



# VG CORE

System Requirements

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# Introduction

VG CORE is a software product developed for integration in CT systems as a system component. It provides reconstruction and geometry calibration functionality using the advanced capabilities also available in other VG software such as VG STUDIO MAX. It runs invisibly in the background as a small service application and is controlled via VG PROJECT SDK.

Table 1-1: Product details

Feature	Description
Product name	VG CORE
Release	2024.2
Optional modules <sup>a</sup>	<ul style="list-style-type: none"> <li>&gt; Geometry Calibration</li> <li>&gt; CT Reconstruction (Cone Beam, Fan Beam, Parallel Beam)</li> <li>&gt; IAR<sup>b,c</sup> for CT Reconstruction</li> <li>&gt; Special Algorithms (Helix, ART) for CT Reconstruction</li> <li>&gt; CT Reconstruction (Planar)</li> </ul>
Document ID	SystemRequirements-1134-v014-001-en

<sup>a</sup> Available at surcharge. May not be part of your installation. Contact Volume Graphics for details.

<sup>b</sup> Technology licensed from Fraunhofer EZRT 

<sup>c</sup> Available for Windows operating systems only.

# System Requirements

## Operating System

The software supports the following operating systems:

Table 2-1: Supported operating systems

Platform	Operating System
Windows <sup>a</sup> :	Windows 10 Enterprise 64 bit
	Windows 10 Professional 64 bit
	Windows 11 Enterprise 64 bit
	Windows 11 Professional 64 bit

<sup>a</sup> LTSC versions of operating systems are not supported.

## Processor

- > Minimum:  
x86-64 CPU with instruction set SSE 4.1.




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ARM processors are not supported.

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- > Recommended:  
Performant Intel or AMD multi-core processors, e.g., Intel<sup>®</sup> Core™ i7 or i9 or Xeon<sup>®</sup> Gold processors with 3 GHz or higher.

## RAM

- > Minimum:  
VGCORE requires a minimum of 4 GB free memory. However, the actual free main memory needed for creating or loading a complete project will usually be significantly higher, since it depends on the size of the data set and on the functions to be performed: Performing segmentation, surface determination, and other operations requires additional memory. Performing CT reconstruction and other operations requires additional memory (see also [chapter 3 Recommendations for CT Reconstruction on page 5](#)).  
Typical for industrial use is a PC with at least 64 (for one data set) to 512 GB RAM (for multiple data sets), depending on your workflow.

## Graphics Card

- > Minimum:  
A dedicated built-in NVIDIA or AMD graphics card with at least 2 GB VRAM, OpenGL 3.3 support, and—for Windows operating systems—the latest WHQL driver.
- > Recommended:

A dedicated built-in NVIDIA or AMD graphics card with at least 8 GB VRAM, OpenGL 4.1 support, and—for Windows operating systems—the latest WHQL driver.

Some functions, such as CT reconstruction (see [chapter 3 Recommendations for CT Reconstruction on page 5](#)), may benefit from increased graphics card performance. For details, please contact your local VG Support.



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Onboard graphics chips (integrated graphics processors) are not supported.

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Make sure to have the latest driver version for your graphics card installed.

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## Display

The minimum resolution is 1400 x 1050 at 100% scale; the recommended resolution is 1920 x 1080 at 100% scale.

The actual display resolution results from the display scale multiplied by the minimum resolution. This means that for a display scale of 200%, you should use a display resolution of at least 2800 x 2100.

VGCORE supports 4K monitors.

## Swap Space

The available swap space should have the same order of magnitude as the RAM. If available, we recommend that you place the swap partition on an SSD.



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Deactivating the swap space may cause the system to crash.

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## Disk Space

Make sure to have sufficient free disk space in the directory for temporary files. If there is less than 1 GB available in this directory, a warning message will be issued. This message is also issued if this directory has been deleted.

## User Rights

Make sure every user either has user or administrator rights. The license might not work on guest accounts.

## Virtual Machines

Virtual machines are not supported. VGCORE has to be executed on a physical computer.



## Network

VGCORE can be run as part of a distributed system in a network using network shares. In this case, performance may also be dependent on network band width.

## Third Party Software

The optional reporting functions using an Excel add-in support the following Microsoft® Excel versions:

- > Microsoft® Excel 15 (part of Microsoft® Office 2013), 32 bit
- > Microsoft® Excel 16 (part of Microsoft® Office 2016, Microsoft® Office 2019, Microsoft® Office 365, and Microsoft® Office 2021), 32 bit



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64-bit versions of Microsoft® Excel are not supported.

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Using the Excel add-in for reporting is currently only supported for Windows.

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# Recommendations for CT Reconstruction

In addition to the above-mentioned requirements, the optional **CT Reconstruction** module places some specific requirements on the system.

## RAM

- > Minimum:  
4 GB free memory to run the reconstruction for very small data sets.
- > Recommended:  
At least 128 GB free memory.

Calculate the optimal size of memory based on the size of the volume ( $x * y * z$ ), the size of one projection ( $x * y$ ), and the number of projections:

size of memory = (volume size \* 4) + (projection size \* number of projections \* 4)

The result is the optimal size of memory in bytes. To convert to MB, divide by 1,000,000.

Example:

- > volume:  $2048 * 2048 * 2048$
- > size of one projection:  $2048 * 2048$
- > number of projections: 3000
- > size of memory =  $(2048 * 2048 * 2048 * 4) + (2048 * 2048 * 3000 * 4) = 84,691,386,368$

This equates to 84,691 MB or 84.691 GB.

## Graphics Card

CT reconstruction requires increased graphics card memory. If you are using more than one graphics card, it is recommended that all graphics cards are of the same type. For details, please contact your local VG Support.

## Display

If the performance of a CT reconstruction performed on the graphics card in a dual monitor setup seems to be slow, remove the second monitor and reboot the computer.