July 2008 Technology Guide
Tech Source Guide | CAD/CAM

CAD/CAM Central

Continued developments into innovative systems, equipment, software, and business models allow labs to invest in the components that best fit their own operations and their client base, including outsourcing all or part of the casework.

To download CAD/CAM charts, click here.

OPEN

3D Systems
ProJet DP 3000
The ProJet DP 3000 3D Production System comprises an optical scanner and the 3D printing unit, which can output as many as 100 single units in a printing cycle. The VisiJet DP 200 wax material features a smooth surface finish, burns out of investments without ash, and can be used in conjunction with traditional laboratory waxes.

803-326-3900
www.3dsystems.com

3Shape
D-640
Using advanced optical scanning technology, the D-640 scanner projects thousands of laser planes onto the object being scanned while two high-resolution digital cameras acquire images of the laser line reflections to calculate a precise, fully surfaced 3D model. 3D files can be saved and exported in a number of standard formats, such as STL.

info@3Shape.com
www.3Shape.com

Delcam
DentMILL
DentMILL stand-alone software solution interfaces directly with all industry-standard dental design
software, scanners, and milling units for creating crowns, bridges, and partial and full implant bridges in titanium and ceramics. Available later this year, the DentCAD design module will work with the DentMILL open software for a complete dental CAD/CAM package.

**EOS**
**EOSINT M270**
Using Direct Metal Laser Sintering technology, the EOSint M270 rapid prototype printing system laser-sinters batches of CoCr single units, bridge frameworks up to 6 units, implant abutments, and partial denture frameworks. The unit can print 400 to 500 units a day and is available as an in-house option or through a centralized outsource center.

**Geomagic**
**Piano**
Based on Geomagic's agile platform, the robust, automated, and customizable Piano software provides an open interface with all 3D scanning, milling, waxing, and rapid prototyping systems. The module is the first of a series of software solutions for CAD/CAM, virtual work models, custom implant abutment design, and digital full-contour restorations.

**SensAble Technologies**
**SensAble Dental Lab System**
Comprised of a 3D optical scanner, 3D wax printer, and a PHANTOM Desktop 3D "touch" interface, the SensAble system offers a natural and intuitive transition from existing waxup skills to a digital format. It integrates scanning, designing, and fabricating single units, bridges, wax/resin models, and partial denture frameworks.

**imagen**
**RX-D**
The RX-D 3D metal printer digitally manufactures copings and bridges from CAD-produced virtual waxings generated from 3D scans. The printer freeform fabricates copings and bridges by layering high-noble alloy powders (87% gold imagenBright, 67% gold imagenNatural); once printed, the units are infiltrated and finished. The system can produce up to 200 units per day.
Open Laser Systems
Laserdenta OpenScan
The OpenScan 5-axis laser line scanner handles single dies in 90 seconds to a full arch in 7 to 15 minutes. OpenCAD design software designs waxups, copings, anatomical and full-coverage crowns, bridges, custom implant abutments, and surgical guides. Output can be to any STL-compatible 3D printer, CAD/CAM milling system, or outsource center.
781-297-3552
www.openlaser.com

Schütz Dental Group
TiZian CAD/CAM
The TiZian CAD/CAM system comprises the TiZian Scan 3D white light optical scanner, TiZian Creative design software, TiZian Mill 4-axis milling unit, and TiZian Sintering Oven furnace. The system uses the same milling block system as its sister TiZian Mill non-CAD/CAM milling unit, which allows colorization of zirconia frameworks before sintering.
866-922-1484
www.schuetz-dental.com

Zahn Dental
Envisiontec DDP
Creating physical wax/resin patterns from virtual 3D designs, the Envisiontec DDP rapid prototype 3D printer fabricates single copings, bridges up to 4 units, inlays/onlays, full-coverage crowns, veneers, and wax/resin models using Digital Light Processing technology. Castable single wax forms can be printed in approximately 2 hours.
800-496-9500
www.zahndental.com

Evirsa Inc.
NEO Open Dental CAD
The NEO Open Dental CAD software suite integrates with STL digital scanners, CNC milling machines, and rapid prototype manufacturing equipment. The NEO Frameworks Design software module affords design control; STL files are then sent to a production center. The NEO Anatomy Design module has a high-resolution library for designing press or cast forms.
Zahn Dental
Dental Wings DWOS
Offering closed integration security, the DWOS Dental Wings Operating System platform is built to specifications for the Dental Wings Dental Wings Scanner and Noritake Katana, Wieland Zeno, and Envisiontec systems. The scanner lets users design implants and implant abutments with customized emergence profile and anatomy support.
800-496-9500
www.zahndental.com

