ADLINK Embedded IoT Gateway Platform

Specifications




Model Name	MXE-101i	MXE-202i
System Core		
Processor	Intel® Quark™ SoC X1021	Dual-Core Intel Atom™ Processor E3826
Video	-	1x HDMI
Memory	DDR3 800 512 MB (Memory Down)	DDR3L 1066 2 GB (Memory Down)
I/O Interface		
Ethernet	2x 10/100 LAN	2x GbE LAN (Intel® I210-IT)
USB	3x USB 2.0 host port	2x USB 2.0 host port + 1x USB 3.0
Serial Ports	2x COM (1x RS-232 + 1x RS-232/422/485***)	
DIO	Optional 4x Isolated DI + 4x isolated DO	
Expansions		
Mini PCIe	2x PCIe Mini Card Slots	
USIM	1x USIM Slot	
Manageability		
WDT	Watchdog Timer Support	
SEMA	SEMA support with BMC	
Power Supply		
DC Input	6-36 Vᴅᴄ	
AC Input	Optional 40 W AC-DC adapter	
Storage Device		
mSATA	-	1x mSATA****
SD	1x SD card slot (up to 16 GB)	
OS Preload	Wind River® IDP XT 2.0****	
Mechanical		
Dimensions	120 (W) x 100 (D) x 55 (H) mm (4.68" x 3.9" x 2.17")	
Construction	Full Aluminum Alloy	
Weight	650 g (1.43 lbs)	
Mounting	DIN-Rail / Wall mounting	
Environmental		
Operating Temperature*	Standard: 0°C to 50°C (32°F to 122°F) Extended temperature option**: -20°C to 70°C (-4°F to 158°F) (w/industrial grade SD)	Standard: 0°C to 50°C (32°F to 122°F) Extended temperature option**: -20°C to 70°C (-4°F to 158°F) (w/industrial SD/mSATA)
Storage Temperature	-40°C to 85°C (-40°F to 185°F)	
Humidity	~95% @ 40°C (non-condensing)	
Vibration	Operating 5 Grms, 5-500 Hz, 3 axes w/ SD	Operating 5 Grms, 5-500 Hz, 3 axes w/ SD/mSATA
ESD	Contact +/-4 KV, Air +/-8 KV	
Shock	Operating 100 G, half sine 11 ms duration w/ SD	Operating 100 G, half sine 11 ms duration w/ SD/mSATA
EMC	CE & FCC Class A (EN-61000-6-4/EN61000-6-2)	
Safety	UL by CB	

Ordering Information

Model Name	Processor	Storage	Memory	DIO	Expansion
MXE-101i	Intel® Quark™ SoC X1021	SD	DDR3 800 512 MB	Optional 4 IDI + 4 IDO	2x mPCIe + 1x USIM
MXE-202i	Duo-Core Intel® Atom™ Processor E3826	SD/ mSATA	DDR3L 1066 2 GB	Optional 4 IDI + 4 IDO	2x mPCIe + 1x USIM

Optional Accessories

8/16 GB SD Option	Factory installed 8/16 GB MLC type industrial grade SD (-40 °C t o 85 °C) (-40 °F to 185 °F)
32/64 GB mSATA SSD Option	Factory installed 32/64 GB MLC type industrial grade mSATA SSD (-40 °C to 85 °C) (-40 °F to 185 °F)(MXE-200i only)
40 W AC Adapter	40 W industrial grade AC-DC adapter (-20 °C to 70 °C) (-4 °F to 158 °F)
Wireless Module Option	WiFi/BT/3G wireless modules
Extended Temperature Option**	Optional screening service extends operating temperatures to -20 °C to 70 °C (-4 °F to 158 °F)

* Other names and brands may be claimed as the property of others.
** Extending the operating temperature is optional and requires use of an industrial solid-state drive storage device or CFast.
*** RS-232 supports Tx, Rx,CTS, and RTS signal only.
**** mSATA shares the same slot with mPCIe

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ADLINK is a Premier member of the Intel® Internet of Things Solutions Alliance. From modular components to market-ready systems, Intel and the 250+ global member companies of the Intel IoT Solutions Alliance provide scalable, interoperable solutions that accelerate deployment of intelligent devices and end-to-end analytics. Learn more at: intel.com/IoTSolutionsAlliance.

