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# Under the Microscope

Facilitating In Vitro Diagnostics  
with the GENE-ADP6

Success Story



# Project Background

The in vitro diagnostics (IVD) industry is experiencing rapid growth, driven by advancements in biomarker analysis and the ability to diagnose diseases and detect risk factors with increasing accuracy. A leader in the European IVD market sought to upgrade its multiplex testing machines—sophisticated systems used for immunoassay, clinical chemistry, and molecular testing. The company required a single-board computer (SBC) with specific attributes to meet the high demands of their new equipment.

## Challenges

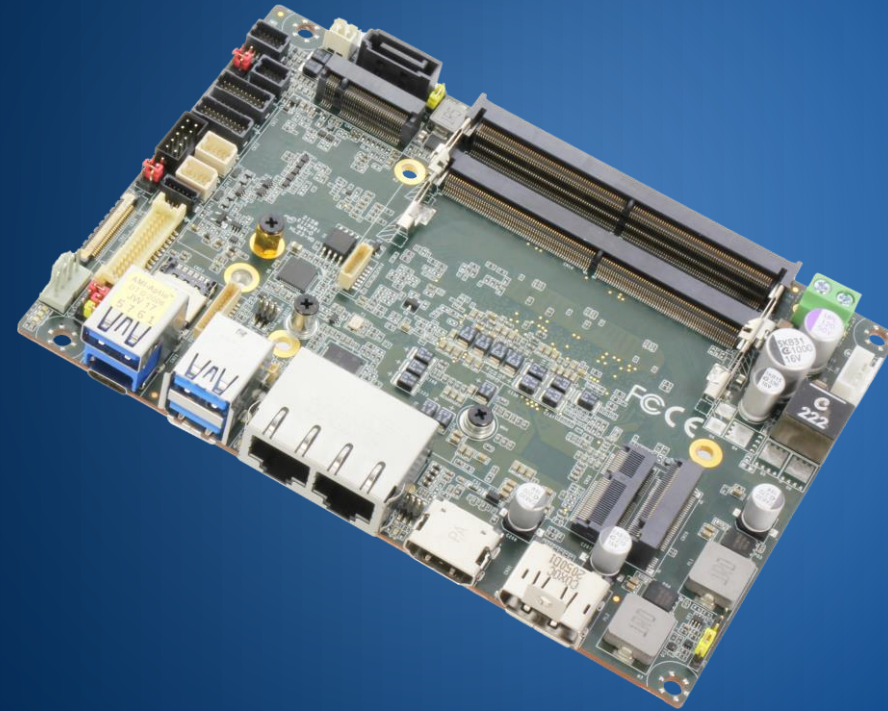
- **High Computing Performance:** The board needed to handle the vast volume of data generated during blood sample analysis, ensuring accurate results for thousands of tests conducted hourly.
- **Small Form Factor:** To integrate seamlessly into the compact design of benchtop laboratory analyzers, the board needed to maintain a small footprint while delivering high performance.
- **Extensive I/O Compatibility:** With CCD cameras as a key component of the testing machinery, the board required multiple internal USB ports to support their integration effectively.

## Why the GENE-ADP6?

### High-Powered Computing

Intel® Core™ i3-1220PE CPU Provided exceptional computing performance with its hybrid architecture of eight cores (four performance-cores, four efficient-cores) and 12 threads.

Support for 64GB DDR5 4800MHz system memory ensured high-speed data transmission between the board and connected CCD cameras.



### Compact but Well-Equipped

Measuring just 146mm x 101.7mm (5.75" x 4"), the GENE-ADP6 easily fit into the space-constrained design of the testing machine.

Despite its small size, the board featured robust I/O options, including four internal USB 2.0 ports, three external USB 3.2 Gen 2 ports, and dual 2.5GbE/1GbE Ethernet ports.

# Application Architecture

CCD Cameras  
Via USB 2.0



GENE-ADP6

Multiplex Testing Machine



Single Blood Sample



Diagnostic Output

# Impact

## Enhanced Efficiency

Faster and more accurate analysis with smaller blood samples.

## Compact Design Compatibility

Seamless integration within space-limited equipment.

## High-Speed Connectivity

Exceptional performance, even under the high data demands of CCD cameras.

The success of this application positions the GENE-ADP6 for broader deployment in smart healthcare solutions. Its advanced features, such as an HDMI 2.1 port supporting up to 8K resolution, DP 1.4a, LVDS, and USB Type-C interfaces, make it ideal for diagnostic imaging and other AI-driven healthcare applications in space-constrained environments.

# Read the full story here



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