HON HAI TECHNOLOGY GROUP

From Chips to Compute: Delivering AI Infra at GW Speed

Foxconn Full-Stack Automated System for Vera Rubin

Liu Zongchang, CDO of Foxconn Industrial Internet Co.

Oct. 12, 2026

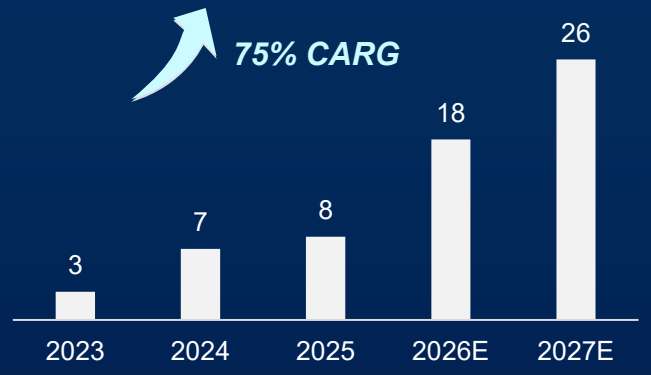
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Challenge for CSPs: GW-Scale Compute Delivery

CSP Compute Capacity Scaling at GW-Speed

Top 5 CSPs build new AI computing power / GW *



Delivery speed & reliability become critical

System Complexity Growing Dramatically



Vera Rubin NVL72
Integrates
1.3 million components,
1,300 chips

High component density creates integration challenges

Product Iteration Accelerating

Generation	Ramp Start Time
Ampere	2020.11
	28-month interval
Hooper	2023.3
	27-month interval
Blackwell	2025.6
	15-month interval
Rubin	2026.9
	shorter interval
Rubin Ultra	2027

Iteration accelerating demands manufacturing agility

CSPs' core challenge shifted from securing chips to rapidly converting them into compute capacity.

Foxconn's answer is Full-stack Automation.

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Resource: TrendForce

Foxconn Automation Strategies

DESIGN FOR AUTOMATION

1 **Engage Earlier in Customers' Roadmap**

Optimize Manufacturability Before Design Freeze



OMNIVERSE + DIGITAL TWIN

2 **Validate Virtually Before We Build**

Level 3 AI Copilot Oct 2026 • Level 4 Orchestration Dec 2026



MODULAR, FLEXIBLE & HUMANOID

3 **Flexible by Design. Scalable to Any Site**

Isaac Lab + GR00T humanoids already in production



Future Automation Model

Sequential Development -> Concurrent Engineering

Build to Validate -> Virtual Validation

Dedicated Equipment -> Reconfigurable Systems

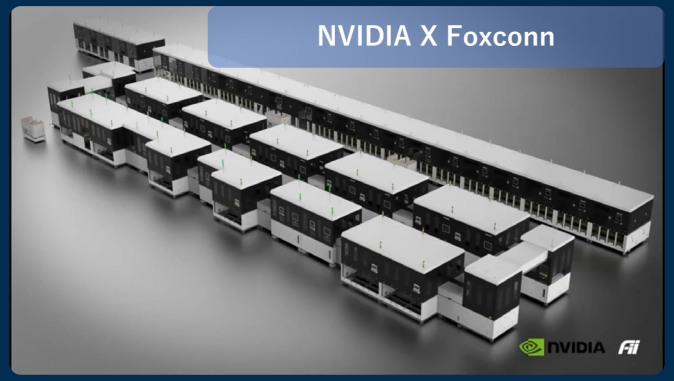
Local Deployment -> Global Orchestration

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Foxconn Automation Evolution, from GB to VR







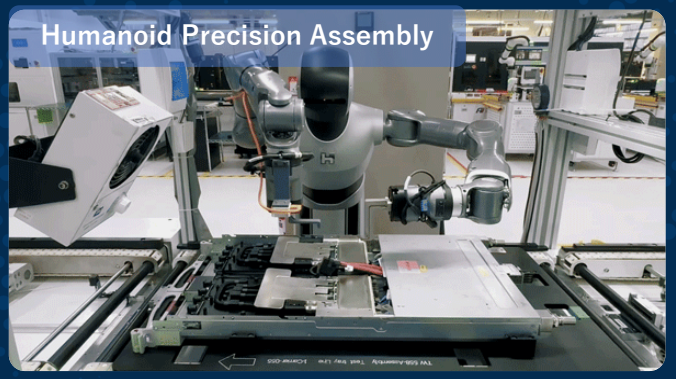
VR vs. GB

Automation Coverage	NPI Lead Time
94%	**3.5 Months**
vs. 56% ↑ 38%	vs. 4.5 Months ↓ 22%

FPY - Assembly	FPY - Testing
97%	**80%**
vs. 91% ↑ 6%	vs. 39% ↑ 41%







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Key Enabling Designs for VR Automation

1 Design Philosophy：DFM → DFA



- Design for manufacturing to automation.
- Optimize assembly sequence, tolerance.
- Reduce late changes.