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Intelligent Embedded IoT Gateway Platform



Build Your Internet of Things with ADLINK

Towards to the IIoT Era

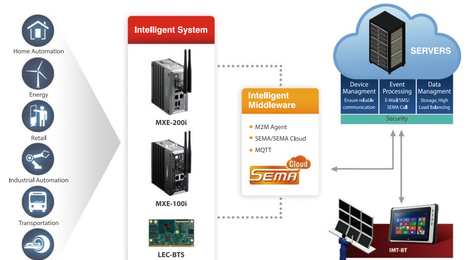


Solutions based on the Intel® IoT Gateway close the gap between the edge and the cloud.

Industries are entering a new era as the IoT allows billions of devices containing embedded technology to seamlessly connect, be managed, and securely interact over the network. Industrial IoT (IIOT) is the term used to describe machine-to-machine (M2M) communications where machines interact and communicate with other machines, objects, environments and infrastructures. As a result of these communications, huge volumes of data are being intelligently generated, and that data is being processed and analyzed, resulting in meaningful and timely actions for management and control. The increasing trend towards Industrial IoT is transforming industries making them more efficient and optimizing operations.

ADLINK is using the robust hardware and software stack of the Intel® IoT Gateway to help industries connect legacy infrastructure. Using their solutions, companies are collecting and analyzing data in ways that enable greater operational efficiency, big data solutions, and new services for business transformation .

ADLINK advance IoT offers a full range of solutions for the IoT ecosystem covering devices, gateways and network infrastructure. Deliver Application-Ready Intelligent IoT solution and services to providing greater benefit to customers in the strategic development of IoT innovations.



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New Edge of Intelligent Gateway Platform

Application-Ready for IIoT

Much current industry effort is focused on connecting to legacy or "brownfield" devices that were not designed to be connected, or even designed to inhibit connectivity, to protect them from network-borne threats. A major consideration in deploying IoT solutions is to figure out how to seamlessly and safely connect such legacy devices.

ADLINK embedded IoT gateway platforms MXE-100i/200i, equipped with Intel® Quark™ SoC and Intel® Atom™ processors E3845/E3826, fully support Intel® IoT Gateway by integrating Wind River Intelligent Device Platform* (IDP) XT and McAfee* Embedded Control to provide a complete, pre-validated communication and security solution. The MXE-100i/200i also includes ADLINK's SEMA utility, which enables quick setup of remote data access and analysis through ADLINK's SEMA Cloud.

ADLINK Embedded IoT gateway platforms feature fieldbus control interface, as well as superior WiFi/LTE/3G enabled edge device/cloud connectivity.

Secure, scalable computing gateways with fieldbus interfaces enable seamless connection, aggregation, filtering, and data transmission to the cloud with confidence.

Why ADLINK IoT Gateway Solution?



Connectivity

- Heterogeneous fieldbus protocols support diversity in field communication
- WiFi/LTE/3G ensure interoperability between systems
- Rich I/O includes HDMI, GbE LAN, COM ports, and USB 3.0/2.0 ports, supporting seamless interconnection

Security

- Secure Boot protects endpoints and blocks malicious software
- SEMA Cloud provides secure data transmission (TLS)
- Whitelisting helps prevent malware and zero-day exploitation

Manageability

- SEMA Cloud offers remote manageability and enhances system reliability
- Wind River® IDP XT supports practical management protocols for optimizing remote device management

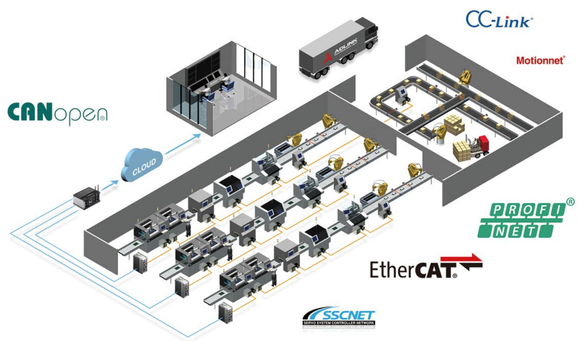
Industry-Class Construction

- Proven ruggedness assures operation in harsh environments
- Support for -20°C to 70°C operating temperature
- Operating shock tolerance up to 100 G provides reliable platform critical to IIOT
- Optional four isolated DI and four isolated DO, ideal for industrial applications requiring high-voltage isolation

Seamless Interconnection

IIoT ideal is connection of a world of mechanical and electrical systems to the Internet and thus to cloud-based services and analytic back ends. A critical challenge to deploying IIoT solutions is the lack of a single standard of network connection. Brownfield devices use a scattered variety of proprietary protocols, requiring gateways to connect with IP-based networks. An IIoT gateway supporting cross-protocol communication in is key to effective deployment.

