



RealityCapture

Data Sheet

REALITYCAPTURE
TARASQUE 1.2.

3D MODELS, MAPS AND MEASUREMENTS MADE WITH PHOTOGRAMMETRY

Capturing data - Imports

- ◆ Images - in recognized file formats, like JPEG, PNG, TIFF, EXR, WEBP, BMP, DNG, RAW for all cameras with installed driver
- ◆ Frame captures from video files – in MPEG, AVI, ASF, QT, MOV, VMW
- ◆ Laser scans - in PTX, E57, PLY, ZFS and ZFPRJ
- ◆ 3D models - in OBJ, FBX, DXF, DAE
- ◆ Stereoscopic images from Leica BLK3D Image group
- ◆ Flights logs and ground control points, support of PPK/RTK data with precision
- ◆ Support of image masks and different layers for texture or from AI segmentation

Aligning – camera registration

- ◆ Automatic registrations of different inputs – photos and laser scans in one step
- ◆ Possibility to create georeferenced or scaled scenes
- ◆ Re-use of camera registrations using XMP metadata (e.g. with fixed camera setups)
- ◆ Detection of misaligned cameras within Inspect tool

Meshing

- ◆ Generation of watertight 3D meshes with custom detail
- ◆ Mesh editing tools – simplification, smoothing, closing holes, mesh cleaning
- ◆ Tools for checking and repairing model topology

Texturing

- ◆ Calculating vertex colors
- ◆ Creating UV maps with built-in unwrap tool
- ◆ Calculating model textures in UV and UDIMM format
- ◆ Re-projecting textures from high poly to low poly model
- ◆ Generation of normal and displacement maps

Orthophoto, DSM, DTM

- ◆ Creating georeferenced orthographic projections and maps
- ◆ Creating side and arbitrary projections
- ◆ Generation of DSM and DTM
- ◆ Creating sampled projections
- ◆ Creating and editing ortho mosaic

Sharing and Exports

- ◆ Direct upload to Cesium Ion and Sketchfab
- ◆ Export of sparse and dense point cloud - in XYZ, LAS, PTX
- ◆ Model export into standard formats - in OBJ, FBX, PLY, ABC, GLB, STL, 3MF, DXF, DAE
- ◆ Export of Level of Detail models and Cesium 3D Tiles - B3DM
- ◆ Reporting system – sharing of pre-defined or custom quality reports
- ◆ Exporting camera registrations, textures, ortho projections, DSM/DTM, contours

Measuring, Classification and Inspecting

- ◆ Automatic detection of coded targets, scene scaling and georeferencing
- ◆ Automatic conversion between different coordinate systems (EPSG database implemented)
- ◆ Distance, area, and volume measurements of arbitrary shapes and regions
- ◆ Sparse point cloud inspections – camera relations and scene structure uncertainty
- ◆ Dense point cloud AI classification
- ◆ Measuring custom height profiles
- ◆ Creating and exporting model cross sections

Automation and Integration

- ◆ Command line processing and scripting
- ◆ Batch processing outside command line using RealityCapture commands
- ◆ Sending command-line commands to an already opened RC instance
(possibility to use high-level programming language to control the program flow)

Industries

Surveying and aerial mapping

Using aerial photos and ground control points or PPK flightlog to create an accurate georeferenced model or a point cloud for mapping purposes. Exporting orthophoto map, DSM/DTM and quality report, as well as any cut/fill measurements. Tools as Map Wizard make the process simple so that even a beginner should be able to get a solid output without too much effort or having a steep learning curve.

VFX / Game industry

Hyper realistic assets created quickly and optimized well directly in RC using tools as filtering, simplify, smoothing, reprojection tool, clean model, and such. This can be automated with CLI scripting to produce assets fast enough; you produce easy integration in your pipeline.

Full body scanning and product scans

Best results in fastest time for 3D models created using camera rigs. Using CLI automation and camera registration XMPs to make things even faster and very cost effective.

Accident or crime scene recording

Recording the accident scene with unprecedented fidelity much faster than before. Provide evidence with accurate measurements in the scene. Realistic 3D scenes in VR provide efficient tool for training of forensic officers.

