

iFactory

Overall Equipment Effectiveness Solution

Real-time Machine Availability Management
for Maximizing Operational Excellence

Solution
Ready
Package



- ✓ Rapid configuration of OEE solution
- ✓ Intelligent platform improves machine availability
- ✓ Easy data management to optimize production efficiency



ADVANTECH

Enabling an Intelligent Planet

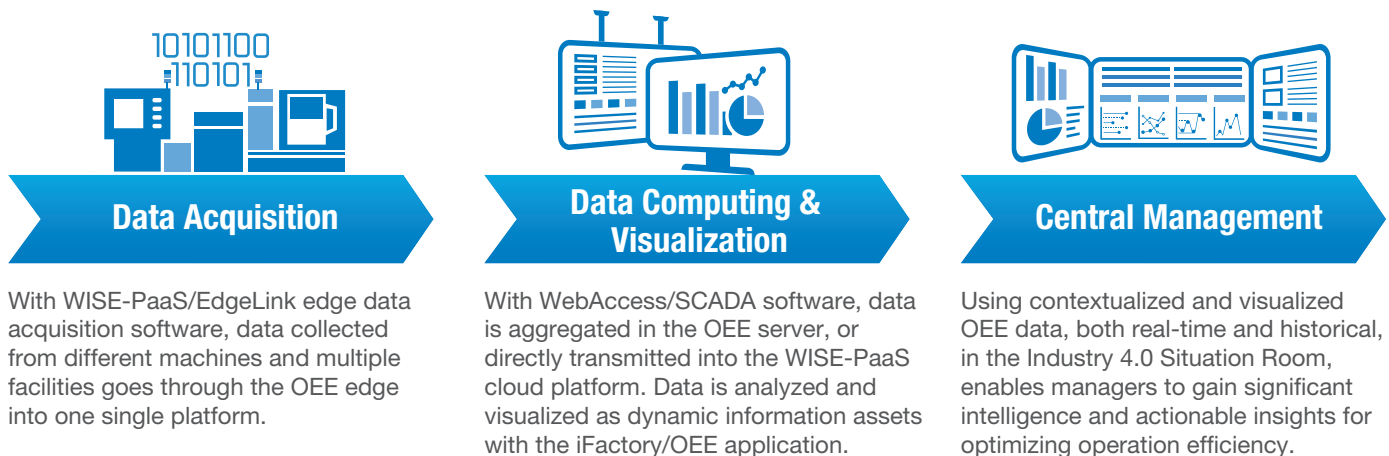
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WISE-PaaS

Overall Equipment Effectiveness Solution

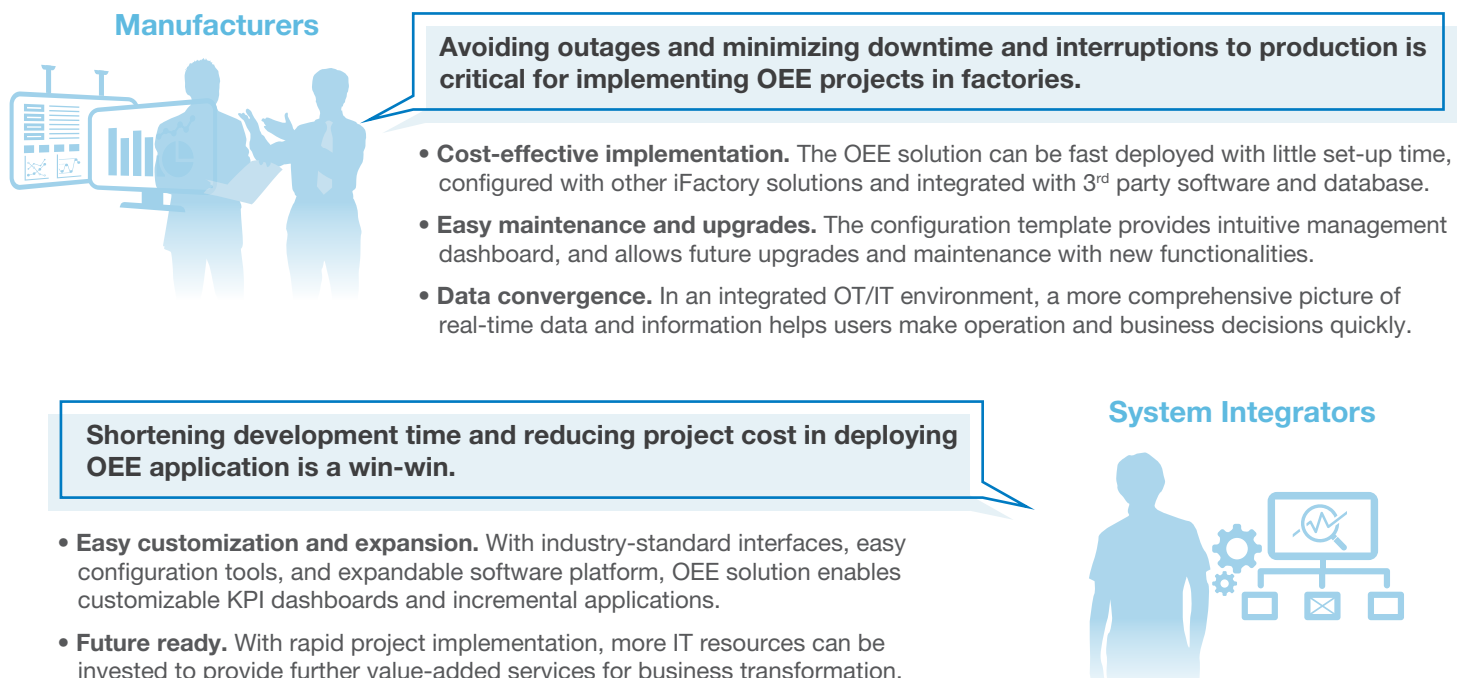
Many manufacturers find it hard to identify those specific losses that contribute to low machine productivity as they are difficult to identify, record, and analyze, so manufacturers are looking for support in making the move toward smart factory transformation. To realize Industry 4.0 does not have to necessitate a major infrastructure overhaul that costs a lot of money. With Advantech's iFactory Solution Ready Package (SRP) that combines hardware and software into integrated industrial applications, manufacturers can adopt a step-wise approach to realizing their intelligent factory. For system integrators, iFactory SRP provides a cost-effective approach to expediting project development with value-added applications that meet the criteria of Industry 4.0.

