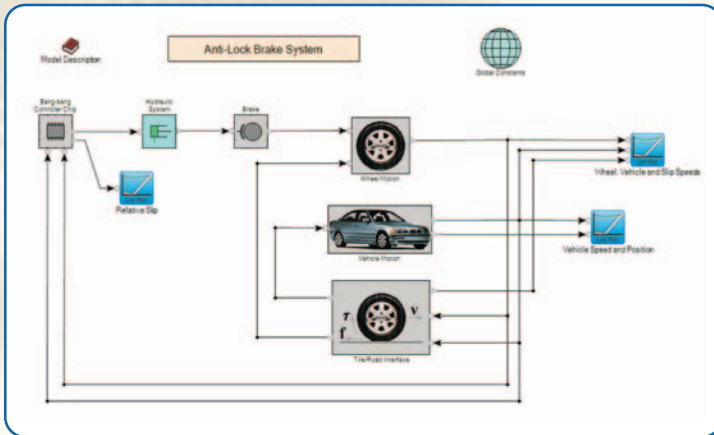


# acslXtreme<sup>®</sup>

## Case Study: Anti-Lock Brake System

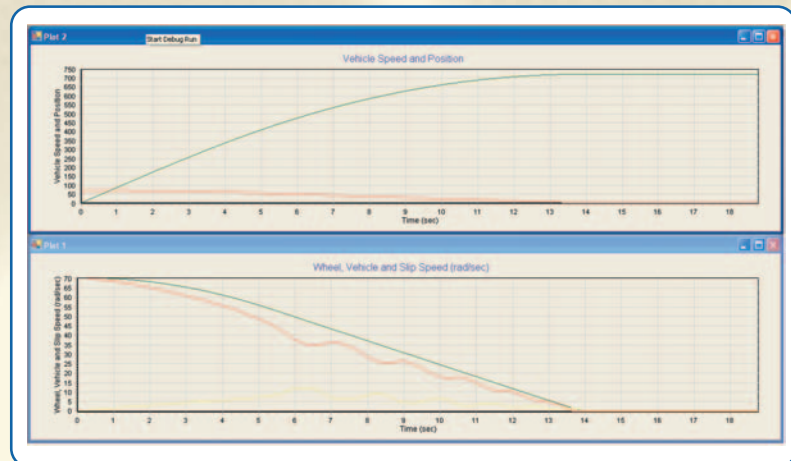
The objective of an Anti-Lock Brake System (ABS) is to stop the wheels of a vehicle from locking while braking. This is accomplished by releasing the wheels momentarily when they become locked, and then reapplying the pressure to preserve vehicle control and minimize breaking distance.



Using acslXtreme's Block Diagram modeling tool the components of an Anti-Lock Braking System (the controller, hydraulic system, the wheels and the wheel/road interface) were compartmentalized and modeled. The pressure applied to the brake is regulated by the controller as a function of the difference between vehicle velocity and wheel velocity subjected to some performance and time constants. These sub-systems, and their

time constants can be tuned and the effects on wheel and vehicle speed, vehicle position, as well as the relative slip itself can be observed and recorded.

After building the model in acslXtreme, the compiled simulation can be integrated into an existing controller system for further optimization of the ABS. acslXtreme's open API allows the easy incorporation of your model into a number of other engineering software platforms for evaluation and analysis.



Visit [www.acslXtreme.com](http://www.acslXtreme.com)  
to find out more or to  
request a free  
trial version  
today!

### Work Cited

Model provided for the AEGIS Technologies Group  
by D. Girard, Harvard Systems

**Xcellon**<sup>™</sup>  
The AEGIS Technologies Group

**acslXtreme**<sup>®</sup>  
Power to Predict the World  
in Modeling and Simulation

Xcellon • 13062 Highway 290 West • Austin, TX 78737 • 800-647-2275  
[info@aegisxcellon.com](mailto:info@aegisxcellon.com) • [www.aegisxcellon.com](http://www.aegisxcellon.com)

acslXtreme, acslXtreme OPTIMUM, and PowerBlocks are trademarks or  
registered trademarks of The AEGIS Technologies Group, Inc.