BIM and AEC

Create digital twins of building for planning reconstruction, new installation or for visual inspection of structure defects. The 3D Tiles export allows to use the result in any online inspection tool.

Manufacturing and 3D printing

Printing replacement parts easily by scanning the not documented original.

Cultural heritage conservation

Producing very detailed, 1:1 real world scale and proportionally correct models which suit as a perfect solution for preserving historical subjects.

Research and education

There are many possible ways of use in science. For medical purposes all the way to creating 3D model of tiny bacteria. Capturing Reality supports education with tailored licensing models.

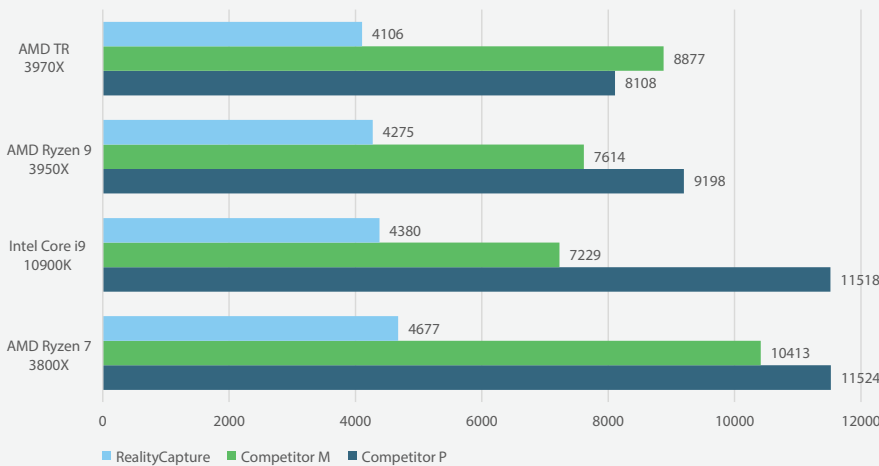
HW requirements and compatibility

- Local processing without size limitation, no cloud needed
- 64bit PC with at least 8GB of RAM
- 64bit Microsoft Windows version 7 / 8 / 8.1 / 10 or Windows Server version 2008+
- NVIDIA graphics card with CUDA 3.0+ capabilities and 1GB RAM

We recommend using a machine with at least 4 CPU cores, 16GB of RAM and 1024 CUDA cores. If you do not have the NVIDIA card, you will be still able to run the application and register images, you will not be able to create textured mesh.

CPU benchmark - Project processing time

758 photos, 18 Mpixels each, using the same GPU [seconds - lower is better]

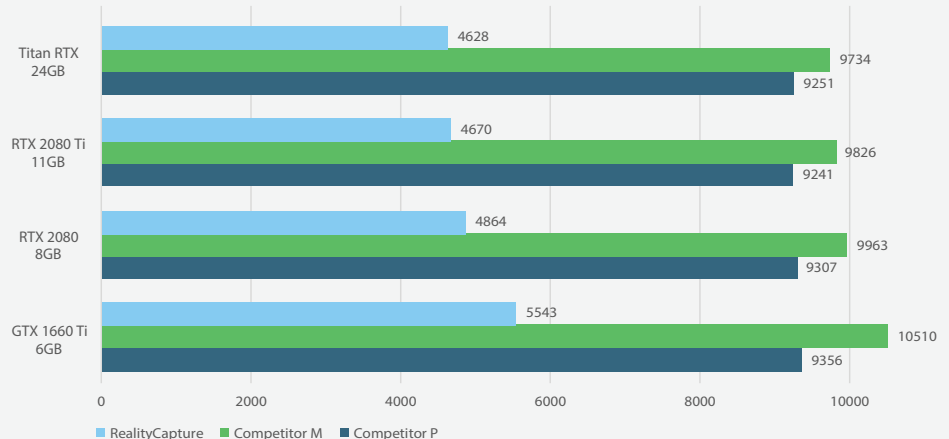


Benchmark

The benchmarks have been performed by Puget Systems, please refer to www.pugetsystems.com for more details or comparison with other products.

GPU benchmark - Project processing time

758 photos, 18 Mpixels each, using the same CPU [seconds - lower is better]



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