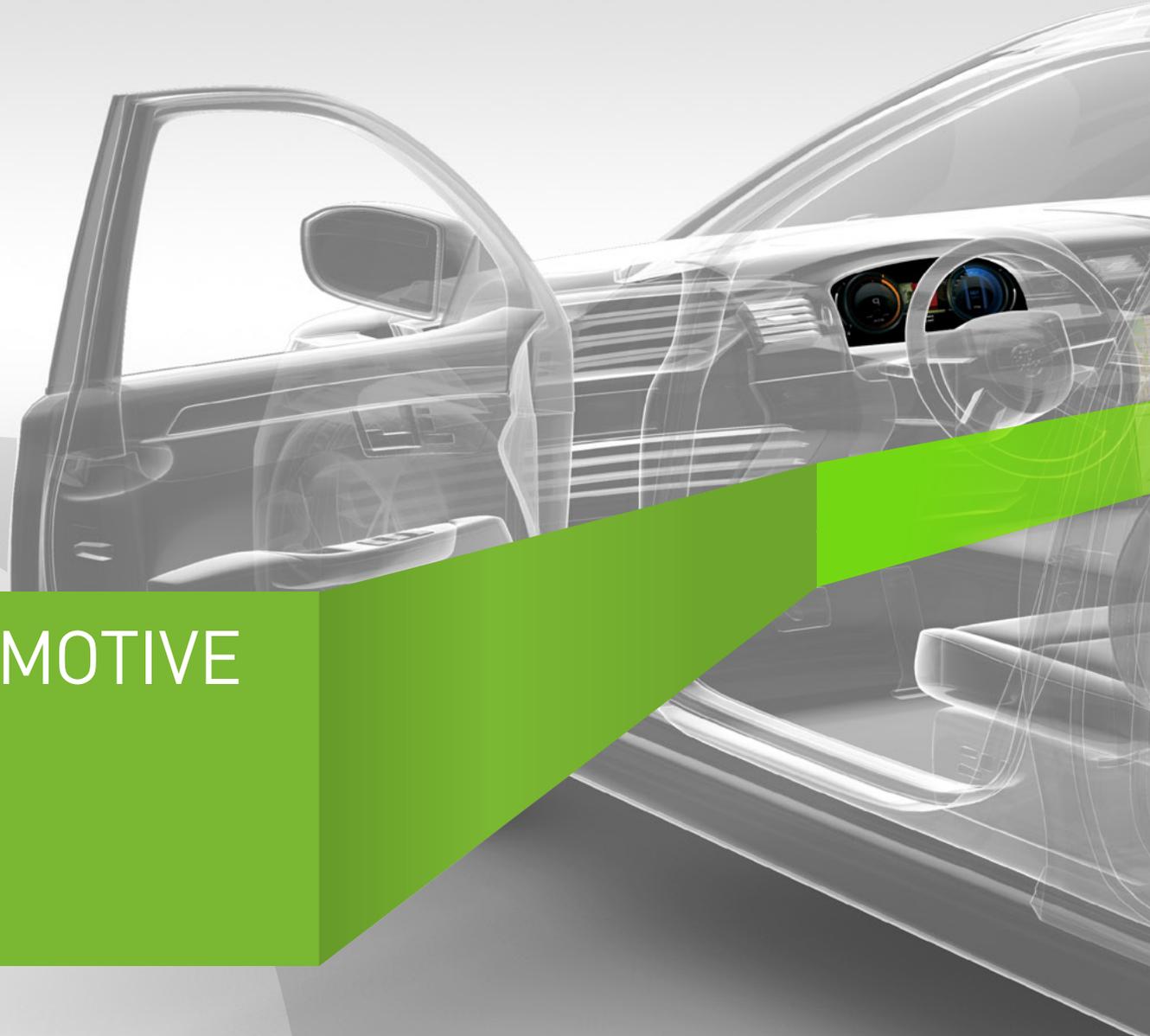# NVIDIA AUTOMOTIVE

Driving Innovation

Today, NVIDIA processors are found in more than

2,000,000

cars—and the number is growing rapidly.

