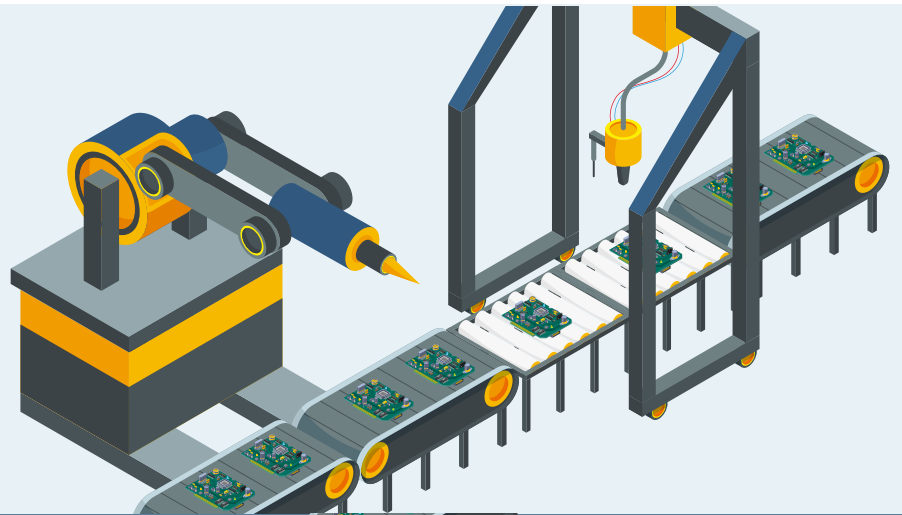**Industrial Robot**

Machine Vision

Manufacturing Execution System

Enable Smart Automation with AIoT

The next industrial revolution is powered by Artificial Intelligence and the Internet of Things (AIoT). Modern AIoT solutions meet steep industrial requirements and bring a new level of productivity and innovation. The future of smart automation is already here. Are you ready?

Requirements in Automation

Integration

- Interfacing with existing manufacturing equipment and infrastructure
- Effective data collection and analysis
- Compatibility with complex networking

Environment and Expansion

- Stable in extreme temperatures
- Protections against challenges such as pollution and vibration
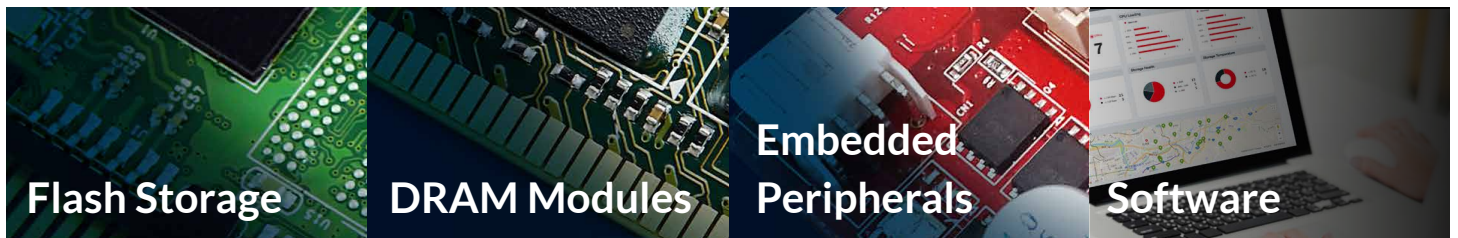- Coordination between equipment

Monitoring

- Centralized control
- 24/7 monitoring
- Remote management and maintenance

Data Security

- Safeguards against unauthorized access
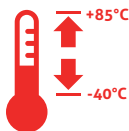- Data retention and redundancy

Our Solution

Flash Storage

DRAM Modules

Embedded Peripherals

Software

☑ Extreme performance for industrial applications

☑ Hardware and firmware technologies for unmatched stability

☑ Rugged designs that excel in demanding environments

☑ Small and customizable form factors for any application

☑ Easy deployment and efficient management from anywhere

| ISOLATION | ESD | Wide Temperature | Conformal Coating | Anti-Sulfuration | iPower Guard | iCell | iRetention | Out of band Signaling |

Smart Factory Assembly Line Management and Monitoring

Helping a client reduce costs and improve uptime with smart device monitoring

Modern smart factories are full of advanced equipment and devices that are required to function at an optimal level and in perfect coordination with little supervision. However, with so many devices and so much data generated by all these devices, it can be extremely difficult for system operators to stay on top of such assembly lines. One client with a state-of-the-art factory hoped to improve efficiency and system stability by making management and maintenance work easier.

Challenges

- Difficulty of collecting pertinent device information from a diverse and vast range of devices and equipment
- Inability to predict system crashes and device failures
- Necessity of storage equipment life prediction to ensure timely replacements
- Often insufficient manpower on site

Solutions

- Notification system implemented through iCAP
- Online device and equipment management interface accessible from anywhere
- Continuous monitoring of storage devices and other equipment
- Automatic issuing of email and text message alerts in the event of abnormal device behavior and failure

Result

By integrating all important equipment and devices with Innodisk's iCAP device monitoring software, the client was able to drastically streamline factory management and reduce costs incurred by maintenance and planning work. With iCAP, the system operators also received timely alerts about potential device and equipment malfunctions—even when off-site—which facilitated timely repairs and replacements to improve system uptime.

Rugged and Secure Technologies for Autonomous Smart Factory Robot

Ensuring that a smart factory's robots can operate smoothly and securely in tough and diverse industrial environments

A client wanted to strengthen the ruggedness and security of their "all-in-one" robotic system designed for use in smart factories. Engineered to accomplish various tasks, including screw driving, dispensing, soldering, palletizing, assembly, etc., this highly adaptable autonomous robot system needed components and technology optimized for operation in diverse industrial environments. Further, the client needed intelligent software solutions for seamless monitoring of its equipment while also maintaining the highest level of data security.

Challenges

- Required to withstand harsh and diverse environments, e.g., high temperatures, high humidity, and vibrations
- Robotic system needed to be able to resume operations even after encountering unstable power supply
- Limited space for components inside the robot
- Client expressed concerns over cyber security threats posed to its robotic applications
- High sensitivity to unexpected system crashes as such occurrences cause a stop to the entire manufacturing line

Solutions

- Components with Innodisk's signature wide temperature, conformal coating, and side fill technologies
- iCell technology to protect against unexpected power failure
- iOpal software technology and AES-256 encryption to protect data
- iSMART and iCAP software suites for effective and cost-efficient device monitoring
- Very low-profile (VLP) form factors and customized modules to ensure a small hardware footprint and a perfect fit

Result

With Innodisk's rugged and compact components, the robotic system gained much-needed protection from its tough working conditions without any impact on its size. Moreover, Innodisk's customized firmware helped mitigate the effects from unstable power supply, further strengthening the robots' operational stability. To fully address the client's needs, smart software solutions optimized for remote management and monitoring were also implemented—reducing the cost and manpower needed to operate the intelligent robotic system. All this, combined with Innodisk's security-focused hardware and software solutions, delivered a highly capable and secure solution ready for action.

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