Digital Dental Lab
DentalMill
The Digital Dental Lab CAD/CAM system unites scanning and design software from 3shape, DentMILL CAM software, and the DentalMill milling machine. The DentalMill milling unit comes with an automatic tool measurement, integrated vacuum system, three-button PC interface, touch-screen monitor, and 10-position tool changer.
949-395-3613
www.digitaldentallab.com

CAD BLU
CAD BLU Restoration System
The CAD BLU Restoration System features the MDX-4GATC wax milling unit, which is capable of milling a single coping in less than 6 minutes using a 98-mm wax disk. The 4-axis milling unit produces a single unit in 15 minutes for a total per-day output of 25 single units, 16 three-unit bridges, and 45 single wax/resin forms.
212-481-8700
www.cadblu.com

3M ESPE
LAVA Precision Solutions
By partnering with select digital manufacturers, 3M’s new “selectively open” architecture initiative will provide Lava investors with a wider range of services from 3D model printing to milling full-coverage crowns and custom implant abutments. Three business models provide lab owners with flexible entry into CAD/CAM technology.
800-634-2249
www.3MESPE.com/lava
Sirona Dental
Sirona inLab
The inLab CAD/CAM system comprises a scanning/milling unit with built-in design software or a stand-alone inEOS scanner for use with the integrated scan/mill unit or with the dedicated inLab MC XL milling unit. Labs registered with the CEREC Connect portal also can receive digital impression data for in-house or outsource production.
866-INLAB-4U
www.inlab.com

Dentsply Prosthetics
Cercon
Comprised of the Cercon Eye scanner, Cercon Art CAD design software, Cercon Brain milling unit, and Cercon Heat sintering furnace, the Cercon CAD/CAM system offers three business models, all of which center on investing in the Cercon Eye scanner/design software for in-house or outsource production of restoration structures.
800-877-0020
www.allceramiccrowns.com

KaVo Dental
EVEREST
An economical entry-level option for high-production laboratories, the 4-axis EVEREST Base Camp milling unit is upgradable to the larger 5-axis EVEREST miller. The system also includes the EVEREST Scan Pro 3D white stripelight optical scanner and second-generation software with the ability to design custom implant abutments.
888-275-5286
www.kavo-everest.com

Wieland Dental
Zeno
The Zeno 2100, 4030 M1, and 4820 M1 CAD/CAM units mill single units, full-coverage crowns, wax/resin forms and models, bridges up to 14 units, veneers, inlays/onlays, and implant abutments. The primary difference is production capacity: The 2100 mills 50 units a day; the 4030 M1, 80 to 100 units a day; and the 4820 M1, 120 units per day.
866-876-0885
www.wieland-dental.de

Zirkonzahn
5-tec
The 5-tec system comprises a 3D white light optical scanner, design software, 5-axis milling unit, and sintering furnace. The system scans and mills single units, bridges up to 14 units, and full-coverage crowns as well as wax/resin patterns and models in a range of materials including pre-sintered zirconia, In-Ceram, ceramic, and resin/wax.
800-989-8931
www.zirkonzahn.com

OUTSOURCE OPEN

Custom Milling Center
CMC offers the open-architecture Dental Wings scanner with new Dental Wings Operating System. Design data generated by the DWOS is compatible with the Nortitake Katana and Wieland Zeno milling units or with the Envisiontec DDP 3D wax rapid prototyping system. CMC also offers similar business model options for the HintEis scanning and milling technology.

