VOLUME GRAPHICS

part of **Hexagon**

VGCORE

System Requirements

If you have any questions regarding our products and services, do not hesitate to contact us:

Europe, Latin America (without Mexico), and Africa:
Volume Graphics GmbH, 69115 Heidelberg, Germany

Sales:
E-mail: sales@volumegraphics.com
Phone: +49 6221 73920 60

Support:
E-mail: support@volumegraphics.com
Phone: +49 6221 73920 80

Japan:
Volume Graphics Co., Ltd., Nagoya 464-0858, Japan

Sales:
E-mail: sales@volumegraphics.jp
Phone: +81 52 508 9682

Support:
E-mail: support@volumegraphics.jp
Phone: +81 50 5305 1829

Canada, USA, and Mexico:
Volume Graphics, Inc., Charlotte, NC 28217, USA

Sales:
E-mail: sales-us@volumegraphics.com
Phone: +1 704 248 7736

Support:
E-mail: support-us@volumegraphics.com
Phone: +1 704 248 7736

China, including Mainland China, Hong Kong, Macao, and Taiwan:
Volume Graphics (Beijing) Technology Co., Ltd., Beijing, China

Sales:
E-mail: sales@volumegraphics.cn
Phone: +86 10 8532 6305

Support:
E-mail: support@volumegraphics.cn
Phone: +86 10 8532 6305

Asia (except China and Japan), Australia, and parts of Oceania:
Volume Graphics Pte. Ltd., Singapore 068914

Sales:
E-mail: sales@volumegraphics.sg
Phone: +65 6665 0310

Support:
E-mail: support@volumegraphics.sg
Phone: +65 6665 0311

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1 INTRODUCTION

VGCORE 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 VGSTUDIO MAX. It runs invisibly in the background as a small service application and is controlled via VGPROJECT SDK.

TABLE 1-1: PRODUCT DETAILS

FEATURE	DESCRIPTION
Product name	VGCORE
Release	2022.4
Optional modules[a]	• Geometry Calibration • CT Reconstruction (Cone Beam, Fan Beam, Parallel Beam)[b] • IAR[c,d] for CT Reconstruction • Special Algorithms (Helix, ART)[e] for CT Reconstruction • CT Reconstruction (Planar)[f]
Document ID	SystemRequirements-1134-v006-001-en

a Available at surcharge. May not be part of your installation. Contact Volume Graphics for details.
b Available for Windows and Linux operating systems only.
c Technology licensed from Fraunhofer EZRT Fraunhofer EZRT.
d Available for Windows operating systems only.
e Available for Windows and Linux operating systems only.
f Available for Windows and Linux operating systems only.

2 SYSTEM REQUIREMENTS

OPERATING SYSTEM

The software supports the following operating systems:

TABLE 2-1: SUPPORTED OPERATING SYSTEMS

PLATFORM	OPERATING SYSTEM
Windows:	Windows 10 Enterprise 64 bit Windows 10 Professional 64 bit

PROCESSOR

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

ARM and M1 processors are not supported.

- Recommended:
  Performant Intel or AMD multi-core processors, e.g., Intel® Core™ i7 or i9 or Xeon® Gold processors with 2.4 GHz or higher.

RAM

- Minimum:
  VGCORE requires a minimum of 4 GB memory. However, the actual 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.

GRAPHICS CARD

- Minimum:
  A dedicated 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 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 *System Requirements for CT Reconstruction* on page 5), may benefit from increased graphics card performance. For details, please contact your local VG Support.
  Onboard graphics chips are generally not recommended and should be thoroughly evaluated if no dedicated graphics card is available.

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.

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.

RECOMMENDED SETUP

Optimal for industrial usage is a PC with

- two current Intel® Xeon® processors and 32 GB RAM,
- 64-bit hardware,
- 64-bit operating system, and
- 64-bit version of VGCORE.

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

Depending on the intended use, VGCORE can be run as a distributed system in a network using network shares. In this case, performance is also dependent on network band width. Contact Volume Graphics if you need assistance in setting up a suitable network configuration.

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

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

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

3 SYSTEM REQUIREMENTS FOR CT RECONSTRUCTION

The optional **CT Reconstruction** module places some specific requirements on the graphics card and RAM. For other system hardware, please refer to the general system requirements listed above.

The **CT Reconstruction** module is available for Windows and Linux operating systems.

RAM

- Minimum:
  2 GB to run the reconstruction for very small data sets.
- Recommended:
  At least 4 GB.

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: 1024 * 1024 * 1024

size of one projection: 1024 * 1024

number of projections: 720

size of memory = (1024 * 1024 * 1024 * 4) + (1024 * 1024 * 720 * 4) = 7,314,866,176

This equates to 7,315 MB or 7.315 GB.

GRAPHICS CARD

CT reconstruction requires increased graphics card performance. It is recommended that you use at least two graphics cards 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.