

WIND RIVER

AMX Meets Productivity, Cost-Savings Goals with Wind River

Company Runs Major Product Families on Wind River's VxWorks and Linux Platforms

AMX offers hardware and software solutions spanning control and automation, switching, distributed audio and video, and technology management. The company's technologies are implemented worldwide in conference rooms, homes, classrooms, network operation/command centers, hotels, entertainment venues, and broadcast facilities.

For example, one AMX control system gives the user the ability to prepare a conference room for a presentation or set the mood at home for entertaining—all at the touch of a button. Some AMX solutions are aimed at helping IT and A/V professionals manage and monitor electronic equipment, while others enable users to centrally distribute audio and video—such as broadcast television, music videos, and live camera feeds—throughout a building or home.

Wind River at Heart of AMX

At the heart of these technologies is the AMX NetLinX® Controller, the main processing unit for all AMX control systems. For the past several years, development of all of these master controller products, as well as the company's Mio-DMS Keypad and Mio-R4 Remote Control products, has been standardized on Wind River Platform for Consumer Devices, VxWorks Edition.

"AMX is the leader in our industry, and we strive to get our products to market fast," explains Rick Gelling, Director of Firmware Engineering for AMX. "We always like to be a technology innovator and leader of new product features because our dealers and the people who buy our products expect that kind of performance."



"We've had a great experience with Wind River and its VxWorks platform, and we're looking forward to receiving the same and more benefits with the Wind River Linux platform. Now we're standardized on one toolset, which is very powerful from a cost-saving and productivity standpoint."

—Rick Gelling, Director of Firmware Engineering,
AMX

Company Profile: AMX

- AMX products span control and automation, switching, distributed audio and video, and technology management
- Headquarters in Richardson, Texas

Industry

- Consumer and industrial devices

Solutions

- Wind River Platform for Consumer Devices, VxWorks Edition
- Wind River Platform for Consumer Devices, Linux Edition
- Wind River Workbench, On-Chip Debugging Edition

Results

- Increased development productivity
- Increased standardization
- Projected return on investment (ROI) of \$1-2 million savings over the next two years

For this reason, standardizing on one operating system was critical. Now, Wind River takes care of the operating system and the platform so AMX can focus its energies on the company's core competency—adding more value-added features to products.

Wind River Workbench, On-Chip Debugging Edition

Debugging embedded products is complex and time-consuming. For AMX, it was important to identify a solution that was complete, comprehensive, and improved the overall efficiency of its development teams. An added challenge was that some devices do not have ports that would permit using an agent for debug. AMX was determined to find an innovative debug solution that worked seamlessly in its environment and would quickly and easily help resolve complex bugs.

"We have more than 1,000 dealers worldwide, and many of our customers are very high profile and demand excellence," Gelling explains. "If they have a problem with a product, they put a lot of pressure on the dealer to get it fixed quickly. In turn, we must quickly support our dealers and our customers in the field."

After careful consideration, AMX chose Wind River Workbench, On-Chip Debugging Edition; Wind River ICE; and Wind River Probe for kernel bring-up and device driver debug. Wind River offered the most advanced debugging features to support AMX's goals to get to market fast, improve product quality by locating problems early in the development cycle, and reduce costs by using the JTAG interface and the industry-standard Eclipse platform.

The ability to move seamlessly from hardware bring-up and debugging with a JTAG interface to deep software analysis is one reason AMX chose the Wind River solution. Gelling's team relies upon Wind River's complete development and debug product suite, including Wind River ScopeTools for device software analysis.

Making the Move to Wind River Linux

AMX has greatly decreased its ramp-up and development time by standardizing on Wind River's VxWorks. To further reduce development time, reduce costs, increase standardization, and take advantage of on-chip debugging features, the company is moving away from roll-your-own (RYO) Linux to Wind River Platform for Consumer Devices, Linux Edition. The company's entire AMX Touch Panel product line, which comes in all sizes and feature combinations, is now running Wind River Linux.

One key benefit of using both Wind River's VxWorks and Linux is the ability to port products from Linux to VxWorks and vice versa. For example, the company has already done this with its G4 firmware, which runs on AMX Touch Panels (Linux) and the Mio Modero R-4 Remote Control featuring an advanced graphics display (VxWorks).

"When engineers finish a project, they can move right onto another one—whether it's VxWorks or Linux," Gelling says. "Our move to Wind River Linux will save development time and costs and free up our engineers to work on more products."

Satisfied Workforce = Healthy Bottom Line

Another benefit of increased platform and toolset standardization and flexibility, according to Gelling, is that it makes for happier employees. The company has been voted one of the "Top 25 Best Medium Companies to Work for in America" by the Great Places to Work Institute and the Society for Human Resource Management, as well as "A Best Place to Work" in Dallas-Fort Worth by the *Dallas Business Journal* for four years in a row.

"Our engineers enjoy moving from one project to another project with a completely different product, different feature set, and a whole new technology," Gelling explains. "Having the same tools when they switch projects just makes it easier for them. And when our engineers are happy and equipped with the right tools, they are more productive, which benefits the company's bottom line."

Successful Results

Gelling estimates that, to date, AMX has saved approximately \$570,000 annually using Wind River's VxWorks. This includes \$300,000 in savings from increased development productivity using Wind River Platform for Consumer Devices, VxWorks Edition; \$340,000 from increased development productivity using common tools such as Wind River Workbench, On-Chip Debugging Edition, across VxWorks and Linux; and \$500,000 from standardizing on Wind River's VxWorks instead of using other third-party proprietary operating systems.

As AMX moves forward to implement Wind River Platform for Consumer Devices, Linux Edition, the cost savings will only grow. According to a conservative ROI analysis, the company is projected to save an additional \$1-\$2 million during the next two years.

Learn More



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

www.windriver.com
www.amx.com

WIND RIVER

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