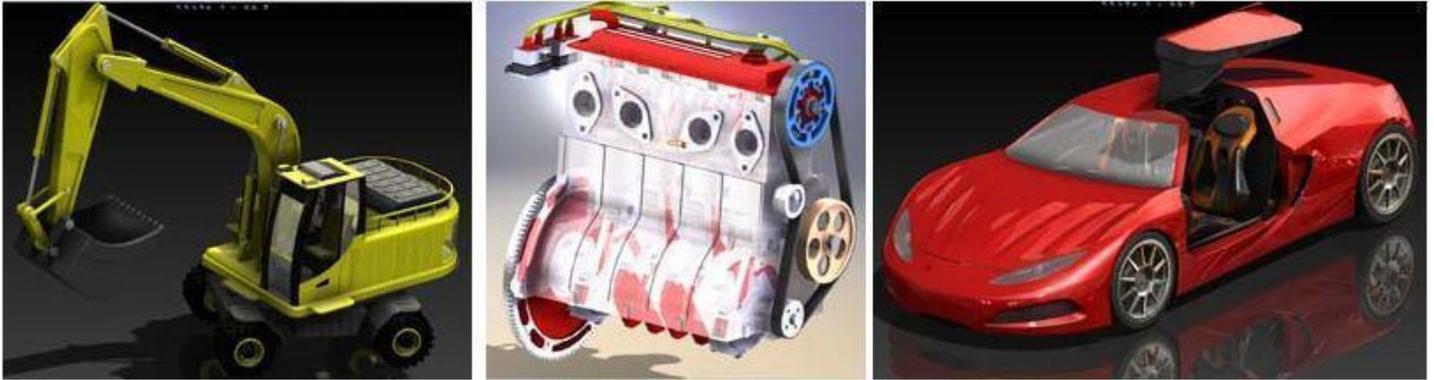# SPECapc™ for Solidworks™ 2025 Benchmark Run Rules

SPECapc for Solidworks 2025 is performance evaluation software for vendors and users of systems running Solidworks 2025 CAD/CAM software.

The benchmark consists of nine graphics tests and two CPU tests. The graphics-oriented tests use four Solidworks view settings -- RealView, Ambient Occlusion and shadows -- in combination with shaded and shaded-with-edges display styles, and hidden line removal. Drawing mode is also measured. Four CPU subtests within the benchmark perform rebuild, simulation, conversion and Visualize CPU rendering. The benchmark features 10 models, with the largest containing 4.73 million triangles.

Features exercised in the SPECapc for Solidworks 2025 benchmark are Order Independent Transparency (OIT), a modern methodology for quickly displaying transparency, and Full-Scene Anti-Aliasing (FSAA) for higher-quality visuals. The benchmark can be run with either the default anti-aliasing method (edges/sketches only) or with FSAA.

This document outlines the system requirement, initialization and execution steps required for a rules-compliant run of the benchmark.

System Requirements

- Required applications installed, fully licensed:
  - Dassault Systèmes Solidworks 2025 SP 5.0
  - Solidworks Visualize
- The Solidworks license must support running simulation within Solidworks. If Visualize or Simulation licenses are not available, the CPU tests cannot execute. The GPU tests can be run alone by unchecking the CPU test enable checkbox in the GUI.
- Operating system: Microsoft Windows 10/11 64-bit as supported by Solidworks.
- Display resolution: 1920x1080 minimum
- Windows Display scaling set to 100%
- System memory: 8GB minimum
- Graphics hardware that fully supports Solidworks features RealView, Ambient Occlusion and OIT (Order Independent Transparency).

  - Notes on OIT:

    Solidworks 2025 does not support OIT on all graphics hardware. In the case that OIT is not supported, it will instead use an older style of transparency. Non-compliant results cannot be compared to compliant results. Unfortunately, the benchmark is unable to automatically determine whether OIT is enabled/supported, so the user must visually confirm. To verify OIT compliance, either run the benchmark and compare the screenshots afterward, or compare the teapot model before running the benchmark. This process is described below.

