MOBILITY INTELLIGENCE & QUALITY

Advanced Technology Roadside Unit

RSU-5941 Kit

RSU Platform

The RSU-5941 Kit delivers a complete, turnkey RSU solution tailored for traffic infrastructure deployments. Built on more than 20 years of research and development in collaboration with standards organizations, government research groups, and OEMs, this RSU platform is engineered to meet expected minimum performance requirements and to support V2X applications for day-one deployment and future expansion.

- Integrates with Traffic Signal Controllers
- Other Traffic Infrastructure
- Automotive grade components
- Adaptive to various use cases
- Dynamic Signage

Quality & Stability

Tier 1 Quality:

- Developed by a Tier 1 OEM with 75 years of proven industry success, ensuring reliable, automotive-grade performance.

Stable Operation:

- Built with rigorous engineering and validation to deliver consistent, dependable field performance.

Trusted Support:

- Backed by decades of strong customer support for low-risk deployment and long-term stability.

Features

- Embedded Web User Interface
- Remote RSU configuration management & diagnostic features
- Antenna fault detection
- Antenna diversity: LTE-V2X: RX & TX diversity

Support Latest Versions of:

- NTCIP 1218 v01.38
- CTI 4001 v01.01 and CTI 4501 v01.01
- Support for NTCIP 1211

Applications

- Signal Phase and Timing / MAP
- Freight/Transit Signal Priority (FSP/TSP)
- Emergency Vehicle Preemption (EVP)
- Traveler Information Messages (TIM)
- BSM Forwarding

Additional Application Support:

- Red Light Violation Warning
- Emergency Vehicle Warning
- Curve Speed Warning
- Speed Compliance / Work Zone
- Oversize Vehicle Compliance
- Numerous other applications

Security

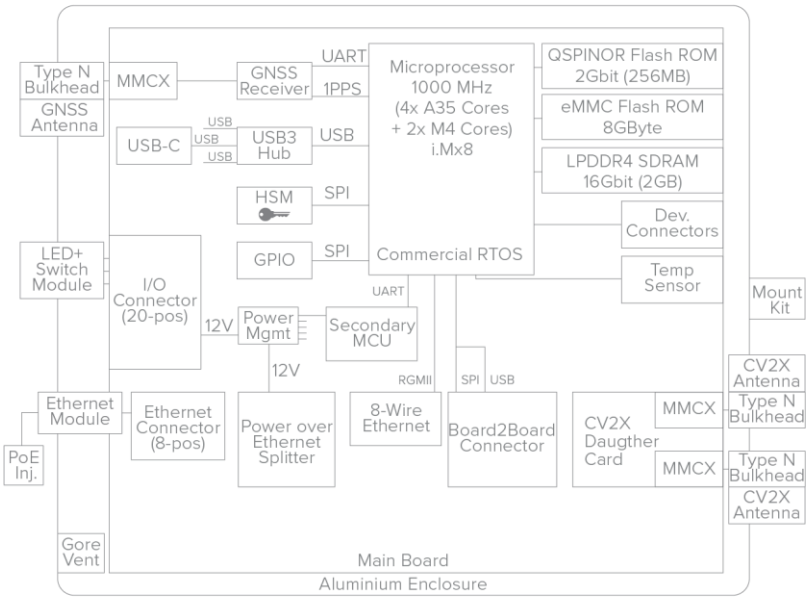
- Based on industry best practice ISO 21434
- V2X Hardware Security module (HSM)
- NIST/Brain pool ECC up to 512b
- HSM storage > 10k keys, 15-year retention
- FIPS 140-2 Level 3 / EAL6+
- Integrated Firewall
- Secure Boot

Integration

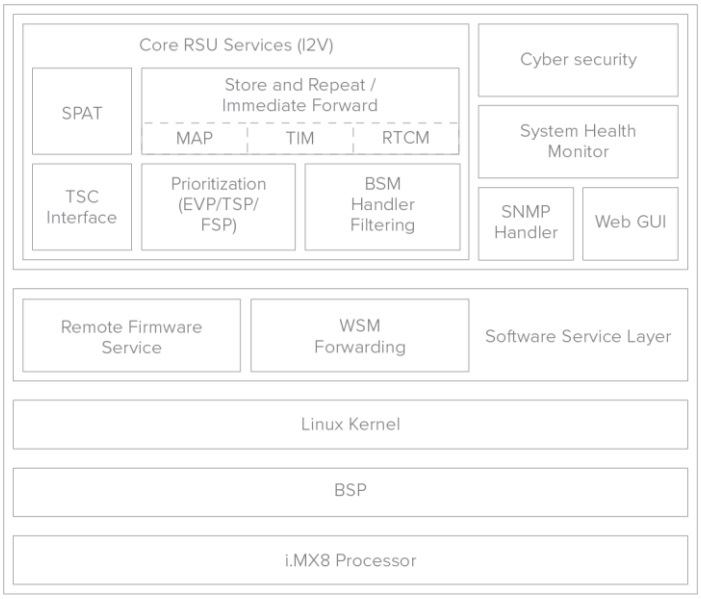
- The RSU-5941 Kit integrates easily with existing traffic systems, using standard interfaces to add V2X capabilities with minimal effort or disruption. It can be utilized to support VRU safety applications as well as TSP/EVP to improve mobility for transit and emergency vehicles.

**Specifications subject to change without notice*

Hardware Architecture



Software Architecture



Core Features

- U.S. (IEEE, SAE) protocols
- V2X Facilities Software (SAE protocols)
- V2X Services API (GNSS, V2X Radio)
- Quad-core ARM A35 @ 1.2GHz + M4 (~9000DMIPS)
- 2GB LPDDR4 SDRAM
- 256MB QSPI NOR flash
- 8GB eMMC mass storage
- LTE-V2X R14/15 radio
- GNSS for position and timing

Standard Conformance

- IEEE 1609
- SAE J2735
- SAE J2945/1
- SAE J3161/1
- NTCIP 1218 v01.38

Frequency Band

- LTE-V2X: 5.9GHz ITS (5895 – 5925 MHz)
- GNSS: L1 C/A, L1OF, B1, B1I, E1/BC, G1

Specifications

Bandwidth
- LTE-V2X: 20MHz, IEEE Ch. 183

Antenna Diversity
- LTE-V2X: RX Diversity (MRC), TX Diversity (CDD)

Max Transmit Power
- LTE-V2X: Up to +23 dBm

Receiver Sensitivity (single input)
- LTE-V2X target: -95dBm
- (MCS 11, 367 octets, HARQ)

GNSS
- 2.0m CEP (1Hz)

V2X Security
- NIST/Brainpool ECC up to 512b
- HSM storage > 10k keys, 15-year retention
- FIPS 140-2 Level 3 / EAL6+

Operating System
- Embedded Linux

Operating Temperature Range
- -40°C to +75°C

Dimensions
- 257mm x 227mm x 90mm, not including antennas

Power Supply
- IEEE 802.3af PoE compliant

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