877-933-6455
www.custom-milling.com

Dale Dental
Among Dale Dental’s closed- and open-architecture offerings offered exclusively to labs are understructures for Captek, Cercon, Empress, Etkon, EVEREST, In-Ceram, Katana, Lava, PFM copings, Procera, and WolCeram as well as BioCad one-piece, titanium CAD/CAM implant bars and CAD/CAM custom abutments for a wide range of platforms in both titanium and zirconia.
888-GET-DALE
www.DaleDental.com

Cynovad Inc.
Ovaline
In addition to sending models or single dies to the centralized outsource center for scan, design, mill, and sinter, labs can purchase the open-architecture 3D laser optical white light OvaScan or i3 Evolution scanners and send data electronically to the milling center or purchase all system components for complete control over all phases of production.
514-337-1444 Ext. 365
www.cynovad.com

Espritdent
The Espritdent centralized outsourcing center combines the Elite multi-axis motion scanner system and design software that incorporates automatic margin line detection, removes undercuts, and provides extensive on-screen waxing capabilities with manufacturing capacities. Alternatively, labs can send models to the center for scan, design, and mill services.
877-832-0217
www.espritdent.com

Glidewell Direct
Prismatik Clinical Zirconia
Glidewell allows laboratory outsource customers to send single dies or models for the scan, design, and milling processes, to become a Prismatik CZ Remote Design Center with in-house control over the scan/design process, or to purchase the entire system including scanner with design software, milling unit, and sintering furnace.
888-303-6470
www.glidewelldirect.com

Laboratory Solutions
Offering 3M ESPE Lava, Sirona Cerec inLab, Nobel Biocare Procera, Wieland Zeno, Ivoclar IPS e.max, Glidewell Prismatik CZ, and Kavo EVEREST, Laboratory Solutions mills zirconia crown copings and bridge frameworks.
and provides labs with specialized training. The center also offers Captek, composite restorative solutions, full-contour wax patterns as well as custom implant abutments in titanium and zirconia.
800-468-3319
www.nilabsolutions.com

**Preat Corp.**
**ISUS Design & Milling Center**
ISUS allows labs to send cases to the center for scanning, framework design, and fabrication, or they can use an open-architecture scanner for in-house scan/design and send data to the center for milling of custom implant bridges to 14 units, implant bars, bars with attachments, implant abutments, and hybrid cases from zirconia, titanium, non-precious metal, or ceramic.
800-232-7732
www.preat.com

**U-Best Dental Technology**
**TDS Milling Center**
Cut and trimmed models of single dies can be sent to TDS Milling Center for scan, design, and milling, or labs can use an open-architecture scanner and send design data to TDS for milling. TDS offers 5-axis milling from singles to up to 14 units and cover from coping, crown, veneers, and inlay/onlay in presintered zirconia.
866-686-1899
www.ubestdental.com

**Sun Dental Labs**
**Suntech**
Through the Suntech outsource center, laboratories can send dies or models for scanning, design, milling, and sintering, or they can purchase a 3Shape scanner and send design data electronically to the milling center for the fabrication of single copings, bridges up to 16 units, full-coverage crowns, and custom implant abutments as well as wax/resin forms.
866-561-9777
www.suntechdental.com

**Whip Mix**
**Vericore**
In addition to full-service outsourcing, the Vericore outsource center offers labs the option to purchase the 3D laser/optical scanner with design software and send scan/design data to the center electronically. Vericore offers 5-axis milling of single-unit copings and bridges to 14 units in cold isostatically pressed Metoxit zirconia.
866-301-9801
www.whipmix.com

**3M ESPE**
**Authorized Lava Milling Centers (ALMCs)**
Complete outsourcing to ALMCs allows

OUTSOURCE CLOSED
labs to offer Lava restorations without investing in hardware or software. In becoming an Authorized Lava Design Center (ALDC), labs purchase the Lava Scan ST Design System to scan and design substructures and send the file electronically to an ALMC for milling and sintering.

800-634-2249
www.3MESPE.com/lava

**Cytina Center Inc.**
**Cytina CAD/CAM**
The Cytina outsource center offers a variety of services for purchasers of the Cytina 3D laser scanner with CytinaCAD design software, including single units, full-coverage crowns, bridges up to 7 units, inlays/onlays, custom implant abutments, and veneers in BioZyrum zirconia or ceramic as well as wax/resin models and CytinaGuide surgical implant guides.

425-765-9400
www.cytina.nl

**Dentsply**
**Comparts**
Established exclusively for users of the Cercon Eye scanner and Cercon Art CAD, Comparts USA’s centralized outsource center provides the flexibility to optimize the framework design in-house and send the scan data electronically to the center for milling zirconia single units and bridges up to 9 units or wax/resin forms for pressing or casting.

800-877-0020
www.allceramiccrowns.com

**Nobel Biocare**
**Procera**
Integrating CAD/CAM technology with industrial production, the Procera system delivers single units, bridges up to 14 units, veneers, implant abutments, and the Procera Implant Bridge in zirconia, alumina, or titanium. Labs use the Piccolo or Forte (pictured) scanner for in-house control of the scan/design process and send design data to the production facility.