Every day, exciting innovations are helping to redefine how cars look, function, and interact with their drivers and environments. Realistic computer-generated 3D models and virtual simulations create award-winning designs. Rich graphics and audio processing lead to sophisticated 3D navigation systems. And powerful computer vision systems lead to safer driving experiences.

The car is now an extension of the driver—performing, seeing, hearing, and communicating with amazing precision and clarity. NVIDIA is driving this innovation throughout the automotive industry.

Driving Innovation Together

NVIDIA partners with some of today's most forward-looking automakers to integrate graphic processing unit (GPU) technology into infotainment, navigation, digital instrument clusters, and advanced driver assistance systems.

Small, energy-efficient Tegra processors enable enhanced multitasking for rich infotainment displays, digital instrument clusters, and advanced driver assistance systems.
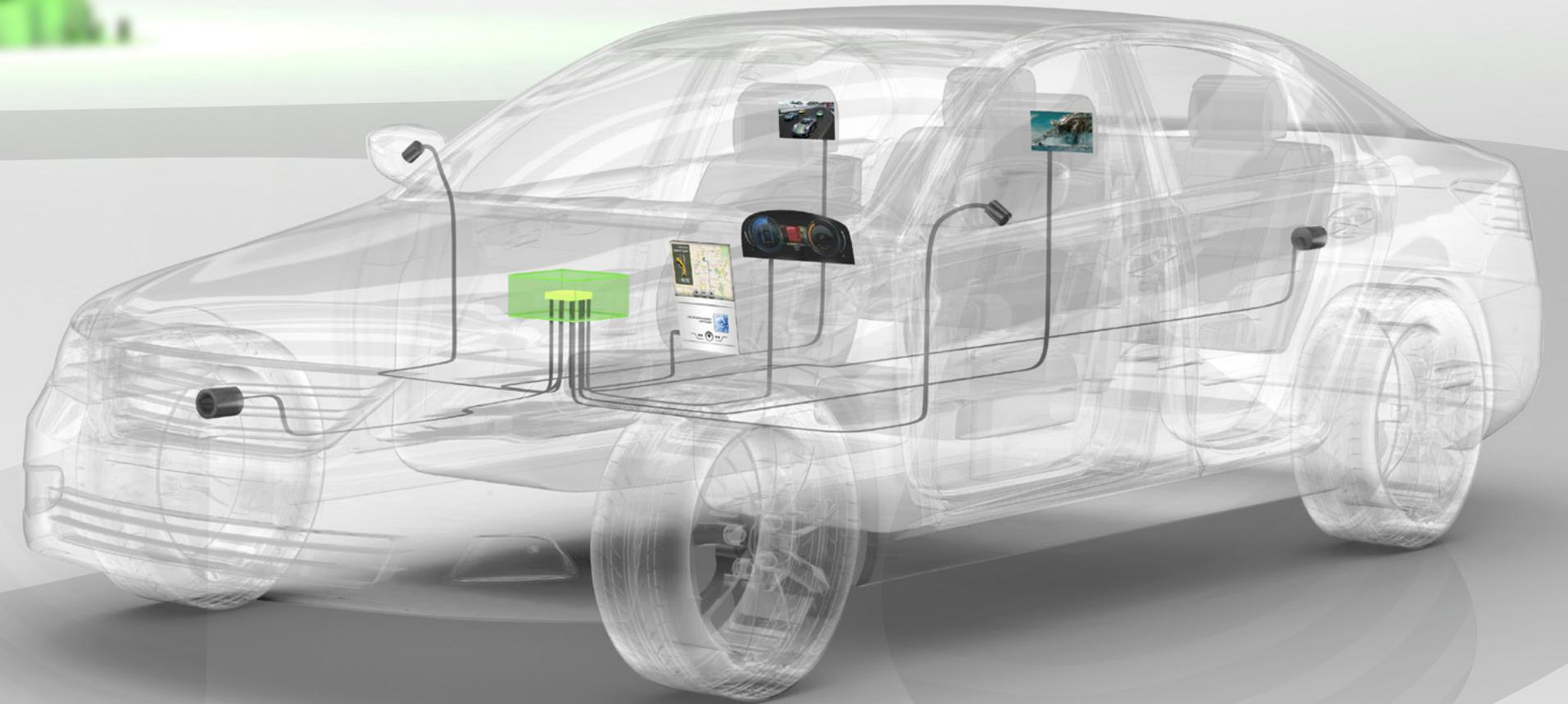
NVIDIA® TEGRA® processors
The innovation inside

(Actual Size)

NVIDIA powers the navigation, infotainment, and rear seat entertainment (RSE) systems in more than 35 car models. The multi-core Tegra mobile processor builds on this leadership with visually stunning in-vehicle entertainment and critical safety applications, truly bringing the driving experience to life.

