



# 3U Industrial Metrology Workstation

2D & 3D Defect Vision Inspection

Captec delivered fully custom, short depth 3U industrial computers, featuring a compact design that efficiently accommodated all the required technology payload. Featuring high-performance Intel processors for cost-efficient, real-time processing, the systems are engineered for 24/7 uptime, peripheral expansion, and enhanced reliability with long-life components and 80% efficiency PSUs, reducing energy waste and improving system longevity.

The customer is a leading provider of innovative, data-driven solutions designed to optimize yield and profitability in microelectronics and display manufacturing. Their advanced technologies support semiconductor production, equipment manufacturing, and advanced packaging processes, accelerating development cycles and empowering customers to bring premium products to market faster.

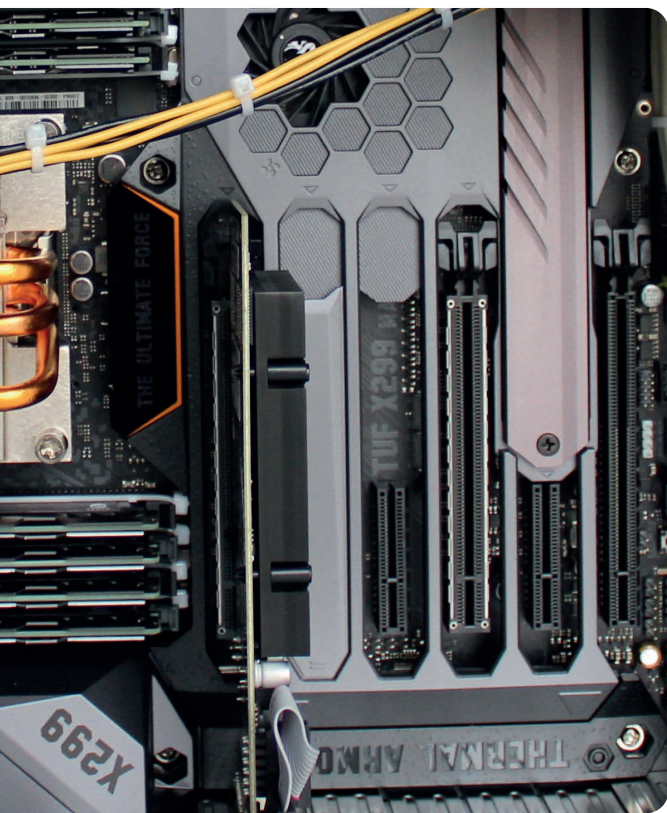


# The Challenge

---

The customer required a highly customised, powerful industrial computer with a compact footprint that could seamlessly be integrated into their new 2D and 3D inspection solution. Given the need to detect defects as small as one-micron, exceptional image processing quality and real-time analysis capabilities were critical for the design.

As a result, the solution demanded high processing performance, fast data handling, and superior memory bandwidth to support continuous, 24/7 operation without compromising reliability. Additionally, the computers needed to be highly expandable to support multiple camera connections, enhancing inspection throughput and accuracy. Ensuring long-term operational stability was also key, with a focus on maximising system lifespan, maintaining consistent performance, and reducing the risk of downtime, all while meeting the demanding requirements of high-precision component analysis.



# The Solution

---

To meet the customer's specific requirements, Captec designed a fully custom 3U industrial metrology workstation with a short-depth form factor, compact enough for seamless integration while housing all the required technology payload. Powered by high-performance Intel processors, it delivers optimised processing power, ideal for real-time component analysis, ensuring cost-efficient performance. Engineered for continuous 24/7 operation, the systems modular design also supports peripheral expansions to enhance functionality and throughput.

To maximise reliability and longevity, it features long-life industrial-grade components and an 80% efficiency power supply unit (PSU), reducing energy waste and heat generation while extending the system's lifespan. This durable, efficient design ensures consistent performance in demanding metrology environments, making it ideally suited to support high-precision inspections with maximum uptime and reliability.

# The Outcome

The customer has significantly enhanced their computing capabilities while achieving substantial cost savings. By transitioning to this new configuration, they benefit from 20% more computing power at just 20% of the cost of their previous platform, delivering exceptional performance without compromising budget.

The efficient pre-loading of software and professional installation of expansion cards streamlined the deployment process, saving valuable time and providing added confidence in system readiness. Additionally, the inclusion of free lifetime Captec support ensures long-term reliability, helping to maximise the lifespan of their application while reducing maintenance concerns.

The customer also now benefits from the flexibility of a highly customised computer solution that can be easily reordered as an pre-configured product design, enabling rapid turnaround times to meet their dynamic operational demands. This combination of enhanced performance, cost efficiency, and long-term support provides a robust, future-proof solution aligned with their specific needs.

**“Our product demands higher image processing speeds and bandwidth at a lower cost and smaller footprint. Although a server-class platform was initially used, Captec recommended a cost-effective solution that improved performance. This solution not only met packaging and reliability standards but also enhanced processing time by 20%.”** - Senior Director of Inspection Technology



# CAPTEC

Delivering end-to-end, **like no one else.**

Bring us your challenge & experience the difference.

#### EMEA and Group Headquarters

+44 (0) 1489 866 066  
sales-emea@captec-group.com

#### UK Subsystems

+44 (0) 1252 512 919  
sales-cse@captec-group.com

#### Canada Headquarters

+1 (519) 650 4000  
sales-canada@captec-group.com

#### USA Headquarters

+1 (519) 650 4000  
sales-usa@captec-group.com



captec-group.com

250320\_01 © Captec Group Plc. 2025 All rights reserved. All products and company names listed are trademarks or trade names of their respective companies.