

2006 Laser Scanning & Manipulation of Point Cloud Data Vendor Guide

March 2006



Stated simply, welcome to our 2006 Reverse Engineering Roundup!

We are pleased to bring you a collection of providers, including software, products and services. Whether you are involved with this technology using Real-Time Laser Probe Surface Inspection, light radar, normal scanning or if you're just starting out, you'll find complete contact information for these vendors inside this definitive *Laser Scanning and Manipulation of Point Cloud Data Vendor Reference Guide*. We're also proud to bring you two informative articles contributed by leaders in this field linked below.

Articles associated with this Roundup:



Accident Investigation

[Watching the Detectives](#)

"When accident evidence gets blurry, PhotoModeler finds the clues." Enjoy this fun and informative tidbit, part of our Laser Scanning & Manipulation of Point Cloud Data Roundup.



[Reverse Engineering Direct into CAD](#)

In line for new and innovative ideas in Reverse Engineering? Mark Roberts writes this explanation of a functional, yet easy plug-in as part of our Laser Scanning Roundup.

Data provided on the following pages was compiled using submissions from participating companies. It is not exhaustive and does not include all products and services available from each company. We have, however, attempted to include the major software solutions and services. ConnectPress, Ltd. cannot guarantee the accuracy of this data. We suggest you contact the participating companies for details, particularly to confirm technical specifications.

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	Delcam	Direct Dimensions	Geomagic Raindrop
Name of your product or service.	CopyCAD reverse engineering software	FaRO Tech: Faro Arm, ScanArm, LS Scanner; Konica Minolta: VIVID; Kreon: Zephyr Geomagic, PolyWorks RapidForm, Imageware	Geomagic Studio, Geomagic Qualify, Geomagic Blade
What market(s) are you in? (Mechanical, structural, etc.)	Mainly mechanical but also in re-creation of historic artifacts	Virtually all markets RE: aero/auto, consumer product, medical, art/sculpture, legal/forensics, visualization, analysis, product development, etc.	Digital Shape Sampling and Processing, Automotive, Aerospace, Turbine Machinery, BioMedical Devices, Discrete Manufacturing
Main type(s) of services performed? (up to 4)	Tooling repair, Repair of aerospace components, especially blades, Creation of CAD data from physical models and prototypes, Re-creation of historic artifacts	Laser Scanning Data Acquisition; Rapid 3D Digital Modeling; Highly Engineered – Reverse Engineering; 3D Visualizations	Digital Shape Sampling and Processing, 3D scanning, Modeling, Inspection
What other product(s) do you offer? (up to 4)	PowerSHAPE CAD software, PowerMILL CAM software, PowerINSPECT inspection software, ArtCAM engraving and routing software	Hardware and Software Training and Support; Rapid Prototyping services; Visualization services; Product Acquisition consulting services	e-Shell: Hearing Aid Manufacturing Software e-Dent: Dental CAD/CAM software; Geomagic Review: Collaboration Software AutoScan: Robotic inspection
Is your product a pre-processor, modeler, solver, post-processor, library of elements, or complete solution?	Complete reverse engineering solution	Complete solution!	Complete solutions or standalone applications and core technology as enablers to technology OEM partners.
If a solver or complete solution, how many solvers do you offer?	One solver	N/A	4 complete solutions.
How many different element types do you offer?	Four	STL files; Nurbs files Iges files; Native CAD	N/A
Is your product integrated with any CAD systems? Which?	Full integration with Delcam's PowerSHAPE CAD system. Works with other main CAD systems via IGES	Yes, SolidWorks and Mechanical Desktop CAD	Yes
Does it have its own scripting language for automating tasks?	Yes	N/A	Yes
How big a model can your software/product handle?	Up to 40 million points	Many millions of triangles!	200 million plus point clouds mgmt tools
What material properties can your software handle? (Metal, plastic, wood, etc.)	N/A	N/A	We can model any physical part, regardless of material.
Is there training/support available for your product?	Yes, available from 150 Delcam resellers worldwide	Yes and we provide	Yes, training is offered either in the classroom, or customized onsite, and available around the world.
Price for full software solution? Price for starter software?	\$12,000 / \$4,500	See catalog, but generally start at \$15K, normally \$50-75K, can be \$150K or more	Varies.
Company Web address	http://www.delcam.com	http://www.directdimensions.com	http://www.geomagic.com
Contact name	Richard Barrett	Michael Raphael	Adeline Chan
Contact e-mail	marketing@delcam.com	info@dirdim.com	achan@geomagic.com
Contact phone	(44) 121.766.5544	410.998.0880	800.251.5551

