FREEWAVE

Industrial IoT Edge Platform

Our **IQ**-infused Zum family of products bring your **Intelligent Edge** within reach.

Evolved for IIoT and ready to transform your operations, today.

Edge operations are ripe with opportunities for greater efficiency and optimization—but you need the data and visibility to find them. **Now with FreeWave, you can have it all.**

The Industrial Internet of Things (IIoT) is becoming pervasive across industrial markets, driven by the rapid adoption of increasingly cost-effective 'smart' sensors and devices developed to withstand rugged operating environments. In turn, more data is being generated in the field than ever before – even at the extreme edge of industrial operations.

The trouble is that companies are still using a centralized approach to collect and analyze the data that their distributed assets generate. Networks struggle to move significantly larger data volumes, and in turn, the vast majority of new insights end up left behind.

In order to take full advantage of IIoT's transformative value, industrial companies must push computing to the edge, where the data is created, as part of an interoperable framework that ensures all insights are accessible and actionable by everyone, and everything, that needs them – anywhere they are.

Enter FreeWave.

We've been connecting the industrial edge for 25 years, and see the opportunities that IIoT now brings to our customers.

That is why we have **combined our proven long-range industrial wireless radios with edge computing capabilities to deliver a complete Edge Ecosystem** to host and run IIoT applications, rapidly transforming the extreme edge of your operation into a connected part of your enterprise.

Proven ruggedized products with IQ intelligence onboard.

FreeWave's IIoT edge solutions take the industrial-grade products we're known for, designed for low-power operation across wide temperature ranges, and infuses them with **IQ** intelligence.

The IQ Application Environment is a Linux-based platform to program, deploy, and run industrial applications. With IQ onboard, you can easily and reliably bring intelligence to the edge, where remote operations take place – without the expense and delay of moving that data to a central location for processing.

IQ is delivered through our Zum family of products, including:

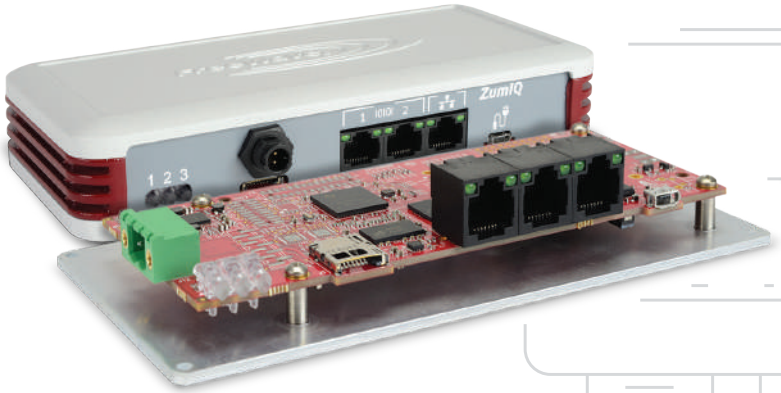
Key Features of IQ

- Compatible with any Linux-based language (e.g., Python, Node-RED, C++, Go)
- ARM Cortex A8 1 GHz processor
- 512 MB of RAM and 1 GB of storage
- Includes full set of deployment, diagnostic, and admin tools

ZumIQ™

Edge Computer

Our hardened, C1D2 certified edge computer provides a secure home to host applications that place analytics and intelligence where remote operational assets reside.



Loaded with **IQ** and standard serial and Ethernet interfaces, ZumIQ can be flexibly integrated into any wired or wireless network architecture. It has the ability to execute multiple applications simultaneously and with low power consumption. Both form factors – whether board-level or within a rugged enclosure – have a wide operating temperature range to ensure uptime of edge applications in even the harshest outdoor environments.

ZumIQ enables the distributed computing today's industrial companies need to derive real value from the new data their edge operations are generating, without overburdening their network.

