

Automotive and transportation

Pratt & Miller Engineering

Winning through engineering

Product

NX

Business challenges

Developing racecars
Designing defense vehicles
Manufacturing in low volumes

Keys to success

Dedication to winning
Focus on engineering and design
Using the right tools for the job

Results

Streamlined design-through-manufacturing operations, gaining notably faster development turnaround
Gained repeat business through performance
Finished first in class at Le Mans seven times
Delivered continuous and significant product innovation year-to-year

NX helps Pratt & Miller design and build winning racecars

A winning tradition

Pratt & Miller Engineering used NX™ software from Siemens PLM Software to develop the racing version of the 2014

Corvette, which was named 2014 North American Car of the Year at the North American International Auto Show in Detroit. The racing version, the C7.R, was also unveiled at the show and races in the new TUDOR United SportsCar Championship race series, which began with the Rolex 24 at Daytona.



Corvette Racing's new Corvette C7.R, developed by Pratt & Miller Engineering, debuted at the 2014 Rolex 24 at Daytona race.



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Design Manager
Pratt & Miller

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Gary Latham
Design Manager
Pratt & Miller

“Working closely with General Motors, we designed every part of the C7.R, with the exception of the engine and transmission, using NX,” says Gary Latham, Pratt & Miller’s design manager. Latham and his team worked on the car design for six months. When the car was tested on the track, actual performance results were closely correlated with analysis predictions from NX. “We got good feedback, which confirmed that we had a good design. This car really came to life with the help of NX.”

For more than 20 years, Pratt & Miller has been using the world’s race tracks as technological proving grounds to develop successful programs, including Corvette and Cadillac Racing. The company’s racing teams have achieved international success, including winning the 24 Hours of Le Mans,



the world’s most prestigious sports car race, seven times, beating factory-supported teams representing Aston Martin, BMW, Ferrari, Lotus and Porsche.

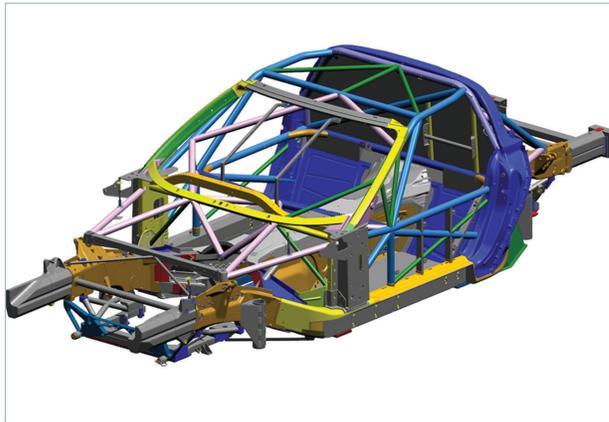
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Pratt & Miller provides advanced engineering solutions and builds cars and parts for other racing teams, including NASCAR® race contenders and Wayne Taylor Racing, which won the 2013 GRAND-AM Daytona Prototype Championship. Wayne Taylor Racing is also a partner of Siemens PLM Software.

Winning at more than racing

Pratt & Miller is not just about racing. The full company name is Pratt & Miller Engineering. More than 100 engineers on staff not only contribute to Pratt & Miller's motorsports business, but also serve a diverse customer base in other industries, including defense. Capabilities include design engineering, vehicle dynamics, electronics, robotics, testing and development, and software development. Pratt & Miller provides innovative, full-service engineering and low-volume manufacturing. The company even builds and restores collector cars.



Pratt & Miller Engineering used NX to design most of the components for the Corvette C7.R, including the chassis/frame.

In addition to using NX, a fully integrated computer-aided design (CAD), computer-aided engineering (CAE) and computer-aided manufacturing (CAM) system, Pratt & Miller engineers use a variety of CAD systems. “Having used every CAD package under the sun, I can say without reservation that NX is the best,” says Gary Latham. “In terms of flexibility in a high-end package, you can do everything using NX. I enjoy using NX because you can work with multiple bodies in the same field, take a top-down approach and design an entire assembly. NX is easy to use versus other CAD packages that don't allow as much flexibility.”

“NX allows me to design class-A surfaces as well as solids. It allows me to take parts derived from other CAD systems or to design parts completely from scratch. NX is very comprehensive and flexible, while other CAD packages sometimes tie my hands by limiting the tools I have to work with.”

