

Hardware Recommendations – SOLIDWORKS

Reviewed October 30th, 2024

SOLIDWORKS 3D CAD

Processors - Processor speed is very important to performance. It is typically best to purchase one or two levels down from the fastest available processor. This is because there is typically a large premium to be paid for the fastest available processor(s). Therefore, there is better value in choosing a high clock speed i7 or i9 processor than a lower clock speed Xeon processor.

For AMD processors, the Ryzen 7 and Ryzen 9 processors are competitive alternatives.

Many tasks and operations in SOLIDWORKS utilize a single core, however multiple cores are used within SOLIDWORKS CAD software when reading and writing large files and when working with multiple drawing views. It should be noted that multiple cores also allow other applications to run smoother with SOLIDWORKS open simultaneously.

Hard Drives – Using an SSD as the primary drive will help significantly in reading and writing files, especially with large assemblies and parts. A secondary drive is typically recommended for saving data that has been completed. The operating system, SOLIDWORKS software and work-in-progress files should all be on the primary SSD. At least 500 GB is required for optimal storage and 1 TB is recommended.

SOLIDWORKS PDM is an add-in that can help with file management by storing files on a separate, archive server and setting permissions to access specific files.

Graphics Cards – The graphics cards speed up zooming, panning, and rotating. A good starting point is the NVIDIA Quadro P4000. For mid-size to large assemblies, a card such as the NVIDIA Quadro RTX4000 or equivalent may be considered. For large to very large assemblies, the NVIDIA Quadro RTX5000 is one recommendation.

*The NVIDIA Quadro K series is in its end-of-life phase and will not perform as well as the Quadro RTX series.

System Memory – Between 16 - 32GB is recommended for most applications. 64 GB is recommended for large and/or complex assemblies. The fastest clock-speed is recommended. More RAM allows for more models and program to be open simultaneously.

Simulation – FEA (read SOLIDWORKS recommendations first) – [CFD not included]

Processors - Processor speed is very important to performance. It is typically best to purchase one level down from the fastest available processor. If there is a fair amount of simulation being done on the workstation, choosing the i9 processor (e.g., Intel core i9 14th gen) will have a better value than a Xeon processor.

SOLIDWORKS Simulation will take advantage of multiple cores in a single processor. Better performance will be achieved by using one 18 core processor than using two 10 core processors. Simulation is not optimized to use two or more processors in the same machine.

High-performance computing solutions in the cloud with 3DEXPERIENCE SIMULIA is an alternative for solving larger simulations by using remote, high-performance computers to assist with solving your simulations.

Hard Drives – An SSD (Solid-State drive) will speed up the processing of the simulation as there are large temporary and other files being written during the process.

Graphics Cards – The graphics card has no effect on speeding up SOLIDWORKS simulation. It will improve performance when displaying and moving the model around in the window. CST Studio Suite for electromagnetic simulation can use the graphics card to aid in solving.

System Memory – 16GB is the bare minimum required. 32 or 64 GB is recommended. Faster memory clock speeds are better. ECC memory provides better stability, especially with more complex and time-consuming analyses only when used with a Xeon processor.

Rendering and Animation – SOLIDWORKS Visualize (read SOLIDWORKS recommendations first)

Processors - Processor speed is paramount to performance. It is typically best to purchase one level down from the fastest available processor. If there will be a fair amount of rendering being done on the workstation, there is better value in choosing a i9 processor (e.g., Intel core i9 14th gen) over an i7 processor. SOLIDWORKS Visualize will take advantage of multiple cores. Better performance will be achieved by using one 18 core processor than using two 10 core processors.

Hard Drives – SSDs will speed up the processing of the rendering as the file(s) is/are being written. Therefore, if creating animations, an SSD drive is recommended.

Graphics Cards – The GPU on the graphics cards will speed up the rendering process. If there is going to be only some rendering, then the Quadro RTX 4000 is a great starting point. If render time plays a large role, consider looking at the Quadro RTX 6000. This is because certain rendering technologies (e.g. NVIDIA Iray) will take advantage of better graphics cards.

System Memory – 16 GB at minimum is required. 32 GB is recommended. Faster memory is better. For very complex renders 64GB to 128 GB might be required depending on the complexity of the projects.