800-993-8100
www.nobelbiocare.com

**Sirona Dental**
**infiniDent**
Exclusively for Sirona inLab and inEos users, the infiniDent production center enables users to expand services via a rapidly growing menu of materials and indications. Users upload digitally scanned framework designs to the infiniDent fabrication center for milling, laser sintering, or 3D printing of substructures in a wide range of materials.
Straumann USA
Etkon
The Etkon/Straumann outsource center revolves around purchase or lease of the es1 scanner, which handles single dies, full-arch models, waxups, cut and trimmed models, implant abutments, and bite registrations for milling single units, full-coverage crowns, bridges, veneers, inlays/onlays, implant abutments, and wax forms.
817-701-1181
www.etkonusa.com

Amann Girrbach
Ceramill
The compact Ceramill Base System milling unit produces high-precision zirconia frameworks for crowns and bridges in-house quickly and easily via the pantograph principle to transfer forms via a combination of an interconnected probe head and milling head. Using a process similar to modeling with wax, it requires no special technical knowledge.
800-851-3719
www.amanngirrbach.com

GlobaLink Solutions Dental
ELC-One
Suited for a smaller lab operation, the ELC-One system uses an ELC electrophoretic deposition process to place particles of VITA In-Ceram alumina/zirconia material on a master die, resulting in single copings and 3-unit bridge substructures. It offers easy operation with fast setup and breakdown and a quick return on investment.
877-446-6475
www.glsdental.com

Zirkonzahn USA
Zirkograph ECO
The Zirkograph ECO copymill unit produces single copings, bridges up to 16 units, inlays/onlays, full-coverage crowns, and implant abutments from presintered zirconia blocks, ceramic, or resin/wax materials. A spring carrier facilitates use, LED lamps light the workspace, and a two-duct air connection provides effective suction.
800-989-8931
www.zirkonzahn.com

Schütz Dental Group
TiZian Mill
Described as easy to learn and operate, the TiZian Mill copymilling unit produces frameworks for single copings, bridges up to 16 units, and implant abutments out of pre-sintered TiZian zirconia milling blocks in six
different shades. Milling takes just 15 minutes per unit. The device compensates for sintering shrinkage during the milling process.

866-922-1484
www.sdginnovations.com

**Zahn Dental**

**C. Hafner**
The economical C. Hafner CeHa ECS unit employs an electrophoretic deposition process to deposit ceramic particles onto a die, creating a VITA In-Ceram alumina framework in less than 2 minutes. Ceramic slurry is premixed and transferred to the unit, then the die is submerged into the slurry and withdrawn, creating the coping.

800-496-9500
www.zahndental.com

**Schick Dental**

**Z-System**
The compact, economical Z-System zirconia copymilling unit uses C3 motor technology with a high-precision, high-torque chuck for smooth operation; it integrates the touch spindle and milling spindle side-by-side on the same arm. It also includes a blow-out hose, proprietary LED lighting integrated into the spindles, and an integrated armrest.

800-921-3177
www.schickdentalusa.com

**Atlantis Components Inc.**

**Patient-Specific Abutments**
Atlantis Components accepts either data from a scanned dental model created from an implant-level impression and sent to the company by the laboratory or from CAT scan digital information. The data is fed into the company’s powerful 3D computer software for abutment design. Compatible with 90% of the implant systems on the market in the United States, the software designs the optimal abutment to fit the edentulous space, and transmits the design information to a milling unit that creates the patient-specific titanium or zirconia custom abutment. Individual preferences also can be incorporated into the software design. Model work along with the completed abutment is returned to the lab for crown fabrication within two to three days of receipt.

877-828-5268
www.atlantiscomp.com

**BIOMET 3i**

**ARCHITECT PSR ENCODE SYSTEM**
The Encode healing abutment indicates the level of an implant in relation to the soft tissue and bone, healing abutment dimensions, and hex orientation. A supragingival impression with the healing abutment is sent to the lab where the model is poured,
sectioned, and pinned. The articulated case is returned for scanning, virtual abutment design, and milling from titanium for external-hex implant systems and for internal-hex Certain implants as well as titanium bars.

800-342-5454

www.biomet3i.com