Gary Latham
Design Manager
Pratt & Miller

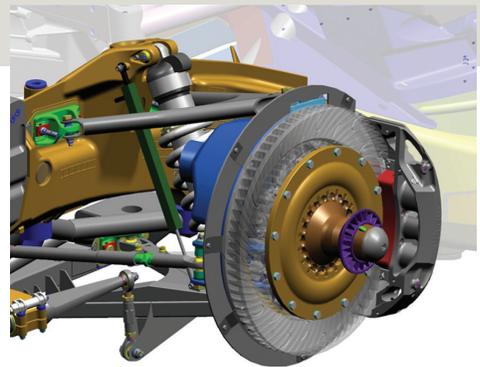


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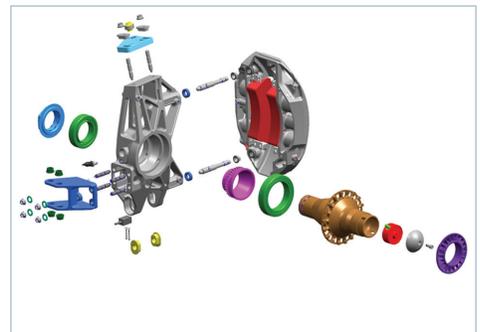
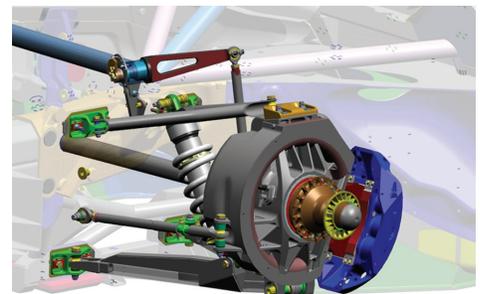
Gary Latham
Design Manager
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Pratt & Miller’s customers often specify which types of CAD files are preferred for data transfer and communications. For example, General Motors prefers NX files because it’s the firm’s corporate standard. “GM will provide us with at least 75 percent of the data in NX file format for Cadillac and Corvette,” says Latham. “We take that data as a baseline and then modify the car to make it wider and stiffer so that it can be used for racing.”

Even when customers provide data from other CAD systems, Pratt & Miller engineers often use NX for further refinement of the design. “We’ll get surface data from a major CAD system and sometimes



Pratt & Miller strengthened the Corvette C7.R’s suspension system to help the car endure the stress of continuous racing over a 24 hour period.



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Pratt & Miller



the surfaces aren't very clean," explains Latham. "So, we'll import the data into NX for clean-up and part optimization. Generally this includes optimization to reduce weight or increase stiffness. NX helps us explore many design alternatives by working well with our various FEA (finite element analysis) and optimization software. It is much faster to modify a design through multiple 'what-if' iterations using Siemens PLM Software's synchronous technology than without it. That capability has really helped us out many times and we use it on a daily basis."

NX models drive other software systems

Using NX, Pratt & Miller engineers can produce models to drive various analysis software systems, such as part optimization or vehicle dynamics. "All of our racecars are designed using NX," says Latham. "NX allows me to design class-A surfaces as well as solids. It allows me to take parts derived from other CAD systems or to design parts completely from scratch. NX is very comprehensive and flexible, while other CAD packages sometimes tie my hands by limiting the tools I have to work with."

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Solutions/Services

NX

www.siemens.com/nx

Customer's primary business

A proven formula of integrating people, processes and technologies has helped make Pratt & Miller's world-renowned motorsports operations an innovative, full-service engineering and low-volume manufacturing company. With more than 200 employees, Pratt & Miller serves a global customer base, including the automotive, defense and power sports industries.

www.prattmiller.com

Customer location

New Hudson, Michigan
United States

Partner

CAM Logic

www.camlogic.com



The company has also enjoyed the top-notch support provided by CAM Logic, a Siemens PLM Software partner for many years. "CAM Logic is our initial live contact with respect to NX," says Latham. "They provide a great conduit through which we stay in touch with Siemens PLM Software, helping us with licensing and training. We are able to get up and running more rapidly with CAM Logic's assistance."

Latham began using NX more than ten years ago when it was known as Unigraphics® software. "NX can do everything and that's what I find most useful. It does everything well. It helps you work with any geometry because it allows you to approach any issue in multiple ways. NX has more robust flexibility than any other CAD package I have worked with."

"NX is easy to use versus other CAD packages that don't work nearly as well."

Gary Latham
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