The Tegra system-on-a-chip (SoC) integrates eight specialized processors, including a multi-core ARM CPU, a GPU, and dedicated audio and video processors. However, it consumes 50 times less energy than the typical CPU.

This makes it the ideal solution for today's—and tomorrow's—cars.

Explore the new vision
in digital instrument clusters.

NVIDIA processors open amazing new possibilities for smart, intuitive, dynamic digital instrument clusters and heads-up displays. Clusters can even be customized to create a unique experience for each driver.

Enjoy the ride with NVIDIA infotainment and navigation.

3D navigation with intuitive, glanceable displays. Natural voice recognition. Interactive cockpit controls. NVIDIA enhances the driving experience with rich, easy-to-read graphics and premium audio.

Pre-production Tesla Model S shown.

Audio Processor

Advanced audio-signal processing delivers clear voice input for improved dynamic recognition of naturally spoken words. This improves voice command accuracy and reduces driver distraction.

Today's Hit Radio
Do You Want It All?
Two Door Cinema Club

65
mph

279

Avg
272

332

Wh/mile
Past 30 miles

53° F   Elon M.   Bluetooth   3G   12:53 PM

Media   Nav   Energy   Web   Camera   Phone   Xtras

Ferry Building, San Francisco

Peace-of-mind is no accident with NVIDIA driver assist.

Bringing NVIDIA computing power to the car makes every driver more aware, and safer. These Advanced Driver Assistance Systems (ADAS) include pedestrian detection, speed limit recognition, lane departure warnings, and collision avoidance.

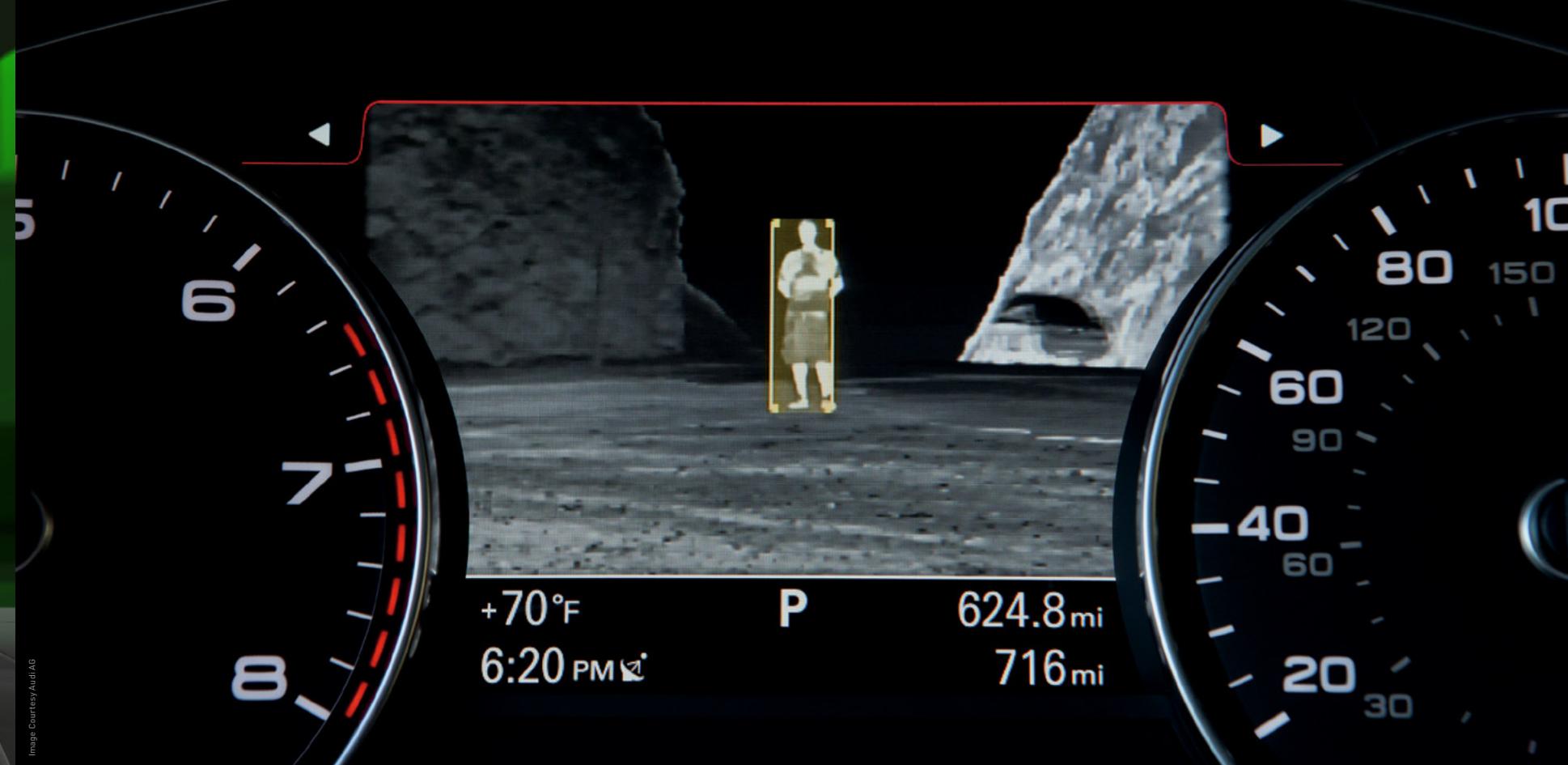They're a smart next step in improving the driving experience—and saving lives.

