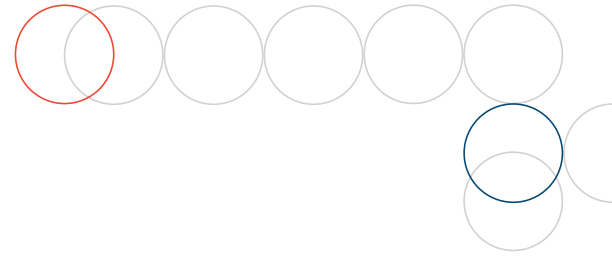# Rethink Manufacturing of Datacenter Hardware

Quality, Reliability and Scalability

Server board assembly is problematic for humans to do successfully. Components are expensive and errors result in costly scrap and rework. At Bright Machines, we partner with manufacturers of datacenter hardware to create a new category of intelligent automation. Powered by the Brightware® Platform, Bright Machines® Microfactories leverage production data to reduce defects and enable benchmarking while also providing a common architecture on which to reliably and cost effectively scale operations.

CHALLENGE

For a US-based server manufacturer, product defects were causing high scrap costs and constraining output as defective units continued undetected down the line. Pareto analysis indicated that the DIMM assembly step, which was run by human operators, was causing most of the defects.
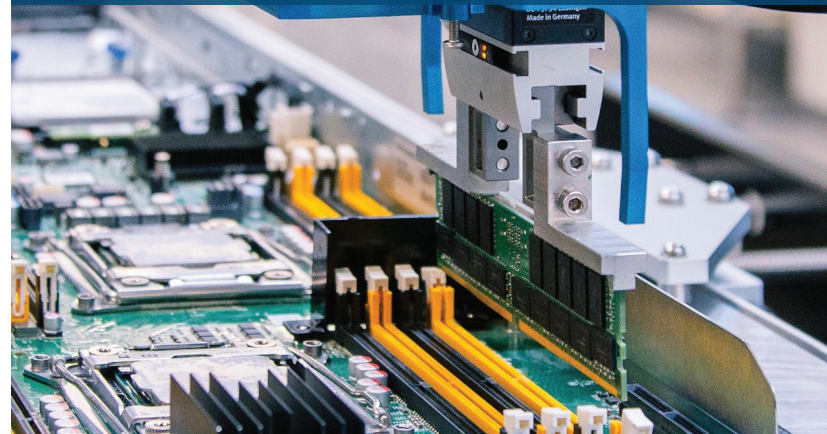
SOLUTION

Bright Machines configured a microfactory with four DIMM stations using force-controlled robotics to assemble server boards with fewer defects. The force data, along with machine vision and machine learning, were used to do early detection of issues which improved yield and reduced the chance of bad units continuing down the line.

RESULTS

The microfactory enabled the manufacturer to perform DIMM assembly on up to 40 units per hour. Initially, a few SKUs were built with more added later as the microfactory was designed to accommodate rapid NPI. The microfactory is projected to reduce defects by 3% resulting in a yield of 98% while requiring 50% fewer operators.

Rapid NPI | Start assembling new server SKUs within hours.

When scaling operations, it's important to have the flexibility to accommodate product changes. Bright Machines Microfactories adapt to your production needs as product complexity and volume change. Because microfactories are software-driven, scaling up or scaling to new locations is fast and efficient. Allowing you to build local for local operations. It also means you can quickly change between server board variants without costly downtime. And new products can be added quickly too. Using advanced 3D vision, a point cloud model can be created enabling rapid NPI of a new product within hours and without having to stop production to do it.

Security and Sustainability

Brightware Platform collects component, process, and quality data during every step of the manufacturing process and across all microfactory lines whether installed in-house or at your manufacturing partner's sites. This data, along with vision-based inspection, can be used to improve product security by ensuring that no tampering was done during the assembly process.

Bright Machines Microfactories also support sustainability programs. When it comes time to decommission datacenter hardware, microfactories can be configured to help intelligently harvest components sorting them to be reused or repurposed.

To learn more, visit **brightmachines.com**

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