NVIDIA AUTOMOTIVE
DRIVING INNOVATION

NVIDIA has inspired and enabled automotive innovation for more than 15 years—from design to engineering to manufacturing. Now, the car is getting even smarter, assisting the driver by performing and communicating with exceptional precision and clarity.

NVIDIA brings its expertise in graphics and advanced computing to applications that redefine the driving experience. NVIDIA processors can be found in more than 6 million passenger vehicles, a number that is growing rapidly.

NVIDIA® TEGRA®
The Innovation Inside

Automotive-grade Tegra mobile processors enhance the driving experience by powering visually stunning in-vehicle infotainment, digital instrument clusters, head up displays, and advanced driver assistance systems.

The energy-efficent Tegra system-on-a-chip (SoC) integrates numerous specialized processors, including a powerful GPU, a multi-core ARM® CPU, and dedicated audio, video, and image processors.

NVIDIA QUADRO®
Better Vehicles by Design

Engineers and designers rely on Quadro professional graphics to create and visualize their most complex projects—from new model styling and component assembly to in-showroom configuration kiosks.

NVIDIA GRID™
Graphics-Accelerated Virtual Desktops

NVIDIA is reinventing auto design and simulation workflows with its NVIDIA GRID cloud-based technologies. Whether enabling remote design reviews or driving interactive vehicle configurators in dealerships, NVIDIA GRID allows high-performance visual experiences to be delivered to any device from public, private, or hybrid clouds.

NVIDIA VCA
Interactive, Photorealistic Design

The NVIDIA VCA accelerates popular GPU-accelerated renderers, including NVIDIA Iray®, so automakers can interact with photorealistic 3D models during the design process as if they were real objects.

NVIDIA TESLA®
Simulating Reality, Faster

Researchers and engineers trust Tesla GPU accelerators for demanding high-performance computing applications, such as finite element analysis used in crash simulations and computational fluid dynamics used in virtual wind tunnels. The massively parallel performance of GPUs delivers the power of a supercomputer—at a fraction of the cost and power consumption.

NVIDIA AUTOMOTIVE IN BRIEF

> **TEGRA**
Tegra processors enable enhanced multitasking for rich infotainment displays, digital instrument clusters, and advanced driver assistance systems.

> **QUADRO**
Automakers all over the world rely on Quadro professional graphics for styling and design.

> **TESLA**
Tesla GPU accelerators enable engineers to perform and analyze crash simulations and wind tunnel experiments virtually.

TEGRA POWERS ADVANCED IN-VEHICLE SYSTEMS.

Powered by 192 supercomputer-class GPU cores with extraordinary power efficiency, the Tegra K1 is turbocharging the mobile revolution. This automotive-grade processor enables advanced driver assistance systems and computer vision capabilities that will help bring automated vehicles to the road.

Advanced Driver Assistance
With NVIDIA computing power in the car, drivers can be more aware, and potentially safer. Advanced driver assistance systems such as pedestrian detection, traffic sign recognition, lane departure warning, and collision avoidance can make driving less stressful—and help save lives.
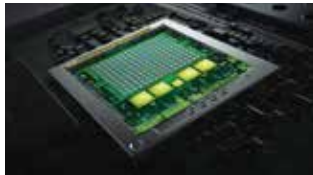
Intuitive User Experience
NVIDIA powers the driving experience with rich, easy-to-read graphics, 3D navigation with intuitive, glanceable displays, natural voice recognition, and interactive cockpit controls.

Dynamic Digital Instrument Clusters
NVIDIA visual computing opens amazing new possibilities for smart, intuitive, and dynamic digital instrument clusters and head-up displays. Clusters can even be customized to create a personalized experience for each driver.

DRIVING INNOVATION
NVIDIA technology powers a wide range of infotainment, navigation, rear seat entertainment, and digital instrument clusters in more than 35 models on the road today.

NVIDIA has partnered with some of the most forward-thinking automakers to develop in-vehicle visual computing systems, including:

> Aston Martin
> Audi
> Bentley
> BMW
> Bugatti
> Citroen
> Dacia
> Fiat
> Honda
> Lamborghini

> Lancia
> Maserati
> MINI
> Peugeot
> Rolls Royce
> SEAT
> SKODA
> Tesla Motors
> Volkswagen

INDUSTRY STANDARDS
NVIDIA Tegra supports a range of operating systems and connectivity options, including:

> Android™
> Android Auto
> Apple CarPlay
> Genivi-compliant Linux
> QNX CAR2

ADVANCED GPU ARCHITECTURE
The world's most advanced mobile processor, Tegra K1 powers in-vehicle applications including obstacle recognition and customized head-up displays.

TEGRA VCM
The Tegra Visual Computing Module (VCM) makes it easy for automakers to migrate from one generation of technology to the next. Plus, over-the-air updates provide drivers with the latest software.

JETSON TK1 PRO
This modular NVIDIA automotive development platform enables quick creation and testing of in-vehicle applications.

MULTI-CAMERA PROCESSING
Get support for up to eight simultaneous HD cameras witha powerful image signal processor capable of up to 1.2 gigapixels per second throughput for fluid video processing. Front, rear, and side cameras can be stitched together and analyzed in real-time for a complete surround view and enhanced safety.

UI COMPOSER STUDIO
Using a sophisticated material definition language, this design tool incorporates true 3D rendering capabilities for creating customizable, photorealistic digital instrument clusters and infotainment systems.

COMPUTER VISION
Computer vision processing of video from car-mounted cameras enables advanced safety systems, including pedestrian detection, blind spot monitoring, and lane departure warnings.

See how NVIDIA is driving automotive innovation at **www.nvidia.com/automotive**