

Geekbench 7 GPU Workloads

Introduction

Geekbench 7 GPU Benchmark scores are used to evaluate and optimize GPU performance using workloads that include data compression, image processing, machine learning, and compiling code. Performance on these workloads is important for a wide variety of applications including web browsers, image editors, and developer tools.

GPU Benchmark

Scores

Geekbench 7 scores are calibrated against a baseline score of 100,000 (which is the score of a Lenovo Legion with an NVIDIA GeForce RTX 4060 GPU). Higher scores are better, with double the score indicating double the performance.

Machine Learning Workloads

Productivity workloads measure how well your GPU handles common operations critical to everyday tasks, including data compression, image compression, web browsing, and 2D graphics.

Background Blur

The Background Blur workload separates the background from the foreground in a video stream and blurs the background. It models background blurring features in video conferencing apps (such as Zoom, Slack Huddles, and Microsoft Teams).

The Background Blur workload uses DeepLabV3+ as its network and blurs frames from a 1080p video stream.

Face Tracking

The Face Tracking workload processes a short video, detecting facial landmarks (eyes, nose, and mouth) in each frame using the RetinaFace model. Where landmarks are detected, the workload applies effect images onto them. It models real-time face filter features found in video and social media apps (such as Snapchat and Instagram).

The Face Tracking workload uses RetinaFace as its network and works on frames from a 1080p video stream.

Super Resolution

The Super Resolution workload upscales a lower-resolution image into a higher-resolution image using a machine learning model. It models upscaling features used in content creation applications (including Adobe Photoshop).

The Super Resolution workload uses RFDN as its network and resizes an image from 256x256 to 1024x1024.

Image Editing

Image editing workloads measure how well your GPU performs simple and complex image editing tasks.

Horizon Detection

The Horizon Detection workload detects and straightens uneven or crooked horizon lines in photos to make the photos look more realistic. It models horizon line correctors in photo editing apps (such as Adobe Lightroom, Google Gallery, and Apple Photos).

Photo Filter

The Photo Filter workload applies filters to photos to enhance their appearance. It models common filters available in social media and photo editing apps (such as Instagram and Adobe Lightroom).

Video Filter

The Video Filter workload performs color grading on a short video by transforming colors using a lookup table (LUT) with tetrahedral interpolation. It models color grading features used in video editing apps (such as Adobe Premiere Pro and DaVinci Resolve).

RAW

The RAW workload processes unprocessed RAW image files, applying demosaicing, color correction, and noise reduction to produce a finished photo. It models the RAW image pipelines used in professional and smartphone camera apps (such as Adobe Lightroom and Google Camera).

Image Synthesis

Image synthesis workloads measure how well your GPU handles content creation tasks, including image rendering and image processing.

Feature Matching

The Feature Matching workload takes two different photos of the same scene and identifies points that are the same in both. Feature matching is used as part of other processes to identify objects in photos and to make 3D reconstructions. For example, Structure From Motion uses Feature Matching to find the initial points to reconstruct into a 3D scene.

Path Tracer

The Path Tracer workload renders a photorealistic image by simulating the physical behavior of light in a virtual scene, using an implementation based on Alexander Veselov's Ray Tracing project. The scene is based on the Blender BMW test scene.

Simulation

Particle Physics

The Particle Physics workload implements a simulation where particles interact with one another and their environment via elastic collisions. Other particle-particle forces are ignored.

Fluid Simulation

The Fluid Simulation workload simulates the motion and interaction of fluid particles in a 2D environment. It models the fluid dynamics effects used in visual effects and game rendering (such as water, smoke, and fire in modern video games).