Electronics

Ramping up new semiconductor business

Shanxi Huayao Yijia Integrated Circuit Company

With its Manufacturing Execution System running on ThinkAgile VX, a hyperconverged infrastructure from Lenovo and VMware by Broadcom, SHYICC is on the path to rapid growth and reliable delivery of semiconductor packaging solutions.

Lenovo

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Who is
Shanxi Huayao Yijia Integrated Circuit Company?

Shanxi Huayao Yijia Integrated Circuit Co., Ltd. (SHYICC) is a new semiconductor chip packaging company founded in December 2021 by Nanyao Group, a leading joint-stock industrial enterprise with 6,000 employees in Shanxi Province, China. Phase 1 of SHYICC went into production in 2023. Two further phases are planned, with a total investment of 13 billion yuan (USD 1.8 billion) in an 800-acre manufacturing site that will eventually generate an annual output value of 10.3 billion yuan (USD 1.4 billion).
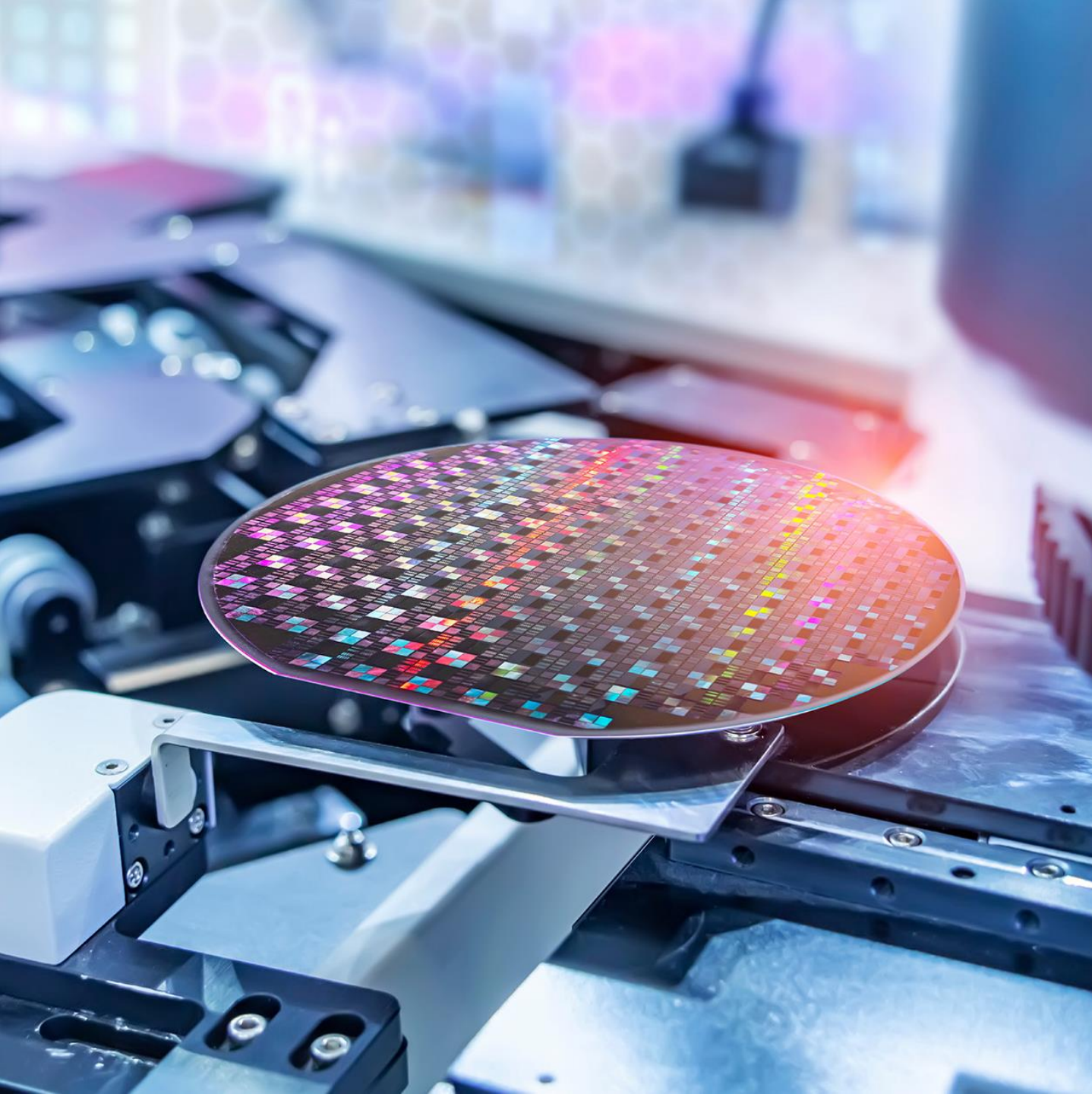
山西南耀集团
SHANXI NANYAO GROUP