Key Features of ZumIQ

- Low power consumption
- Wide operating temperature range
- C1D2-certified down to board level
- Flexibly deployed in wired or wireless networks

ZumLink™ IQ

Edge Intelligent Radio

Our integrated edge connectivity and computing platform offers the ultimate in ease of operationalization, giving you **IQ** compute power, storage, and wireless communications links all in a single, hardened hardware product.

With ZumLink IQ, you can run edge applications and create a wireless network using the unlicensed 900 MHz spectrum and Frequency Hopping Spread Spectrum (FHSS) technology: an inherently secure, cost-effective long-range alternative to Bluetooth, Wi-Fi, or LTE. Our ruggedized ZumLink radio supports high speed data rates with throughput from 80 kbps to 4 Mbps, with RF enhancement via FreeWave's Network Accelerators. The addition of **IQ** onboard makes it ready to run any number of industrial applications that put sensor queries, analytics, and intelligence at the network edge.

ZumLink IQ provides an all-in-one solution with future-proof functionality needed to more efficiently gather, proactively manipulate, and immediately act on data generated at remote operations.

Key Features of ZumLink IQ

- **Durable edge computer with connectivity built-in**
- **Wireless data communications in the unlicensed 900 MHz spectrum**
- **Single, streamlined solution to deploy and connect IIoT edge applications**

Pre-Integrated Editions

FreeWave also offers our **IQ**-infused solutions with additional software pre-installed, giving you even greater out-of-the-box functionality in a hardware product made for industrial demands.

IgnitionEDGE! ONBOARD

With the ZumIQ™ or ZumLink™ IQ Ignition Edge Edition, you'll have a ruggedized platform to deploy Inductive Automation's Ignition Edge MQTT.

Ignition Edge MQTT gives operators the ability to rapidly deploy a modern MQTT publish/subscribe architecture providing increased data visibility and efficient use of bandwidth.

Why Is It Time to Evolve?

IIoT has the potential to truly transform how companies run widespread and remote operations. With FreeWave, you can create an interoperable framework to collect and exchange real-time, high-fidelity data, monitor and automate the actions of remote assets, and gain insights that drive better, faster decision-making for significant operational gains.

To maintain a competitive edge, industrial companies need to embrace the possibilities of edge computing and the opportunities it brings with it to:

Address the Data-Intensive Realities of IIoT

Distribute processing to occur at the source, where the remote asset operates.

- Decrease network latency
- Optimize bandwidth

Foster Interoperability

Connect disparate devices using open, secure connectivity options such as MQTT.

- Modernize rather than replace existing infrastructure
- Connect to the cloud for enriched insights

Create Data Transparency

Enable anytime, anywhere access of field data by any stakeholders that need it.

- Collect high-fidelity data for new insights
- Eliminate data silos with cloud-based access

Enable New Business Models

Combine real-time operational data (OT) with longer-term insights (IT) to power:

- Predictive and preventative analytics
- Transformative process optimization

Applications Enabled

The possibilities to solve your challenges and act on opportunities are virtually endless. Our platform powers next-gen IIoT applications for:

- Real-time remote monitoring
- Command and control
- Predictive analytics
- Preventative maintenance
- Remote site automation
- Robotics and autonomy
- Smart process optimization
- ...and much more

Your Intelligent Edge is closer than you think.

With FreeWave as your partner, IIoT is not a far-off vision but a near-term reality.

Build on What You Have

Our Zum products are built to rapidly enhance, not replace, your existing infrastructure – at a fraction of the time and cost it would take to install new PLCs or RTUs with such enhanced capabilities.

Gain Programmability

Our open source platform ensures you are not tied to proprietary protocols or processes, and allows for secure "plug-and-play" scalability as your number of connected assets grows.

Future-Proof Your Operations Today

You will immediately gain expanded capabilities for high-fidelity data capture, analysis, control, and automation via a single IIoT platform that is easily scaled as your edge computing needs evolve.

It's time to make your move.

We're ready to evolve your edge, applying our **IQ**-infused Zum family of products help you capitalize on the IIoT opportunities awaiting your industrial operation. Get started by contacting our team today.

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