

BD Biosciences Fights HIV/AIDS Using Wind River VxWorks

Biotechnology Leader Turns to VxWorks for Fast Time-to-Market, Uncompromising Quality

BD Biosciences is a leading global provider of flow cytometry systems, which count, examine, and sort microscopic particles suspended in a stream of fluid so they can be analyzed. Flow cytometers are the recognized gold standard for sorting and analyzing CD4 cells—to monitor the stages of HIV/AIDS infection and the effectiveness of new vaccines and therapies. For this reason, they have become very important in developing countries.

BD Biosciences offers a simple, robust flow cytometer designed for this purpose—the BD FACSCount instrumentation system. The need for an effective, rapid monitoring tool of CD4 counts is exponentially rising with the increased availability of antiretroviral therapy (ART) for HIV-positive patients. The BD FACSCount system provides absolute CD4 counts and percentage results in an easy-to-use, single-tube assay.

The BD FACSCount system, introduced in the United States and Europe in 1994, helps clinicians guide treatment decisions for HIV-infected persons. It provides a simple, reliable, cost-effective tool for CD4 diagnostic testing that helps clinicians treat HIV/AIDS patients—even in resource-limited settings.

Need for Speed—Without Compromising Quality

Problems with roll-your-own (RYO) solutions during the development of next-generation flow cytometers and analyzers nearly a decade ago paved BD Biosciences' path to Wind River General Purpose Platform, VxWorks Edition.



"Wind River hugely impacted our time-to-market. By gaining a fully functional and integrated platform, we were able to get a jump-start on new products and save in overall testing and qualification costs."
—Yair Churi, Embedded Software Manager/
Engineering, BD Biosciences

Company Profile: BD

- BD Biosciences is a segment of BD, a leading global medical technology company.
- BD was founded in 1897 and is headquartered in Franklin Lakes, New Jersey.
- BD employs approximately 28,000 people in approximately 50 countries.

Industry

- Biotechnology

Solutions

- Wind River General Purpose Platform, VxWorks Edition

Results

- Reduced development time by 25%
- Achieved faster time-to-market while reducing risk
- Delivered robust products more efficiently, due to VxWorks' compatibility and performance

DOS, which BD Biosciences used for its legacy products, required too much time for testing and created time-to-market challenges. BD Biosciences sought a real-time operating system (RTOS) that would enable faster time-to-market while also mitigating risk.

BD Biosciences needed to create embedded controllers for complex hardware—and it needed deterministic performance. It needed to move more quickly on the development front, without compromising quality.

“We can’t have a system out in the field in Africa that requires service calls,” says Yair Churi, Embedded Software Manager/Engineering. “Human lives are at risk, and performance and quality are non-negotiable. It was never a question of whether or not we would provide high-quality products—it was a matter of how we could produce them more efficiently.”

BD Biosciences quickly focused its attention on Wind River for several reasons.

“One key deciding factor was Wind River’s presence in the marketplace,” Churi says. “We appreciate the stability and solid partnership Wind River offers, that the software is well-known and well-respected in the development community, and that we can depend on good technical support when we need it.”

Plug-and-Play Benefits

BD Biosciences values Wind River’s extensive partner technologies and plug-and-play capabilities. Because BD Biosciences had specifically selected components to ensure the robustness and performance of its products, it needed an RTOS that would complement these choices.

“We looked at the single board computer we had selected and all the peripherals we needed to support, and we realized everything was already built-in and debugged with the VxWorks platform,” Churi says. “So we were able to jump into our business logic and start our evaluation instead of wasting valuable time developing the infrastructure VxWorks seamlessly provides.”

Faster Time-to-Market, Lower TCO

Using VxWorks, Churi estimates that his team cut development time for new products by 25%.

“Wind River hugely impacted our time-to-market,” he explains. “By gaining a fully functional and integrated platform, we were able to get a jump-start and begin developing our application, saving in overall testing and qualification costs.”

While VxWorks was an initial investment, the total cost of ownership has diminished over time. Introducing VxWorks also avoided unnecessary risk and complexity that could compromise a product’s success.

Reliable Technical Support

BD Biosciences has been very pleased with Wind River technical support over the years. According to Churi, the relationship has been consistently helpful and fast.

“In one instance, we were connecting a controller to an automation capability on our system and saw that messages were occasionally being dropped between the controllers,” he recalls. “Wind River technical support helped us quickly identify and fix the device driver issue. We were in the final testing stages at that point, and the inability to correct an error like that would have been a show stopper.”

In addition to the BD FACSCount system, BD Biosciences has used VxWorks to develop several other flow cytometers, including the BD FACSAria, the BD FACSAria II, the BD FACSCanto, and the BD FACSCanto II systems. BD Biosciences also used VxWorks for the BD FACS Lyse/Wash Assistant, a device that automates sample preparation for flow cytometer analysis.



For additional information about the products mentioned in this case study, visit

www.windriver.com

www.bdbiosciences.com

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