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The
Challenge

Semiconductor packaging—a key stage in the manufacturing of microelectronics—involves fixing and connecting semiconductor chips on substrates, then encasing them in a protective and insulating structure. The resulting packages are then ready for durable and reliable use in a wide variety of devices, from smartphones to cars. Without packaging, sensitive components would be exposed to vibration, moisture, and other potentially corrosive agents, shortening the life of high-tech products.

Manufacturing processes in the semiconductor industry are complex and time-sensitive, so they depend on the utmost reliability and performance in the systems that support them. For SHYICC, which has just completed its first batch of test chip packages, it was crucial to select a robust server platform for the Manufacturing Execution System (MES) and its databases. The company also wanted to minimize the likely IT management workload, because it has a relatively small IT team.

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"A hyperconverged infrastructure-based server offering was an attractive option because this approach brings together the key elements into a single, easy-to-manage platform. We chose VMware as our virtualization platform, and we looked for a hyperconverged offering from a leading vendor of enterprise hardware: Lenovo."

Wang Li
Section Member, Shanxi Huayao Yijia Integrated Circuit Co., Ltd.

Choosing
Lenovo ThinkAgile VX Series

Following an analysis of offerings on the market, SHYICC selected a hyperconverged infrastructure (HCI) from Lenovo and VMware by Broadcom: Lenovo ThinkAgile VX Series. The organization worked with Lenovo pre-sales engineers to design the solution configuration according to business requirements, including redundant elements to help maximize uptime. SHYICC deployed three ThinkAgile VX7530 servers to run its MES applications and the accompanying Oracle databases. The organization continues to refine and develop its MES environment based on needs identified during the start-up phases of manufacturing.

Hardware
Lenovo Storage DE4000H
Lenovo ThinkAgile VX7530
Lenovo ThinkSystem SR650 V2

Software
Lenovo XClarity
VMware vCenter® Lifecycle Manager™
VMware vSAN™
VMware vSphere®

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Results

With Lenovo ThinkAgile VX and VMware's virtualization software stack, SHYICC is now in a strong position to expand its manufacturing activities without worrying about how its MES solution will scale. The Lenovo ThinkAgile VX Series platform has significant headroom for growth, so SHYICC will be able to extend its VMware landscape as business needs dictate.

As the solution grows, SHYICC anticipates that the workload for its IT team will remain low, thanks to powerful server management and automation tools including Lenovo XClarity and VMware vCenter® Lifecycle Manager™.

✓ **Highly scalable platform**

✓ **Certified VMware compatibility**

✓ **Easy management**

Easy-to-manage solution

The ThinkAgile VX hyperconverged solution, based on VMware vSAN™ and VMware vSphere® technologies, combines computing and storage into a single, easy-to-manage system. Pre-testing and validation for VMware vSAN compliance means that SHYICC can focus on growing its business without concerns about compatibility or performance. And with clustered VMware vSphere hosts on the Lenovo ThinkAgile VX platform, the company can be assured of high availability for its mission-critical MES solution.

While SHYICC is still in the early stages of production on Lenovo ThinkAgile VX Series, the team already appreciates the low management overhead of the system and the support from Lenovo after-sales engineers. The in-house team of eight people is free from low-level administration and can dedicate its time to building out the systems required by the business. This also means that the Lenovo and VMware solution offers low long-term total cost of ownership.

"Lenovo ThinkAgile VX Series offers certified compatibility with the VMware software we run, and the platform is very stable. As we ramp up our manufacturing, we are confident that the combination of Lenovo and VMware technologies will continue to meet our needs."

Wang Li
Section Member, Shanxi Huayao Yijia Integrated Circuit Co., Ltd.

Why Lenovo?

Choosing Lenovo has given SHYICC the benefits of a global leader with a strong strategic alliance with VMware, backed by expert local support and services in China.

"The ThinkAgile VX platform provides close integration between the Lenovo and VMware elements, which makes the solution easier for us to manage in terms of both hardware and software," says Wang Li. "We look forward to potential further collaboration with Lenovo on topics such as factory automation management."

How can new companies improve their focus on core business?

Shanxi Huayao Yijia Integrated Circuit Company runs on a hyperconverged infrastructure from Lenovo and VMware, minimizing IT administration.

Explore Lenovo ThinkAgile VX Series

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