Eliminates late-stage design changes.
Enables High-yield Automated Production.

2 Cableless Architecture



- Replace internal cable harnesses.
- Midplane for high-density interconnection.
- Standardized interfaces for alignment.

Removes labor-intensive cable routing.
Enables fully automated board assembly.

3 Hose-Free Liquid Cooling



- Integrated inner-manifold into rack.
- No flexible hoses in main cooling loop.
- Leak-free design for automated mating.

Reduces leak points.
Speeds up L6/L10 assembly & test cycle.

Design for Automation = Higher Yield, Faster Ramp, and Consistent Quality at GW Scale.

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Key Enabling Technologies for VR Automation

Grace Blackwell



Fully Automated Operation Achieved

UPH +13%

AI AOI for Higher judgement Efficiency

Vera Rubin



KEY BREAKTHROUGHS

33% Improvement in TIM Picking Efficiency

Cycle time reduced from 1.2s to 0.8s

Higher Throughput

Dual-slide station design increases throughput while reducing equipment footprint

End-to-End Automation

MDT-to-hole-punching process fully connected and automated

Lean Equipment Integration

Fast inspection + tray separation integrated to reduce equipment and manual operations

Automated Material Flow

Automated logistics system for efficientinter-station transfer

AI Quality Inspection

Deep-learning AOI to reduce false positives/negatives and improve quality control

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Automated Test & Validation for VR L10

Key Enabling Technologies

Test Central Control Sys.

Real-time station-level MTF status monitoring, multi-site test data synchronization, delivering full test chain visibility and complete log traceability.

AI-Powered FA Expert Sys.

LLM-driven failure analysis engine built on fault knowledge; automatically identifies failure symptoms, outputs step-by-step repair and routing decisions.

Intelligent Log Parser

Compatible with multi-format device logs; performs automatic failure classification, matches historical repair cases, and pinpoints root-cause components.

Auto-Dispatching Logic

Paired with AGV automated material flow; enables intelligent Pass/Fail/NG triage and direct routing to quick repair / retry stations.

Quantified Performance

100 %
Automation Coverage for L10
↑ 70 pp

80 %
FPY - testing
↑ 41 %

12 hrs
Per Unit Test Time
↓ 3 hrs

1 tray / min / line
Capacity
↑ 50 %

Global Test Bay Allocation & Capacity

1000+ Test Bays

100+ MW total Capacity

Americas
America | Mexico

Asia
Taiwan

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Case Study: our Solution for a Top-3 CSP

A structured NPI-to-global-replication approach for fast, high-quality ramp.

Customer Challenge

- Fast VR platform transition, dedicated design
- High component count and liquid cooling complexity
- Need for fast NPI, stable yield, and global rollout

Gate 1

Requirement

2 days

Aligned CSP performance, capacity, design, and ramp targets

Gate 2

DFM Output

7 days

Translated customer need into manufacturable assembly sequence

Gate 3

Design Review

5 days

Frozen BOM, process specification, and risk controls

Gate 4

Buy-off

20 days

Completed FAT/SAT and safety validation

Gate 5

MP Release

5 days

Launched controlled ramp with standardized issue resolution

Gate 6

Global Replication

15 weeks

Rolled out duplicated Line, replicated golden process

PLM Traceability

We control every change

- Design version control, ECR/ECN management
- Connected engineering, procurement, production data

Lifecycle Quality Assurance

- Design → MFS → Build → Acceptance → Performance
- Closed-loop corrective action

Shorter NPI Development L/T 17 weeks

Foxconn one-stop solution reduces non-recurring engineering and rework, enabling faster customer's Vera Rubin platform introduction.

Faster Ramp-Up 1 week

Integrated DFM, automated test, and early issue resolution support faster volume ramp from NPI to mass production.

Consistent Quality in Global Replication

Golden process replication and lifecycle quality control help ensure uniform output quality across global manufacturing sites.

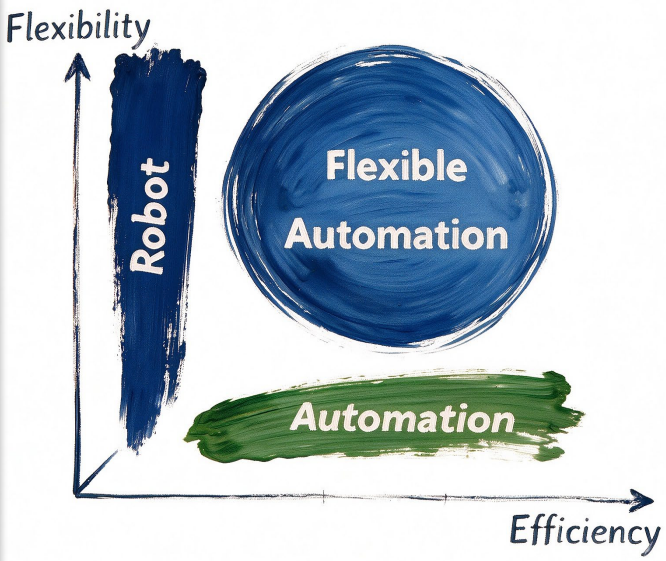
Next Phase: Flexible Automation

Reusable Automation via One Platform, Cluster Swap & Type A/B Combination.