Overall Equipment Effectiveness (OEE) solution, one of the most vital iFactory SRPs, realizes intelligent factory through data acquisition, aggregation, and analysis of machine availability to improve productivity, reduce loss, and increase profit.

Three Steps to Start Your Industry 4.0 Journey with OEE SRP



Accelerate Your Digital Transformation with OEE SRP



Feature Highlights

Real-time OEE KPI Management

OEE KPI allows production performance to be measured and compared for real-time management. It also provides immediate customizable notifications so that appropriate people can be alerted in an unexpected factory floor condition or event.

OEE Dashboard Visualization

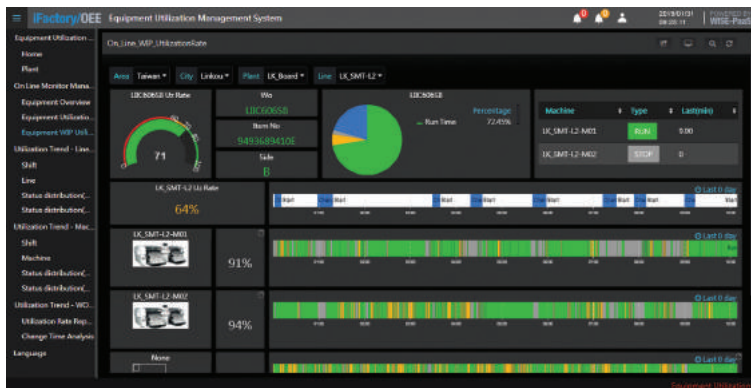
User-centric, custom OEE dashboards provide a quick overview on factory operational KPIs. The dashboard visualizations include trends, graphs, diagrams and process displays. It also allows users to view real-time and historical data in tables for tabular analysis and reporting.

Remote Access, Anytime Anywhere

Mobile access to OEE dashboard empowers operators to view data and get insights proactively. It also supports managers to ascertain business intelligence, make decisions, and determine appropriate actions to take.