ADLINK's embedded IoT gateway platform integrates routing and data collection functions, conversant with existing protocols. Strong support for widely-used fieldbus protocols provides bi-directional communication and acquisition. Simple IoT gateway function capable of accepting a wide range of connectivity protocols for analog and digital data can provide connection to a wide range of industries, taking advantage of valuable data existing in their hardware assets.



Secure and Reliable Data Transfer

Security at both device and network levels is critical to IoT-based operations. Secure boot at the device level, access control and authentication, application whitelisting, and firewall and intrusion prevention systems are all used to combat security threats while allowing legacy equipment to be used in place, connected to the IP-based world of the IoT.

ADLINK's embedded IoT gateway platform, supported by the latest Intel processors, includes two key hardware-assisted security enhancements: Intel® Advanced Encryption Standard New Instructions (Intel® AES-NI) and Secure Boot. Together, these security technologies help secure endpoints, protect content, and prevent malicious software from loading.

Wind River* IDP XT delivers built-in security features to protect the communication channel, the data, and the end device. In addition, McAfee* Embedded Control adds dynamic whitelisting. This technology locks the system down to a known safe baseline so no program outside the authorized set can launch. McAfee* Embedded Control also contributes a policy-based change control feature that monitors files and prevents unexpected changes.

ADLINK's SEMA utility provides secure data transmission, continuously uploading data through encrypted Transport Layer Security (TLS, the successor protocol of Secure Sockets Layer or SSL) connection, as shown in the user's information dashboard, all together guaranteeing essential reliability and security critical to IoT-ready platforms.

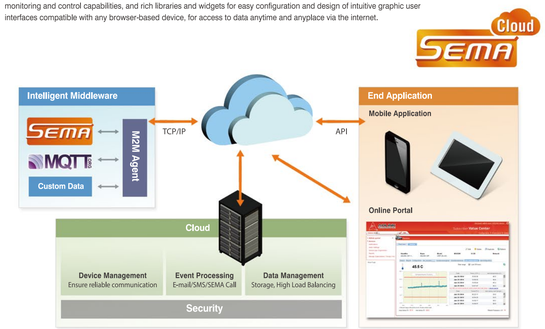


Manageability Adds Business Value

Remote management through ADLINK's SEMA Cloud delivers considerable business value

Ready access to system health is proving invaluable for many industries with an inherent need to monitor distributed networks, and can now be implemented in nearly any embedded arena. Operators can proactively interact with the system, detecting potential issues in advance, as well as responding quickly to system downtime.

ADLINK's self-developed SEMA Cloud utility provides flexible Cloud connection to push data to the cloud, as well as remote monitoring and control capabilities, and rich libraries and widgets for easy configuration and design of intuitive graphic user interfaces compatible with any browser-based device, for access to data anytime and anyplace via the internet.



Application Scenarios

Machine Failure Prediction

Industrial machinery is subject to nearly constant shock and vibration which can generate fatigue and wear on materials and components. Imprecision and eventually system failure can result, making forecasting of potential problems to implement preventive measures and maintenance or equipment replacement critical to sustaining performance and avoiding downtime and costly damage.

The advent of the cloud-based Internet of Things (IoT) allows data acquisition from various type of sensors, including vibration, noise, temperature, voltage, pressure, and others, has vastly improved the capabilities of machine failure prediction, with real time data transmission, remote control and monitoring, and enhanced accuracy, efficiency and economy.

ADLINK's Solution: • MXE-100i/200i Embedded IoT Gateway • USB-2405 USB DAQ + Visual Signal DAQ Express • ADLINK SEMA Cloud Solution



Smart Parking Management

The automated parkade solution monitors parking areas and gathers real time occupancy data. Intelligent and innovative parking solutions are provided for both operators and customers. When arriving in an active area, customers can use their phone to access information through text message, application, and the Internet. With the smart solution, operators can access real-time data to exploit their parking resources fully, by continuously analyzing variations in parking needs by area.

In this way, data showing the current state of the automated parking system enables real-time and remote facility monitoring and advanced cloud services without affecting legacy infrastructure, thereby reducing maintenance costs while increasing efficiency.

ADLINK's Solution:

- MXE-100/200i Embedded IoT Gateway
- MXE-5400 Fanless Embedded Computer
- ADLINK SEMA Cloud Solution
- HMI & OPC Server