    1. Either open Solidworks with the *"teapot.sldprt"* model at the default location *"C:\Program Files\SPECapc for Solidworks 2025\SWModels\TeapotOIT\"* OR run the benchmark, after which the teapot screenshot will be located in the run's results directory, with the filename *"teapot.sldprtTeapotOIT_test.jpg"*.
    2. Compare the location of the shapes inside the teapot to the reference image, *"OIT_On_Teapot.png"*, at the default location *"C:\Program Files\SPECapc for Solidworks 2025\SWModels\TeapotOIT"*.
    3. If OIT is enabled, the sphere and torus will appear inside the purple squiggly shape. As the teapot is rotated, the object should appear in the same relative location to each other, e.g. the sphere will always appear inside the purple squiggly shape.
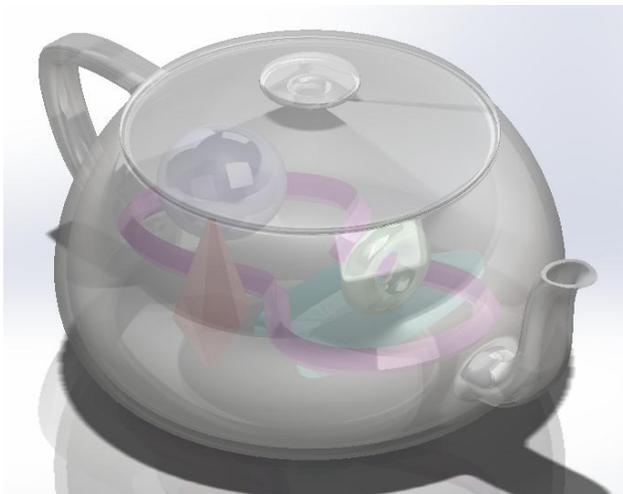
Benchmark Execution

1. Set display resolution to a minimum of 1920x1080.
2. Reboot the benchmark system.
3. From the Start menu, select **"Start -> SPECapc -> SPECapc for Solidworks 2025"**. This will bring up the benchmark interface and allow the user to select the anti-aliasing setting with which the benchmark will be run.

    a. By default, the benchmark will attempt to automatically detect the installation path for Solidworks. If multiple Solidworks versions are installed on the system under test, the benchmark will detect the most recently installed version.

    If this is not desired, instead of running from the Start menu, the benchmark's script `runBench.bat` can be run manually from the benchmark installation directory with the command line argument `-installDir [directory]` specified, e.g.

    .\runBench.bat -installDir "C:\Program Files\SOLIDWORKS Corp\SOLIDWORKS"

4. (Optional) If submitting results to SPEC, click on the "**Manage Results**" link in the bottom right-hand corner of the benchmark interface to enter all information in the *"Submission Details"* form before running the benchmark.

5. Select *"Run"*. As the benchmark runs, do not interact with the system. Ensure that nothing obscures the Solidworks application window, including the taskbar, application pop-ups, and other applications.

Benchmark Results

Results and additional details from previous benchmark runs are stored in individual subdirectories within the directory *"%USERPROFILE%\Documents\Spec Results\SPECapc for Solidworks 2025"*. These include screenshots of the tests run.

This directory can also be found by selecting *"Manage Results"* within the benchmark UI and then selecting the folder icon next to a listed result.

Results Submission

Benchmarks results can be submitted for review and publication on the SPEC website www.spec.org. When submitting results for review, they must be packaged in a specific format.

Properly formatted packages can easily be generated by selecting *"Manage Results"* within the benchmark UI, checking the box next to the relevant listed result(s), and selecting *"Package Selected Results"*.

Otherwise, a submission package can be manually created by zipping one or more results directories to a zip file named *"company-name_apc_solidworks2025_v0.zip"*, where *"company-name"* is the name of the member company or organization in all lower-case letters.

The package name should not contain *"."* except prior to the zip extension. The initial file version is v0. Resubmitted files must increment the version number. The package must include all directories and files located in the run's results folder.

A submission must include a run with FSAA disabled, and may optionally include a run with FSAA enabled. All GPU and CPU tests must be run for a valid submission.

Posted Benchmark Results

In Memory Of

SPECapc thanks Mike Cripps, a graphical applications technology director for Dassault Systèmes Solidworks, for his ongoing work supporting the SPECapc for Solidworks benchmark. Mike also served as a company representative in the early days of the SPEC Graphics Performance Characterization group (SPECgpc). He passed away in late June 2018, but will always be a part of the SPEC/GWPG family.