Dashboard Management

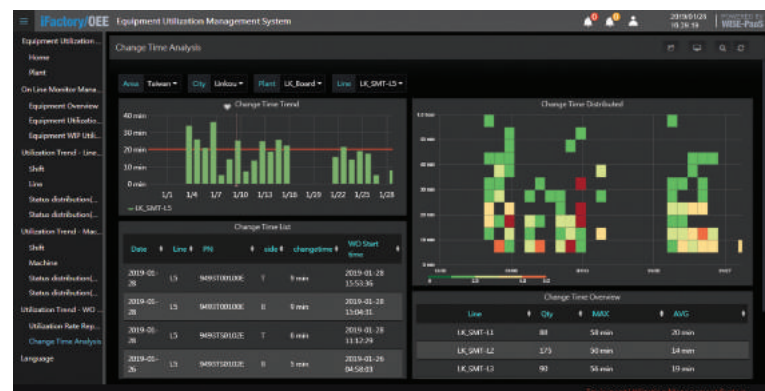
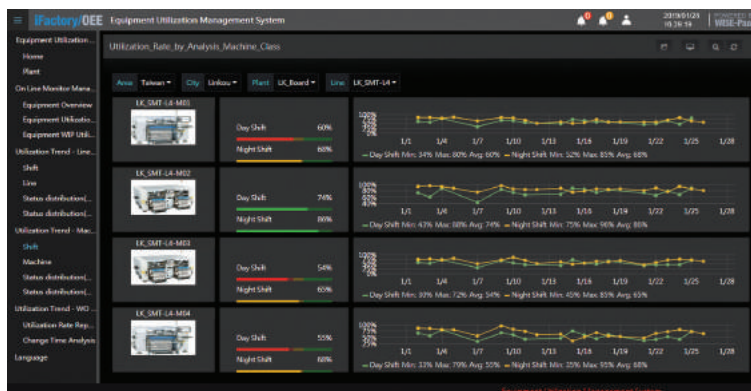


Real-time Production Management

Machine status can be monitored as machine running, error, idle, and machine stopped. Integrated with MES, the work-in-process (WIP) information can be connected to machine status for analyzing and improving overall production efficiency.

Machine Availability Management

The runtime of each machine can be counted to calculate machine availability that reflects the percentage of planned production time the machine is available for operation. Machine availability can be utilized to evaluate the return on investment (ROI).



Production Management: Day Shift & Night Shift

The comparative production analysis of day and night shifts can be examined in detail on a daily basis, to further evaluate and improve the performance.

Changeover Efficiency Management

The average changeover time can be calculated to analyze daily efficiency. To figure out the small differences, accurate scheduling changeovers at the right time can improve operation efficiency.

Benefits



Improve Productivity

- ✓ Unlock hidden production capacity
- ✓ Increase machine availability
- ✓ Maximize production output
- ✓ Improve production value per employee



Reduce Loss

- ✓ Minimize unplanned downtime
- ✓ Reduce product defects
- ✓ Eliminate process bottlenecks
- ✓ Prevent unscheduled maintenance activities and costs



Increase Profit

- ✓ Improve asset utilization
- ✓ Shorten production lead time
- ✓ Optimize product quality
- ✓ Drive a culture of continuous improvement

Application Story

Digital Transformation Begins with Real-time OEE Monitoring

Overview

Founded in 1984, RE-DAI precision tools are one of the leading hand tool manufacturers in Taiwan. Derived from RE-DAI's IT department, IMPELEX data transfer was established in 2013 as an innovative system integrator to foster smart factory implementation. IMPELEX is employing an equipment utilization management system in RE-DAI's Taichung factory. They are also starting planning for a smart factory that RE-DAI wants to build in Chiayi.

Challenge

RE-DAI wanted to prevent sudden outages and improve production stability. At RE-DAI's Taichung factory, production was already largely automated but there are machines of different types, brands, and models. So IMPELEX had to figure out the interconnection to all machines and the overall machine availability to improve real-time management for RE-DAI's staff.

Solution

Advantech provided IMPELEX with an OEE SRP to realize 100% data collection from various machines and real-time availability management at RE-DAI's factory.

- Cloud platform to speed deployments and slash costs.
- Configurable dashboard development toolkit to save customization effort.
- Industry 4.0 Situation Room for managers to perform real-time management and data-driven decision making.

