



CUSTOMER

A leader in the development, manufacturing, distribution, and service of underground mining machinery

U.S. company part of a global group

10,000+ employees

OBJECTIVES

Identify a replacement that matches the form factor of an existing product known for its high failure rate

Supply machinery control computers capable of operating in extreme conditions, ensuring the safety of operators in underground mining

Offer an extended lifecycle

RESULTS

Developed tailored machinery control computers that are robust enough to withstand demanding conditions

Achieved a failure rate significantly below expectations and extended equipment lifetime, surpassing the goal by 50%

Implemented a refurbishment program to enhance sustainability

Secured a long-term supply agreement



Foxguard



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LEADING MINING MACHINERY MANUFACTURER INSTALLS FOXGUARD CONTROL COMPUTERS

The demand for industrial minerals used in agriculture, food preservation, manufacturing, road de-icing, and many other applications is increasing. To meet this demand, mining companies require equipment capable of operating in increasingly rugged conditions.

A leader in the development, manufacturing, distribution, and servicing of underground mining machinery for extracting coal and other bedded materials approached Foxguard. They required machinery control computers capable of withstanding extreme environmental conditions.

The customer challenges

The company approached Foxguard in 2006, seeking a new control computer for their continuous mining machines to monitor temperature, speed, and other parameters.



High Failure Rate

Their existing product had a high failure rate causing significant down-time and lost revenue for their customers. The new solution aimed to drastically improve uptime.



Form Factor Compatibility

With a large installed base, the new solution had to match the existing form factor to prevent costly machinery redesigns.



Harsh Underground Mining Conditions

A key requirement was to find a vendor whose products could endure the harsh conditions of underground mines, including high levels of vibration, shock, and extreme temperatures.



Remote Monitoring for Operator Safety

Additionally, the computer needed to support remote monitoring, ensuring safe working conditions for operators who could remain on the surface.

The solution

Since 2006, the project has progressed through several phases. Foxguard's engineering team worked closely with the customer to develop prototypes. After implementing a few minor changes and optimizations, a pilot was launched to test and validate the product, which then led to the start of the production phase. Foxguard has continuously supplied production units to the customer since 2006

The production units are housed in a stainless-steel chassis with sealed connectors, achieving an IP52 rating in compliance with IEC 60529 specifications. The display computer is utilized by the customer across various mining machines. It is typically mounted directly onto the machinery to function as an operator interface or to facilitate remote operation.

“ Foxguard made us, as a customer, feel important. The company was always willing to incorporate the feedback we gave, while managing to meet project deadlines as scheduled.

– Senior Electrical Engineer ”

For this project, Foxguard considered the following key points:

Long Lifecycle

The computers are integral to the customer's solution, and any product change necessitates a validation and field-testing process for the entire mining machine, which can take several months. Foxguard designed the display computer with a target lifecycle of 10 years, and the product has exceeded this goal by over 50%. Additionally, Foxguard has ensured a sufficient supply of spare parts to support the product in the future.

Rugged Environment

The equipment must endure challenging environmental conditions. To ensure this, Foxguard conducts thermal testing on 100% of the production units for 24 hours, gradually increasing the temperature to 60°C to assess performance under high temperatures and humidity.

Refurbishment Program

Sustainability was a key objective for the project. In collaboration with the customer, Foxguard developed a refurbishment program that allows fielded units to be returned for cleaning, updates, and replacement of consumable parts. This preventive maintenance initiative extends the useful life of the computers, minimizes unscheduled downtime, and reduces the need for replacement units.

The results

The customer received a customized computer specifically designed to endure the demanding conditions of mining machinery operations.

They are extremely satisfied with the design and final product, which has significantly reduced their failure rates, extended the product lifecycle, and reduced overall costs and downtime through a refurbishment program. We now have a long-term supply agreement with the company for these custom display computers, and we regularly collaborate on new designs.

CUSTOM COMPUTE SERVICES PORTFOLIO

Building on years of expertise in custom computing solutions, we deliver high-performance platforms and racks for mission-critical industries like energy, aerospace, and manufacturing. Our tailored offerings include:

Consulting & design services

We turn your concepts into fully functional prototypes, closely aligning with your specifications and performance standards. Accelerate your time-to-market with cutting-edge technology and innovative solutions.

Build and integration services

We transform your prototype into a fully realized product by handling every detail of the process. Our team sources the highest-quality components, optimizes your budget for cost-efficiency, and meticulously plans for every stage of your product's lifecycle.

Supply chain & sourcing services

We use proprietary automated solutions and agile strategies to maintain an inventory of your critical components, reducing total costs, improving quality, and speeding up delivery times. This ensures you always have the right parts, exactly when you need them.

Support & optimization services

We manage every phase of your product lifecycle, from the engineering stages to end-of-life, ensuring your systems stay operational and efficient. When needed, we refresh designs with the latest components to extend the life of your systems.