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**MITSUBA ACCELERATES ELECTRIC CONTROLLED MOTOR SYSTEM
DEVELOPMENT TIME WITH MATLAB AND SIMULINK**

Model-Based Design Helps Reduce Development Time by More Than 80%

NATICK, Mass. – February 17, 2011 – MathWorks today announced that Mitsuba, manufacturer of wiper motors, used MATLAB and Simulink to develop the controller of the innovative reversing wiper and deliver a complete system in 81% less time than estimated. By adopting Model-Based Design, including automatic production code generation, Mitsuba reduced their project development time from 16 weeks to 3 weeks.

Due to its complex controls, a reversing wiper system is more challenging to design than a conventional system. Additionally, the development process required rework because the previous process relied on paper-based requirements specifications and handwritten code. As a result, the team found most errors in the later stages of development, when fixing them was more time-consuming and expensive.

In order to solve this problem, Mitsuba used Model-Based Design with MathWorks products for control modeling, simulation, verification, and automatic production code generation. The team used Simulink to model control structures, control functions, and test harnesses based on the specification. With Simulink and SimMechanics, they created a plant model including the windshield wiper link mechanism, wiper arm, and body mount. By debugging and testing throughout simulation, before the hardware prototyping stage, Mitsuba developed, verified, and tested in a shorter timeframe. Furthermore, by using models created by Simulink and Stateflow as a system specification, Mitsuba completed the design review process in 10% of the original design review time and reduced paperwork required at the review stage by 90%.

“Even though both Model-Based Design and MathWorks products were new to us, we saw clear improvements in development speed and product quality,” said Takao Arai, engineer in the Electric Engineering Department at Mitsuba. “Model-Based Design enabled us to identify and solve problems at the stage of requirements specification and early designs instead of late in development using final hardware. By employing Model-Based Design, our design reviews are now quicker, and we can identify defects and problems within the requirements specification more efficiently. We reduced rework and were able to develop a high-quality controller in just 20% of the time it took us previously.”

“We are extremely encouraged to learn that Mitsuba drastically accelerated development time of the reversing wiper system by using MATLAB and Simulink for Model-Based Design,” said Takaaki Shigemitsu, senior industry marketing manager at MathWorks Japan. “Their accelerated development and design reviews and reduction in paperwork demonstrate the extraordinary effects of Model-Based Design.”

The reversing wiper system is currently in production, with monthly shipments of 20,000 – 30,000 units. Mitsuba is reusing components of the wiper system and the plant model on current projects.

The company has standardized on Model-Based Design for all new projects including motor control products for hybrid and electric vehicles.

For further details please visit

www.mathworks.com/automotive/userstories.html?file=52391

About Mitsuba

Mitsuba Corporation is principally engaged in development, production, and sales of electrical/electronic components for two- and four-wheeled vehicles. Our main products include wiper motors, starter motors, power window motors, power steering motors, and power slide door actuators. Taking advantage of the motor technology, we have expanded into the areas of industrial equipment and nursing care beds. Furthermore, we are aggressively developing motors for next generation vehicles such as hybrid and electric cars using our technology cultivated and the reliability obtained through eco-runs and solar car races in Japan and overseas.

Mitsuba, established in 1946, has now 54 group companies in Japan, Americas, Europe, Asia, and China. With the transportation equipment-related operations as its core business, more than 16,000 employees are working to realize Mitsuba's mission: "Together with those who support it, Mitsuba will provide pleasure and peace of mind to the people of the world by creating technology in harmony with society and environment." For more details, please visit www.mitsuba.co.jp.

About MathWorks

MathWorks is the leading developer of mathematical computing software. MATLAB, the language of technical computing, is a programming environment for algorithm development, data analysis, visualization, and numeric computation. Simulink is a graphical environment for simulation and Model-Based Design of multidomain dynamic and embedded systems. Engineers and scientists worldwide rely on these product families to accelerate the pace of discovery, innovation, and development in automotive, aerospace, electronics, financial services, biotech-pharmaceutical, and other industries. MathWorks products are also fundamental teaching and research tools in the world's universities and learning institutions. Founded in 1984, MathWorks employs more than 2200 people in 15 countries, with headquarters in Natick, Massachusetts, USA. For additional information, visit www.mathworks.com.

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