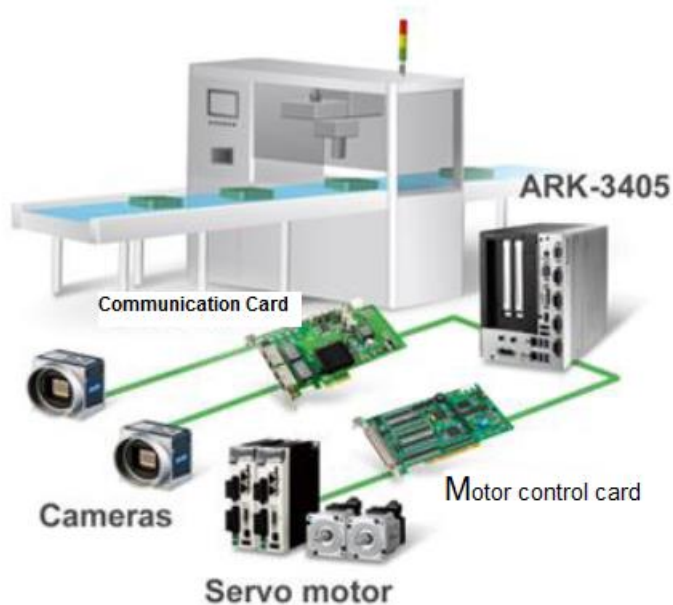# Increasing productivity with integrated solutions

Introduction:

High throughput and quality are always demanding in semiconductor. The output of the semiconductor manufacturing process covers a diversity of products, including: flash memory, logic chip, analog device etc. Such diversification of products needs a single machine that integrates multiple procedures and simplifies the production process to improve the processing time. The integrated machine must also provide high speed production with the image detection to cut labor costs and reduce test error rates. This case study describes how to use the synchronous multi-axis motion control with image detection to enhance production.

Comparing to the individual machine for single function, the modern machine has to combine with various specific features to complete the multi-station work in order to meet the integration demand and high efficiency production. In addition, there is a corresponding growth of mechanism complexity and the number of motion control axes also will increase more, including the stepper motor and servo motor.

System Implementation:

To fulfill the above-mentioned requirements, Advantech provides a comprehensive solution for our customers. For this project, motion control cards, frame grabbers and camera greatly influence the system overall productivity and accuracy. Thus, Advantech offers fanless systems ARK-3405 integrated with frame grabbers and motion cards to accomplish high-precision, high productivity IC packaging inspection. ARK-3405 features flexible data storage and complete EMC and safety certifications for 24/7 reliability.

Also, ARK-3405 equipped with rich I/O options for maximum flexibility, and unique single-bezel design enabling easy in-cabinet integration.

Centralized motion control configuration uses a four-axis servo/stepper motor control card, equipped with high-performance DSP and SoftMotion algorithm to perform the motion trajectory and timing control to meet the synchronization in a precise movement. Also, Advantech uses communication cards to capture images. Through the use of a variety of PCI cards the client was able to attach a host of servo motors and GigE cameras and achieve an excellent flexible system for reliable image and data acquisition. The reason for choosing Advantech as the solution provider was that not only was it a flexible solution but their expertise and support in this field.