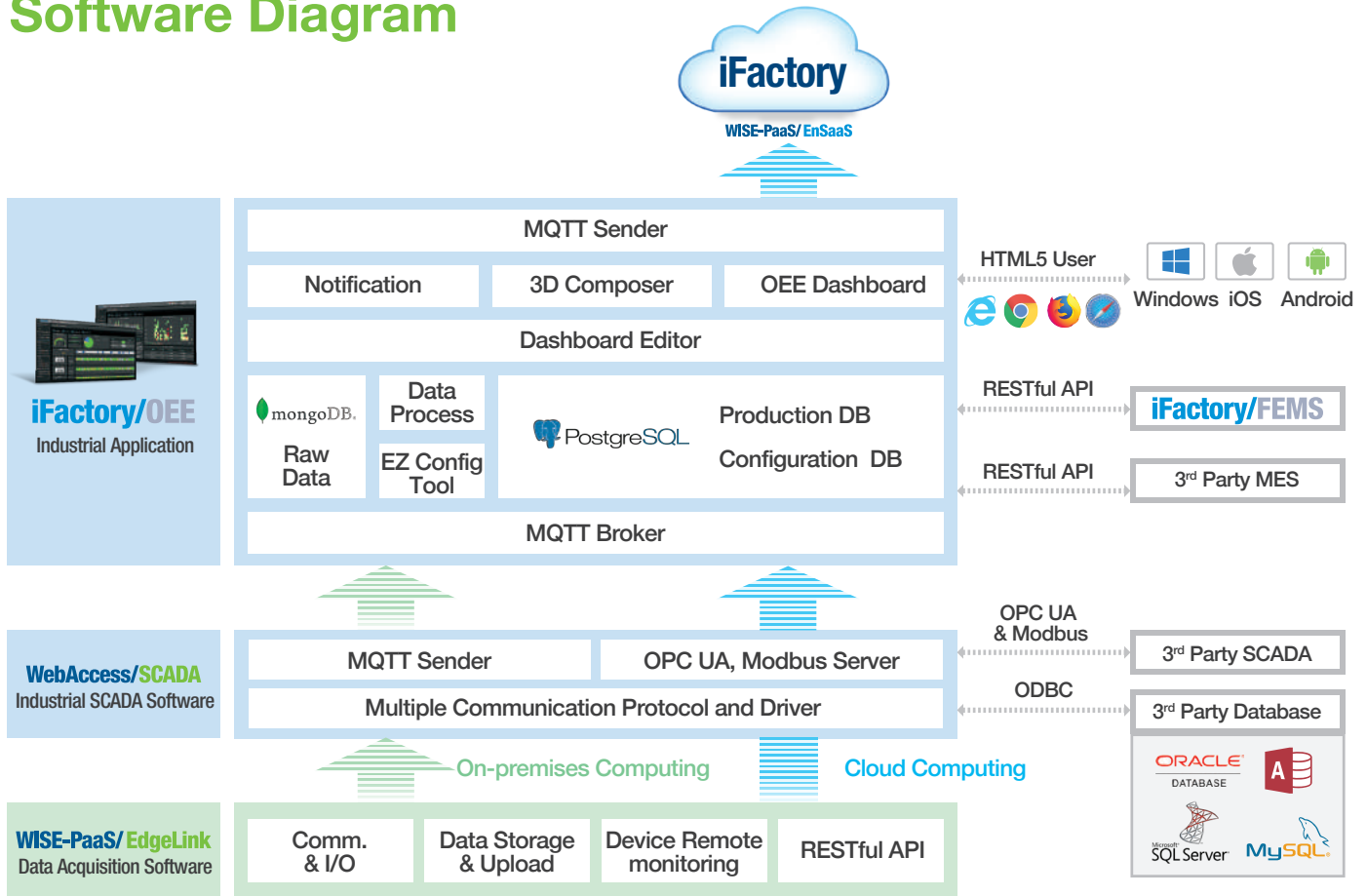
Benefits

With IMPELEX's equipment utilization management system, production efficiency of RE-DAI has been effectively improved.

