

Featured Partner: NOVA Systems, Inc. • Milwaukee, Wisconsin

XMC Helps Systems Integrator Improve Customer's Efficiency With CNC Machine-Tool Retrofit

When an industrial manufacturer needed to upgrade an obsolete piece of automated equipment, they turned to NOVA Systems Inc., a respected Milwaukee-based systems integration solutions provider. And when NOVA Systems needed a key piece of integration software to make the retrofit a success, they turned to motion-control software expert ROY-G-BIV.

This exceptionally challenging project involved upgrading an obsolete CNC lathe used to make seamless necks for metal tanks. The necks are formed by spinning heated shells at high speeds, resulting in forged-quality tanks suitable for contents such as oxygen, helium and argon, used in far-reaching applications such as scuba diving, metal fabrication and medicine.

The original lathe was about 15 years old, built by an OEM that is no longer in business. "Our customer was faced with a difficult situation," said Kenn Anderson, NOVA Systems' vice president of engineering. "The electronics for the system were becoming very scarce, which made repairs expensive. What's more, because of the age of the old control technology, operator training had become a real problem and support was unavailable. They were also experiencing a lot of machine down time," said Anderson.

In order to minimize operator re-training and make the transition as seamless as possible, NOVA was asked to maintain the familiar screens and commands of the old system. The manufacturer also wanted to keep the existing part programs.

"It was important to offer an upgrade that was user friendly and intuitive," said Matt Vogen, NOVA's chief engineer on the project. "XMC enabled us to do that, which helped our customer get up and running right away, and also enabled them to minimize their labor costs."

NOVA
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Keep it Moving

Needs

A PC-based, flexible CNC-like control system that enabled the manufacturer to reuse its existing part programs and keep the same "look and feel" as the obsolete system.

Solution

Leveraging its patented XMC motion control integration software, ROY-G-BIV extended the ISaGRAF Enhanced open architecture control software from AlterSys, with open access to Delta Tau motion controllers. ROY-G-BIV's XMC I/O driver for ISaGRAF provided direct and efficient data access to the Delta Tau PMAC-Lite controller.

Benefits

Enabled NOVA Systems to deliver a solution that provides the manufacturer with a wide variety of process and quality improvements. The upgrade speeds operator training, cuts training costs, reduces the scrap rate and improves cycle time.

XMC Products Used:

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| XMC PMAC Driver | Enables easy read-and-write access to the Delta Tau PMAC-Lite motion controller's dual-ported RAM from within the ISaGRAF environment. |
| XMC I/O Driver for ISaGRAF | By integrating best-of-breed motion hardware with IEC61131-compliant control software from AlterSys, XMC synchronizes high-speed motion controller data access with the ISaGRAF scan loop. |

The new solution required four axes of motion: two that spin the tanks and two for the pick-and-place gantry, which picks up and transfers the tanks between a spindle conveyor and an oven conveyor.

NOVA developed a custom Human Machine Interface (HMI) using Visual Basic to facilitate the downloading of motion control programs to a Delta Tau PMAC-Lite controller, and to maintain the old system's appearance and functionality. NOVA selected AlterSys' ISaGRAF Enhanced for the control software, which presented the engineers with their biggest challenge.

"We needed a Delta Tau driver to ISaGRAF and we needed it fast. That was the missing link," said Anderson. "Writing the driver ourselves just wasn't an option, given the tight timeframe involved. The only other possibility was scrapping about 200 hours of software development work and starting over with a non-ISaGRAF solution — not an appealing proposition."

That's where ROY-G-BIV came in. Using XMC as the bridge between the ISaGRAF software and the Delta Tau hardware proved to be the answer the project team was looking for. An OPC-based solution existed for this integration, but XMC provided a more efficient coupling between the motion controller and the control software.

"I have nothing but good things to say about ROY-G-BIV, especially when it comes to technical support," said Anderson. "They were with us every step of the way and really worked with us to overcome some of the hurdles we were facing. It takes a competent company to do that."

And what does the end user think of the retrofit? "The upgrade works great and it's making good parts, so they're happy," said Vogen. "And I'm not sure we would be saying that if it hadn't been for ROY-G-BIV and XMC."

"ROY-G-BIV is an honest, ethical company and a very competent software supplier. I feel we've only scratched the surface of what XMC can do, and I look forward to working with it on future projects."

Kenn Anderson,
Vice President of Engineering
NOVA Systems Inc.



"The bottom line is that ROY-G-BIV made something work that wouldn't otherwise have worked. Relying on their specific software development expertise allowed us to focus on other aspects of this complex project."

Matt Vogen
Project Engineer
NOVA Systems Inc.



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