Edge Inference Solution for Roadside Monitoring

AI-Enabled Smart Transportation

ESRP-LPR-ARK2250S

Embedded Edge Solution Ready Package

Movidius™ Myriad™ X VPU

AI Pre-trained Model

Powered by ADVANTECH WISE-PaaS

Enabling an Intelligent Planet
Empowering AI-enabled Smart Transportation

AI technology is helping to improve traffic monitoring and data analytics in the transportation sector with greater detection accuracy and real-time responsiveness to reduce congestion and enhance safety. Advantech edge AI solution for roadside monitoring combines big data analysis and deep learning artificial intelligence to provide license plate recognition, vehicle classification, traffic alerts, and pedestrian detection. Our ready-to-use solution integrates Intel® Movidius™ Myriad™ X VPU and edge AI suit, which includes pre-trained models, Intel OpenVINO™ toolkit, SQL server and edge management software for fast deployment.

System Architecture

Edge AI Suite Built-in

Advantech Edge AI suite provides an inference engine, graphic-accelerator libraries, and management tools that help customers speed up their application development and make smart transportation solutions easier to integrate. The suit includes Intel OpenVINO™ toolkit which provides an inference engine to optimize AI-based vision analysis, pre-loaded license plate recognition, extremely accurate vehicle classification trained models, and WISE-PaaS/EdgeSense for edge system management, monitoring, and OTA upgrades.
Taking Roadside Monitoring to the Next Level

Deep learning helps enhance detection accuracy in identification and classification significantly compared to traditional rule based intelligent video analysis applications. Advantech provides an integrated edge AI solution for roadside vehicle monitoring which has the inferencing capabilities to analyze and identify vehicles and pedestrians in real-time for further use in traffic control, monitoring, congestion prediction, traffic management, and operating decisions.
## Edge Solution Ready Package

### ESRP-LPR-ARK2250S

<table>
<thead>
<tr>
<th><strong>Solution Package</strong></th>
<th><strong>ARK-2250S</strong></th>
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<tbody>
<tr>
<td><strong>License Plate Recognition Edge Inference Solutions</strong></td>
<td><strong>Edge Inference system</strong></td>
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<tr>
<td><strong>CPU</strong></td>
<td>Intel i7-6822EQ QC SoC</td>
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<tr>
<td><strong>VPU</strong></td>
<td>Intel® Movidius™ Myriad™ X VPU</td>
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<tr>
<td><strong>Memory</strong></td>
<td>2x 16GB DDR4 pre-installed</td>
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<tr>
<td><strong>Storage</strong></td>
<td>1x 256GB 2.5&quot; SSD pre-installed</td>
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| **Graphic Engine** | DirectX 11.3, OGL 4.4, OCL 2.1  
Encode: H.264, MPEG2/4, VC1, WMV9  
Decode: H.264, MPEG2 |
| **Dual HDMI** | HDMI 1.4a, up to 1080p |
| **Dual LAN** | GbE Intel iZ19/210, support WOL |
| **OS** | Windows 10 IoT Enterprise |
| **Operating Temperature** | With extended temperature peripherals:  
-20 ~ 70 °C with 0.7m/s air flow |
| **Vibration/Shock proof** | MIL-STD-810G, Method 514.6  
MIL-STD-810G, Method 516.6 |
| **EMC** | CE, FCC Class B, CCC, BSMI |
| **Transportation** | NEMA TS2-2016 Environmental |
| **Edge AI Suite** |  
- Video Analysis & AI Models  
- OpenVINO™ Toolkit  
- SQL Server  
- Edge Management Software |

### Optional Purchase

#### License Plate Capture IP Camera
- **Parking Lot**  
  - 60 km/h (37 mph)  
  - 2MP 3x Zoom Super Low Lux Color
- **Roadside**  
  - 120 km/h (75 mph)  
  - 2MP 2.5x Zoom Super Low Lux Color
- **Highway**  
  - 200 km/h (124.27 mph)  
  - 1 MP 10x Zoom B/W

#### Surveillance IP Camera
- **Traffic Monitoring**  
  - 2MP H.265 Super Low Lux WDR Pro IR

#### Edge AI Modules
- **VEGA-330**  
  - mPCIe module, 2x Intel® Movidius™ Myriad™ X VPU

#### Video Capture Card(CCTV)
- **DVP-7031E**  
  - 4-ch H.264/MPEG4 MiniPCIe Video Capture Module with SDK