

How CBT Replaced Traditional Motion Control for Greater Performance and Value

THE ORGANIZATION:

A Leader in Automatic Exposing Machine and Circuit Board Production



Chime Ball Technology Co., Ltd. (CBT) produces CCD automatic alignment exposing machines for PCB printed circuit boards, and FPC soft printed circuit boards built for high quality and cost-effectiveness. With a focus on design, research and development, and customer service, CBT is a leader in the professional image identification technology industry.

THE CHALLENGE:

Limited Performance, High Costs, and Vendor Lock-In with Traditional Motion Control

CBT faced a variety of challenges with the traditional approach to motion control. The standard Windows OS lacked any real-time capability, which impacted their ability to use deterministic functions. Because of the centralized, proprietary control cables, the system was difficult to maintain with little flexibility. Further, the organization found themselves locked in to a single vendor. This increased costs dramatically and made it difficult to source replacement parts or make modifications to the system.

All of these issues added up to limited performance and higher costs, which made CBT less competitive in their market. In an industry already saddled with razor-thin margins, the organization knew that they must replace the traditional centralized control approach with a decentralized architecture to optimize both cost and agility.



THE SOLUTION

Maximum Cost Savings + Deep Motion Control Experience from KINGSTAR

CBT evaluated multiple motion control vendors in their search for a motion control solution with improved performance at lower cost. After considering several hardware solution providers, KINGSTAR delivered the greatest cost savings combined with deep software-based motion control experience. Given that CBT was leveraging EtherCAT as their network protocol communication standard, they were able to benefit by replacing their proprietary cables with Ethernet cables for significant cost savings. The team also valued KINGSTAR's excellent real-time operating system (RTOS), RTX64. "Because of KINGSTAR's connection to the IntervalZero RTOS, we did not have to worry about the difficulty or complexity of lower-level integrations," shared Vincent Lu, R&D Manager at CBT.

KINGSTAR and IntervalZero worked closely with the CBT team to ensure that implementation went smoothly. "We did face some challenges at the very beginning of the project," explained Vincent Lu, "which we expected due to the complexity of changing our primary motion control system. The KINGSTAR engineers were very proactive in reviewing and solving issues, which was very meaningful and helpful. The experience gave me a lot of confidence to continue partnering with KINGSTAR."

THE RESULTS

A Simplified System with Optimal Performance and Value

Because of the KINGSTAR Soft Motion Platform, CBT simplified its entire motion control system and reduced its robot controller costs by 56%. They minimized the amount of cables used with a singular Ethernet cable, took advantage of EtherCAT and its auto-configuration technology, eliminated the need for hardware motion

boards and I/O cards, and gained the flexibility to "plug-and-play" the best-of-breed components that can most benefit their business. "With KINGSTAR, I don't have to worry about hardware lead time and shortage issues," Vincent concluded. "We're very happy with the system's performance and price."

