



## INTRODUCTION

This document outlines recommendations for workstation hardware necessary to effectively use Autodesk products. These recommendations are general in nature, do not address unique conditions, and may not be applicable to all customers and situations. These recommendations are provided as a service to the customers of CADD Microsystems (CADD), to assist them in purchasing the most capable workstations at the best price.

This document was written for the 2022 release of Autodesk products. Most supported prior versions should function appropriately with the recommendations outlined below.

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## 2D DRAFTING AND DESIGN

The recommendations in this section are intended for those using AutoCAD or an AutoCAD-based product primarily for two-dimensional (2D) drafting and design. This includes lines, polylines, blocks, text, dimensions, etc. Software used would include:

- Autodesk AutoCAD
- Autodesk AutoCAD MEP
- Autodesk AutoCAD Architecture
- Autodesk AutoCAD Map 3D

Note: Many of the products listed here contain robust 3D modeling tools, but these recommendations are geared towards those who do not normally use these features.

CATEGORY	RECOMMENDATION
<b>Operating System</b> 	Windows 10 64-bit (Professional) <ul style="list-style-type: none"> <li>▪ This operating system comes in 32-bit or 64-bit versions. Autodesk does not support its products on 32-bit platforms.</li> <li>▪ CADD does not recommend the use of Windows 7, Windows Vista or Windows XP. Autodesk and/or Microsoft's support for these operating systems has ended.</li> </ul>
<b>Processor / CPU</b> 	Multi-core Intel Core i7, Core i9, Xeon, or comparable <ul style="list-style-type: none"> <li>▪ The fastest processor available is often not worth the premium price for the incremental gain in speed. It may be better to get a lower speed processor which may be only 5%-10% slower, but 2/3 to 1/2 the price.</li> </ul>
<b>RAM</b> 	Minimum of 16GB
<b>Hard Disc Drive (HDD)</b> 	A Solid-State HDD is recommended <ul style="list-style-type: none"> <li>▪ For platter-based HDDs, 7,200 RPM minimum</li> <li>▪ Storage space is typically not an issue, but 512MB is an appropriate baseline for most workstations</li> </ul>
<b>Graphics Card</b> 	A "discrete" or "dedicated" graphics card of at least 4 GB of RAM <ul style="list-style-type: none"> <li>▪ Avoid an "integrated graphics card"</li> <li>▪ Autodesk certified nVidia Quadro cards, or AMD/ATI cards</li> <li>▪ See the section called "Autodesk Graphics Hardware List" for more information</li> </ul>
<b>Network Connectivity</b> 	Wired Ethernet

## 3D MODELING AND VISUALIZATION

The recommendations shown here are geared towards those modeling in three dimensions (3D) and/or creating visualizations. Software used would include:

- Autodesk Revit
- Autodesk AutoCAD
- Autodesk AutoCAD Architecture
- Autodesk AutoCAD MEP
- Autodesk AutoCAD Map 3D
- Autodesk Civil 3D
- Autodesk Navisworks Simulate / Manage
- Autodesk 3ds Max / 3ds Max Design
- Autodesk ReCap

All the products listed include robust 3D modeling tools (except Navisworks and ReCap) as well as rendering engines.

CATEGORY	RECOMMENDATION
<b>Operating System</b> 	Windows 10 64-bit (Professional) <ul style="list-style-type: none"> <li>▪ This operating system comes in 32-bit or 64-bit versions. Autodesk does not support its products on 32-bit platforms.</li> <li>▪ CADD does not recommend the use of Windows 7, Windows Vista or Windows XP. Autodesk and/or Microsoft's support for these operating systems has ended.</li> </ul>
<b>Processor / CPU</b> 	Multi-core Intel Core i7, Core i9, Xeon, or comparable <ul style="list-style-type: none"> <li>▪ The fastest processor available is often not worth the premium price for the incremental gain in speed. It may be better to get a lower speed processor which may be only 5%-10% slower, but 2/3 to 1/2 the price.</li> </ul>
<b>RAM</b> 	Minimum of 32GB <ul style="list-style-type: none"> <li>▪ For new builds, 64GB</li> </ul>
<b>Hard Disc Drive (HDD)</b> 	A Solid-State HDD is recommended <ul style="list-style-type: none"> <li>▪ For platter-based HDDs, 7,200 RPM minimum</li> <li>▪ Storage space is typically not an issue, but 512MB is an appropriate baseline for most workstations</li> </ul>
<b>Graphics Card</b> 	A "discrete" or "dedicated" graphics card of at least 4 GB of RAM <ul style="list-style-type: none"> <li>▪ Avoid an "integrated graphics card"</li> <li>▪ Autodesk certified nVidia Quadro cards, or AMD/ATI cards</li> <li>▪ See the section called "Autodesk Graphics Hardware List" for more information</li> </ul>
<b>Network Connectivity</b> 	Wired Ethernet with Gigabit speed

## VIRTUALIZATION

Throughout the industry, many firms are opting for a virtualized environment. It allows for flexibility for workers and collaboration across firms. Virtualization is becoming more and more affordable and part of our daily lives.

Autodesk applications have unique requirements for a virtualization host, and one application's requirements may not match another.

CADD recommends identifying your specific applications and working with the VM solution vendor to determine if they align. This is for both on-premises hosted solutions like Citrix or VMWare as well as cloud hosted solutions like Workspot.

## APPLICATION SUPPORT

There are many choices for virtualization support, however some titles do not support it. The below matrix lists titles that implicitly supports virtualization. Refer to the product website for specifics on supported VM solutions.