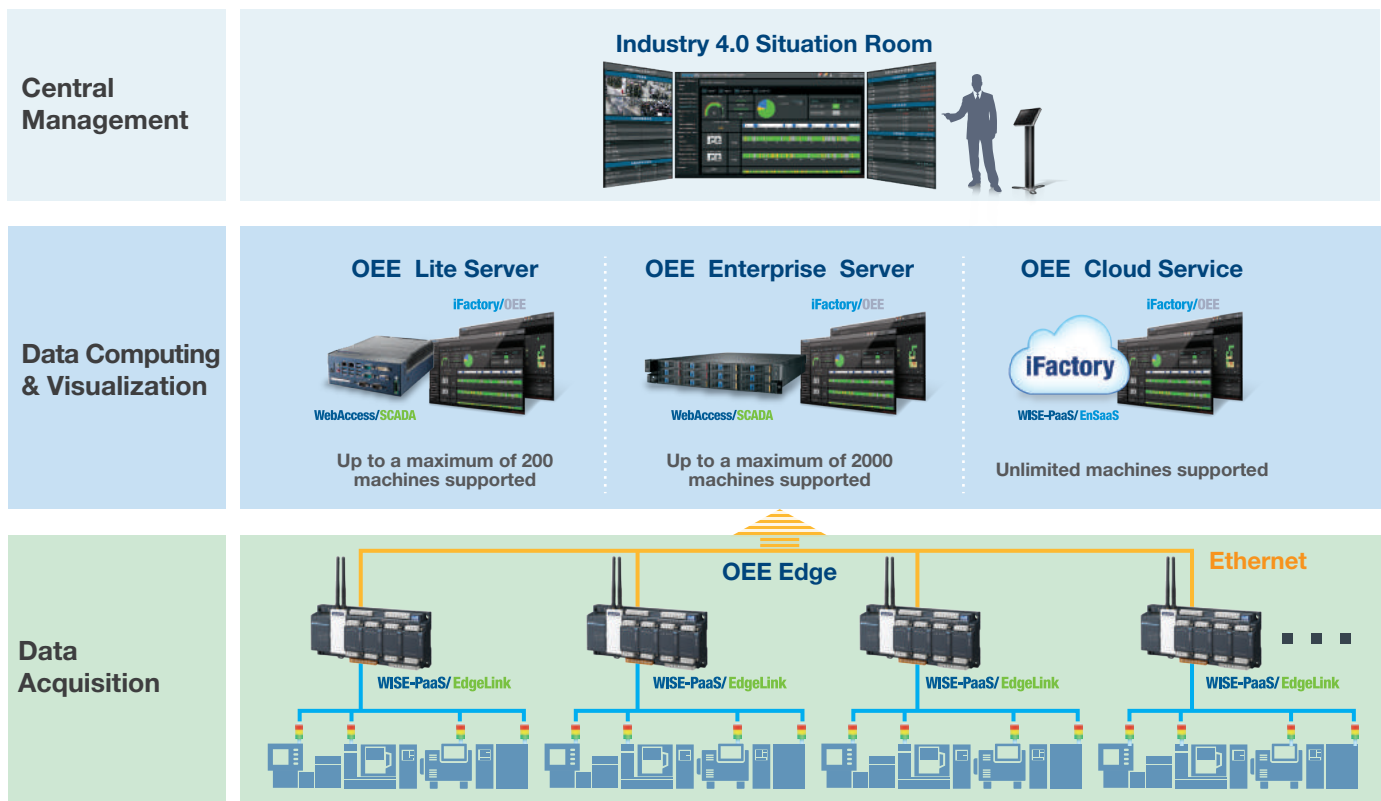
- Production has grown steadily thanks to a 20% improvement in machine availability.
- There has been a 50% labor-cost reduction due to upgrading from manual transcription to real-time, automated monitoring.



Software Diagram



System Diagram



Solution Ready Package

Industrial Application Package

On-Premises Computing & Visualization

OEE Lite Server



SRP Package

- OEE lite server: SRP-IFS230-M77F01A
- Industrial application solution for iFactory/OEE: 32OTLOEE0001A0

Spec

- MIC-7700 with i7-7700T
- Win10 + PostgreSQL + Office
- WebAccess 8.3 5000 tags
- iFactory/OEE application with a maximum of 200 machines supported

OEE Enterprise Server



SRP Package

- OEE enterprise server: SRP-IFS230-H82F01A
- Industrial application solution for iFactory/OEE: 32OTLOEE0002A0

Spec

- HPC-8212 with Xeon Silver 4110 8 core
- WinSvr2016 + PostgreSQL + Office
- WebAccess 8.3 unlimited
- iFactory/OEE application with a maximum of 2000 machines supported

Cloud Computing & Visualization

OEE Cloud Service



SRP Package

- Industrial cloud solution for iFactory/OEE: 9803WPOE01

Spec

- Cloud service in WISE-PaaS/EnSaaS cloud-based software platform
- iFactory/OEE application with unlimited machines supported

Edge Package

Data Acquisition

OEE Edge



WISE-PaaS/EdgeLink

SRP Package

- OEE Edge: SRP-IFS210-D36TAE

Spec

- IEC61131 programming language
- Build in edgeline function
- Periodic logger for data buffering on SD card
- Linux kernel 3.12 RT
- Zigbee/Wi-Fi/3G/4G
- Built-in AI/DI/DO

Value Added Package

Central Management

Industry 4.0 Situation Room



SRP Package

- Situation Room: SRP-SR-100-BTO

Spec

- 86" LCD x1 + 55" LCD x2
- Server DS-980
- Control panel UTC-520
- WISE-PaaS/SignageCMS

WISE-PaaS Membership

WISE-PaaS VIP



VIP Package

- WISE-PaaS VIP: 98DPWAP2K

Spec

- WISE point: 2,000 points

ADVANTECH

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