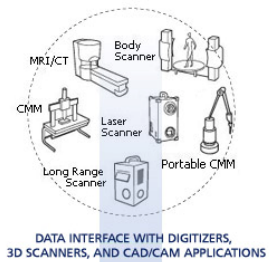


RAPIDFORM.DLL OVERVIEW

Rapidform.dll™ is the world's 1st Software Development Kit (SDK) for 3rd party 3D scanning application developers. It provides core functionality that enables developers of Rapidform.dll-based products to rapidly and robustly develop and market the industry-proven products. Based on industry-proven geometry computation technology, Rapidform.dll supports point cloud handling, 3D scan data processing, mesh optimization & modeling, curve/surface modeling, generalized reverse engineering functionalities within an integrated framework. Rapidform.dll's unsurpassed 3D geometry computation capabilities enable both application developers and end users to leverage high-performance, high-accuracy digital duplication technology across the multiple stages of today's product design and manufacturing. Rapidform.dll™ has been recognized globally for its accuracy by the German PTB, the American NIST and the British NPL.



DATA INTERFACE WITH DIGITIZERS,
3D SCANNERS, AND CAD/CAM APPLICATIONS

RAPIDFORM.dll

- Point/Mesh data structure and Memory management
- Geometry Computation engine
- Point/Mesh editing and modeling tools

YOUR 3D APPLICATION

RAPIDFORM.DLL TECHNICAL SPECIFICATIONS

Platform

- Microsoft Visual C++ 2003
- Microsoft Visual C++ 2005

Entities

Support various entity types for handling scanned point cloud/mesh data and for creation of NURBS curves/surface data.

- Point Cloud (Vertex), Triangular Mesh (Face, Edge, Vertex), NURBS Curve/Surface

Primitives

Support various geometry types used for referencing and calculation.

- Point, Vector, Plane, Coordinate, Circle, Sphere, Cylinder, Cone, Box, Torus

Geometric Calculation APIs

Support various methods for geometry evaluation.

- Distance calculation between geometries
- Comparison between geometries
- Fast geometry intersection evaluation
- Projected geometry calculation
- Eigen system calculation
- Extracting various geometries from scanned data by least-square fitting method

File I/O

Support various scanner formats and neutral formats for importing and exporting.

Import Format

- RapidForm Model File (*.mdl)
- RapidForm Points File (*.pts)
- RapidForm Polygons File (*.fcs)
- Ascii Points File (*.asc)
- 3D Studio File (*.3ds)
- AutoCAD DXF File (*.dxf)
- CyberWare File (*.ply)
- Inventor 1.0 ASCII File (*.iv)
- STL File (*.stl)
- VRML 1.0/97 File (*.wrl)
- OBJ File (*.obj)
- Hymarc File (*.hym)
- Vivid File (*.vvd, *.cdk, *.cdm, *.cam)
- Steinbichler File (*.ac)
- GOM File (*.view, *.cloud, *.g3d)
- Kreon File (*.cbk, *.grk, *.cwk)
- 3D Digital Corp. File (*.pmj, *.pmjx)
- IGES File (*.iges, *.igs)
- INUS Compression File (*.icf)
- Breuckmann File (*.bre)
- EOIS File (*.xyz, *.txt)
- 3D Scanners File (*.sab, *.sab2)
- 3DS MAX Ascii Export File (*.ase)
- NEC Range Finder File (*.nrf, *.ntf)
- STEP File (*.step, *.stp)
- VDAFS File (*.vda)
- Cyra File (*.pts, *.ptx)
- Scantech File (*.stb)
- Surf File (*.surf)
- PICZA File (*.pix)
- Opton File (*.xyz, *.crs, *.lin, *.smh, *.bin)
- Perceptron File (*.swl, *.swb, *.bin)
- DeltaSphere File (*.rtpi, *.xyzi, *.xyzrgb)
- ShapeGrabber File (*.3pi)
- Mensi File (*.soi)
- Solutionix File (*.icv, *.snx)
- Wicks and Wilson File (*.tfm)
- iQvolution File (*.iqscan)
- Riegl File (*.3dd)
- Optimet File (*.opd)

Export Format

- RapidForm Model File (*.mdl)
- RapidForm Points File (*.pts)
- RapidForm Polygons File (*.fcs)
- Ascii Points File (*.asc)
- STL File (*.stl)
- 3DS File (*.3ds)
- OBJ File (*.obj)

- IGES File (*.igs)
- STEP File (*.stp)
- INUS Compression File (*.icf)

Scan Data Processing Functions

Pre-processing

- Filter Noise
- Filter Redundancy
- Uniform Sampling

Alignment

- Quick Align
- Global Align

Mesh generation

- Projection Based Triangulation
- General Unorganized Data Triangulation
- Optimization Based Triangulation
- Combine Shells
- Merge Vertex Shells

Post-processing

- Mesh hole filling
- Decimation
- Remeshing
- Healing

Wizard process support

Creates a defect-free and watertight mesh model, its resolution is controllable, from imported point cloud or mesh data. You can combine several mesh processing functions as you want.

- Mesh Generation Wizard

NURBS Functions

- Create Slice Curve
- Auto Surfacing from Mesh Data: automatically creates surfaces covering mesh data

Inspection Functions

- Deviation calculation among multiple meshes
- Deviation calculation between 2 meshes or between mesh and surface set

GETTING HELP

Technical Support

If you have any questions, please email at dllsupport@rapidform.com