SOFTWARE PRODUCT	VIRTUALIZATION
<b>Architecture, Engineering, and Construction (AEC) Collection</b>	
Autodesk AutoCAD	●
Autodesk AutoCAD Architecture	●
Autodesk AutoCAD MEP	●
Autodesk AutoCAD Map 3D	●
Autodesk AutoCAD Plant 3D	●
Autodesk AutoCAD Electrical	●
Autodesk AutoCAD Raster Design	●
Autodesk Civil 3D	●
Autodesk Revit	●
Autodesk Dynamo Studio	
Autodesk Navisworks Manage	●
Autodesk 3ds Max	
Autodesk Robot Structural Analysis Professional	
Autodesk Vehicle Tracking	
Autodesk Fabrication CADmep	
Autodesk Structural Bridge Design	
Autodesk ReCap Pro	
Autodesk Advance Steel	
Autodesk InfraWorks	
<b>Other Products</b>	
Autodesk AutoCAD LT	●
Autodesk Navisworks Simulate	
Autodesk AutoCAD Mechanical	●
Autodesk Inventor	●
Autodesk Maya	●

## AUTODESK GRAPHICS HARDWARE LIST

The graphics card on your system is one of the most important resources your software uses. Autodesk is constantly testing graphics card drivers for how well they run with their products. You can use the Graphics Hardware List found on Autodesk’s website to look up which driver version is tested, supported, and even certified for use based on your operating system and the version of your Autodesk product:

<https://knowledge.autodesk.com/certified-graphics-hardware>

The link above will take you to a webpage that allows you to search for the best driver for your particular graphics card. Simply fill out the form with your information. (Example shown below)

Find tested hardware

Card	Generation	Memory (MB)	Type	Manufacturer	Driver Name	Driver
AMD FirePro W4100 (FireGL V)		2048	Workstation	AMD	AMD Radeon Pro Software for Enterprise 20.Q4	
AMD FirePro W4300 (FireGL V)		4096	Workstation	AMD	AMD Radeon Pro Software for Enterprise 20.Q4	
AMD FirePro W5100 (FireGL V)		4096	Workstation	AMD	AMD Radeon Pro Software for Enterprise 20.Q4	
AMD FirePro W7100 (FireGL V)		4096	Workstation	AMD	AMD Radeon Pro Software for Enterprise 20.Q4	
AMD FirePro W8100 (FireGL V)		8192	Workstation	AMD	AMD Radeon Pro Software for Enterprise 20.Q4	
AMD Radeon Pro W5500		8192	Workstation	AMD	AMD Radeon Pro Software for Enterprise 20.Q4	
AMD Radeon Pro W5700		8176	Workstation	AMD	AMD Radeon Pro Software for Enterprise 20.Q4	
AMD Radeon Pro WX 3200	GCN 4th gen	4096	Workstation	AMD	AMD Radeon Pro Software for Enterprise 20.Q4	
NVIDIA Quadro GP100	Pascal	16384	Workstation	NVIDIA	NVIDIA RTX / Quadro Desktop and Notebook Driver 452.57	
NVIDIA Quadro M1200	Maxwell	4096	Mobile	NVIDIA	NVIDIA RTX / Quadro Desktop and Notebook Driver 452.57	
NVIDIA Quadro M2000		4096	Workstation	NVIDIA	NVIDIA RTX / Quadro Desktop and Notebook Driver 452.57	
NVIDIA Quadro M2000M	Maxwell	4096	Mobile	NVIDIA	NVIDIA RTX / Quadro Desktop and Notebook Driver 452.57	

Once you complete the “Product”, “Year” and “Operating System” fields, a list of all the relevant graphics cards will appear. You can then see if your card is in the list and even download the driver from that web page.

## TASK SPECIFIC GUIDELINES

Identifying the most important piece of hardware in a workstation build can be challenging. The recommendations above are intended for baseline day to day use and should be sufficient for most users. Most of performance gains are found in the following pieces of hardware:

- **Processor**
- **RAM**
- **Hard Drive**
- **Graphics Card**

We have outlined some suggestions based on individual user needs below, to try to help guide workstation builds that may be atypical.

### POWER USERS

In general, Power Users can leverage the base stats above and then add more.

- **RAM** –Power Users will typically use all the RAM they can get; 128GB is quickly becoming the norm for new workstations for Revit and Civil 3D users.
- **Hard Drive** – A Solid-State Drive will lead to higher performance and fewer delays. And as most Power Users are proficient in multiple pieces of software, a hard drive of 1TB is recommended.

### RENDERING

- **Processor** – Rendering is typically a processor-based task and most Autodesk application will use multiple cores to get rendering done. For users that will be doing rendering, a better and higher core processor can significantly increase rendering speeds.
- **Hard Drive** – Animation rendering can create many files. A hard drive larger than 512MB would be useful for this task. If the software can be configured for different locations for cache, temp files, and exports, a second hard drive is often installed and used.

### LARGE MODELS AND POINT CLOUDS

Larger projects or point clouds in Revit and Civil 3D will often lead to larger and more complex model files. For workflows that involve working in 3D views on large models, some hardware changes can help performance.

- **RAM** –For Revit and Civil 3D users that need to consistently work on large models, 128GB is helpful.
- **Hard Drive** – look for a Solid-State Drive. Larger models typically require larger caches and more links as well. A hard drive of 1TB is recommended.
- **Graphics Card** – navigating a 3D model in realtime leans heavily on a workstation's graphics card. A workstation class, high memory card is useful for these tasks.