55 mph

→ Sand Hill Rd
2000 ft

53 mph

Image Courtesy Audi AG

+70°F
6:20 PM

P

624.8 mi
716 mi

Image Signal Processor

Tegra supports up to 12 MP cameras and video stabilization. Rear-facing, side-facing, and surround cameras can be processed in realtime for advanced driver assistance systems.

## Close the gap between consumer electronics and automotive infotainment.

NVIDIA is redefining what in-car entertainment can be, transforming the passenger experience with integrated Web browsing, theater-quality HD movies, and console-quality gaming.

The truly "connected" car even provides the ideal mobile workspace. It's a great way to stay connected, from wherever life takes you.

1080p Video Playback

Crystal-clear video from car-mounted cameras increases driver glanceability. Plus, rear-seat passengers can enjoy 1080p movies for theater-quality entertainment.
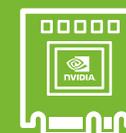
NVIDIA Visual Computing Module (VCM)

The unique VCM gives automakers a fast, easy way to integrate the most recent automotive-grade Tegra processor into their vehicles. It's a flexible design approach that dramatically reduces the technology gap between consumer electronics and in-vehicle systems.

Pre-production Tesla Model S shown.

Design the world's most innovative instrument clusters.
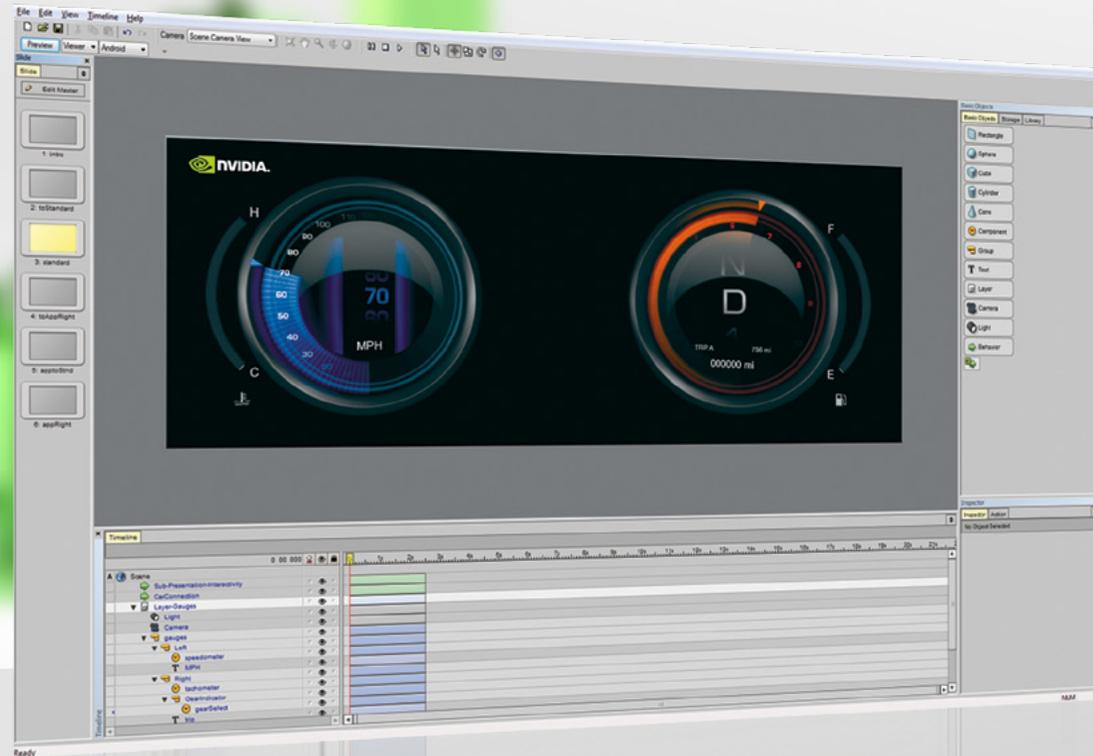
Key to NVIDIA automotive innovation is **UI Composer**, a world-class instrument cluster and infotainment design tool.

This advanced design tool incorporates 2D and 3D graphics, as well as powerful interactivity capabilities, to deliver amazing graphics in Tegra applications.

