / ETSI-G5, C-V2X)
- Small form factor
- High precision positioning
- Intelligent power management
- Tamper proof and secure
- Rapid startup times
- Easy integration
- Audio and video notifications
- Reduced custom application development effort



Competitive features

- Dedicated next generation V2X chipset
- Dual-channel operation
- Automotive grade design
- Extended radio coverage with a single unit
- Complete Real-Time V2X Stack (ETSI, IEEE, SAE, ISO)
- Available with Autotalks / NXP / Marvell / Qualcomm 9150 V2X chipset
- Powerful application CPU
- Fine-tuned system startup process



Development and Support

- Software Development Kit: Linux and RTOS available for normal and time critical application development
- Multi-level Technical Support
- Regular Software Upgrades
- User & Programmer's guide
- Available APIs: native C / remote C / remote Java / remote ASN.1
- Sample Applications



Easy integration

- CAN and other sensor inputs (Camera, Radar, LiDAR)
- High frequency GNSS, high precision positioning
- Flexible Management Tool
- Statistics and Reports
- Video / Audio interface



Complete security and supervision

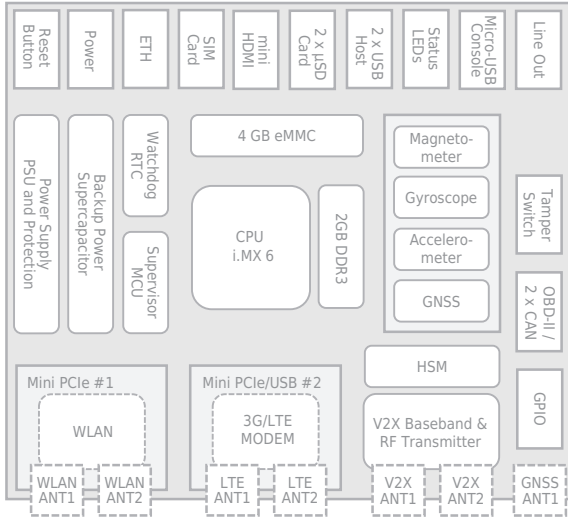
- Tamper protected, supervised system
- Support for future security upgrade
- Cryptographic Acceleration for V2X
- Tamper proof certificate storage (HSM)
- USDOT SCMS / EU PKI compatible



V2X Software

V2X communication solutions are based on the same compact software core - available as separate product supporting several platforms - allowing applications to transmit and receive standard compliant V2X messages over the air.

Architecture



Technical Specification

| CORE FEATURES | |
|---------------|---|
| CPU | 1GHz Freescale/NXP i.MX 6 |
| OS | Linux / RTOS (V2X) |
| RAM | 2 GB DDR3 SDRAM |
| FLASH | 4 GB eMMC |
| STORAGE | Dual micro SD Card slot |
| ETHERNET | 10/100/1000 Mbps Ethernet |
| EXTERNAL I/O | Dual USB 2.0, GPIO |
| SUPERVISOR | Yes |
| POWER SUPPLY | 8-32 VDC (surge and reverse polarity protected) |
| BACKUP POWER | Yes (10s Store & Shutdown) (optional) |
| POSITIONING | Advanced GNSS |
| WIFI | Dual band a/b/g/n Mini PCIe slot #1 only (optional) |
| BLUETOOTH | Yes (optional) |
| CELLULAR | 3G / LTE (MiMo) Mini PCIe slot #2 only |
| IMU | 3 axis gyroscope BOSCH 3 axis accelerometer BMI160 3 axis magnetometer BMM150 |

| AVAILABLE V2X RADIO VARIANTS | |
|---|--|
| Autotalks Section | |
| NXP TEF5100 (RF Transceiver) & SAF5100 (Baseband) | |
| Marvell SDIO (88W8987PA) | |
| Qualcomm 9150 | |
| SECURITY | |
| Hardware Security Module (HSM) SLI97 | |
| ECDSA verification (> 2000 verifications), encryption (< 50 usec signing delay) | |
| NIST and Brainpool verification, encryption | |
| Secure boot, encrypted storage, tamper proof system | |
| EAL6+ certified and available with up to 1MB of secure SOLID FLASH | |
| ARM TrustZone including the TZ architecture | |
| ENVIRONMENTAL | |
| Operation humidity: 10% – 95% | |
| Storage humidity: max 95% | |
| Temperature range: -40C ~ +85C | |
| Vibration proof | |

| CONNECTORS | |
|------------|---|
| ANTENNA | 2 x V2X, 2 x WiFi, 2 x LTE/3G, 1 x GNSS |
| DATA | 1 x ETH, 2 x USB, 1 x CAN, 1 x OBD-II |
| OTHER | Power connector Reset button 4 x Bicolor LEDs |
| EXTENSION | 2 x Mini PCIe slots |
| VIDEO | HDMI 1.4a |
| LINE OUT | 3.5mm jack |

V2X INTEGRATION

Over the years, Commsignia gained a tremendous amount of advantage and experience in V2X on-board unit deployment and operation.

- Participating in deployment and OEM/Tier-1 trials
- Fusion algorithms for ADAS systems
- Day1 / Day2 applications
- Sensor data integration