



Case Study

Network Security at the Distributed Edge (IFB122)

Upgrading cyber security for infrastructure and OT network by RISC-based gateways

As operational technology (OT) and information technology (IT) converge in manufacturing or critical infrastructures, internet-connected operational systems provide real-time data and allow users to monitor remotely, even push for the deployment of artificial intelligence (AI), but the risk of cyber-attack increases in the meanwhile. To set up a firewall and whitelist to filter viruses and block the attacks for better cyber security, deploying reliable gateways at the edge has never been so important.

Challenges

The customer, headquartered in the United States, specializes in cybersecurity and data acquisition solutions for critical infrastructure, industrial control systems, and the Industrial Internet of Things. The customer is in search of a hyper-secure RISC-based gateway for its distributed edge applications to provide low-power, high-performance and cost-effective solutions. To ensure the seamless security of remote access across a distributed network, this Industrial IoT gateway needs to meet the challenges in critical environments, such as supporting wide operating temperatures and wide voltage range. The built-in Ethernet, Wi-Fi, cellular, as well as serial-over IP for connectivity options are also required.

Main Requirements

- RISC-based DIN-rail industrial IoT gateway
- Extreme cost-effectiveness
- Robust and compact design
- Supports wide operating temperature range
- Support wide voltage range power input
- Available for Wi-Fi and 3G/4G connections

Axiomtek's IFB122 builds up a secure network environment immune from unauthorized access

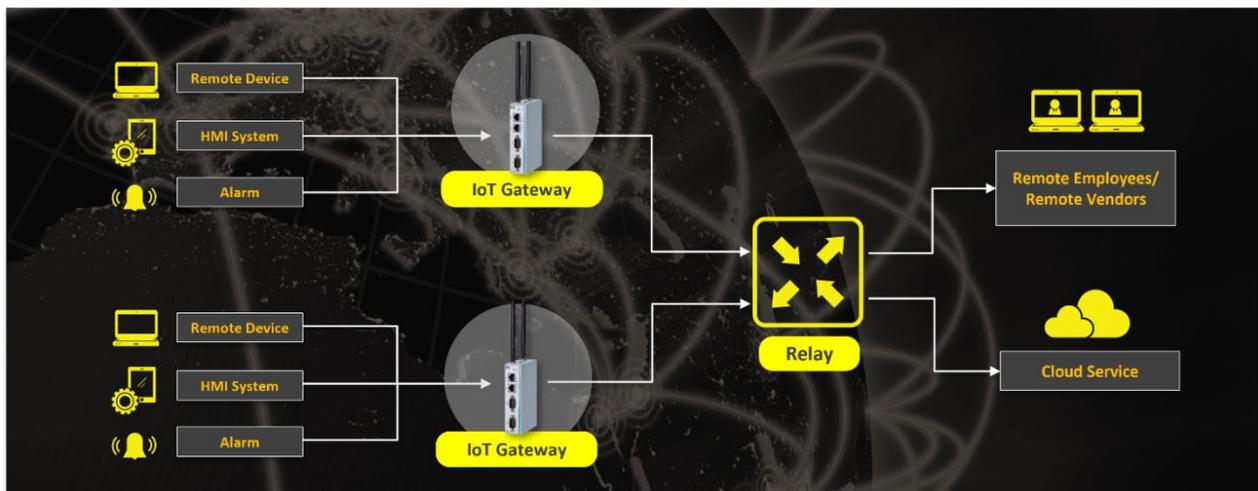
Axiomtek has proposed its IFB122, a compact and cost-effective RISC-based DIN-rail industrial IoT gateway, which is powered by the low-power Freescale i.MX 6UL-2 processor in the ARM® Cortex™-

A7 microarchitecture. Its plentiful I/O connectivity includes two RS-232/422/485 ports, two 10/100 Mbps LAN ports, one USB 2.0 port, and one digital I/O. Besides, it has a PCI Express Mini Card slot and a SIM card slot to integrate wireless or 3G / 4G cellular connection. It comes with one 256MB DDR3 onboard memory and one 8GB eMMC flash memory for storage. The IFB122 supports a wide operating temperature range of -40°C to 70°C and can even withstand vibration up to 5G. Its wide voltage range 9V - 48V DC power input with a lockable terminal block type connector also enhances its reliability. The lightweight design keeps the system weighing only 0.44 kg and the vertical DIN-rail form factor makes the system easy to install, especially in small spaces.



Application: the IFB122 gateway protects devices in the network and data transmission

The customer has used the IFB122 to protect the edge devices and using the Host Identity Protocol (HIP) for communication to ensure security. The private network uses zero trust architecture and only the trusted devices can be whitelisted. The gateways can cloak the critical devices in the trusted layer. As a result, the infrastructure cannot be discovered and attacked by hackers, nor can it be threatened. What's more, the gateways can further manage remote access with encryption. Soundly the data transmission between infrastructural devices and the cloud can also be secured.



System Configurations: IFB122

- RISC-based (i.MX 6UltraLite) processor 528 MHz
- 256MB DDR3 SDRAM onboard
- 8GB eMMC flash onboard
- Power input range of 9V to 48V DC with terminal block
- Wide operating temperature range from -40°C to +70°C
- Two RS-232/422/485 ports and two 10/100 Mbps Ethernet LAN ports
- 1 PCI Express Mini Card slot (Wi-Fi or 3G/4G)
- 2 digital inputs and 1 digital output
- Embedded Linux operating system (Yocto)
- Fanless and compact design



*For detailed specifications, please visit www.axiomtek.com or go to Products > System& Platforms> RISC-based DIN-rail Embedded System for [IFB122](#)

Why Axiomtek

With the IoT gateways from Axiomtek, the customer has successfully introduced the cybersecurity solution for critical infrastructure and operational technology environments. The solution can be deployed very fast and is secure and easy to manage.

“We are devoted to securing our clients’ networks in this borderless world. With the quality purpose-built products and excellent services from Axiomtek, we have now completed our overall network security solution for the distributed edge. As part of the zero-trust enforcement model, the IFB122 ensures unbreakable micro-segmentation and secure remote access across an organization’s distributed network,” said the engineering manager of the customer.

About Axiomtek Co., Ltd.

Axiomtek has experienced extraordinary growth in the past 30 years because of our people, our years of learning which resulted in our tremendous industry experience, and our desire to deliver well-rounded, easy-to-integrate solutions to our customers. These factors have influenced us to invest in a growing team of engineers including software, hardware, firmware, and application engineers. For the next few decades, our success will be determined by our ability to lead with unique technologies for AIoT and serve our key markets with innovatively-designed solution packages of hardware and software – coupled with unmatched engineering and value-added services that will help lessen the challenges faced by our systems integrator, OEM and ODM customers and prospects alike. We will continue to enlist more technology partners and increase collaborations with our growing ecosystem who are leaders in their fields. With such alliances, we will create synergy and better deliver solutions, value, and the expertise our customers need.

Axiomtek is a Member of the Intel IoT® Solutions Alliance. A global ecosystem of more than 800 industry leaders, the Alliance offers its members unique access to Intel technology, expertise, and go-to-market support—accelerating the deployment of best-in-class solutions.