SOLUTION BRIEF

# SUPERMICRO AND INDUCTIVE AUTOMATION UNIFY DATA COLLECTION, REAL-TIME CONTROL, AND LONG-TERM VISIBILITY FROM THE EDGE TO THE ENTERPRISE

*High-Performance Industrial Compute for Modern SCADA, MES & IIoT Deployments*

AS -E300-14GR

SYS-111AD-WRN2

SYS-512AR-N4T

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## Executive Summary


Industrial organizations are accelerating their digital transformation initiatives, modernizing SCADA (Supervisory Control and Data Acquisition), MES (Manufacturing Execution Systems), and IIoT systems to improve operational efficiency, reduce downtime, and enhance real-time visibility. Inductive Automation's Ignition platform has emerged as a leading solution for unified industrial operations—combining SCADA, HMI (Human-Machine Interface), MES, alarming, historian, and MQTT (Message Queuing Telemetry Transport)-based IIoT within a single, scalable platform.


To support these increasingly demanding workloads, Supermicro provides a portfolio of high-performance, industrial-grade computer systems. The AS -E300-14GR, SYS-111AD-WRN2, and SYS-512AR-N4T deliver the reliability, performance, and

scalability required for modern Ignition architectures, from machine-level edge gateways to plant-wide SCADA to enterprise-level redundancy and MES.

Together, Supermicro and Inductive Automation enable a robust, future-proof foundation for industrial modernization.

## Solution Architecture Overview

Modern industrial systems require a unified software platform capable of collecting, processing, visualizing, and storing operational data across machine, plant, and enterprise layers. Ignition provides this foundation through three core architectural roles: Ignition Edge Gateway, Ignition Gateway/ Front-End Gateway, and Back-End Gateway.

## Ignition Edge Gateway

The role of the Ignition Edge Gateway is machine-level data acquisition & local processing. It operates at the machine or cell level, providing real-time connectivity to PLCs, sensors, and control systems. Ignition supports protocols such as OPC UA, Modbus, and MQTT Sparkplug B, enabling reliable OT data collection and secure transmission to higher-level gateways. Local processing involves local tag acquisition and preprocessing, MQTT transmission for IIoT architectures, store-and-forward buffering for network resilience, and, optionally, local HMI or lightweight visualization.

## Ignition Gateway / Front-End Gateway

The role of the Gateway is to provide plant-floor SCADA, visualization, and control. It serves as the central SCADA and operations platform at the plant level, aggregating data from multiple Edge Gateways. The gateway's workloads perform tag processing and real-time control logic, provide visualization via Ignition's Perspective and Vision modules, support alarming, execute scripting and business logic, act as a local historian for short-term storage, and communicate with MES and plant-level systems.

## Back-End Gateway

The role of the Back-End Gateway is long-term storage and redundant gateway failover. It supports high-volume historian writes, enterprise reporting, and integration with cloud, ERP, and analytics platforms. It provides enterprise-wide tag synchronization, executes reporting, MES, and scripting workloads, and supports cross-site coordination by multi-site data aggregation and distribution.

## Unified Architecture Summary

| Layer | Ignition Role | Supermicro SKU | Core Responsibilities |
|---|---|---|---|
| **Machine / Cell** | Ignition Edge Gateway | AS -E300-14GR | Data acquisition, MQTT transmission, local buffering, and optional HMI |
| **Plant Floor** | Ignition Gateway / Front-End Gateway | SYS-111AD-WRN2 | SCADA, visualization, alarming, scripting, short-term historian |
| **Plant Floor / Enterprise** | Back-End Gateway | SYS-512AR-N4T | Long-term storage, redundancy, MES, reporting, multi-site coordination |

## Conclusion

Together, Ignition and Supermicro provide a powerful, scalable, and future-proof foundation for modern industrial operations. Supermicro's edge and enterprise systems deliver the performance, reliability, and ruggedness required for real-time SCADA, MES, and IIoT workloads. At the same time, Ignition provides a unified software platform that ties operations together.

This combined solution enables manufacturers to improve uptime, enhance visibility, modernize operations, and scale confidently across plants and enterprise environments.

## For More Information

Supermicro Edge Portfolio: https://www.supermicro.com/en/products/edge/servers

### SUPERMICRO

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### INDUCTIVE AUTOMATION

Founded in 2003 by system integrator Steve Hechtman to solve SCADA pain points, Inductive Automation developed Ignition to empower people to "Dream It, Do It." Today, with installations in 140+ countries and 69% of the Fortune 100 companies, Ignition is widely recognized as the top choice for SCADA, HMI, IIoT, MES, and more. Highly respected and awarded, Inductive Automation was recently recognized in five categories of Automation World's 2025 Leaders in Automation program.

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