

Quality and service makes Volvo Construction Equipment choose Prevas



Volvo is constantly developing its computer-controlled loaders and work machines. When the machines are developed, the electronics must also be developed. And when this is done, the testing equipment that ensures that the customer gets a no-fault machine, must also be brought up-to-date. The test department at Volvo VCE had outgrown its old test system and needed a new one: one that was faster, more secure and more scalable. Volvo turned to Prevas AB, which was able to offer a system based on high-quality standard components.

Andreas Johansson, project manager for the development of LabVIEW-based test rigs for electronic systems at Volvo Construction Equipment in Eskilstuna, says:

"Before we started using Prevas' systems, we used equipment from National Instruments and LabVIEW together with parts that we had built ourselves. Now, we have outsourced the development of the construction of the new systems containing measurement and control cards to Prevas."

Prevas' main work area is to make a functional test of the software in the different computers that, for example, control a modern wheel loader, with the help of test systems. A modern wheel loader is made up of a number of different ECUs (Electronic Control Units), such as engine, vehicle and instrument computers, etc. – up to nine in one machine. We connect the ECUs to our test system and simulate sensors to the ECU such as temperature, pressure and RPM. We can also connect, control and measure the vehicle's communication busses, wherein the ECUs function as if they were located in a real wheel loader and are working accordingly.

Volvo's software handles the electronics from Prevas, which in turn also tests the ECUs, creates a number of I/O-signals in order to measure and control the signals to the ECUs to simulate different sizes of wheel loaders, different types of transmissions and engines, etc.

"Before we engaged Prevas, we had a similar test system, but our new software and new ECUs placed tougher demands on the test system, which is why we needed new, better hardware. We were at full capacity with the old equipment, there was nothing left. We could not test any more ECUs and the errors in the analogue levels that we extracted to simulate the sensors were too grave. The measurements were not able to be taken fast enough. The system was run using Windows and did not have sufficient determinism," says Andreas Johansson.

For more information:

www.prevas.com, info@prevas.com

Read more about Volvo's construction equipment at:
www.volvo.com/dealers/sv-se/Swecon/homepage.htm

Ever-changing requirements

Andreas Johansson, project manager at Volvo Construction Equipment, continues:

"In the new rig, we run a mixture of the programs LabVIEW for Windows/Realtime and FPGA. The new hardware is modular and can be equipped with several connections for ECUs in accordance with needs.



Prevas InterfaceBox

When we build electronic systems, we simultaneously develop software for it. The loaders are developed parallel to this. Therefore, requirements are changing all the time. The designers introduce new adjustable devices, and we then have to prepare for this and add new signals to the test system, change configurations, etc. In our new system, this is possible to a larger degree than in the old one, which basically was full already.

Prevas solves this with completed modules

The co-operation with Prevas works very well. They are friendly and professional. They help us enormously. We do not have to be extremely thorough regarding specifications – Prevas seem to understand what we need without too much hassle.

About half the rig is constructed with products from National Instruments and the other half with Prevas' products, namely a large number of standardised measuring cards that all look the same. The cards have been developed by, and can be purchased from, Prevas. Only a fraction of the design has been especially manufactured for us. We like standardised solutions.

We have also seen that Prevas are very thorough when it comes to their solutions. They will not tolerate any half measures and actually really think through their designs. They have done this before, for other companies within the Volvo Group as well. They know what they're doing.



Prevas was founded in 1985 and is currently the Nordic leader for embedded systems and industrial IT. We are the primary supplier and innovative development partner to leading companies in industries such as life science, telecommunications, vehicle, defense, energy and engineering. Prevas' foundation is based on developing intelligence in products and industrial systems for world-leading companies. Prevas' solutions are renowned for innovation, quality assurance and reliable delivery. Our Nordic design house consists of 500 employees and we have offices in Sweden, Denmark, Norway, The United Arab Emirates and India. For more information, visit www.prevas.com.