It's a visionary new solution that enables rapid prototyping of multiple design variations, so you can create more exciting and engaging driver experiences.

Examples of instrument clusters created using UI Composer

NVIDIA Maximus™ technology
Create without the wait.

NVIDIA® Quadro® GPUs have been the professional graphics solution of choice since 1999 for everything from styling and component design to in-showroom configuration kiosks. In 2006, NVIDIA expanded into high-performance computing with Tesla™ GPUs, which delivered all the power of a supercomputer at a fraction of the cost and power consumption.

Today, NVIDIA is taking auto design and simulation to a whole new level with breakthrough Maximus technology. For the first time, you can perform visualization and simulation on a single desktop—at the same time—to transform your workflow and accelerate your results.

Maximus workstations provide the industry-leading professional 3D graphics capability of NVIDIA Quadro GPUs and the high-performance computing power of Tesla GPUs. It's a powerful combination that empowers engineers, designers, and digital content creators to achieve amazing results exponentially faster.

NVIDIA has inspired and enabled automotive innovation for more than twelve years.

From conceptual design and styling to in-vehicle infotainment systems, NVIDIA processors drive innovation across a wide variety of visual computing applications.
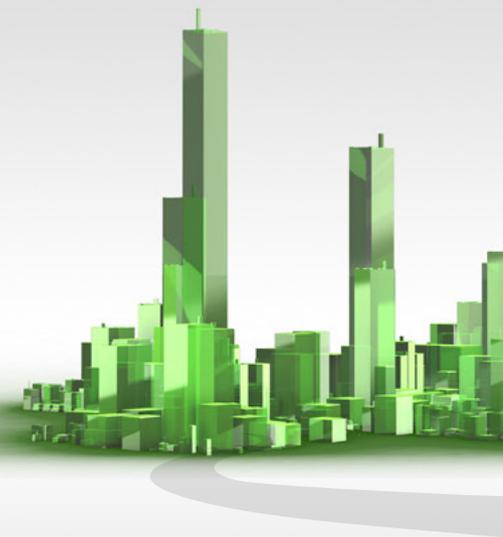
Find out more about all the ways NVIDIA is driving automotive innovation

www.nvidia.com/automotive