	Mahr Federal	Metris	Penske Tech. Group
Name of your product/service. (Specify)	Mahr Multisensor	CMM based laser scanners; Articulated arm scanners; Optical CMM Scanning; Application software for pointcloud applications	Reverse-engineering with FARO Arm & Envision laser scanner + full-vehicle scanning with ATOS white light photogrammetry scan
What market(s) are you in? (Mechanical, structural, etc.)	Medical; Electronic; Automotive	Automotive; Aerospace; Heavy industry; Medical; Entertainment, Heritage; Design&Manufacturing industry	Motorsports, aerospace, military, consumer products
Main type(s) of services performed? (up to 4)	Metrology support for coordinate measurement of dimensional aspect of parts; Point cloud for reverse engineering	Digitizing; Part to CAD Inspection; Reverse Engineering;Retrofitting on existing CMMs to upgrade for 3D scanning	Scanning, surfacing cars, trucks, aircraft, etc. Reverse-engineering of suspension points on race cars and other vehicles.
What other product(s) do you offer? (up to 4)	Topographical surface texture measurement; whitelight surface texture measurement; contact measurement dimensional metrology dimensional systems	Coordinate Measuring Machines: LK Horizontal & Bridge CMM; Coordinate Measuring Machine software LK CAMIO (point application software); Laser Radar for large volume Metrology Indoor GPS for large volume or company wide tracking and positioning	Wind tunnel testing, 7-post vehicle dynamic testing, vibration simulation, engineering design and consulting services
Is your product a pre-processor, modeler, solver, post-processor, library of elements, or complete solution?	Compile full solution, from unknown sample to complete model.	Metris solution is a complete solution, from Scanning to Analysis, both in portable as fixed bed configuration; also available as libraries for integration with 3 rd party CMM software package	Not supplied
If a solver or complete solution, how many solvers do you offer?	Not sure what solvers are being requested.	Not supplied	PTC ProEngineer WildFire 2.0; HighRES, Inc (reverse-it.com); Raindrop Geomagic; ICEM Surf
How many different element types do you offer?	Support all standard elements.	Not supplied	Not supplied
Is your product integrated with any CAD systems? Which?	Yes	Possible to import/export CAD file; pointclouds resulting from scans can be used in 3 rd party application packages for Reverse Engineering or Inspection	PTC Pro Engineer WildFire 2.0
Does it have its own scripting language for automating tasks?	No	Automation is a key asset in our Focus Inspection software.	Not supplied
How big a model can your software/product handle?	Varies	This is mainly determined by PC power. Models up to 10.000.000. points have been calculated	Not supplied
What material properties can your software handle? (Metal, plastic, wood, etc.)	N/A	Scanning is possible of every material (Metal, plastic, wood, stone, etc.)	Not supplied
Is there training/support available for your product?	Yes	Not supplied	Not supplied
Price for full software solution? Price for starter software?	Varies	Range from competitive single seat software suites to complete scanning and solution and integrations.	Not supplied
Company Web address	http://www.mahr.com	http://www.metris.com	http://www.pensketechlogy.com
Contact name	Orlando Vera	Renaat Van Cauter	John Moloney & Josh McCormick
Contact e-mail	Orlando.vera@mahr.com	rvca@metris.com	jmoloney@pensketechlogy.com
Contact phone	See Website	+32 16 74 01 01 US: 248.853.6907	704.799.2500

	Reverse IT	Romer CIMCore	ZCorp/Contex
Name of your product/service. (Specify)	HighRES HIPP (HighRES Integrated Point Processor)	Laser Scanning Inspection System utilizing the INFINTE portable CMM.	Wide Format Scanners and 3D Printing (see attached matrix of products)
What market(s) are you in? (Mechanical, structural, etc.)	Reverse Engineering and Inspection	Our equipment is used worldwide in automotive, aerospace and general industrial markets.	CAD – Mechanical, Architecture, Engineering, Design, GIS, Etc.
Main type(s) of services performed? (up to 4)	Reverse Engineering and Inspection	Manufacturing portable CMMS and contract inspection service	Wide Format Scanning and 3D Printing, Scan to Print, Network Interoperability
What other product(s) do you offer? (up to 4)	Portable CMM s and software bundle	PowerINSPECT software (inspection and reverse-engineering), DOCS software (tube inspection), GridLOK for large volume measurement, STINGER II portable CMM.	3D Printers the DESIGNmate Cx 3D Color and Mx 3D Monochrome Printers, Software Scan Applications see website
Is your product a pre-processor, modeler, solver, post-processor, library of elements, or complete solution?	Integrated Plug -in to Solidworks, Ugs NX, Solid Edge, mastercam, Inventor, AutoCAD, Mechanical Desktop, Pro/E Wildfire	Complete solution.	N/A
If a solver or complete solution, how many solvers do you offer?	Complete solution	Not supplied	N/A
How many different element types do you offer?	N/A	Not supplied	N/A
Is your product integrated with any CAD systems? Which?	Integrated Plug -in to Solidworks, UGS NX , Solid Edge, Mastercam, Inventor , AutoCAD, Mechanical Desktop, KEY CREATOR	VDA, IGES, CATIA, CADDs, SET, UNISURF, VDAFS, PARASOLIDS, PRO/E, STEP, UGS, SOLIDWORKS, STL	Yes, Autocad (free plug-in) and Raster to Vector Conversion Utilities
Does it have its own scripting language for automating tasks?	Not supplied	Yes	Not sure, but we can batch scan?
How big a model can your software/product handle?	Full scale submarine	Size is hardware-dependent.	(See 3D attachment for specifications)
What material properties can your software handle? (Metal, plastic, wood, etc.)	All materials / no limitations	Nearly any	N/A
Is there training/support available for your product?	3 day and 5 day hands on training	Yes	Yes, through our distribution channels
Price for full software solution? Price for starter software?	\$16,995 / \$5295	Pricing is dependent on application.	Solutions pricing varies by partner.
Company Web address	http://www.reverse-it.com	http://www.romer.com	http://www.contex.com
Contact name	Christiann Moore	Rob Martin	Robert A. Gonzales
Contact e-mail	christiann@reverse-it.com	sales@romer.com	rag@contex.com
Contact phone	858.488.5231	800-218.7125	703.925.2316