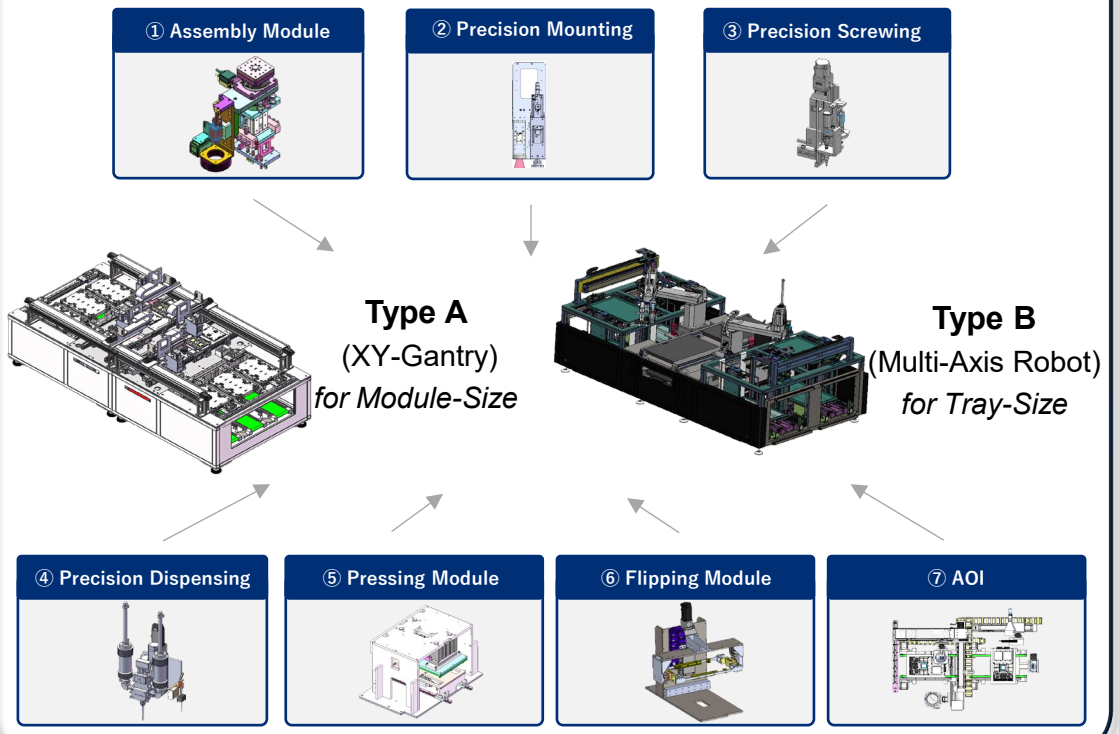
Current Pain Points

- Long NPI cycle for new platform introduction
- High cost & long downtime for line changeover
- Dedicated line cannot reuse for next-gen products

1 A Balance between Efficiency & Flexibility



2 Our Answer: Type A & B, changeable Processing Clusters



3 Performance: "Quick 4 Slim"

Quick

NPI machine L/T ↓ to **10** weeks

Changeover in **2** hour

Flexible

2 machines for **7** processes

1 line for **multiple** products

Slim

40% Space saving

Equip Qty ↓ by **55%**

Future Factory: Paradigm to Autonomous Operation

Traditional: Low-Mix, High-Volume

Dedicated lines for scale efficiency
Rigid changeover, high customization cost



Paradigm Shift

Future: High-Mix, Low-Volume

Customer-centric mass customization
Fast response to multi-SKU batches
Requires flexibility & dynamic scheduling



1 Digital Twin

- Sim2Real virtual validation
- Virtual factory & process optimization
- Cuts NPI trial cost



Plan & Validate

2 Flexible Automation

- Fast line reconfiguration
- Physical base for multi production
- Decreases NPI L/T



Execute & Reconfigure

3 Humanoid Robot

- Universal workshop, max flexibility
- Load / unload the materials
- "All-around worker" on line



Assist & Operate

4 Factory AI Agent

- Orchestrating & decision-making
- Scheduling & predictive maintenance
- Dynamic resource optimization



Decide & Optimize

Digital Twin validates plan → Flexible Automation provides physical base →
Humanoid Robots execute flexible tasks → Factory AI Agent optimizes and feeds back

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FOXCONN



Share



Collaborate



Thrive

∃+∃+∃=∞

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