

Fanless PC for Radiation Detectors



Situation

NuSAFE is a leading manufacturer and developer of radiation detection systems for homeland security and commercial use. Partnering with federal agencies and law enforcement, NuSAFE's main goals are providing nuclear safety and protecting public security. In late 2009, a steel mill approached NuSAFE with the request for a device that would scan the contents of vehicles delivering scrap metal to ensure that no radiation is present. In response, NuSAFE recommended stationary portals that would function as checkpoints. Such a project required the use of a computer that would be small enough to fit in the slim radiation detection portals, yet still have the processing power needed to efficiently run the algorithms used in NuSAFE's proprietary software.



NuSAFE's Radiation Detection Portals

NuSAFE set out to find a supplier that could provide the computer it was looking for while still being cost-effective. Due to the fact that the portals would be located outdoors, it was critical that the company choose a supplier whose devices could withstand harsh environments. After performing

a web search that directed the company to FoxGuard, Steve Pauly, VP of Engineering at NuSAFE, discussed the project parameters with an Account Manager and a Computer Design Engineer. Through these discussions, it was clear that FoxGuard had the expertise required for the job and could provide the ruggedized computer NuSAFE needed.

Solution

Mr. Pauly worked with the FoxGuard team to determine which of FoxGuard's products would best accommodate the project's parameters. Based upon a suggestion from FoxGuard's engineering department, the group investigated the possibility of utilizing a fanless PC (FPC). The FPC selected by FoxGuard has a rugged aluminum chassis that acts as a heat sink to help the machine dissipate heat. This feature eliminates the need for cooling fans, allowing the unit to perform successfully in dusty environments. When used with solid state drives, this embedded device has no moving parts, making the device less susceptible to mechanical failure. It has a high shock and vibration threshold, and requires less space than most computers. With these features in mind, NuSAFE accepted FoxGuard's recommendation to utilize a fanless PC in its stationary portals.



Using its dual LAN ports, the FPC serves as a bridge between the radiation panels and the user interface.



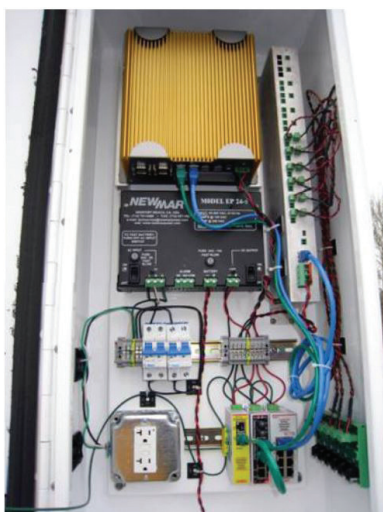
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Above and Beyond

Wanting to ensure that the FPCs were performing to the specifications expected, NuSAFE decided to run some tests of its own. NuSAFE was pleased to report that "the product surpassed its own specifications."

NuSAFE found that the FPCs were not only able to perform in the temperatures specified, but that they were able to withstand even higher temperatures than predicted.

"The company was very easy to work with"
-Steve Pauly, VP of Engineering, NuSAFE



The FPC runs NuSAFE software to analyze the radiation data collected from the panels. It then presents this to the user interface for display.

"Our experience with FoxGuard was very successful. FoxGuard made it possible for us to deliver a reliable product to our customer. The steel mill systems have been fielded for over a year now with no major problems," said Mr. Pauly. He continued by saying that "NuSAFE would not hesitate to try any of FoxGuard's other products. We would definitely recommend FoxGuard to others."

When asked to describe his experience with FoxGuard, Mr. Pauly stated that "we are extremely satisfied with the solution FoxGuard provided. The company was very easy to work with." In fact, NuSAFE was so pleased with the service at FoxGuard that it later ordered more FPCs for a project with another customer. This new endeavor involves working with the government to produce mobile radiation monitors for the military. These systems, which contain vehicle-mounted computers, protect troops from danger by scanning for gamma and neutron radiation in the field.

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